

Report of the Meeting of WOAH Terrestrial Animal Health Standards Commission

Original: English (EN)

3 to 13 February 2026
Paris

Introduction and Members contribution

This report presents the work of the WOAHS Terrestrial Animal Health Standards Commission (hereinafter 'Commission') which met in Paris, France from 3 to 13 February 2026.

The Commission wished to thank the following Members for providing written comments for the WOAHS *Terrestrial Animal Health Code* (hereinafter '*Terrestrial Code*'): Australia, Canada, Chile, China (People's Republic of), Chinese Taipei, Colombia, Japan, Korea (Republic of), New Caledonia, New Zealand, Singapore, Switzerland, Thailand, Türkiye (Republic of), the United Kingdom (UK), the United States of America (USA), the African Union Inter-African Bureau for Animal Resources (AU-IBAR), Member States of the European Union (EU) and the Presidency of the Permanent Veterinary Committee of the Southern Cone (CVP). The Commission was encouraged by the more substantive and broader range of contributions received from Members and regional groups though it reiterated the importance of all WOAHS Members across all regions actively commenting and participating in the standard-setting process. The Commission also wished to thank the International Coalition for Animal Welfare (ICFAW) and the World Renderers Organization (WRO) for their comments, and acknowledged the valuable advice and contributions provided by numerous experts from the WOAHS scientific network.

The Commission considered all comments submitted prior to the deadline that were aligned with the [Guide for WOAHS Members and International Organisations on submitting comments during the process for the elaboration of WOAHS International Standards](#) (the 'Guide').

The Commission made amendments to draft texts, where relevant, in the usual manner of 'double underline' and 'strikethrough'. In the relevant annexes, amendments proposed at this meeting are highlighted in yellow to distinguish them from those circulated previously. The Commission noted that amendments concerning the order of safe commodities as presented in Article 2 of the relevant chapters were not marked in the usual manner, except where additions or changes to the commodities were proposed.

Annexes

Annex 3 is presented for information only, and includes comments submitted by Members and International Organisations that were considered by the Commission, and its responses.

Texts in **Part A** (**Annexes 5 to 17**) are presented for comments and will be proposed for adoption at the 93rd General Session in May 2026. Texts in **Part B** (**Annexes 4 and 18 to 33**) are presented for comments only.



World Organisation
for Animal Health
Founded as OIE

Standards Department
[TCC.Secretariat@woah.org]

12, rue de Prony
75017 Paris, France

T. +33 (0)1 44 15 18 88
F. +33 (0)1 42 67 09 87
woah@woah.org
www.woah.org

How to submit comments

The Commission strongly encourages WOAAH Members and International Organisations with a WOAAH Cooperation Agreement to participate in the development of WOAAH International Standards by submitting comments on relevant topics and annexes of this report. Their engagement in the standard-setting process through the submission of comments is critical to ensure that standards are based on the latest scientific and technical data, reflect the different contexts of Members and stakeholders, and are feasible to implement. To ensure that comments are considered, they should be submitted in the format described in the [Guide](#) and the [Standard Operating Procedure for WOAAH Members and International Organisations to submit comments during the process for the elaboration of WOAAH International Standards](#) (SOP) available on the Delegates' website and the WOAAH public website.

Comments that are not correctly formatted as described in the [Guide](#) and [SOP](#), including those that do not include a supporting rationale may be excluded from consideration by the Commission. Any questions on the requirements for formatting and submission of comments should be sent to TCC.Secretariat@woah.org

Other relevant reports

The Commission reminded Members that its report may reference work and discussions of the Scientific Commission for Animal Diseases (the Scientific Commission), the Biological Standards Commission, the Aquatic Animal Health Standards Commission, a Working Group or an *ad hoc* Group when these groups have addressed specific topics, comments or questions requested by the Code Commission. In such cases, the responses or proposed amendments and their rationale are provided in the respective report of the relevant group. Members are therefore strongly encouraged to review the relevant report(s) together with the report of the Code Commission.

These reports are available on dedicated webpages on the WOAAH website, e.g., for [Specialist Commissions reports](#), for [Working Group reports](#) and for [ad hoc Group reports](#).

Deadline for comments

Comments on relevant texts in this report (Part B) must be received by **3 July 2026** to be considered by the Commission.

Where to send comments

All comments should be sent to TCC.Secretariat@woah.org

Date of the next meeting

The Commission noted that the dates for its next meeting: 8 to 17 September 2026.

1. Welcome	7
1.1. Director General	7
1.2. Deputy Director General-International Standards and Science	7
1.3. Transparency of commenting – phased approach	8
2. Adoption of the agenda.....	8
3. Cooperation with Other Specialist Commissions	8
3.1. Scientific Commission for Animal Diseases	8
3.1.1. Bureaux meeting.....	8
3.1.2. Case definitions	9
3.2. Biological Standards Commission	10
3.3. Aquatic Animal Health Standards Commission.....	10
4. Work Programme.....	11
4.1. Ongoing priority topics (other than texts circulated for comments).....	12
4.1.1. Chapter 4.7. Collection and processing of bovine, small ruminant and porcine semen	12
4.1.2. Revision of Chapter 4.14. General recommendations on disinfection and disinsection	12
4.1.3. Chapters on certification procedures (Chapters 5.1., 5.2. and 5.10. to 5.13.)	13
4.1.4. Revision of Chapter 6.8. Harmonisation of national antimicrobial resistance surveillance and monitoring programmes.....	13
4.1.5. Japanese encephalitis (Chapter 8.10.).....	14
4.1.6. Chapter 8.21. West Nile Fever	14
4.1.7. Revision of Chapter 14.7. Infection with peste des petits ruminants virus	15
4.1.8. Terrestrial Code standardisation	16
4.2. Items under consideration for inclusion in the work programme.....	17
4.3. New proposals or requests for inclusion in the work programme	17
4.3.1. New proposals from Members and International Organisations	17
4.3.2. Other requests	18
4.4. Prioritisation of items on the work programme	18
5. Texts circulated to be proposed for adoption in May 2026.....	19
5.1. Glossary.....	19
5.2. Articles 1.3.1., 1.3.3. and 1.3.7. of Chapter 1.3. ‘Diseases, infections and infestations listed by WOAHP’	21
5.3. Biosecurity (new Chapter 4.X.).....	22
5.4. Measures and procedures applicable during ‘exportation’, ‘transit’ and ‘importation’ (Chapters 5.4. to 5.7.).....	22
5.5. Article 7.5.30. of Chapter 7.5. ‘Animal welfare during slaughter’	23
5.6. Harmonisation of official status disease chapters Chapter 8.8. Infection with foot and mouth disease virus and Chapter 15.2. Infection with classical swine fever	24
5.7. Infection with <i>Francisella tularensis</i> (Tularemia) (Chapter 8.20.).....	24
5.8. Infection with Crimean-Congo haemorrhagic fever virus (new Chapter 8.X.).....	25

5.9.	Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens) (new Chapter 10.X.)	26
6.	Texts circulated for comments.....	26
6.1.	User's Guide	26
6.2.	Glossary.....	27
6.3.	Chapter 1.1. Notification of diseases and provision of epidemiological information	28
6.4.	Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOAHA (Chapter 1.6.)	29
6.5.	New draft Chapter 3.X. 'Emergency management'	29
6.6.	Revision of Chapter 4.4. Zoning and compartmentalisation	30
6.7.	Development of an introductory chapter of Section 5 (new Chapter 5.X).....	32
6.8.	Revision of chapters on transport of animals (Chapters 7.2., 7.3. and 7.4.).....	32
6.9.	Revision of Chapter 7.6. 'Killing for disease control purposes'	33
6.10.	Article 8.8.13 and new Article 8.8.31bis of Chapter 8.8. Infection with foot and mouth disease virus.....	34
6.11.	Glossary definition for 'poultry' and Chapter 10.4. 'Infection with high pathogenicity avian influenza viruses'	35
6.12.	Article 10.9.3. of Chapter 10.9. Infection with Newcastle disease virus.....	36
6.13.	Revision of Chapter 11.9. Infection with lumpy skin disease virus.....	36
6.14.	Revision of Chapter 12.11. Venezuelan equine encephalomyelitis	38
6.15.	Revision of Chapter 14.9. Sheep pox and goat pox.....	39
6.16.	Terminology: Notifiable disease and notification	39
7.	Updates on WOAHA initiatives relevant to the Code Commission.....	40
7.1.	Work of the Governance Review Committee	40
7.2.	7th WOAHA Animal Welfare Global Forum	40
7.3.	WOAHA Zoning Forum	41
7.4.	WOAHA Observatory	41
8.	Updates on other standard-setting bodies and international organisations	42
8.1.	Updates on WVA Council	42

List of Annexes

Annex 1. Adopted agenda

Annex 2. List of participants

Commission's response to circulated Annexes in its previous reports for information (PART C)

Annex 3.

Texts to be proposed for adoption (PART A)

Annex 5. Glossary

Annex 6. Articles 1.3.1., 1.3.3. and 1.3.7. of Chapter 1.3. Diseases, infections and infestations by WOAHP

Annex 7. Chapter 4.X. Biosecurity

Annex 8. Chapter 5.4. Measures and procedures applicable to the exportation of commodities

Annex 9. Chapter 5.5. Measures and procedures applicable to the transit of commodities

Annex 10. Chapter 5.6. Measures and procedures applicable to the importation of commodities

Annex 11. Chapter 5.7. Border inspection posts and quarantine centres

Annex 12. Article 7.5.30. of Chapter 7.5. Animal welfare during slaughter

Annex 13. Articles 8.8.3., 8.8.4. and 8.8.8. of Chapter 8.8. Infection with foot and mouth disease virus

Annex 14. Articles 15.2.3. and 15.2.5. of Chapter 15.2. Infection with classical swine fever virus

Annex 15. Chapter 8.20. Infection with *Francisella tularensis* (Tularemia)

Annex 16. Chapter 8.X. Infection with Crimean-Congo haemorrhagic fever virus

Annex 17. Chapter 10.X. Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens)

Texts for comments (PART B)

Annex 4. Work programme

Annex 18. User's Guide

Annex 19. Glossary

Annex 20. Chapter 1.1. Notification of diseases and provision of epidemiological information

Annex 21. Chapter 1.6. Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOAHP

Annex 22. Chapter 3.X. Emergency management

Annex 23. Chapter 4.4. Defining, establishing and maintaining populations and subpopulations of animals

Annex 24. Chapter 4.Y. Application of zoning

Annex 25. Chapter 5.X. Introduction to recommendations for international veterinary certification and export and import procedures

Annex 26. Chapter 7.2. Animal welfare during transport

Annex 27. Chapter 7.6. Animal welfare at the time of killing for purposes other than slaughter

Annex 28. Articles 8.8.13. and 8.8.31bis of Chapter 8.8. Infection with foot and mouth disease virus

Annex 29. Articles 10.4.1., 10.4.3., 10.4.3.bis, 10.4.4. and 10.4.6. of Chapter 10.4. Infection with high pathogenicity avian influenza virus

-
- Annex 30. Article 10.9.3. of Chapter 10.9. Infection with Newcastle disease virus
- Annex 31. Chapter 11.9. Infection with lumpy skin disease virus
- Annex 32. Chapter 12.11. Infection with I-AB and I-C variants of Venezuelan equine encephalitis virus (Venezuelan equine encephalomyelitis)
- Annex 33. Chapter 14.9. Infection with sheeppox virus (Sheeppox) and goatpox virus (Goatpox)
- Annex 34. Terminology: Use of the terms 'notify', 'notifiable disease', 'report' and 'reportable disease'

1. Welcome

1.1. Director General

Dr Emmanuelle Soubeyran, WOAHA Director General, met with the Commission on 9 February 2026. Dr Soubeyran thanked the Commission members for their support and commitment to achieving WOAHA's objectives in standard-setting and extended thanks to their employing institutions and national governments.

Dr Soubeyran informed the Commission that development of the 8th Strategic Plan was approaching completion following broad consultation with internal and external stakeholders. Dr Soubeyran underscored that strengthening the global relevance, applicability and scientific quality of WOAHA's international standards remains a key strategic orientation and emphasised the Commission's important role in achieving this objective. She also thanked members of the WOAHA Specialist Commissions for the comments and contributions provided during the preparation of the 8th Strategic Plan.

Dr Soubeyran also outlined progress in the ongoing organisational re-structuring, noting that the first phase had been completed and that subsequent work would focus on streamlining processes, enhancing internal coordination and improving support to the Specialist Commissions. She highlighted WOAHA's broader efforts to ensure that governance reforms, including those under the Governance Review Committee, contribute to more coherent and effective technical work across the Organisation.

The Commission thanked Dr Soubeyran for her address and for the opportunity to contribute to the development of the 8th Strategic Plan, and acknowledged the Secretariat's work to strengthen organisational effectiveness. The Commission emphasised the importance of aligned and collaborative work programmes across WOAHA Specialist Commissions to help maintain a manageable workload while ensuring that priority items can be progressed efficiently.

1.2. Deputy Director General-International Standards and Science

Dr Montserrat Arroyo, WOAHA Deputy Director General for Standard-Setting and Implementation (DDG SSI) met with the Commission and thanked the Commission members for their ongoing contributions to WOAHA's standard-setting work. She informed the Commission that the development of the 8th Strategic Plan was entering its final stages, following extensive consultation with internal and external stakeholders, including the Specialist Commissions. She thanked the Commission for responding to the invitation to contribute. The consolidated text would be presented to the Council in March 2026 and subsequently shared with WOAHA Delegates ahead of its proposed adoption at the 93rd General Session.

Dr Arroyo provided an update on the Governance Review Committee, reiterating that the reform process aimed to strengthen the effectiveness and sustainability of WOAHA's technical governance. In response to the Commission's request for greater clarity on the processes involved, she noted that a dedicated session with the GRC Secretariat had been arranged during the week to outline the planned work for 2026 in more detail and enhance visibility on upcoming consultation points.

Dr Arroyo also briefed the Commission on operational matters relevant to their work, including updates to the organisational chart, preparations for the 93rd General Session, and ongoing cross-Commission coordination. In particular, she underlined the value of the joint sessions between the Bureaux of the Code Commission, the Scientific Commission and the Aquatic Animal Health Standards Commission held during this meeting run.

The Commission thanked Dr Arroyo for her remarks and welcomed the updates provided on activities supporting the standard-setting agenda.

1.3. Transparency of commenting – phased approach

As originally communicated in the Commission's September 2023 report, the WOAHA Director General had agreed to progressively implement a process to improve the transparency of the WOAHA process for the elaboration of Standards for better documentation and traceability.

The first step in this process was the anonymous publication on the Delegates' website of comments considered by the Commission at its February 2024 meeting.

The second step in this process was the anonymous publication on the Delegates' and public WOAHA websites of comments considered by the Commission at its September 2024 meeting. The Commission also included its responses to comments in Annex 3 for information only. As a result, the Commission's report was more concise and focused on providing a short background summary for each agenda item as well as key points discussed and agreed by the Commission.

The third and final step in this process is to publish, in Annex 3, the name of the Member or International Organisation alongside the comment they submitted, as well as responses by the Commission at its February 2026 meeting.

This process aims to improve transparency and enable the report to be more user-friendly. Together with the 'Guide', WOAHA and the Commission hope that providing such visibility of examples of comments and responses will encourage more Members to engage confidently in the process of development of WOAHA Standards.

2. Adoption of the agenda

The provisional agenda was adopted by the Commission. The agenda and the list of participants are presented in [Annexes 1](#) and [2](#), respectively.

3. Cooperation with Other Specialist Commissions

3.1. Scientific Commission for Animal Diseases

3.1.1. Bureaux meeting

The Bureau (i.e., the President and the two Vice-Presidents) of the Commission and the Bureau of the Scientific Commission held a meeting chaired by DDG SSI. The purpose of this meeting was for the two Bureaux to provide updates on relevant standing items, agree on how to address any points that may impact the potential adoption of standards and discuss plans to undertake work of common interest. At this meeting, the Bureaux were updated on ongoing work concerning case definition development and assessments on whether a disease should be considered as emerging. The Bureaux agreed on the next tranche of case definitions to be developed for terrestrial animal listed diseases to support notification (see Item 3.1.2.).

The Bureaux discussed the following *Terrestrial Code* texts in circulation for comments or for adoption at the 93rd General Session in May 2026:

- Infection with foot and mouth disease virus (Chapter 8.8.)
- Infection with peste des petits ruminants virus (Chapter 14.7.)
- Infection with classical swine fever virus (Chapter 15.2.)

The Bureaux discussed equivalence in the context of disease-specific chapters in relation to official status recognition and recommendations of the *ad hoc* Group on zoning (see Item 6.6.) The Bureaux also agreed on the work plan for upcoming *ad hoc* Groups for disinfection and disinsection (see Item 4.1.2.) and Venezuelan equine encephalomyelitis (see Item 6.14.).

3.1.2. Case definitions

The Commission received an update on the state of play of the development of case definitions and the proposal of the Secretariat on the way forward for remaining listed diseases, infections or infestations for which a case definition is incomplete or currently absent in the *Terrestrial Code*. The Commission, in agreement with the Scientific Commission at the Bureaux meeting, supported the proposal to consider that selected diseases with a low level of notification to WAHIS could be proposed for evaluation against the listing criteria described in Chapter 1.2. of the *Terrestrial Code* prior to embarking on case definition development. In this regard, both Commissions agreed to subject duck viral hepatitis and transmissible gastroenteritis to a listing assessment. Both Commissions also agreed with the Secretariat's proposal to work with the Biological Standards Commission on those earmarked for the 2026/2027 revision cycle so that experts working on the *Terrestrial Manual* chapters may concurrently work on the case definition.

At this meeting, the Commission also considered draft case definitions developed by experts and reviewed by the Scientific Commission and Biological Standards Commission at their [September 2025 meetings](#). The Commission also reviewed the case definition for paratuberculosis that was discussed at the [February 2025 meetings](#) of the Scientific Commission and Biological Standards Commission.

3.1.2.1. Anthrax

The Commission agreed with expert opinion that bovines, caprines, antilopinae, camelids, equids and suids are the relevant animal hosts in the occurrence of a case. It proposed changes to align the animal host species with the terminology referred to in the User's Guide. The Commission also agreed with the Scientific Commission and Biological Standards Commission to include reference to infection of humans as supporting evidence to classify an antigen or nucleic acid-positive animal as a case. The Commission requested the Secretariat to prepare draft revised Chapter 8.1. 'Anthrax' to incorporate the case definition at a future meeting. Meanwhile, it noted that the case definition would be uploaded onto the WOA website to guide Member notification.

3.1.2.2. Aujeszky's disease

The Commission discussed the need to review the designation of Chapter 8.2. 'Infection with Aujeszky's disease virus' under the category of multiple species in the *Terrestrial Code* when the scope of animal host species for notification in the existing chapter, as affirmed with experts, should be limited to pigs. The Commission requested the Secretariat to work with the Scientific Commission to clarify the scope of animal hosts for notification and to report back at its next meeting. The Commission also increased the priority for the review of Chapter 8.2. in its work programme (see Item 4.4.)

3.1.2.3. *Chlamydia abortus*

The Commission agreed with the experts' view to limit the animal host species to domestic sheep and goats, i.e. *Ovis aries* and *Capra hircus*. It also concurred with the proposed deletion of the option for seroconversion noting the opinion of the Biological Standards Commission that paired testing is unlikely to be used in the field.

The Commission requested the Secretariat to prepare a draft revised Chapter 14.4. 'Infection with *Chlamydia abortus* (enzootic abortion of ewes, ovine chlamydiosis) to incorporate the case definition at a future meeting. Meanwhile, it noted that the case definition would be uploaded onto the WOA website to guide Member notification.

3.1.2.4. Paratuberculosis

The Commission proposed amendments to align the animal host species with the terminology referred to in the User's Guide. The Commission noted that the experts had also recommended a combination of diagnostic tests in the form of serial testing which differs from the convention generally applied in other case definitions. The Commission requested the Secretariat to prepare a draft revised Chapter 8.14. 'Paratuberculosis' to incorporate the case definition at a future meeting. It also requested the Secretariat to work with the Biological Standards Commission to align the name of the disease as the title of the *Terrestrial Manual* Chapter 3.1.17. refers to 'Johne's disease'. Meanwhile, it noted that the case definition would be uploaded onto the WOA website to guide Member notification.

The Commission encouraged Members to read the Scientific Commission's report for the details of relevant items.

3.2. Biological Standards Commission

The Biological Standards Commission Secretariat updated the Commission on its relevant activities, including the chapters in the *Terrestrial Manual* that will be updated during the 2026/2027 review cycle. The Commission also considered the advice and the possible implications of revisions to the following *Terrestrial Manual* chapters, which will be proposed for adoption at the 93rd General Session in 2026:

- Chapter 3.3.3. 'Avian infectious laryngotracheitis', to consider including provisions related to the use of vaccines
- Chapter 3.8.3. 'Contagious agalactia', to consider including provisions related to the use of vaccines
- Chapter 3.10.2. 'Cysticercosis', to consider updating guidance on public health

At this meeting, the Commission reviewed the opinion of the Biological Standards Commission on Chapter 5.9. 'Infection with avian metapneumovirus' (see Item 5.9.). It also noted the support of the Biological Standards Commission on the categorisation table developed by the Commission to define the logic for the inclusion of animal hosts in terrestrial standards (see Item 4.1.8.2.).

The Commission encouraged Members to read the Biological Standards Commission's report for the details of relevant items.

3.3. Aquatic Animal Health Standards Commission

The Bureaux of the Commission and the Aquatic Animal Health Standards Commission held a side meeting chaired by DDG SSI to discuss texts in common planned for circulation by both Commissions. Both Bureaux discussed proposed changes to Chapter 1.1. 'Notification of diseases and provision of epidemiological information' of the *Aquatic Code* and *Terrestrial Code* for alignment and agreed to circulate the draft chapter in their respective reports (see Item 6.3.). Text between the Chapters 1.1. in each *Code* is consistent with the following exceptions:

- Regarding the 'strain' of pathogenic agents, the *Aquatic Code* chapter replaces this term with 'variant' of pathogenic agents whereas the *Terrestrial Code* chapter replaces this term with 'type, subtype and variant'. This is for consistency of usage in the disease-specific chapters of the respective *Codes*.
- The term 'susceptible species' is used for the chapter of the *Aquatic Code* whereas the term 'animal host' is used for the chapter of the *Terrestrial Code* due to these terms being defined or will be defined to mean different concepts in their respective Glossaries.

- In Article 1.1.3., point 1, the chapter of the *Terrestrial Code* eliminated point f) 'occurrence of a *listed disease* in an unusual host species' and combined this as a consideration under point e). Whereas the chapter of the *Aquatic Code* maintained point f) for notification of occurrence of a listed disease in a new host species. This difference is reflective of the different natures of the disease-specific chapters in the respective *Codes*. In the *Terrestrial Code* the animal hosts for a disease are defined in the disease-specific chapter and notification to WOAHP of a listed disease is only required for those animal hosts. Conversely, in the *Aquatic Code* a list of susceptible species is in each disease-specific chapter. However, as new evidence on susceptibility of aquatic species to listed diseases is found, notification is not restricted to only susceptible species listed in the *Aquatic Code*. Notification under point f) is required to ensure up-to-date knowledge on what species are susceptible and to allow the revision of the susceptible species list in disease-specific chapters to occur based on new scientific evidence.

The Bureaux also discussed draft Chapter 5.X. 'Introduction to recommendations for international veterinary certification and export and import procedures' which was developed by a joint task force comprising members from both Commissions (see Item 6.7.). As raised by the joint task force, the Bureaux exchanged on updating Chapter 5.3. 'WOAH procedures relevant to the agreement on the application of sanitary and phytosanitary measures of the World Trade Organization', including moving it to Section 2 of both Codes. Section 2 of both *Codes* would eventually be expanded to focus on the risk-based development of sanitary measures, while Section 5 would retain a focus on operational trade assurance such as via international certification, exchange of information, and border inspection. Both Bureaux agreed on the importance of harmonising this approach, however the Commission's current priority is completing work to update Section 5.

The Commission encouraged Members to read the Aquatic Animal Health Standards Commission's report for the details of relevant items.

4. Work Programme

The Commission discussed ongoing priority topics in its work programme and considered comments and new requests received.

Comments on the work programme were received from Canada, New Caledonia, the EU and the CVP.

The Commission acknowledged comments expressing support for the work programme and priorities. The Commission noted that Members should refer to the relevant items in this report for comments related to ongoing work.

The Commission acknowledged a comment regarding the consideration of risk assessments for blood products other than fetal bovine serum in Chapter 8.8. 'Infection with foot and mouth disease virus', and for fetal bovine serum in other disease-specific chapters such as lumpy skin disease, Rift Valley fever and contagious bovine pleuropneumonia. To justify the inclusion of this item in its work programme, the Commission requested Members to provide further information on the value and volume of international trade in these commodities, as well as on the potential risks of pathogenic agent spread associated with such trade.

The Commission also acknowledged the proposal sent by some Members of the Americas region on Chapter 8.4. 'Infection with *Brucella abortus*, *B. melitensis*, and *B. suis*', which will be considered in its future work (see Item 4.4.).

The Commission reminded Members that the work programme outlines the current and the planned work to be undertaken to develop new or revise existing standards of the *Terrestrial Code*. The Commission commended the increased interest shown by Members in providing comments on the work programme and strongly encouraged Members to continue to provide feedback on potential new topics, whether they agree with the topics being proposed, as well as their level of priority.

4.1. Ongoing priority topics (other than texts circulated for comments)

The Commission discussed the progress of various ongoing priority topics and noted that no new or revised text for these items are provided for comment at this time.

4.1.1. Chapter 4.7. Collection and processing of bovine, small ruminant and porcine semen

Background

In September 2023, the Commission agreed that the current Chapter 4.7. should be fully revised, aiming for a full new text providing recommendations for all species covered in the new Chapter 4.6. (i.e. bovids, equids, suids and cervids) and should only address WOAHL-listed diseases.

Following the work of an [ad hoc Group](#) and recommendations received by experts on risk management measures to prevent the introduction and spread of listed diseases through donor animals at semen collection centres, at its February 2025 meeting, the Commission reviewed the draft articles and discussed the challenges of achieving the proposed objectives. In particular, it noted that developing a new blanket approach would be highly complex given the breadth of species and diseases to be addressed and could be perceived by some operators as disruptive or inconsistent with established risk-based practices. The Commission also recognised the difficulty of ensuring coherence between disease-specific provisions in a horizontal chapter and those included in individual disease-specific chapters.

Discussion

The Commission discussed the challenge associated with developing one or more articles addressing disease risk mitigation measures for semen collected from multiple species and covering multiple diseases, irrespective of the animal health status of the originating country or zone. The Commission also considered that the new online WOAHL International Standards navigation tool allows Members to search recommendations for safe trade by commodity, including semen.

The Commission determined that a simplified version of Chapter 4.7. could focus on general health considerations for animals entering and residing in semen collection centres, without including the specific testing or other requirements for certification to international trade of semen, which are risk-based and already addressed in disease-specific chapters. It could include recommendations to maintain the animal health status of the centres, in terms of biosecurity and surveillance, including possible testing regimens depending on the risks. That simpler chapter could however include some references to the list of disease-specific chapters to be considered for each species in relation to mitigating measures for safe trade of semen. A representative from the Commission will work on a revised draft and provide an update for discussion at its next meeting in September 2026.

4.1.2. Revision of Chapter 4.14. General recommendations on disinfection and disinsection

Background

At its February 2025 meeting, the Commission considered the [March 2024 report of the ad hoc Group on Biosecurity](#), in particular its recommendation that, given the number and significance of arthropod vector-borne diseases and the importance of their control in the management of outbreaks, both disinfection and disinsection should be addressed in the same chapter. The Commission agreed that the focus of the revised Chapter 4.14. should be on the use of disinfection and disinsection to prevent the spread of disease, infections and infestations given that the prevention of spread and control of disease are the focus of Section 4 of the *Terrestrial Code*. The Commission requested that an *ad hoc* Group be convened to revise Chapter 4.14. and requested the Secretariat to prepare the draft Terms of Reference for its review.

Discussion

The Commission noted the proposal of the Secretariat to convene an *ad hoc* Group to progress this work before its September 2026 meeting. It proposed revisions to the Terms of Reference, and assigned a Commission member to follow this work. The Commission requested the Secretariat to report back at its next meeting.

4.1.3. Chapters on certification procedures (Chapters 5.1., 5.2. and 5.10. to 5.13.)

Background

At its September 2024 meeting, the Commission reviewed the draft Terms of Reference for an *ad hoc* Group to update chapters of the *Terrestrial* and *Aquatic Codes* regarding certification and related procedures. In agreement with the Aquatic Animal Health Standards Commission, the Commission discussed that the *ad hoc* Group should update Chapter 5.2. 'Certification procedures' of both *Terrestrial* and *Aquatic Codes*, as appropriate to incorporate electronic certification, including references to the newly developed electronic data models and standards and assess if any changes to Chapter 5.1 were required. The *ad hoc* Group should also consider the Codex 'Guidelines for design, production, issuance and use of generic official certificates' (CXG 38-2001) and propose appropriate updates to the Codes to avoid inconsistencies. The Commission also requested that the *ad hoc* Group review model health certificates in both Codes to determine whether they remain necessary and whether updates are required to be made to those documents (Chapters 5.10. to 5.13. as applicable), and review Glossary definitions of both Codes. The Commission proposed modifications to the draft Terms of Reference to reflect these priorities.

Discussion

The Commission noted the proposal of the Secretariat to convene an *ad hoc* Group to progress this work before its September 2026 meeting. It reviewed and proposed amendments to the Terms of Reference, and assigned a Commission member to follow this work. The Commission requested the Secretariat to report back at its next meeting.

4.1.4. Revision of Chapter 6.8. Harmonisation of national antimicrobial resistance surveillance and monitoring programmes

Background

At its September 2024 meeting, the Commission considered a proposal from the Working Group on Antimicrobial Resistance to amend Chapter 6.8. to include considerations for surveillance programmes for companion animals and integrated surveillance. The Commission included this work in its work programme and requested that the Working Group provide draft Terms of Reference for an *ad hoc* Group, noting that care was needed in the prioritisation of AMR activity, especially for Members with limited resources.

Discussion

The Commission was informed that the *ad hoc* Group met virtually three times to revise Chapter 6.8., incorporating feedback from the Commission and referring to existing Codex guidance. The revision expands the surveillance scope to include wildlife, companion animals, and environmental factors. The *ad hoc* Group will meet again in 2026 to complete the revision of Chapter 6.8. The Commission acknowledged the progress made by the *ad hoc* Group and requested that the Secretariat provide the draft revised chapter at its next meeting.

4.1.5. Japanese encephalitis (Chapter 8.10.)

Comments were received from Australia, Canada, Korea (Rep. of), New Zealand and the EU.

Background

The Commission agreed to include the revision of Chapter 8.10. 'Japanese encephalitis', Chapter 12.4. 'Equine encephalomyelitis (Eastern and Western)' and Chapter 12.11. 'Venezuelan equine encephalomyelitis' in its work programme following requests from Members. Considering the similarities of these diseases, the Commission agreed to revise all three chapters to ensure a consistent approach. The Commission also agreed that Chapter 8.21. 'West Nile fever' should be considered in the same manner.

At its February 2025 meeting, the Commission considered the November 2024 report of the [ad hoc Group](#) together with the opinion of the Scientific Commission, and revised draft Chapter 8.10. 'Infection with Japanese encephalitis virus (Japanese encephalitis)'. The Commission amended the revised draft Chapter 8.10, where relevant and circulated it for comment.

Discussion

The Commission considered comments received on Chapter 8.10. 'Infection with Japanese encephalitis virus (Japanese encephalitis)' that was circulated in its September 2025 meeting report.

The Commission reviewed expert's advice regarding 'sheep' as a potential amplifying species. While evidence which was proposed by a Member, showed sheep can develop viraemia sufficient to infect mosquitoes under experimental conditions, it was noted that the inoculation methods might not reflect natural transmission. Given the lack of documented cases in endemic countries, the Commission agreed it was premature to classify sheep as epidemiologically significant hosts, which is in line with the current *Terrestrial Manual* chapter. Neither notification nor routine surveillance is recommended at this stage to avoid diverting resources from established amplifying hosts.

In response to the comments regarding the risks of recognising a country or zone as free from Japanese encephalitis solely based on suid infection status, the Commission noted that the interface between wild birds (primary reservoir hosts), suid populations (main amplifying hosts) and culicine mosquitoes (vectors) should be clarified. The Commission requested the Secretariat to seek expert's advice on whether, and under what conditions, a country could reasonably declare freedom in suids when the virus is circulating in wild birds.

Furthermore, the Commission observed that the proposed surveillance article primarily focuses on measures to mitigate animal and public health risks and secondarily considers requirements to ensure safe international trade. It does not sufficiently define the requirements for demonstrating country or zone freedom. Therefore, the Commission also requested the Secretariat to seek expert advice on specific surveillance protocols required to support a declaration of freedom in suids, including whether surveillance or monitoring of wild birds and vectors is necessary.

Due to the fundamental nature of these issues, the Commission decided not to circulate the revised chapter until the expert advice has been received and considered.

4.1.6. Chapter 8.21. West Nile Fever

Background

In the process of revising the equine encephalitis chapters (see Item 4.1.5.), the Commission agreed to convene an *ad hoc* Group to revise Chapter 8.21. 'West Nile fever'.

Discussion

The Commission considered the draft Terms of Reference of an *ad hoc* Group for the revision of Chapter 8.21. 'West Nile fever', as well as edits from the Scientific Commission. The Commission revised the Terms of Reference to clarify that the Group should also consider the epidemiology of the disease and the involvement of different animal hosts, including One Health implications.

The Commission noted the proposal of the Secretariat to convene an expert *ad hoc* Group to progress on this work before its September 2026 meeting. The Commission requested the Secretariat to report back to the Commission at its next meeting.

4.1.7. Revision of Chapter 14.7. Infection with peste des petits ruminants virus

Comments received from Australia, Canada, China (People's Rep. of), Chinese Taipei, Korea (Rep. of), New Zealand, Türkiye (Rep. of), the UK, the USA, the AU-IBAR, the EU and the WRO.

Background

At its September 2024 meeting, the Commission considered a new draft article for Chapter 14.7. 'Infection with peste des petits ruminants virus' for the importation of susceptible animals from an infected country or zone for direct slaughter proposed by the Scientific Commission. The Commission noted that in addition to this proposal, Articles 14.7.19. and 14.7.25. should also be reviewed, as they contain references to articles of Chapter 8.8. 'Infection with foot-and-mouth disease virus', and that any inconsistencies arising from the recent adoption of revised Chapter 8.8 should be addressed.

In subsequent meetings, the Commission agreed to undertake a more comprehensive revision of Chapter 14.7., including a review of scientific evidence regarding susceptible animals and animal hosts, updates to risk mitigation measures for the safe trade of fresh meat and meat products, revision of surveillance articles, and expansion of best practices for the use of vaccination. In addition, the chapter needed to be updated for alignment with the recently revised chapters for diseases for which WOAHA grants official status. The Commission also considered the proposed revisions recommended by the Scientific Commission and the [November 2024 report](#) of the *ad hoc* Group on PPR. The Commission circulated a revised chapter for comment to get feedback from Members on proposed changes.

Discussion

The Commission reviewed the [report of the *ad hoc* Group on PPR \(November 2025\)](#), the opinions of the Scientific Commission and the Working Group for Wildlife, and Member comments on the draft chapter. The Commission noted that while experts had provided some draft revisions to Chapter 14.7. as requested, work on surveillance articles had not been completed. The Commission assessed that a number of Member comments would require expert opinion, while it addressed other comments with the input of Scientific Commission.

At the Bureaux meeting with the Scientific Commission (see Item 3.1.1.), it was agreed that additional work by experts was needed to address Member comments and complete updates to Chapter 14.7. The Bureaux agreed with the proposal of the Secretariat to convene an *ad hoc* Group and identified the topics it should address, including how to regain status in cases of non-compliance other than PPR outbreaks. The Bureaux agreed that, as appropriate, this gap could be addressed in Chapter 1.6. for all relevant diseases.

The Commission identified Member comments to be addressed by the *ad hoc* Group and requested the Secretariat to report back at its next meeting.

4.1.8. Terrestrial Code standardisation

4.1.8.1. Framework

Background

In February 2021, the Commission agreed to develop a Framework for Terrestrial Code Standards that would serve as a guide to ensure a consistent approach when undertaking work on the development or revision of the *Terrestrial Code*, beginning with standardising the structure and content of disease-specific chapters. The Commission requested the Secretariat to update the Framework on an ongoing basis to align with recently adopted standards.

Discussion

The Commission was presented with draft revisions to the Framework by the Secretariat, prepared in collaboration with a Commission member. The draft reflected updated model text and terminology to align with recently adopted and currently revised standards, revised descriptions to provide clearer explanations, and included new concepts to support the work of experts. The Commission agreed with the revisions. Although useful as a full version, given its length the Commission requested that the Secretariat summarise the Framework for experts to use as a practical guide when developing or revising disease-specific chapters, and to explore its usefulness for a wider audience.

4.1.8.2. Animal hosts

Background

Following the work of a joint task force comprising representatives from the Commission, the Scientific Commission and the Biological Standards Commission to develop a standardised approach for the inclusion of 'susceptible animals' in the *Terrestrial Manual* and 'animal hosts' in the *Terrestrial Code*, at its September 2025 meeting, the Commission developed a categorisation table outlining different types of of susceptible animals including the animal hosts defined for the purposes of notification, considering their respective epidemiological relevance and their coverage in the various recommendations of the chapters, and shared this with the other Specialist Commissions for their input. The Commission also proposed relevant changes to the User's Guide, developed a Glossary definition for 'animal host' and included this categorisation into the Framework.

Discussion

The Commission received inputs from the Scientific Commission and the Biological Standards Commission, confirming that the proposed categorisation is clear and useful for future work related to the *Terrestrial Code* and the *Terrestrial Manual*. The Commission requested that the Secretariat provide information on this categorisation as a guidance for experts when developing or revising the *Terrestrial Code*, especially articles on general provisions, case definition, status, trade and surveillance of disease-specific chapters and any other relevant documents. In addition, the Commission discussed the development of a Glossary definition for 'animal host' (see Item 6.2.) to clarify the term used for the purposes of the *Terrestrial Code*.

4.1.8.3. Commodities

Background

To ensure consistency in the naming of commodities within the *Terrestrial Code*, the Commission agreed to develop a set of rules and a categorisation tree. These were developed by the Secretariat, taking into account the Harmonized Commodity Description and Coding System (generally referred to as 'Harmonized System' or simply 'HS') of the World Customs Organization.

The Commission agreed that the registry should include, for each commodity, a globally accepted name and, if existing, a reference to the Glossary definition in the *Terrestrial Code*. Further information such as descriptions covering standard processes and treatments and references to international standards (e.g. Codex) should be included.

Discussion

The Commission was presented with the draft structure of the 'Registry of commodities' prepared by the Secretariat. The Commission agreed with the proposal and provided some guidance on the classification of commodities. The Commission also requested the Secretariat to continue this work, in consultation with other partners or international organisations when relevant, to complete the registry and applicable Glossary definitions. This is in particular for commodities that feature as safe commodities in some disease-specific chapters, in address Member comments on described standardised processes and to avoid any ambiguity.

4.2. Items under consideration for inclusion in the work programme

The Commission reviewed some new items that had previously not been included in its work programme due to insufficient supporting data. After considering whether additional information had become available, the Commission agreed that these items would still be outside its work programme at this stage.

4.3. New proposals or requests for inclusion in the work programme

The Commission considered the following proposals or requests for developments or revisions of standards in the *Terrestrial Code*.

4.3.1. New proposals from Members and International Organisations

4.3.1.1. Inclusion of salted natural casings and gelatine/collagen as safe commodities

The Commission considered requests to include salted natural casings, gelatine and collagen as safe commodities within disease-specific chapters. Although the existing Glossary definition for 'casings' in the *Terrestrial Code* refers to treatment with salt (i.e. natural casing), the Commission acknowledged that this description is vague and requested the Secretariat to consult relevant global organisations on standardised industry processes and definitions.

The Commission also noted the high degree of uniformity used in the production processes for gelatine and collagen and therefore these may be recognised as safe commodities in various disease-specific chapters of the *Terrestrial Code*.

The Commission also clarified that whenever 'meat' or 'meat products' as defined in the Glossary is recognised as safe commodity, it implies that any commodity derived from such meat (e.g. casing) or meat products should also be considered safe and need not be repeated in the list of safe commodities.

4.3.1.2. New Glossary definitions and revision of current definition related to commodities

The Commission considered a request to develop Glossary definitions for 'rendered fats', 'hydrolysed protein' and 'feed-grade blood protein', and to revise the Glossary definition for 'protein meal'. The Commission highlighted that the Glossary definitions in the *Terrestrial Code* should be limited to terms frequently used in the *Code* and for which standard dictionary definitions do not provide a correct understanding of their use in the *Code*. The definition of processed commodities should include standardised production process to avoid ambiguity. The Commission agreed to focus on the terms 'rendering', 'rendered fats' and 'protein meal' at this stage. The Commission requested

the Secretariat to put together a proposal with draft definitions including standard processing methods, as provided by global industry organisations where relevant, for its consideration at the next meeting. The requests to provide definitions for other commodities would be considered at a later stage.

4.3.1.3. New Glossary definition for ‘treatment’

The Commission considered a request to develop new a Glossary definition for ‘treatment’, noting that the term is currently used across various contexts within the *Terrestrial Code*, including medical or prophylactic procedures, sanitary processing, and animal welfare. While acknowledging the potential for confusion, the Commission assessed that standard dictionary definitions are adequate for understanding its use in medical and technical processing contexts. Consequently, the Commission did not agree to introduce a new Glossary definition. To ensure consistency and clarity, it was agreed that the Secretariat would instead conduct a review to consider replacing ‘treatment’ with more appropriate or clearer terms, such as ‘handling’, particularly in the animal welfare chapters, where alternative terminology is more precise or fit for purpose.

4.3.2. Other requests

4.3.2.1. Clarification of the translation of the term ‘rendered fats’ in Spanish

The Commission considered a request from the Secretariat regarding the appropriate Spanish translation of ‘rendered fats’ to ensure consistency. Upon reviewing terms used in other international standards, such as Codex Alimentarius, the Commission agreed to adopt ‘grasas fundidas’ as the Spanish equivalent for ‘rendered fats’ for the purposes of the *Terrestrial Code*. As this was deemed a minor linguistic amendment, the Commission requested the Secretariat to update the term in the Spanish version of the *Terrestrial Code* for the 2026 edition (see Item 4.3.1.2.).

4.4. Prioritisation of items on the work programme

Taking into consideration the progress of work items since its last meeting, relevant topics addressed during this meeting and comments submitted, the Commission discussed the prioritisation of ongoing and future work programme items and agreed to amendments as presented below.

New items added to the work programme:

- Glossary for ‘animal health status’, ‘containment zone’, ‘free zone’, ‘protection zone’ and ‘zone’, as a part of revision of Chapter 4.4. on zoning (see Item 6.2.)
- Glossary for ‘notifiable disease’ and ‘notification’, in parallel with the terminology of ‘notifiable disease’ and ‘notification’ (see Item 6.2.)
- Chapter 8.2. ‘Infection with Aujeszky’s disease virus’, in parallel with the work on case definition (see Item 3.1.2.)
- Chapter 8.20. ‘Infection of *Francisella Tularensis* (Tularemia), to revise different articles of the chapter than those already covered in the ongoing work to include the case definition (see Item 5.7.)

The Commission acknowledged a comment from some Members requesting an increase in priority for the comprehensive revision of Chapter 8.4. ‘Infection with *Brucella abortus*, *B. melitensis* and *B. suis*’, taking into account recent technical advances and achievements in sanitary management, control and eradication of the disease. It was noted that the revision should include harmonisation with other disease-specific chapters (e.g. infection with *Mycobacterium tuberculosis* complex) to improve internal coherence, practical applicability, and contribution to safe international trade. The Commission agreed to increase its priority from 3 to 2 in its work programme and requested the Secretariat to prepare a discussion paper on this topic at its next meeting.

The Commission reminded Members that the order of prioritisation used in the work programme reflects the level of priority agreed upon by the Commission taking into account an assessment of each item in terms of its importance, impact, resources and information or data available and Member comments. Members are encouraged to continue commenting on new items, the items on the work programme, as well as the prioritisation of items at any time in the Commission's work cycle.

The Commission highlighted that the inclusion of an item in the work programme means there is an agreement by the Commission on the need to undertake work, but that the decision as to when to commence each work item depends on its prioritisation and the availability of relevant data. The order of prioritisation aims to provide a transparent guide to plan and organise the work of the Commission and the Secretariat. The Commission highlighted that the order of prioritisation used in its work programme is not always aligned with the actual progress of each work item, as this will depend on the complexity of each item and associated discussions, including involving expert consultations, exchanges with other relevant Specialist Commissions and Member comments.

The Commission thanked Members and partners who submitted comments on work items at an early stage and encouraged Members and partners to also review work items in the Commission's work programme that have not yet started or are in preparation, even those in priority 3 or 4. Members and partners are invited to submit comments for specific items, as well as available information, evidence, or data, including implementation approaches that could be taken into consideration once work commences.

The updated work programme is presented in [Annex 4](#), for comments.

5. Texts circulated to be proposed for adoption in May 2026

The Commission discussed the following new or revised texts including texts which were circulated for comments in its September 2025 report and that will be proposed for adoption at the 93rd General Session in May 2026.

5.1. Glossary

Comments were received from Australia, Canada, Chile, China (People's Rep. of), Colombia, Korea (Rep. of), New Caledonia, New Zealand, the UK, the USA, the EU and the ICAEW.

'border inspection post', 'container', 'isolation', 'point of entry', 'point of exit', 'quarantine centre', 'transit country' and 'means of transport'

Background

In June 2023, an *ad hoc* Group was convened to revise draft Chapters 5.4. to 5.7. It proposed a Glossary definition for 'point of exit' and revised existing Glossary definitions for 'border post', 'quarantine station', 'container' and 'vehicle/vessel', which were reviewed by the Commission at its September 2023 meeting and circulated for comments.

The Glossary definitions for 'border inspection post', 'container', 'point of entry', 'point of exit', 'quarantine centre', 'transit country' and 'means of transport' were further developed in connection with the ongoing revision of Chapters 5.4. to 5.7 by the *ad hoc* Group. The Commission also considered the proposed new Glossary definition for 'isolation' proposed by the *ad hoc* Group and made amendments for clarity.

Discussion

The Commission considered comments on Glossary definitions for 'border inspection post', 'container', 'isolation', 'point of entry', 'point of exit', 'quarantine centre', 'transit country' and 'means of transport' that were circulated in its September 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised draft Glossary definitions for border inspection post, 'container', 'isolation', 'point of entry', 'point of exit', 'quarantine centre', 'transit country' and 'means of transport' are presented as part of [Annex 5](#) and will be proposed for adoption at the 93rd General Session in May 2026.

'biosecurity', 'biosecurity plan', 'disinfection', 'pathogenic agent' and 'swill'

Background

At its September 2022 meeting, the Commission requested that an *ad hoc* Group be convened to develop a new chapter on biosecurity. As part of this work, the Commission agreed to review the Glossary definitions for 'biosecurity' and 'biosecurity plan' and to develop a new definition for 'swill'.

The Commission agreed to include the revision of the Glossary definition for 'disinfection' in its work programme, in response to comments on the new draft Chapter 4.X. 'Biosecurity'. In addition, the Commission agreed to add to its work programme the development of a definition for 'pathogenic agent' and requested the *ad hoc* Group on Biosecurity to undertake this task.

At its September 2024 meeting, the Commission considered the proposed Glossary definitions for 'disinfection' and 'pathogenic agent' drafted by the *ad hoc* Group and agreed with the proposals.

Discussion

The Commission considered comments received on Glossary definitions for 'biosecurity', 'biosecurity plan' and 'swill' that were circulated in its September 2025 meeting report.

The Commission's responses to the comments considered are presented in [Annex 3](#).

The revised Glossary definitions for 'biosecurity', 'biosecurity plan', 'disinfection', 'pathogenic agent' and 'swill' are presented as part of [Annex 5](#) and will be proposed for adoption at the 93rd General Session in May 2026.

'disinsection'

Background

At its February 2025 meeting, the Commission agreed to develop a new Glossary definition for 'disinsection' based on discussion of Chapter 4.14. 'Disinfection and Disinsection'. The Commission developed a new glossary definition in parallel with the revised draft definition for 'disinfection', which was circulated for comments.

Discussion

The Commission considered comments received on the Glossary definition for 'disinsection' that was circulated in its September 2025 meeting report.

The Commission's responses to the comments considered are presented in [Annex 3](#).

The Glossary definition for 'disinsection' is presented as part of [Annex 5](#) and will be proposed for adoption at the 93rd General Session in May 2026.

'seroconversion'

Background

At its September 2024 meeting, in response to comments received on the new draft Chapter 8.24. 'Infection with Nipah virus', the Commission agreed to develop a new definition for 'seroconversion', in line with the definition in the *Terrestrial Manual*. At its February 2025 meeting, the Commission, in collaboration with the Biological Standards Commission, reviewed a draft Glossary definition for 'seroconversion' proposed by the Secretariat and agreed to circulate it for comments.

Discussion

The Commission noted that there were no comments received on the definition for 'seroconversion'.

The Glossary definition for 'seroconversion' is presented as part of [Annex 5](#) and will be proposed for adoption at the 93rd General Session in May 2026.

'laboratory' and 'approved'

Background

While revising Chapter 1.6., the Commission noted that the current Glossary definition for 'laboratory' is limited to facilities for diagnostic purposes, and that it is relevant to also consider facilities approved for purposes other than diagnosis, such as research, vaccine or biological products development, manufacturing, and control. The Commission agreed to progress the revision of the definition of 'laboratory' in collaboration with the Biological Standards Commission.

In September 2025, the Commission, in collaboration with the Biological Standards Commission, reviewed the revised definition of 'laboratory' and circulated a draft Glossary definition together with a draft revised definition for 'approved' which is closely associated with the definition for 'laboratory'.

Discussion

The Commission considered comments on Glossary definitions for 'laboratory' and 'approved' that were circulated in its September 2025 meeting report.

The Commission's responses to the comments reviewed are presented in [Annex 3](#).

Although the revised texts were circulated only once following the September 2025 meeting report, the Commission decided to propose the two definitions for adoption at the 93rd General Session as they are essential to ensure consistency within the *Terrestrial Code* and no Member expressed opposition.

The revised Glossary definition for 'laboratory' and 'approved' are presented as part of [Annex 5](#) and will be proposed for adoption at the 93rd General Session in May 2026.

5.2. Articles 1.3.1., 1.3.3. and 1.3.7. of Chapter 1.3. 'Diseases, infections and infestations listed by WOA'

Comments were received from the EU.

Background

Articles 1.3.1. and 1.3.3.

At its September 2025 meeting, the Commission noted that amendments to the disease name and chapter title have been proposed for the new disease-specific Chapters 8.X. 'Infection with Crimean-Congo haemorrhagic fever virus' and 10.X. 'Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens)'. Given these proposed amendments, the Commission agreed to amend the name of these diseases in Articles 1.3.1. and 1.3.3. of Chapter 1.3. to align with the title of the disease-specific chapters.

Article 1.3.7.

At its February 2025 meeting, the Commission considered the opinion of the Scientific Commission, along with the opinions of experts on the assessment of Nairobi sheep disease against listing criteria in Chapter 1.2. 'Criteria for the inclusion of diseases, infections and infestations in the WOA list'. The Commission agreed that the disease does not meet all the required listing criteria and therefore circulated a proposal to Members to remove Nairobi sheep disease from the WOA list. The Commission considered Member comments at its September 2025 meeting.

Discussion

Articles 1.3.1. and 1.3.3.

The Commission noted an amendment proposed for the disease name and chapter title in revised Chapter 8.20. 'Infection with *Francisella tularensis* (Tularemia)' (see Item 5.7.). Given the proposed amendment, the Commission agreed to also amend the name of the disease in Article 1.3.1. of Chapter 1.3. to align with the title of the disease-specific chapter.

Article 1.3.7.

The Commission reviewed comments and its earlier considerations on Article 1.3.7. of Chapter 1.3. 'Diseases, infections and infestations by WOA' that was circulated in its February 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised Articles 1.3.1., 1.3.3. and 1.3.7. of Chapter 1.3. 'Diseases, infections and infestations listed by WOA' are presented as [Annex 6](#) and will be proposed for adoption at the 93rd General Session in May 2026.

5.3. Biosecurity (new Chapter 4.X.)

Comments were received from Australia, Canada, Chile, Korea (Rep. of), New Caledonia, New Zealand, the UK, the USA, the AU-IBAR, the EU and the ICAFW.

Background

At its September 2022 meeting, the Commission requested that an *ad hoc* Group be convened to develop a chapter structure on biosecurity and to revise relevant Glossary definitions. At its February 2023 meeting, the Commission considered the [ad hoc Group's report](#) and feedback from the Scientific Commission, and agreed that the proposed structure of the new Chapter 4.X., and the overall content were appropriate and requested that the *ad hoc* Group revise Glossary definitions for 'biosecurity' and 'biosecurity plan' and to propose a new definition for 'swill'.

The Commission reviewed the May 2023 [ad hoc Group's report](#), the March 2024 [report of the ad hoc Group](#), and Member comments, making amendments to the chapter and Glossary definitions where relevant.

Discussion

The Commission considered comments on the draft Chapter 4.X. 'Biosecurity' that was circulated in its September 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised draft Chapter 4.X. 'Biosecurity' is presented as [Annex 7](#) and will be proposed for adoption at the 93rd General Session in May 2026.

5.4. Measures and procedures applicable during 'exportation', 'transit' and 'importation' (Chapters 5.4. to 5.7.)

Comments were received from Canada, Chile, China (People's Rep. of), Japan, Korea (Rep. of), New Caledonia, New Zealand, the UK, the USA, the EU and the ICAFW.

Background

The Commission agreed to include a review of Section 5. 'Trade measures, import/export procedures and veterinary certification', in its work programme to better support Members in managing the risks associated with the introduction of diseases through the international trade or movements of commodities and considered that the revision of Chapters 5.4. to 5.7. should be given priority.

At its February 2023 meeting, the Commission reviewed the November 2022 report of the [ad hoc Group on Chapters 5.4. to 5.7.](#) and agreed to replace the four current chapters (Chapters 5.4., 5.5., 5.6. and 5.7.) with three new chapters that will provide recommendations on measures and procedures that are applicable during 'exportation', 'transit' and 'importation', respectively. The Commission also agreed with the proposal to develop a fourth chapter to address key facilities (e.g., border inspection posts and quarantine centres).

Since then, the Commission considered the reports of the *ad hoc* Group (November 2023 and April 2024) and the new draft Chapter 5.4. 'Measures and procedures applicable to the exportation of commodities', Chapter 5.5. 'Measures and procedures applicable to the transit of commodities', Chapter 5.6. 'Measures and procedures applicable to the importation of commodities', Chapter 5.7. 'Border inspection posts and quarantine centres', and associated Glossary definitions. The Commission circulated the draft chapters and new or revised Glossary definitions for comments several times.

Discussion

The Commission considered comments on revised Chapters 5.4. 'Measures and procedures applicable to the exportation of commodities', 5.5. 'Measures and procedures applicable to the transit of commodities', 5.6. 'Measures and procedures applicable to the importation of commodities' and 5.7. 'Border inspection posts and quarantine centres' that were circulated in its September 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised draft Chapter 5.4. 'Measures and procedures applicable to the exportation of commodities', Chapter 5.5. 'Measures and procedures applicable to the transit of commodities', Chapter 5.6. 'Measures and procedures applicable to the importation of commodities', and the new draft Chapter 5.7. 'Border inspection posts and quarantine centres' are presented as [Annex 8](#), [Annex 9](#), [Annex 10](#) and [Annex 11](#), respectively, and will be proposed for adoption at the 93rd General Session in May 2026.

5.5. Article 7.5.30. of Chapter 7.5. 'Animal welfare during slaughter'

Comments were received from Chile, China (People's Rep. of), Singapore, Korea (Rep. of), New Zealand, Singapore, Switzerland, Thailand, the UK, the USA and the EU.

Background

At its September 2025 meeting, the Commission considered comments received on point 4 of Article 7.5.30. of Chapter 7.5. 'Animal Welfare During Slaughter', which was circulated in its February 2025 meeting report. The Commission noted that some comments were received on other text in the article, which had not been circulated for comments. The Commission reviewed the comments received and agreed to address some of the comments and made relevant amendments only where this improved the clarity of the text. Given no new information on electrical parameters was provided that warranted a change, the Commission proposed to delete the reference to '[Under study]'.

Discussion

The Commission considered comments on point 4. of Article 7.5.30. of Chapter 7.5. 'Animal Welfare During Slaughter', which was circulated in its September 2025 meeting report. The Commission noted that some comments were received on parts of the article that did not relate to the proposal circulated for comments; these comments were therefore not addressed by the Commission.

The Commission's responses to the comments considered and the rationale for the additional amendments are presented in [Annex 3](#).

The revised Article 7.5.30. of Chapter 7.5. 'Animal welfare during slaughter' is presented as [Annex 12](#) and will be proposed for adoption at the 93rd General Session in May 2026.

The Commission was also made aware of a letter from a Member regarding a method of slaughter without stunning. The Commission acknowledged receipt of the letter and will discuss it further at its next meeting, although it noted that the revised chapter had already been circulated 5 times and was well-supported by the work of the *ad hoc* Group and by the corresponding scientific references.

5.6. Harmonisation of official status disease chapters Chapter 8.8. Infection with foot and mouth disease virus and Chapter 15.2. Infection with classical swine fever

Comments were received from Canada, Korea (Rep. of), New Caledonia, New Zealand, Türkiye (Rep. of), the UK, the AU-IBAR, the EU and the WRO.

Background

At its September 2025 meeting, the Commission considered the proposals developed by the Secretariat regarding amendments to relevant articles of Chapters 8.8., 14.7. and 15.2. to harmonise relevant provisions. The Commission noted that the purpose of revising these articles was to harmonise the relevant texts with the other official status disease chapters, Chapter 11.5. 'Infection with *Mycoplasma mycoides* subsp. *mycoides* (Contagious bovine pleuropneumonia)' and Chapter 12.1. 'Infection with African horse sickness virus' which were adopted at the 92nd General Session in May 2025. Revised Articles 8.8.3., 8.8.4. and 8.8.8. of Chapter 8.8. 'Infection with foot and mouth disease virus' and Articles 15.2.3. and 15.2.5. of Chapter 15.2. 'Infection with classical swine fever virus' were circulated for comments.

Discussion

The Commission considered comments on Articles 8.8.3., 8.8.4. and 8.8.8. of Chapter 8.8. 'Infection with foot and mouth disease virus' and Articles 15.2.3. and 15.2.5. of Chapter 15.2. 'Infection with classical swine fever virus' that were circulated in its September 2025 meeting report.

The Commission acknowledged the comments received on articles other than those circulated, such as Article 8.8.2. and a proposal for a new article in Chapter 8.8., and Article 15.2.2. The Commission reminded Members that the purpose of revising these articles was to harmonise the relevant texts with those in Chapter 11.5. and Chapter 12.1. The Commission highlighted that comments falling outside this scope were noted and will be discussed as future opportunities arise. In response to comments on the explicit reference to the use of Chapter 2.1. 'Import Risk Analysis' to identify equivalent sanitary measures, the Commission noted that Chapter 2.1 is already used by Members to support risk-based decision-making, and that its reference would not affect procedures related to official status recognition.

The Commission's responses to the other comments reviewed are presented in [Annex 3](#).

Revised draft Articles 8.8.3., 8.8.4. and 8.8.8. of Chapter 8.8. 'Infection with foot and mouth disease virus' and Articles 15.2.3. and 15.2.5. of Chapter 15.2. 'Infection with classical swine fever virus' are presented as [Annex 13](#) and [Annex 14](#), respectively, and will be proposed for adoption at the 93rd General Session in May 2026.

5.7. Infection with *Francisella tularensis* (Tularemia) (Chapter 8.20.)

Comments were received from Korea (Rep. of), New Zealand, Singapore and the EU.

Background

At its February 2025 meeting, the Commission considered the revised Chapter 8.20. prepared by the Secretariat for alignment with the case definition developed with experts and the Scientific Commission. At its September 2025 meeting, the Commission further worked on the revised chapter including the case definition, without updating all articles or undertaking a comprehensive redraft of the entire chapter.

Discussion

The Commission considered comments on Chapter 8.20. 'Infection with *Francisella tularensis* (Tularemia)' that was circulated in its September 2025 meeting report.

The Commission received expert advice regarding the incubation period for tularemia which was requested by a Member at its September 2025 meeting (refer to Annex 3 of [the TAHSC September 2025 meeting report](#)). The expert noted that the incubation period for tularemia is highly variable and would depend on the species affected and the route of infection. While clinical signs often manifest within a week, the incubation period can exceed 9 days in certain species, supporting the need for a conservative approach. In light of this variability and the potential for prolonged subclinical infection, the Commission decided to maintain the incubation period at 15 days. This may be reviewed when further scientific evidence becomes available.

Since the purpose of revising this chapter was to include the new case definition and make editorial amendments to align the text with the current style of the disease-specific chapters, implying that no new provisions were being added, the Commission decided to propose the revised Chapter 8.20. for adoption. The Commission noted that the comments outside the scope of this revision have been included in its work programme for future consideration (see Item 4.4.).

The Commission agreed to amend the name of the listed disease in Article 1.3.1. of Chapter 1.3. to 'Infection with *Francisella tularensis* (Tularemia)' for harmonisation with the proposed disease name in Chapter 8.20.

The Commission's responses to the comments reviewed are presented in [Annex 3](#).

The revised draft Chapter 8.20. 'Infection with *Francisella tularensis* (Tularemia)' and the revised Article 1.3.1. of Chapter 1.3. 'Diseases, infections and infestations listed by WOAHP' are presented as [Annex 15](#) and [Annex 6](#), respectively, and will be proposed for adoption at the 93rd General Session in May 2026.

5.8. Infection with Crimean-Congo haemorrhagic fever virus (new Chapter 8.X.)

Comments were received from Chile, Korea (Rep. of), Thailand, the USA and the EU.

Background

At its September 2024 meeting, the Commission developed a new Chapter 8.X. 'Infection with Crimean-Congo haemorrhagic fever virus', consisting of a single article on general provisions, including definitions of the listed disease and of its occurrence for notification. This followed the adoption of revised Chapter 3.1.5. 'Crimean-Congo haemorrhagic fever' of the *Terrestrial Manual* at the 91st General Session in May 2024 and the work of the Scientific Commission in developing a case definition. The Commission highlighted that the objective of this chapter was to support notification by Members for early warning due to the public health risks associated with this disease.

Discussion

The Commission considered comments on Chapter 8.X. 'Infection with Crimean-Congo haemorrhagic fever virus' that was circulated in its September 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The new draft Chapter 8.X. 'Infection with Crimean-Congo haemorrhagic fever virus' is presented as [Annex 16](#) and will be proposed for adoption at the 93rd General Session in May 2026.

5.9. Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens) (new Chapter 10.X.)

Comments were received from Chile, Korea (Rep. of), the UK and the EU.

Background

At its February 2023 meeting, the Commission was informed that the Scientific Commission had approved a draft case definition for turkey rhinotracheitis that had been developed by subject-matter experts. The Commission requested that the Scientific Commission clarify some points, notably on the animal hosts.

At its September 2024 meeting, the Commission considered feedback from the Scientific Commission and the Biological Standards Commission and agreed to draft a new Chapter 10.X. consisting of a single article on general provisions, including definitions of the disease and of its occurrence for notification. The Commission also agreed to use 'Infection with avian metapneumovirus (turkey rhinotracheitis and swollen head syndrome of chickens)' as the title of the new draft chapter.

Discussion

The Commission considered comments on the new draft Chapter 10.X. that was circulated in its September 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised new draft Chapter 10.X. 'Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens)' is presented as [Annex 17](#) and will be proposed for adoption at the 93rd General Session in May 2026.

6. Texts circulated for comments

The Commission discussed the following new or revised texts and circulated them for comments.

6.1. User's Guide

Background

At the 92nd General Session in May 2025, the proposed revised User's Guide was adopted unanimously. However, Members also raised concerns regarding the need for clarification of the case definitions and their interpretation in the User's Guide. The President of the Commission noted that the Commission would consider the proposals from Members at its future meeting.

Discussion

The Commission reviewed the current User's Guide and decided to update it to provide clearer guidance for Members to enhance understanding of the contents of the *Terrestrial Code*, as well as to address requests from Members regarding the clarification of case definitions in disease-specific chapters.

In Section A 'Introduction', further explanations were added as new points:

- the relationship between the *Terrestrial Code* and the *Terrestrial Manual*;
- clarification of obligations (notification) and recommendations;
- the distinction between the terms 'shall' and 'should' used in the *Terrestrial Code*;

- clarification of national implementation and legal integration;
- support for safe international trade and related aspects across the *Terrestrial Code*;
- scientific justification for alternative measures (this was moved from point 5 of Section C 'Specific issues'); and
- further general explanations on different Sections of the Code.

The Commission also added a new proposed point 1bis in Section B '*Terrestrial Code* content' to address requests from Members. This new point clarifies that terms accompanied by the expression 'for the purposes of the *Terrestrial Code*' should be applied according to their specific definitions throughout the *Terrestrial Code*, particularly for notification purposes. Furthermore, an additional explanation of the General Provisions or introductory article of the disease-specific chapters was included to provide clarification.

Furthermore, the Commission made amendments throughout the User's Guide to improve the clarity and explanation of relevant content.

The revised draft User's Guide is presented as [Annex 18](#) for comments.

6.2. Glossary

'animal host'

Background

During the discussion on the clarification of 'animal host' vs. other animals such as susceptible animals (see Item 4.1.8.2.), the Commission considered the necessity of a Glossary definition for 'animal host' and agreed to develop such a definition to clarify the use of the term in the *Terrestrial Code*. The Commission drafted the definition at its September 2025 meeting and decided to share it, along with the categorisation of animals, with the Scientific Commission and the Biological Standards Commission for their input.

Discussion

The Commission noted that the Scientific Commission and the Biological Standards Commission were in alignment with the proposed Glossary definition for 'animal host'. With this supportive input, the Commission decided to circulate the draft for comments.

The draft Glossary definition for 'animal host' is presented as part of [Annex 19](#) for comments.

'notifiable disease' and 'notification'

Background

In its review of Chapter 1.1. 'Notification of disease and provision of epidemiological information' (see Item 6.3.), the Commission noted that clarification was also necessary for the relevant Glossary terms 'notifiable disease' and 'notification'. Consequently, the Commission proposed amendments to these definitions in parallel with the revision of Chapter 1.1., as well as with the harmonisation of the use of these terms throughout the *Terrestrial Code*.

Discussion

In light of amendments made to Chapter 1.1., the Commission introduced further amendments to 'notifiable disease' and 'notification' for consistency.

The revised Glossary definitions for 'notifiable disease' and 'notification' are presented as part of [Annex 19](#) for comments.

‘animal health status’, ‘containment zone’, ‘free zone’, ‘protection zone’ and ‘zone’

Background

The Commission reviewed the [report of the ad hoc Group on zoning \(December 2025\)](#) and considered the revised *Glossary* definitions for ‘animal health status’, ‘containment zone’, ‘protection zone’, and ‘zone’, developed in connection with the ongoing revision of Chapters 4.4. and 4.Y. (see Item 6.6.).

Discussion

For the revised definition of ‘animal health status’, the Commission removed the term ‘unit’ and replaced it with ‘herd, flock, apiary or other subpopulation’. The term ‘unit’ may refer to a single animal, and the term ‘animal health status’ does not apply to a single animal. The status is given to the subpopulation of which the animal is a member.

The Commission noted that the definition of ‘containment zone’ proposed by the *ad hoc* Group would only be applicable for diseases for which WOAHS grants an official animal health status. These types of containment zones, once approved by WOAHS, may allow faster reinstatement of an officially recognised free status. However, the Commission considered that establishing a containment zone can be useful for the control of any type of disease, as well as for guaranteeing safe trade from the rest of the territory (outside the containment zone), and should not be limited only to diseases for which WOAHS grants official status (see Item 6.6.). It proposed to modify the current definition to make it more generally usable by focusing on the management measures rather than the epidemiological situation.

The Commission reviewed and agreed with the revisions the *ad hoc* Group made to the ‘protection zone’ definition.

The Commission reviewed the revised definition of ‘zone’ and deleted the reference to animal ‘population’. It also removed the reference to ‘for the purposes of disease prevention’, as it did not add value to the definition. The term ‘population’ was removed based on the related discussion of Chapter 4.4., where it was determined that the zoning chapters and *Glossary* definitions should refer to ‘subpopulations’ and not to ‘populations’.

The *ad hoc* Group had not proposed any changes to the definition of ‘free zone’, however the Commission modified the definition based on discussion of Chapter 4.4. to refer to animal ‘subpopulation’, rather than ‘population’ for consistency.

The revised *Glossary* definitions for ‘animal health status’, ‘containment zone’, ‘free zone’, ‘protection zone’ and ‘zone’ are presented as part of [Annex 19](#) for comments.

6.3. Chapter 1.1. Notification of diseases and provision of epidemiological information

Background

At its September 2024 and February 2025 meetings, the Commission reviewed provisions in Chapter 1.1. ‘Notification of diseases and provision of epidemiological information’ with the view to incorporate the work progressed on animal hosts and to address areas of ambiguity regarding Member notification obligations, in particular concerning the ‘stability’ of events.

At its September 2025 meeting, the Commission discussed proposed revisions with the Aquatic Animal Health Standards Commission so that work on the revision of Chapter 1.1. of the *Terrestrial Code* and *Aquatic Code* could be undertaken in parallel to ensure consistency between respective Chapters 1.1.

Discussion

At this meeting, the Commission discussed proposed revisions to Chapter 1.1. with the Aquatic Animal Health Standards Commission at a side meeting involving both Bureaux (see Item 3.3.).

Proposed amendments to Chapter 1.1. include the addition of titles to the different articles, replacement of 'strain' with 'type, subtype and variant' for consistency with syntax used in the *Terrestrial Code*, replacement of 'susceptible species' with 'animal host' (see Item 4.1.8.2.) and replacement of 'unusual host species' with 'previously unaffected animal host' to improve clarity.

The Commission also proposed text to provide guidance on the stability of events and to clarify the frequency for follow-up reports to be submitted for emerging diseases. Additional text was also proposed to clarify other important animal health information for reporting under Article 1.1.5.

The revised Chapter 1.1. 'Notification of diseases and provision of epidemiological information' is presented as [Annex 20](#) for comments.

6.4. Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOAHA (Chapter 1.6.)

Comments were received from Canada, Korea (Rep. of), New Caledonia, New Zealand and the EU.

Background

At its February 2023 meeting, the Commission developed a new Article 1.6.4. to clarify that holding a pathogenic agent, isolated or in an infected animal in a laboratory with an appropriate level of containment and biosecurity in accordance with the *Terrestrial Manual* such as a diagnostic reference, vaccine, antigen banks or infection study, will not impact the animal health status of a free country or zone. Further amendments were subsequently proposed by the Commission to update the use of the term 'quarantine centre' (see Item 5.1.) and to improve clarity of text concerning the official recognition of animal health status and associated procedures.

Revised Chapter 1.6. has been circulated three times for comment.

Discussion

The Commission considered comments on Chapter 1.6. 'Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOAHA' that was circulated in its September 2025 meeting report.

The Commission requested the Secretariat to review provisions from the disease-specific chapters pertaining to official status recognition for incorporation into Chapter 1.6. (see Item 4.1.7.). At its next meeting, the Commission will review recommendations on the compliance measures pertaining to the containment zone proposed by the *ad hoc* Group on zoning (see Item 6.6.) to be included in this chapter.

The Commission's responses to comments are presented in [Annex 3](#).

The revised Chapter 1.6. 'Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOAHA' is presented as [Annex 21](#) for comments.

6.5. New draft Chapter 3.X. 'Emergency management'

Comments were received from Australia, Canada, China (People's Rep. of), Chinese Taipei, Colombia, Japan, Korea (Rep. of), New Zealand, the USA, the EU and the ICAFW.

Background

At the 89th General Session, in 2022, Resolution No. 28 on emergency management recommended that WOAHA international standards address emergency management. At its September 2023 meeting, the Commission agreed with the proposal from WOAHA Headquarters to develop a standard on emergency management for the *Terrestrial Code*.

In later meetings, the Commission reviewed the reports of the *ad hoc* Group on emergency management ([June 2024](#), [December 2024](#) and [June 2025](#)). The *ad hoc* Group drafted a new Chapter 3.X. 'Emergency Management'. The Commission provided some advice for the consideration of the *ad hoc* Group including the need to highlight the veterinary role, for consistency of terminology used throughout the chapter, and to define some terms where it will promote a better understanding of the chapter.

Discussion

The Commission considered comments on new draft Chapter 3.X. 'Emergency management' that was circulated in its September 2025 meeting report.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised draft Chapter 3.X. 'Emergency management' is presented as [Annex 22](#) for comments.

6.6. Revision of Chapter 4.4. Zoning and compartmentalisation

Background

At its February 2024 meeting, the Commission requested that an *ad hoc* Group be convened to develop a new chapter on 'Implementation of zoning' and to also review relevant points in Chapter 4.4. 'Zoning and compartmentalisation' to ensure consistency and complementarity between the two chapters.

At its September 2025 meeting, the Commission considered the [report of the *ad hoc* Group on zoning \(May 2025\)](#), the revised definitions for 'animal health status' and 'zone', the revised draft Chapter 4.4. 'Defining Subpopulations of Animals' and the outline of a draft Chapter 4.Y. 'Application of Zoning.' The Commission requested that the *ad hoc* Group continue to revise Chapter 4.4. to address other mechanisms of establishing subpopulations of animals, while they work on both chapters. In addition, the *ad hoc* Group should also consider subpopulations based on vaccination status, wild animals versus domestic or captive wild animals, and zones defined by the control measures implemented or lack thereof.

The Commission also considered the outline for a new draft Chapter 4.Y. 'Implementation of zoning'. It approved the outline as drafted and encouraged the *ad hoc* Group to continue to develop the details of this chapter. The Commission also suggested that the chapter include text on zoning for trade purposes only, such as the use of equine disease-free zones used to move or gather horses internationally for competition. The Commission also requested that the *ad hoc* Group include information about the importance of animal hosts to show that different subpopulations of animals have different epidemiological importance, and therefore do not always need to be considered in the notification, animal health status, control of disease or trade recommendations.

Discussion

The Commission considered the [report of the *ad hoc* Group on zoning \(December 2025\)](#), the revised Glossary definitions, the revised draft Chapter 4.4. 'Establishing and maintaining populations and subpopulations of animals', and the new draft Chapter 4.Y. 'Application of zoning', together with the opinions of the Scientific Commission.

The Commission considered the proposal of the *ad hoc* Group to remove the reference to 'populations' in the revised Chapter 4.4., leaving only 'subpopulations'. The Commission determined that a reference to 'population' would refer to a larger group of animals such as animals with a common species or production type, and the purpose of this chapter was to guide how various subpopulations are created out of the larger group of animals. The Commission agreed to remove the reference to populations and revised the name of the chapter to 'Defining, establishing and maintaining subpopulations of animals'. It requested that the experts expand the chapter to add more detail and examples of other useful options or mechanisms to create alternative subpopulations of animals beyond zoning and compartmentalisation. It suggested this work be done after the Commission meeting in September 2026 so that Member comments received on its February 2026 report may also be considered.

The *ad hoc* Group drafted a new Chapter 4.Y. expanding on methods to implement zoning. The Commission reviewed this work and made some changes. Consistent with Chapter 4.4., the Commission removed references to populations in this chapter, leaving only references to subpopulations.

The Commission removed a paragraph covering how WOAHA and trading partners can recognise zones, as this information will be moved to another section of the *Terrestrial Code*.

The Commission noted that protection zones are not necessarily free zones, and therefore the relevant provisions were moved to a separate article. The Commission considered that while protection zones may be established first as free zones, they can remain protection zones even if there is an incursion of infection, or if a decision is made to vaccinate within the zone for diseases where vaccination is not compatible with free status, including also the possibility of establishing a containment zone within the protection zone to avoid further spread of the disease in that zone.

The Commission noted that the article on containment zones was modified by the *ad hoc* Group to refer only to diseases for which WOAHA grants an official animal health status. These containment zones, if approved by WOAHA, may allow faster reinstatement of officially recognised free status. The Commission considered that creating a containment zone can be useful for the control of any type of disease, and to guarantee safe trade from the rest of territory outside the containment zone, and should not be limited only to diseases for which WOAHA grants official status such as the example of high pathogenicity avian influenza. It recommended that conditions specific to containment zones used to recover official WOAHA free status, including the 24-month time limitation of such zones, be moved to Chapter 1.6., and that disease-specific considerations for containment zones continue to be captured in the disease-specific chapters. The Commission decided to further discuss this point at its next meeting. The draft chapter and the draft revised definition of containment zone propose to allow countries to have more than one containment zone where appropriate, provided that all outbreaks are included within the containment zones.

The Commission agreed with a recommendation from the *ad hoc* Group regarding Article 8.8.10. of the FMD Chapter. Currently, if recovery of the FMD free status of a containment zone is not achieved within 24 months of its approval, the status of the remainder of the country or zone is suspended. The Group suggested that, in such circumstances, the country should not be given an additional two-year period to recover its official status through the fast-track process. In agreement with the Scientific Commission, the Commission agreed with the recommendation that Article 8.8.10. should be amended to ensure that the official status of the country should be withdrawn if the free status of the containment zone was not recovered after 24 months, and the provisions of articles 8.8.3 or 8.8.4 for free country or zone would then apply. This point will also be discussed together with other procedural aspects of the revisions to Chapter 1.6.

The Commission also removed a reference to contingency plans, as it considered it adequate for Members to define zoning in their veterinary legislation, which would include regulations as well as legal instruments.

The Commission noted that Members could also benefit from a broader guidance document on zoning, like the existing guidance on surveillance or on compartmentalisation. It therefore requested WOAHA to consider, once the draft chapters are adopted, developing such a document, which could, for example detail specific situations linked to production types, role of wildlife or geographical characteristics such as island territories or other major geographical features.

The revised Chapter 4.4. 'Defining, establishing and maintaining populations and subpopulations of animals', and new Chapter 4.Y. 'Application of zoning', are presented as [Annex 23](#) and [Annex 24](#), respectively, for comments.

6.7. Development of an introductory chapter of Section 5 (new Chapter 5.X)

Background

At its February 2024 meeting, the Commission discussed the development of an introductory chapter to Section 5. 'Trade measures, import/export procedures and veterinary certification', similar to the introductory chapters included in some other sections of the *Terrestrial Code*. The Commission agreed that an introductory chapter for Section 5 could provide background and clarity on the objective, scope and content of the chapters in Section 5. The Commission requested the *ad hoc* Group on Chapters 5.4. to 5.7. consider this proposal.

At the Bureaux meeting of the Code and Aquatic Commissions in September 2024, it was agreed that this work should be developed in collaboration aiming to harmonise, given the similarities between Sections 5 of the *Aquatic Code* and the *Terrestrial Code*. The Commissions agreed to establish a task force consisting of representatives from each Commission to draft the introductory chapter to Section 5.

At its September 2025 meeting, the Commission reviewed a draft introductory chapter to Section 5 that was developed by the task force. The Commission considered that the initial scope was too broad and clarified that the introductory chapter should emphasise the objective of Section 5, while other provisions regarding other Sections of the Code would be better placed within the User's Guide.

Discussion

The Commission reviewed a revised draft of the introductory chapter to Section 5 that was developed by the task force. The Commission considered that the updated scope of the chapter was fit for purpose and edited the draft chapter for clarity and consistency.

At the Bureaux meeting of the two Commissions (see Item 3.3.), the Bureau of the Aquatic Animal Health Standards Commission reported that the Aquatic Animal Health Standards Commission had also reviewed the draft introductory chapter developed by the task force and had suggested editing the document for clarity. A final version of Chapter 5.X. was approved, and the Bureaux agreed to circulate the Chapter 5.X. for comments.

The draft Chapter 5.X. 'Introduction to recommendations for international veterinary certification and export and import procedures' is presented as [Annex 25](#) for comments.

6.8. Revision of chapters on transport of animals (Chapters 7.2., 7.3. and 7.4.)

Background

At its February 2023 meeting, the Commission agreed to commence work to revise Chapter 7.2. 'Transport of animals by sea' and Chapter 7.3. 'Transport of animals by land' and requested that an *ad hoc* Group be convened to undertake this work.

At its September 2024 meeting, the Commission considered the *ad hoc* Group's June 2024 report and agreed with its recommendation to merge Chapters 7.2. and 7.3. and to also include Chapter 7.4. 'Transport of animals by air', into a single chapter. The Commission requested the *ad hoc* Group be reconvened to start the development of the chapter. The Commission also requested that the *ad hoc* Group consider including recommendations for the transport of animals by foot, given its relevance in many parts of the world (e.g. transhumance).

At its September 2025 meeting, the Commission considered the March 2025 *ad hoc* Group report, including draft new Chapter 7.2. and requested that the *ad hoc* Group meet again to continue working on the draft chapter, notably to streamline the chapter and improve its structure and readability.

Discussion

The Commission reviewed the draft Chapter and [the work carried out by the *ad hoc* Group](#) (December 2025) to reduce repetition throughout the chapter, which was partially a product of merging three chapters into one. The Commission reviewed the chapter structure and made further amendments to increase the clarity and technical accuracy of the chapter where necessary.

The revised draft Chapter 7.2. 'Animal welfare during transport' is presented as [Annex 26](#) for comments.

6.9. Revision of Chapter 7.6. Killing for disease control purposes

Background

At its February 2018 meeting, the Commission agreed to revise Chapter 7.6. 'Killing of animals for disease control purposes' and requested that an *ad hoc* Group be convened to undertake this work, as well as the revision of relevant Glossary definitions. The first *ad hoc* Group meeting was held in June 2023. The Commission continued to review the work of the [ad hoc Group](#) (December 2025) on the draft Chapter 7.6. while circulating a revised draft Chapter 7.6. for comments.

At its September 2025 meeting, the Commission considered comments received on Chapter 7.6. 'Animal welfare at the time of killing for purposes other than slaughter' which was circulated in its February 2025 meeting report. The Commission considered comments on Articles 7.6.1., 7.6.2., 7.6.3, 7.6.4 and 7.6.6., as well as general comments. The Commission also discussed the inclusion of water-based foam and ventilation shutdown as killing methods, for which many comments were received. The Commission requested that the *ad hoc* Group review the Commission's position on these comments and actively consider the remaining comments received on the chapter.

Discussion

The Commission reviewed the revised draft chapter and [the *ad hoc* Group's responses](#) to the comments received and the amendments made. The Commission discussed opinions on retaining or removing the following killing methods: water-based foam, ventilation shutdown, and the addition of anaesthetics to feed or water. For head only electrical stunning followed by a secondary killing method, they also discussed the proposal to restructure the articles to clearly separate one stage and two stage electrical killing processes.

Whilst the Commission agreed with removing the article on water-based foam, due to the associated welfare concerns, it did not agree with retaining ventilation shutdown and deleted the article from the chapter, consistent with its previous discussions from the September 2025 meeting. Due to the strong welfare concerns associated with the method, as expressed by many Members and organisations and demonstrated by scientific evidence, the Commission did not think that recommendations for its use were appropriate within the WOAHS standards.

The Commission also agreed with the decision to remove the article on the addition of anaesthetics to feed or water, due to the difficulties associated with availability of suitable anaesthetics and uniform administration of the anaesthetics, which makes the method currently ineffective. It acknowledged that if drug development or related technology improved that this could be revisited in future.

The Commission agreed with the proposal to remove the article on head only electrical stunning followed by a secondary killing method, as the recommendations are now included in the articles on electrical two stage application and head to body electrical killing. The Commission's responses to comments considered are presented in [Annex 3](#).

The revised draft Chapter 7.6. 'Animal welfare at the time of killing for purposes other than slaughter' is presented as [Annex 27](#) for comments.

6.10. Article 8.8.13 and new Article 8.8.31bis of Chapter 8.8. Infection with foot and mouth disease virus

Background

When revising Chapter 8.8. 'Infection with foot and mouth disease virus' in September 2022, the Commission considered a comment proposing the inclusion of 'gamma-irradiated foetal bovine serum' in the list of safe commodities in Article 8.8.2. The Commission was informed that the industry had indicated that 'gamma irradiation' is not a standard step in the manufacturing process for this commodity but rather an additional treatment applied to address potential risks of transmission of foot and mouth disease virus (FMDV) and other pathogenic agents. After considering the information provided by the industry, the Commission agreed not to include this commodity as a safe commodity in Article 8.8.2. but to draft a new Article 8.8.33bis. 'Recommendations for importation of fetal bovine serum from countries or zones infected with FMDV'.

At its September 2024 meeting, the Commission reviewed the new Article 8.8.33bis. 'Recommendations for importation of fetal bovine serum from countries or zones infected with FMDV' and agreed to circulate this new article for comments. At its February 2025 meeting, acknowledging concerns that risk mitigation measures in the draft article were inadequate, the Commission requested the Secretariat to amend the draft article, in consultation with subject matter experts, and to include risk mitigation measures in addition to gamma irradiation.

Discussion

The Commission considered comments received on Article 8.8.33bis. of Chapter 8.8. 'Infection with foot and mouth disease virus' that was circulated in its September 2024 meeting report.

In response to a comment from a Member, the Commission reviewed expert advice regarding the adequacy of gamma irradiation for inactivating FMDV in fetal bovine serum. The experts noted that, given that abortion is a well-recognised consequence of FMD, the possibility of transplacental infection cannot be discarded. Viral titres in infected fetuses are as high as those in adult animals, meaning that FMDV contamination of fetal bovine serum batches remains a potential risk. Gamma irradiation at a dose of 30 kGy is an established method for inactivating FMDV, achieving a reduction of over 5 log₁₀. Whilst irradiating frozen samples enhances biosafety and preserves proteins, it has been consistently shown to reduce the overall effectiveness of the inactivation process. To ensure the highest level of safety, it is recommended that 30 kGy irradiation be combined with RT-PCR testing. Considering the expert advice, the Commission agreed to include additional risk mitigation measures (i.e. testing for detection of nucleic acid) to provide a robust basis for inactivating any FMDV.

In addition, the Commission considered the request from the Scientific Commission regarding the discrepancy between point 4 of Article 8.8.13. (importation of susceptible animals from countries, zones or compartments free from FMD without vaccination) and point 4 of Article 8.8.14. (importation of susceptible animals from countries, zones or compartments free from FMD with vaccination). Based on scientific evidence that residual immunity typically wanes within three years, the Commission agreed with the rationale of the Scientific Commission that it was not necessary to subject animals vaccinated more than three years ago to NSP serological testing. Moreover, the Commission noted that all animals of a country or zone recognised as free without vaccination, including any remaining vaccinated animals, share the same animal health status (i.e. freedom as demonstrated in accordance with Article 8.8.3. point 4b) through at least 12 months of surveillance after vaccination has ceased). As these animals present the same level of risk, they should not be treated differently. The Commission thus proposed to delete point 4 of Article 8.8.13. to resolve this discrepancy.

The Commission's responses to comments considered are presented in [Annex 3](#).

The revised draft Articles 8.8.13. and 8.8.33bis. of Chapter 8.8. 'Infection with foot and mouth disease virus' are presented as [Annex 28](#) for comments.

6.11. Glossary definition for ‘poultry’ and Chapter 10.4. ‘Infection with high pathogenicity avian influenza viruses’

Background

At its September 2023 meeting, the Commission considered comments received to review the Glossary definition of ‘poultry’ to address birds that do not play a significant epidemiological role in the spread of high pathogenicity avian influenza (HPAI) through international trade. The Commission agreed to add the revision of the definition of ‘poultry’ to its work programme.

At its February 2025 meeting, the Commission reviewed the proposal presented by the Secretariat, considering the possibility of a simplified definition of poultry, while noting that for some listed diseases such as HPAI and Newcastle disease, all types of birds were included for the purpose of notification while some birds could be excluded from the definition of free status of a country or zone. The Commission discussed that a simplified definition of poultry should focus on a positive description of what types of birds are poultry, without including a list of types of birds that are not considered as poultry.

The Commission requested that the Secretariat work with one of its members to continue developing a simplified poultry definition based on animal hosts that would be used to determine when the occurrence of the disease would need to be notified to WOA. The Commission requested that this work address comments received from Members requesting clarification on reporting timeframes for HPAI findings in mammals. The Commission also requested the development of revisions for Chapter 10.4. to determine which specific poultry subpopulations would be the subject of free status for HPAI, relevant sanitary measures and surveillance provisions.

Discussion

The Commission considered draft revisions to the Glossary definition of ‘*poultry*’ and Chapter 10.4. ‘Infection with high pathogenicity avian influenza viruses’, to address Member concerns about the definition of ‘poultry’ as well as requests to clarify when findings of HPAI viruses should be reported if they are found in animals other than poultry.

The Commission reviewed a draft simplified definition for ‘poultry’ that would remain in the Glossary, broadly relevant to all avian diseases and the variety of poultry production situations and scales globally. It discussed and revised a proposed definition for ‘commercial poultry’ for the unique purpose of Chapter 10.4. The Commission also raised that compartmentalisation may be an alternative approach to address this concern at the establishment level. The Commission made some revisions to Article 10.4.1. for consistency with the Framework. The Commission added clarifying points regarding the infection of domestic and wild birds other than poultry with various influenza A viruses that are notifiable in accordance with Article 1.3.3.

Clarifying points were also added to Article 10.4.1. regarding occurrences of non-notifiable influenza A virus in birds, or findings of influenza A virus of high pathogenicity in mammals which should be reported in accordance with Article 1.1.5., which do not affect the high pathogenicity avian influenza status of the country or zone in poultry.

The Commission revised Article 10.4.3. to clarify that the article applies to countries or zones free from HPAI in all ‘poultry’.

The Commission reviewed a new Article, 10.4.3.bis to further define the requirements for a country or zone to be considered free from HPAI in commercial poultry. The Commission noted that birds cannot be considered commercial poultry unless they meet the criteria of the new ‘commercial poultry’ definition and the criteria of Article 10.4.3.bis.

The Commission revised Article 10.4.4. to clarify that compartmentalisation may be applied to commercial poultry establishments, and revised article 10.4.6. to address recovery of free status in poultry or commercial poultry, with the requirements for both situations.

The revised draft articles of Chapter 10.4 “ is presented as [Annex 29](#) for comments and the revised Glossary definition of ‘poultry’ is presented as [Annex 19](#), respectively, for comments.

6.12. Article 10.9.3. of Chapter 10.9. Infection with Newcastle disease virus

Background

The Commission considered comments received on Article 10.9.3. of Chapter 10.9. ‘Infection with Newcastle disease virus’. Members had requested that the Commission consider reducing the time required to recover free status for Newcastle disease from three months to 42 days, which would be equivalent to twice the incubation period. They also requested consideration of whether the incubation period could be shorter than 21 days.

The Secretariat referred these questions to experts for consideration. The experts considered that the incubation period should remain at 21 days, as in some avian species the incubation period may be longer than 14 days, or clinical signs may be minimal. Experts were also concerned about the extensive use of vaccination for Newcastle disease, and the stability of the virus in the environment. Therefore, they recommended that the incubation period remain at 21 days, however, they agreed that the time needed to recover free status could be reduced to twice the incubation period.

Discussion

The Commission reviewed the information submitted by the experts and agreed to maintain the incubation period at 21 days, while decreasing the waiting period for recovery of freedom from 3 months to 42 days.

The Commission evaluated Chapter 10.9. ‘Infection with Newcastle disease virus’ and identified other areas where the chapter could benefit from updates. It requested the Secretariat to convene a group of experts to undertake the work of updating and revising this chapter, and to report back to its September 2026 meeting.

Given the repeated requests from Members for changes to Article 10.9.3., the Commission decided to propose this limited amendment for comment, recognising that more substantial revisions to the chapter may be proposed at a later time. The revised draft Article 10.9.3. of Chapter 10.9. ‘Infection with Newcastle disease virus’ is presented as [Annex 30](#) for comments.

6.13. Revision of Chapter 11.9. Infection with lumpy skin disease virus

Comments were received from Australia, Canada, China (People’s Rep. of), Japan, Korea (Rep. of), New Caledonia, New Zealand, Singapore, the UK, the USA, EU and the WRO.

Background

At its September 2025 meeting, the Commission circulated draft amendments to Chapter 11.9. ‘Infection with lumpy skin disease virus’ for Member comments following proposed amendments by the [ad hoc Group on Sheep and goat pox](#) for alignment with Chapter 14.9., the opinion of the Scientific Commission and additional clarification received by subject matter experts.

The Commission also requested the Secretariat to seek expert opinion on provisions related to freedom from lumpy skin disease (LSD) including the period required for vaccination cessation, the duration of surveillance required where no cases are detected in order for a country or zone to be free as well as to recover freedom.

Discussion

At this meeting, the Commission reviewed the opinion of experts and the Scientific Commission, including to address Member comments on Chapter 11.9. ‘Infection with lumpy skin disease virus’ that was circulated in its September 2025 meeting report.

In the article on safe commodities, the Commission proposed to replace 'tallow' with 'rendered fats'. The Commission agreed to also further reflect on how to apply this terminology change across the *Terrestrial Code*. It considered the importance of having Glossary definitions for these terms so that each standardised processing is described and consistently understood (see Item 4.3.1.2.). The Commission also proposed the addition of 'heat-treated meat products in a hermetically sealed container with a F0 value of 3 or above' as a safe commodity.

In the article on LSD freedom, the Commission discussed the period for which there must be no case in order for a country or zone to be considered free and considered that the existing provisions did not consider measures taken by Members to control the disease, such as vaccination. It noted expert opinion that successful control and eradication of LSD requires a widespread vaccination campaign aimed at a high vaccination coverage of the target population, with or without stamping-out. In this regard, the Commission proposed to clarify in this article that the pathway to freedom is either a situation where the country or zone is historically free, or otherwise a vaccination programme aimed at eradicating LSD has been in place. In this way, the *Terrestrial Code* would provide better guidance to Members that are aiming to achieve free status.

If an active clinical, serological and virological surveillance programme is in place, the Commission proposed a period of 18 months without the occurrence of any case in order for a country or zone to be considered free. The rationale for 18 months is based on one vector season of 12 months (noting that this time point may not start right at the beginning of the vector season) as well as the time for the waning of maternal antibodies so that naïve animals may show clinical signs if the virus is still circulating in the population. If only clinical surveillance is used, a strategy that the Commission clarified was not the most appropriate for LSD, the duration is proposed to be 30 months to account for more than two vector seasons in the event cases are missed due to reduced sensitivity of clinical surveillance, in particular in a previously vaccinated population.

In the article on recovery of freedom, the Commission proposed reductions to the recovery period to take into account only the vector seasons as it considered there was no need for an additional two months of security as this has no bearing on the vector season. It further clarified that these periods are shorter than those proposed for Article 11.9.3. as stamping-out is also employed, which implies a reduction in viral load.

Throughout the provisions for the trade of commodities, where relevant, the Commission proposed to clarify that only live attenuated vaccines should be used, in which case the lower limit for when vaccination may be applied could be 30 days as expert opinion cited that protection is conferred after 3 weeks.

Concerning the risk posed by milk and milk products, the Commission considered that whole virus has never been isolated from the milk of infected cows, that transmission to suckling calves has never been demonstrated under vector-proof conditions or with assurance of no skin lesions on the teats, and that there has been no documented transmission of LSD through milk products. Taking into account the processing steps used to convert milk to milk products, together with the safeguard that these commodities originate from herds that are not infected or suspected of being infected by LSDV, the Commission considered that these factors or processes would sufficiently mitigate any remote risk of transmission. Therefore, the Commission proposed to delete the need for further processing of milk products in the corresponding article. In parallel, the Commission proposed the addition of pasteurised and ultra-high temperature milk (and products thereof) to the list of safe commodities, since pasteurisation and UHT treatments have been demonstrated to inactivate any potential live LSDV in milk.

Noting the importance of providing fit-for-purpose guidance to Members to achieve surveillance objectives including early warning, demonstration of freedom and vaccination monitoring, the Commission requested the Secretariat to work with experts to further develop the articles on surveillance.

The Commission's responses to comments are presented in [Annex 3](#).

The revised draft Chapter 11.9. 'Infection with lumpy skin disease virus' is presented as [Annex 31](#) for comments.

6.14. Revision of Chapter 12.11. Venezuelan equine encephalomyelitis

Comments were received from Australia, Canada, China (People's Rep. of), Korea (Rep. of), New Zealand, the UK, the USA, the EU and the WRO.

Background

In the process of revising the equine encephalitis chapters, Commission considered the [April 2025 ad hoc Group report on the Revision of Chapter 12.11. 'Venezuelan equine encephalomyelitis'](#) and the revised draft Chapter 12.11. 'Infection with Venezuelan equine encephalitis virus (Venezuelan equine encephalomyelitis)' together with the opinions of the Scientific Commission. The Commission agreed with the *ad hoc* Group suggestion to propose a new revised Chapter 12.11. as a clean text due to the extensive revision needed.

Regarding commodities such as meat and germinal products that were assessed as not meeting the criteria of safe commodities, the Commission requested the Secretariat to seek expert advice on what provisions would be needed for the safe importation of these commodities and to report back to the Commission at its next meeting. Although the Commission requested expert advice on recommendations for the importation of certain commodities, it agreed to circulate the revised Chapter 12.11. for comments and to add these provisions at a later stage.

Discussion

The Commission considered comments received on Chapter 12.11. 'Infection with I-AB and I-C variants of Venezuelan equine encephalitis virus (Venezuelan equine encephalomyelitis)' that was circulated in its September 2025 meeting report.

In response to the comments regarding the specification of virus subtypes, the Commission recalled that any pathogenic agent considered for the WOAHP listed diseases should meet the criteria described in Chapter 1.2. of the *Terrestrial Code*. Based on the criteria, a listing assessment for Venezuelan equine encephalomyelitis was conducted, which included the evaluation of both epizootic and enzootic subtypes (refer to the report of the September 2023 Scientific Commission meeting). Following this assessment, the *ad hoc* Group considered which variants should be listed. Given the relevance of this disease to the international movement of horses, and its public health implications, the *ad hoc* Group concluded that the target pathogenic agents for the purposes of the *Terrestrial Code* should be the epizootic variants (I-AB and I-C). The Group further determined that the enzootic variants (VEEV I-D and I-E), should not be listed, as equids do not act as amplifying hosts for these variants but rather serve as dead-end hosts, as reflected in the report of the *ad hoc* Group. Accordingly, the Commission agreed to focus on these specific variants for the revised chapter. Recognising the potential for enzootic variants to evolve into epizootic variants, the Commission reviewed the surveillance articles to ensure that this risk may be appropriately addressed. Such occurrences would be reported in accordance with Article 1.1.5. of the *Terrestrial Code*.

The Commission was updated on experts' input regarding risk mitigation measures for the importation of meat and germinal products. The Commission requested the Secretariat to seek further expert advice on this matter, in particular, regarding the potential risk posed by the importation of meat and germinal products and the relevance of implementing appropriate risk mitigation measures.

Furthermore, the Commission revised the vaccination interval in the recommendations for the importation of equids from an infected country or zone, as described in Article 12.11.8. Based on data concerning transient viremia and subsequent seroconversion observed in vaccinated equids, a minimum interval of 30 days between the date of vaccination and export should be required. This 30-day interval provides sufficient time for the clearance of the vaccine virus and the development of an adequate immune response before equids or their products enter the trade chain. The Commission agreed with the expert's rationale and replaced '60 days' with '30 days' in point 2a) of Article 12.11.8.

The Commission's responses to other comments reviewed are presented as part of [Annex 3](#).

The revised draft Chapter 12.11. 'Infection with I-AB and I-C variants of Venezuelan equine encephalitis virus (Venezuelan equine encephalomyelitis)' is presented as [Annex 32](#) for comments.

6.15. Revision of Chapter 14.9. Sheep pox and goat pox

Comments were received from Australia, Canada, China (People's Rep. of), Chinese Taipei, Korea (Rep. of), New Zealand, Thailand, the UK, the USA, the EU and the WRO.

Background

At its September 2025 meeting, the Commission circulated draft amendments to Chapter 14.9. 'Infection with sheeppox virus (sheeppox) and goatpox virus (goatpox)' for Member comments following the work of the [ad hoc Group on Sheep and goat pox](#) which met in November 2025, after considering the opinion of the Scientific Commission and additional clarification received by experts.

Discussion

The Commission considered comments received on Chapter 14.9. 'Sheep pox and goat pox' that was circulated in its September 2025 meeting report.

In discussing Chapter 14.9., the Commission made changes throughout where relevant, including to align with some proposed changes to Chapter 11.9.

In the article on safe commodities, the Commission added ultra-high temperature milk and rendered fats as the processes involved would inactivate capripoxviruses. Pasteurisation was not added as current evidence does not demonstrate sufficient effectiveness to consider pasteurised milk as intrinsically safe.

In the article on free status, the Commission proposed modifications to align with the corresponding article in Chapter 11.9., likewise noting that the pathway for an endemic country to achieve freedom is through a vaccination campaign aimed at eradication, and considering that vaccination masks clinical signs and there is no DIVA strategy, vaccination should cease before the beginning of the period during which surveillance should demonstrate the absence of infection.

Considering the requirements for importation of milk and milk products from an infected country or zone, in response to a comment from a Member, the Commission considered that for sheep pox and goat pox the risk of transmission through milk is not negligible. It therefore considered that milk should not only originate from herds that are not infected or suspected of being infected with sheeppox virus or goatpox virus at the time of milking, but should also be subjected to pasteurisation or other treatment with equivalent effectiveness.

The Commission requested the Secretariat to seek expert opinion on the processes that would address the risk associated with skins of sheep and goats and the feasibility of incorporating molecular biology approaches in surveillance.

The Commission's responses to comments are presented in [Annex 3](#).

The revised draft Chapter 14.9. 'Infection with sheeppox virus (sheeppox) and goatpox virus (goatpox)' is presented as [Annex 33](#) for comments.

6.16. Terminology: Notifiable disease and notification

Background

In response to comments requesting a review of the terms 'notify', 'notifiable disease', 'report' and 'reportable disease' used in the *Terrestrial Code*, and noting that these terms could lead to misunderstanding and incorrect interpretation, the Commission acknowledged these comments and added a review of these terms throughout the *Terrestrial Code* to its work programme.

Discussion

The Commission reviewed an internal policy proposed by the Secretariat for the consistent use of relevant terms as well as the revisions to relevant articles throughout the *Terrestrial Code*. The Commission agreed on the following:

- 'notifiable disease': to follow the Glossary definition, that is, a disease to be reported to the Veterinary Authority of a Member country in accordance with its national regulations
- 'notification': to follow the Glossary definition, that is, the procedure of reciprocal information between Members and WOAHA Headquarters regarding listed and emerging diseases in accordance with Chapter 1.1.
- 'notify': refers to Members providing information to WOAHA
- 'report', 'reporting', 'informing': refers to information provided internally within Members or to other Members or other organisations than WOAHA, depending on the context
- 'reportable disease': not to be used in the *Terrestrial Code* to avoid misunderstanding.

Based on this policy, the Commission revised the relevant texts throughout the *Terrestrial Code*. The Commission also made additional minor linguistic amendments to reflect these changes. The Commission noted that amendments were not applied to chapters currently under revision, as these changes have already been addressed within those specific chapters.

The revised texts are presented as [Annex 34](#) for comments.

7. Updates on WOAHA initiatives relevant to the Code Commission

7.1. Work of the Governance Review Committee

The Commission was updated on the work of the Governance Review Committee (GRC). The Commission was informed that the Specialist Commissions would continue to be consulted throughout 2026 on the development of the WOAHA Technical Procedural Manual, a priority workstream for the GRC in accordance with Assembly Resolution No. 5 (2025). Updates were also provided on the GRC's review of the process leading to the appointment of Specialist Commissions members, with GRC recommendations expected to be submitted to the Assembly at the 93rd General Session in 2026. The Commission noted that the GRC would also develop advice to the Assembly on the organisation and governance of WOAHA's technical bodies and strategic direction and drafting of WOAHA standards. Members were encouraged to consult with their Delegate and participate in targeted consultations conducted by the Secretariat on behalf of the GRC.

7.2. 7th WOAHA Animal Welfare Global Forum

The Commission was updated on the Animal Welfare Global Forum held during 13-14 November 2025 at WOAHA Headquarters.

The 2025 Animal Welfare Global Forum was dedicated to supporting the WOAHA Regions to develop and implement an effective Regional Animal Welfare Strategy and Platforms (RAWS&P), through discussions on RAWS&P governance, content, funding, political considerations and the importance of legislation and monitoring and evaluation. A [report](#) including a summary of key discussions and conclusions is available on WOAHA's website, including the potential ways to improve the development and promotion of the different RAWS&P.

Participants were from WOAHA Members, including WOAHA Animal Welfare Focal Points, and interested partners with WOAHA collaboration agreements.

7.3. WOAHS Zoning Forum

The Commission was updated on the Global Forum on Zoning held on 8–9 December 2025 at the headquarters of the WOAHS, which brought together 71 representatives from 53 countries, alongside partners including the European Commission and the World Trade Organization. Discussions highlighted zoning as a key tool for disease control and eradication, business continuity and safe trade by defining areas of specific animal health status, while acknowledging persistent challenges as identified through the WOAHS Observatory thematic study, including harmonisation, recognition and implementation across Members.

Through case studies and technical exchanges, participants explored progressive zoning approaches combining surveillance, vaccination, movement controls, governance frameworks and public–private partnerships to move from endemic disease situations toward officially recognised free zones. Discussions also highlighted operational challenges faced by Members, including laboratory capacity, animal identification and traceability systems, enforcement of biosecurity measures, and the need for clearly defined objectives and flexible strategies adapted to evolving epidemiological situations. Particular emphasis was placed on cross-border collaboration, transparent communication with trading partners, and alignment with WTO SPS regionalisation principles to support recognition of zones.

The Forum concluded with recommendations for Members, WOAHS and partners to strengthen standards, enhance use of official status recognition tools, and promote trust and cooperation so that zoning effectively supports both animal health and international trade. It was recognised that zoning may require significant investment but delivers important benefits when supported by strong Veterinary Services, robust surveillance and laboratory capacity, enabling legislation, transparent communication and predictable recognition processes at multilateral and bilateral levels.

7.4. WOAHS Observatory

The Commission was updated on the ongoing activities of the WOAHS Observatory since its previous meeting in September 2025. WOAHS Headquarters provided a brief overview of the programme's overall objectives and approaches, explaining that the Observatory aims to generate and interpret data-based evidence to support decision making by WOAHS, its Members and its Specialist Commissions and thereby help make WOAHS standards practical for all WOAHS Members. WOAHS Headquarters also presented example indicators and recommendations targeted to WOAHS and to its Members which were derived from key analysis highlights. In addition, it outlined its plans for the coming months, in particular regarding the revision and endorsement of the WOAHS Standards Monitoring and Impact Measurement Framework.

The Commission suggested that WOAHS further encourage Member participation in the standard-setting process, potentially through articulating incentives and benefits. WOAHS Headquarters noted that this complements its recent recommendation on helping Members resolve regulatory differences early, since active engagement is essential for identifying divergences before they develop into SPS related trade concerns.

The Commission also observed that recommendations in the Second Monitoring Report were not specific enough to guide concrete action. WOAHS Headquarters explained that this is partly because several Monitoring Indicators are still under development. The forthcoming Standards Monitoring and Impact measurement Framework will support more precise recommendations, and the Commission will be consulted during its revision.

Feedback was provided that indicators should be designed to reflect the technical usefulness of standards rather than levels of use that are primarily driven by the occurrence of disease outbreaks. It was also noted that not all Members are expected to implement all standards, for example, export-focused requirements do not apply to non-exporting Members so indicators should consider only those for whom implementation is relevant. In response, WOAHS Headquarters agreed that indicators need refinement. Using zoning as an example, it highlighted that such measures should be assessed only among Members affected by the disease and applying the measure as part of control efforts. Similar improvements may be needed across other indicators to ensure more accurate interpretation.

The Commission also proposed a new analytical approach in the form of a phased 'flash note', starting with an analysis of immediate notifications recorded in WAHIS. Such a preliminary analysis could categorise epidemiological events by listed disease, origin, commodity relevance, and geographical patterns as well as by source of event or origin of infection, providing valuable insights to inform the review of existing *Terrestrial Code* chapters and help to prioritise future revisions.

Recognising the sensitivities involved, both the Observatory and Commission experts will collaborate closely on selecting target diseases, geographical foci, timeframes, and on refining the methodology, which may include the de-identification of data. It was agreed that WOAHS Headquarters would prepare a concept note for discussion at its upcoming September 2026 meeting following internal consultation.

Finally, potential topics for future thematic studies were discussed, including revisiting animal identification and traceability systems, as well as examining how bilateral trade agreements apply WOAHS standards. These areas align with ongoing interest in improving understanding of standard implementation challenges.

8. Updates on other standard-setting bodies and international organisations

8.1. Updates on WVA Council

The Commission was updated on the World Veterinary Association's (WVA) development of an official Position Statement on Animal Sentience, which is being prepared by the WVA's Animal Welfare Working Group (WVA AWWG). The WVA AWWG will prepare a draft statement to be submitted to the WVA Council for review. The proposal will include a definition of animal sentience and will be based on existing positions from the Canadian Veterinary Medical Association (CVMA), Federation of Veterinarians of Europe (FVE,) and international scientific declarations, and include references to scientific literature.

.../Annexes

Annex 1. Adopted Agenda

MEETING OF THE WOAHP TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

Paris, 3 to 13 February 2026

1. Welcome

1.1. Deputy Director General

1.2. Director General

2. Adoption of agenda

3. Cooperation with other Specialist Commissions

3.1. Scientific Commission for Animal Diseases

3.1.1. Emerging diseases: HPAI in cattle

3.1.2. Case definitions

3.1.2.1. Anthrax

3.1.2.2. Aujeszky's disease

3.1.2.3. *Chlamydia abortus*

3.1.2.4. Paratuberculosis

3.2. Biological Standards Commission

3.2.1. Biological Standards Commission's recommendations to the *Terrestrial Code* (following *Manual* updates proposed for adoption)

3.3. Aquatic Animals Commission

3.3.1. Chapter 1.1. Notification of disease and provision of epidemiological information

4. Code Commission's work programme not including texts proposed for comments or adoption

4.1. Ongoing work items (not in order of priority)

4.1.1. Revision of Glossary definition for 'poultry'

4.1.2. Request on Article 10.4.1. of Chapter 10.4. Infection with high pathogenicity avian influenza viruses

4.1.3. Request on 10.9. Infection with Newcastle disease virus

4.1.4. Wildlife health

4.1.5. User's Guide

4.1.6. Revision of Chapter 1.1. Notification of diseases and provision of epidemiological information

4.1.7. Terminology of 'notify', 'notifiable disease', 'report' and 'reportable disease'

4.1.8. Revision of Chapter 4.4. Zoning and compartmentalisation and new chapter on implementation of zoning

4.1.9. Revision of Chapter 4.7. Collection and processing of bovine, small ruminant and porcine semen

4.1.10. Revision of Chapter 4.14. General recommendations on disinfection and disinsection

- 4.1.11. Development of introductory chapter of Section 5
- 4.1.12. Revision of chapters on certification procedures (Chapters 5.1., 5.2. and 5.10. to 5.13.)
- 4.1.13. Revision of chapters on animal welfare during transport (Chapters 7.2., 7.3. and 7.4.)
- 4.1.14. Revision of Chapter 7.6. Animal welfare at the time of killing
- 4.1.15. Revision of Chapter 8.8. Infection with foot and mouth disease virus
- 4.1.16. Revision of Chapter 8.21. West Nile Fever
- 4.1.17. Revision of Chapter 6.8. Harmonisation and national antimicrobial resistance surveillance and monitoring programmes
- 4.1.18. *Terrestrial Code* data standardisation
 - 4.1.18.1. Framework for *Terrestrial Code* standards
 - 4.1.18.2. Animal hosts
 - 4.1.18.3. Commodities
- 4.2. **New proposals and requests for inclusion in work programme**
 - 4.2.1. New requests from Members and International Organisations
 - 4.2.1.1.1. Request regarding the inclusion of salted natural casings and gelatine/collagen as safe commodities
 - 4.2.1.1.2. Request on new Glossary definitions and revision of current definition related to commodities
 - 4.2.1.1.3. Request on new Glossary definition for 'treatment'
 - 4.2.2. Other requests
 - 4.2.2.1. Clarification of term of 'rendered fats' in Spanish
- 4.3. **Feedback from Conferences of the WOA Regional Commissions**
- 4.4. **Prioritisation of items in work programme**
- 5. **Texts circulated to be proposed for adoption in May 2026**
 - 5.1. Glossary
 - 5.2. Articles 1.3.1., 1.3.3., and 1.3.7. of Chapter 1.3. Diseases, infections and infestations by WOA
 - 5.3. Chapter 4.X. Biosecurity
 - 5.4. Chapter 5.4. Measures and procedures applicable to the exportation of commodities
 - 5.5. Chapter 5.5. Measures and procedures applicable to the transit of commodities
 - 5.6. Chapter 5.6. Measures and procedures applicable to the importation of commodities
 - 5.7. Chapter 5.7. Border inspection posts and quarantine centres
 - 5.8. Article 7.5.30. of Chapter 7.5. Animal welfare during slaughter
 - 5.9. Chapter 8.X. Infection with Crimean-Congo haemorrhagic fever virus
 - 5.10. Chapter 10.X. Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens)
 - 5.11. Articles 8.8.3., 8.8.4. and 8.8.8. of Chapter 8.8. Infection with foot and mouth disease virus
 - 5.12. Articles 15.2.3. and 15.2.5. of Chapter 15.2. Infection with classical swine fever virus

6. Texts circulated for comments

6.1. Glossary

6.2. Chapter 1.6. Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOA

6.3. Chapter 3.X. Emergency management

6.4. Chapter 8.10. Japanese encephalitis

6.5. Chapter 8.20. Tularemia

6.6. Chapter 11.9. Infection with lumpy skin disease virus

6.7. Chapter 12.11. Venezuelan equine encephalomyelitis

6.8. Chapter 14.7. Infection with peste des petits ruminants virus

6.9. Chapter 14.9. Sheep pox and goat pox

7. Updates on WOA initiatives relevant to the Code Commission

7.1. WOA Animal Welfare forum

7.2. WOA Zoning forum

7.3. Transparency of the WOA process for the elaboration of Standards

7.4. WOA Observatory

7.5. Work on the Governance Review Committee

8. Updates on other standard-setting bodies and international organisations

8.1. Updates on WVA Council (definition of ‘animal sentience’)

9. Meeting review

10. Date of next meeting

Annex 2. List of Participants

MEETING OF THE WOAHP TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

Paris, 3 to 13 February 2026

MEMBERS OF THE COMMISSION

Dr Etienne Bonbon
(President)
Seconded National Expert
European Commission
Brussels
BELGIUM

Dr Gaston Maria Funes
(Vice-President)
Counsellor for Agricultural
Affairs,
Embassy of Argentina to the
European Commission
Brussels,
BELGIUM

Dr Kiyokazu Murai
(Vice-President)
Ministry of Agriculture,
Forestry and Fisheries
Tokyo,
JAPAN

Dr Caroline Dubé
(member)
National Manager,
Animal Health Risk Assessment
and Intelligence Section,
Canadian Food Inspection Agency
CANADA

Dr Salah Hammami
(member)
Epidemiologist and virologist,
Full professor
National School of Veterinary
Medicine
Sidi Thabet
TUNISIA

Dr John Stratton
(member)
Director,
Animal Biosecurity Branch,
Biosecurity Animal Division,
Department of Agriculture,
Fisheries and Forestry
AUSTRALIA

WOAH HEADQUARTERS

Dr Charmaine Chng
Deputy Head
Standards Department

Dr Joyce Bowling-Heyward
Chargée de Mission
Standards Department

Dr Akinobu Kawamura
Scientific Officer
Standards Department

Dr Donghwa Park
Scientific Officer
Standards Department

Dr Leopoldo Stuardo
Scientific Coordinator
Standards Department

Dr Laura Davis
Scientific Officer
Standards Department

Reference	Comment	TAHSC response
1_Chile	Category: general Justificación: Chile respalda la mayoría de los cambios propuestos al glosario. Además, agradece que los comentarios remitidos el año pasado a la definición de “Plan de Bioseguridad” hayan sido aceptados. Respecto a la definición de “bioseguridad”, Chile desea proponer una modificación especial, sobre la base de la experiencia acumulada en el país. Finalmente, felicita a OMSA y sus equipos por el arduo trabajo que efectúan en pro de más y mejores normas.	Noted
2_Korea (Rep. of)	Category: general The Republic of Korea supports the revised Chapter reflecting the comments from Member Countries regarding the glossary definitions.	Noted
3_New Zealand	Category: general The word ‘approved’ is a key definition throughout the Terrestrial Code. In the context of the Code, the standards should ensure that it remains linked with the Veterinary Authority. Introducing the phrase “or other relevant Competent Authority” removes the assurance of coordinated implementation of the Terrestrial Code standards. Confidence in a country’s animal health system—underpinning disease status and trade certification—requires coordinated implementation of the system as a whole. The Code should maintain and strengthen this coordination, not facilitate a siloed approach where multiple agencies hold independent approvals. We recognise that the Veterinary Authority may not do all the roles outlined with the Terrestrial Code and may delegate roles to/recognise other competent government agencies, but the Veterinary Authority must retain authority via approvals to ensure system integrity. Supporting evidence: Terrestrial Code Glossary. The Veterinary Authority within the Member Country should be primarily responsible in the whole territory for coordinating the implementation of the requirements of WOAHP international animal and animal health trade standards. In contrast, other Competent government agencies may have responsibilities for certain standards and in some situations only for part of the country.	The Commission acknowledged the concerns raised. However, it determined that the definition should remain practical and reflect the diverse governmental structures of all Members, where authorities other than the Veterinary Authority may hold jurisdiction. Moreover, the term ‘approved’ is not only used for diagnostic laboratories, but also for other premises or activities that may be approved by other Competent Authorities other than the Veterinary Authority. The Commission highlighted that specific concerns regarding coordination and system integrity are better addressed at national level.
4_EU	Category: general The EU in general supports this revised Glossary. One comment is inserted in the text below.	Noted

GLOSSARY

APPROVED

means officially approved, accredited or registered by the *Veterinary Authority* or other relevant Competent Authority.

5_Canada	Comment Category: Addition Proposed amended text: means officially approved, accredited or registered <u>to comply with standards established</u> by the <i>Veterinary Authority</i> <u>or other relevant Competent Authority</u>. Rationale: The addition provides transparency about the rationale for requiring approval, reinforcing the intention to ensure conformity with standards set by the Veterinary Authority or Competent Authority.	Did not agree, as it is implicit. Moreover, this may not necessarily be about the standards established by the Veterinary Authority or other relevant Competent Authority, and could be based on other types of standards.
6_New Zealand	Category: deletion or change Proposed amended text: means officially approved, accredited or registered by the <i>Veterinary Authority</i> <u>or other relevant Competent Authority</u>. Rationale: The proposed use of the phrase “or other relevant Competent Authority” is unnecessary because delegation/accreditation/recognition can already occur under the current definition. The change would undermine the Veterinary Authority’s role in preventing transboundary disease spread and diminish the Code’s purpose of supporting strong biosecurity and safe trade. This change also has implications throughout the Code, where wording was agreed by Members on the understanding that “approved” meant approval by the Veterinary Authority or delegated/accredited/recognised under its coordination. The use of ‘or’ can be read to provide for non-animal health agencies to approve aspects of animal health systems potentially without any Veterinary Authority input or adequate expertise, introducing ambiguity and risk. The term “relevant” adds no additional assurance, as it is open to broad interpretation. Supporting evidence: Terrestrial Code Glossary. The Veterinary Authority within the Member Country should be primarily responsible in the whole territory for coordinating the implementation of the requirements of WOAHP international animal and animal health trade standards. In contrast, other Competent government agencies may have responsibilities for certain standards and in some situations only for part of the country.	Did not agree (refer to 1_New Zealand above)
7_USA	Comment Category: Change Proposed amended text: <i>APPROVED</i> means officially approved, accredited, <u>recognized</u> or registered by the <i>Veterinary Authority</i> <u>or other relevant Competent Authority</u>. Rationale: Official “recognition” allows the Veterinary or Competent Authority to endorse other national or international accrediting bodies who audit for acceptable industry standards, such as ISO international standards.	Agreed

BIOSECURITY

means a set of management, behavioural and physical measures designed to reduce the likelihood risk of entry of pathogenic agents into a given population and the exposure of animals to these pathogenic agents introduction, establishment and spread of pathogenic agents animal diseases, infections or infestations in order to avoid their establishment and spread within and from and within an animal that population.

8_Chile	Category: addition Texto modificado propuesto (o supresión sugerida): BIOSEGURIDAD designa un conjunto de medidas de gestión, <u>comportamentales y físicas diseñadas para reducir la probabilidad de entrada de agentes patógenos en una determinada población y la exposición de los animales a estos agentes patógenos, aplicadas desde el entorno</u> el riesgo de introducción, radicación y propagación de <u>agentes patógenos las enfermedades, infecciones o infestaciones animales con el fin de evitar su radicación y propagación hacia, dentro y desde y dentro de una dicha población animal.</u> BIOSECURITY means a set of management, <u>behavioural</u> and physical measures designed to reduce the <u>likelihood risk of entry of pathogenic agents into a given population and the exposure of animals to these pathogenic agents, implemented from the environment,</u> introduction, establishment and spread of <u>pathogenic agents</u> animal diseases, <u>infections or infestations in order to avoid their establishment and spread within and from and within an animal that population.</u> Justificación: Estimamos que factores del entorno como el uso y calidad del agua, la alimentación, y la fauna circundante, pueden incidir en el análisis de vías de ingreso de agentes patógenos. En ese sentido, el componente ambiental (fauna, agua, suelo, residuos, vectores, etc.) también representa un riesgo; y si se reconoce y analiza adecuadamente, pasa a ser parte de la bioseguridad y de las medidas que se deben considerar.	Did not agree, as the proposed text is unclear and the chapter on biosecurity considers environmental aspects.
9_China (People's Rep. of)	Category: change Proposed amended text : BIOSECURITY means a set of management, <u>behavioural</u> and physical measures designed <u>and utilized</u> to reduce the <u>likelihood risk of entry of pathogenic agents into a given population and the exposure of animals to these pathogenic agents</u> introduction, establishment and spread of <u>pathogenic agents</u> animal diseases, <u>infections or infestations in order to avoid their establishment and spread within and from and within an animal that population.</u> Rationale : Formulation and implementation are two critical phases in the enforcement of biosecurity measures. In practice, even if biosecurity measures are well-designed, their intended effectiveness cannot be guaranteed unless they are properly implemented. Therefore, it is recommended to add "utilized" to emphasize the importance of putting measures into practice in order to ensure their real-world application and impact.	Did not agree, as the guidance on utilization is in the chapter itself.
10_New Caledonia	Category: editorial Proposed amended text:	Agreed (only in French version)

	désigne un ensemble de mesures de gestion, <u>et d'agencements comportementaux</u> et physiques, destinées à réduire la probabilité <u>le risque</u> d'introduction, d'établissement et de propagation d'agents pathogènes de maladies, <u>d'infections ou d'infestations animales</u> vers, <u>au sein ou depuis ou au sein d'</u> dans une <u>population</u> donnée et l'exposition des <u>animaux</u> à ces agents pathogènes afin d'éviter leur établissement et leur propagation au sein de ou depuis cette <u>population animale</u>. Rationale: Dans la définition de « sécurité biologique », la notion d'agencements comportementaux et physiques ne semble pas adaptée et ne correspond pas à la traduction de la version anglaise.	
11_ICFAW	Category addition: Proposed amended text: means a set of management, <u>behavioural</u> and physical measures designed to reduce the <u>likelihood risk</u> of <u>entry of pathogenic agents into a given population</u> and the exposure of <u>animals, humans or the environment</u> to these pathogenic agents introduction, establishment and spread of <u>pathogenic agents</u> animal diseases, <u>infections or infestations in order to avoid their establishment and spread within and from and within an animal that population</u>. Rationale: Biosecurity is relevant for all ecological systems, and ensuring biosecurity across all three areas is essential to properly protect populations. This would also align this glossary with Annex 4 (Biosecurity) which lists humans, animals and the environment both in the introduction (page 1) and transmission pathways (page 5). Supporting evidence, if relevant 1. Annex 4 (Biosecurity): Annex 4. Biosecurity.docx 2. Hulme P. E. (2020). One Biosecurity: a unified concept to integrate human, animal, plant, and environmental health. <i>Emerging topics in life sciences</i>, 4(5), 539–549. https://doi.org/10.1042/ETLS20200067 https://pmc.ncbi.nlm.nih.gov/articles/PMC7803345/pdf/ETLS-4-539.pdf	Did not agree, as the focus here is on animal populations.

BIOSECURITY PLAN

means a plan document or series of documents that identifies potential sources and pathways and factors for entry of pathogenic agents into a given population, and the exposure of animals and factors for the transmission of these pathogenic agents the introduction, establishment and spread of pathogenic agents disease in a zone or compartment, and that describes the corresponding biosecurity measures to be implemented and the mechanisms to evaluate its performance and to update the plan it which are being or will be applied to mitigate the disease risks, if applicable, in accordance with the recommendations in the Terrestrial Code.

12_New Caledonia	Category: editorial Proposed amended text: désigne un <u>plan</u> document ou une série de documents dans lesquels sont identifiées les <u>sources et voies</u> potentielles <u>et les facteurs</u> d'introduction, <u>d'établissement et de propagation</u> d'<u>maladie</u> d'<u>agents pathogènes</u> dans une <u>zone ou un compartiment</u> dans une <u>population</u> donnée, et l'exposition des <u>animaux</u> ainsi que les facteurs de transmission de ces agents pathogènes. <u>Il décrit aussi et où sont</u>	Did not agree, prefer to keep definitions to one sentence.

	~~décrites~~ les mesures de <i>sécurité biologique</i> correspondantes devant être appliquées et les mécanismes pour ~~les~~ évaluer ~~leurs performances et les~~ actualiser ~~le plan~~ qui y sont appliquées, ou le seront, pour réduire les <i>risques</i> associés à cette maladie s'il y a lieu, conformément aux recommandations contenues dans le <i>Code terrestre</i>. Rationale: Plan de sécurité biologique : la phrase est très longue, il est proposé de la couper tel que cela avait été validé par la commission selon le traitement du commentaire 10 détaillé à l'annexe 3, mais non effectué dans la version qui nous a été transmise pour relecture :	
13_New Zealand	Category: editorial Proposed amended text: means a ~~plan document or series of documents~~ that identifies ~~ies~~ potential ~~sources and pathways and factors~~ for ~~entry of pathogenic agents into a given population, and the exposure of animals and factors for the transmission of these pathogenic agents the introduction, establishment and spread of pathogenic agents disease in a zone or compartment, and~~ ~~that~~ describes the corresponding <i>biosecurity measures</i> to be implemented and the mechanisms to evaluate its performance and to update ~~the plan~~ ~~it~~ which are being or will be applied to mitigate the disease <i>risks</i>, if applicable, in accordance with the recommendations in the <i>Terrestrial Code</i>. Rationale: Grammar correction 'identify' to 'identifies'.	Did not agree, not grammatically correct.
14_EU	Category: change Proposed amended text: Remove the words "~~document or series of documents~~" and replace with either: "~~means a descriptive plan that identifies potential sources and pathways...~~" or, "~~means identification of potential sources and pathways...~~" Rationale: Gives more flexibility to the operators which might move away from traditional documents. Suggestion for alignment foreseen in Article 4.X.3. of the Biosecurity chapter.	Did not agree, as the plan should be documented, but the document does not have to be in hard copy.

BORDER INSPECTION POST

~~means any airport, or any port, railway station or road check point~~ *international point of entry for commodities open to international trade of commodities, and associated facilities, where import veterinary official inspections can be* ~~is performed by Veterinary Services.~~

15_New Caledonia	Category: editorial Proposed amended text: désigne ~~tout~~ aéroport, tout port ou tout poste ferroviaire ou routier ouvert aux <i>échanges internationaux</i> de ~~marchandises, point international d'entrée de marchandises,~~ ~~ainsi-ansi~~ que ... Rationale: Faute de frappe à "ainsi" dans poste d'inspection frontalier	Agreed (only in French version)
16_UK	Category: addition. Proposed amended text (or precise suggested deletion)	Did not agree as the current text, combined with the newly proposed

	means any ~~airport, or any port, railway station or road check point~~ international point of entry, <u>including associated facilities</u> , for commodities ~~open to international trade of commodities, and associated facilities, where~~ import veterinary official inspections can be performed by Veterinary Services. Rationale: Altered text for clarity.	Glossary definition for 'point of entry', is sufficient to provide the necessary explanation.

CONTAINER

means a non-self-propelled receptable or other rigid structure ~~for holding animals to carry hold~~ commodities during transportation a journey by one or several means of transport.

DISINFECTION

means an action the application, after thorough cleansing, of procedures intended to inactivate or destroy pathogenic agents on potentially contaminated objects and surfaces, the infectious or parasitic agents of animal diseases, including zoonoses; this applies to premises, vehicles and different objects which may have been directly or indirectly contaminated.

17_UK	Category: addition. Proposed amended text (or precise suggested deletion): means <u>an action the application, after thorough cleansing, of procedures intended to inactivate or destroy pathogenic agents on potentially contaminated objects and surfaces, the infectious or parasitic agents of animal diseases, including zoonoses; this applies to premises, vehicles and different objects which may have been directly or indirectly contaminated.</u> Rationale: Removing these terms makes the requirement too open to interpretation, complicates assessments for regaining free status, and could lead to inconsistencies between countries. Chapter 4.14 does not address what needs to be cleaned and disinfected. Supporting evidence: WOAH Terrestrial Code Chapter 4.14; UK experience in outbreak management.	Did not agree, as this is too detailed for the definition. Chapter 14.4. is being updated and the practical guidance will be included in there.

DISINSECTION

means an action intended to kill or eliminate arthropods from establishments, means of transport, slaughterhouses or any other premises or equipment used for animals.

18_UK	Category: change. Proposed amended text (or precise suggested deletion) <i>means an action intended to kill or eliminate arthropods from establishments, means of transport, <u>lairages-slaughterhouses</u> or any other premises or equipment used for animals.</i> Rationale: Slaughterhouse and other premises handling POAO would deploy pest control including fly control, those could be e.g. lamps. We restrict disinsection to either premises where animals are handled. Controls in food producing premises e.g. slaughterhouses and/or cutting plants are covered by pest control requirement in HACCP/CODEX	Do not agree. 'Lairage' is included in the definition of 'slaughterhouse'. Other parts of slaughterhouses may need to be disinfected too. This level of detail is not needed in the Glossary.

	Supporting evidence: HACCP/CODEX control pest requirements.	

ISOLATION

means the placement physical separation of an animal or a group of animals separated from other animals under appropriate adequate biosecurity.

19_UK	Category: change. Proposed amended text (or precise suggested deletion): <u>means the placement physical separation of an animal or a group of animals separated from other animals under appropriate adequate effective biosecurity.</u> Rationale: Replace “adequate biosecurity” with “effective biosecurity.” “Adequate” is vague and subjective; “effective” sets a clearer standard.	Did not agree ‘Adequate’ is used to signify that measures must be sufficient for a specific objective, in this case, ‘biosecurity’. The Code Commission noted that ‘effective’ describes a general outcome, whereas the biosecurity requirements within ‘isolation’ may vary significantly depending on the purpose (diseases).

LABORATORY

~~means a properly equipped institution staffed by technically competent personnel under the control of a specialist in veterinary diagnostic methods, who is responsible for the validity of the results. The Veterinary Authority approves and monitors such laboratories with regard to the diagnostic tests required for international trade.~~

means an approved facility used for diagnosis, research, or to develop and manufacture biological products. Some laboratories may manipulate pathogenic agents in vivo or in vitro, and store and dispose of biological products and pathological material.

20_ Australia	Category: Addition Proposed amended text: <u>means an approved or recognised facility used for diagnosis, research, or to develop and manufacture biological products. Some laboratories may manipulate pathogenic agents in vivo or in vitro, and store and dispose of biological products and pathological material.</u> Rationale: We propose adding the word “recognised” to the definition of laboratory as samples for diagnostic testing are often sent to laboratories in other countries, such as WOA reference laboratories, which would not be “approved” but are recognised by the veterinary authority or competent authority of that country. In addition, sometimes accreditation of laboratories is undertaken by independent third partners, which are not part of the veterinary authority or competent authority, but instead this accreditation is recognised by the veterinary authority / competent authority. This proposed change would also encompass both of these scenarios.	Agreed with the rationale. However, the Code Commission amended the revised Glossary definition for ‘approved’ to include the term ‘recognised’, so the word is not needed here. (refer to 7_USA above)

21_New Caledonia	Category: addition Proposed amended text: <u>“désigne une installation agréée utilisée à des fins de diagnostic, de recherche ou de développement et de fabrication de produits biologiques. Certains laboratoires sont susceptibles de procéder à la manipulation d’agents pathogènes in vivo ou in vitro, ainsi que de stocker et d’éliminer des produits biologiques et du matériel pathologique. Les laboratoires sont placés sous la supervision de l’Autorité vétérinaire pour la réalisation des épreuves de diagnostic, notamment celles requises pour les échanges internationaux, lorsqu’ils exercent de telles activités.”</u> Rationale: La définition du terme “laboratoire” a été revue et même si la notion d’agrément a bien été maintenue, la notion de “supervision de l’Autorité vétérinaire pour la réalisation des épreuves de diagnostic requises pour les échanges internationaux” a été supprimée, alors qu’elle n’est pas forcément comprise dans la notion d’agrément, qui peut être géré par d’autres autorités que l’autorité vétérinaire, tel que précisé dans le rapport de la commission. La Nouvelle-Calédonie propose donc de maintenir cette notion dans la nouvelle définition et de la rendre plus générale par rapport au diagnostic des maladies à déclaration obligatoire :	Did not agree as the relevant guidance is available in the <i>Terrestrial Manual</i> and Section 3 of the <i>Terrestrial Code</i>.
22_New Zealand	Category: general We support the proposed definition of “laboratory” provided that the term “approved” continues to mean approval by the Veterinary Authority. Expanding “approved” to include “other relevant Competent Authority” introduces ambiguity because “relevant” is subjective and could allow any government agency with partial responsibility for implementing the Code standards to independently approve facilities to handle pathogenic agents, including storage and disposal of exotic organisms, without assurance of sufficient expertise in disease epidemiology or trade implications. Such an approach also risks fragmenting oversight and weakening biosecurity safeguards. Accurate and reliable diagnostic results are essential for decisions on disease control, prevention, and trade certification. These results underpin confidence in international trade and help prevent transboundary disease spread - safeguarding public and animal health and welfare. Therefore, approval by the Veterinary Authority of laboratories for the purposes of the Code should be retained. This position aligns with WOA’s approach to recognising WOA reference laboratories globally.	Did not agree Refer to comment (3_New Zealand)

PATHOGENIC AGENT

means a biological agent that causes, or contributes to, the development of a disease in *animals*.

23_China (People's Rep. of)	Category: change Proposed amended text : <u>PATHOGENIC AGENT</u> <u>means a biological agent that causes, or contributes to, the development of a disease, infection and infestation in animals.</u> Rationale : According to chapters such as "Chapter 1.3 Diseases, Infections and Infestations Listed by WOAHP" in the Terrestrial Code, animal diseases, infections, and infestations are parallel concepts. The revision thus provides a more comprehensive and precise presentation. supporting evidence: not relevant	Did not agree, as the addition did not improve clarity.
24_ICFAW	Category: Change Proposed amended text: <u>means a biological agent that causes, or contributes to, the development of a disease in animals a host.</u> Rationale: The host could be animals, humans, or plants, and all should be considered as all impact animal health. Supporting evidence, if relevant: Philip E Hulme, Michele S Dechoum, Franz Essl, Angeliki F Martinou, Anibal Pauchard, Petr Pyšek, Helen E Roy, Andy W Sheppard, Montserrat Vilà, John R U Wilson, One Biosecurity is essential to implement One Health, <i>BioScience</i>, 2025, https://doi.org/10.1093/biosci/biaf110	Did not agree, as the proposal can be confused with "animal host." Furthermore, plant is not relevant here.

POINT OF ENTRY

means any point-specific location at which commodities enter the territory of a country.

POINT OF EXIT

means any point-specific location from where commodities leave the territory of a country ~~the exporting country.~~

QUARANTINE-STATION CENTRE

means an *establishment* under the control of the *Veterinary Authority* where *animals* are maintained in isolation for observation, and if appropriate testing and treatment, during a specified length of time under appropriate adequate biosecurity to prevent with no direct or indirect ensure no contact with other animals and vectors when relevant, to ensure so that there is no transmission entry of specified pathogenic agents from entering outside into nor escape escaping out of the establishment while the animals are undergoing observation for a specified length of time and, if appropriate, testing or treatment.

25_UK	Category: change. Proposed amended text (or precise suggested deletion): means an <i>establishment</i> under the control of the <i>Veterinary Authority</i> where <i>animals</i> are maintained in isolation for observation, and if appropriate testing and treatment, during a specified length of time under <u>appropriate adequate biosecurity to prevent with no direct or indirect ensure no contact with other animals and vectors when relevant, to ensure so that there is no transmission entry of specified pathogenic agents from entering outside into nor escape escaping out of the establishment while the animals are undergoing</u>	Did not agree as the revised Glossary definition for 'biosecurity' encompasses measures intended to reduce the likelihood of entry of pathogenic agents into a population. To ensure consistency across the Glossary, the current text is sufficiently clear.

	observation for a specified length of time and, if appropriate, testing or treatment. Rationale: “Adequate” only weakens the requirement and is subjective; retaining preventing contact directly and indirectly sets a clear, enforceable standard for all countries.	
26_EU	Category: deletion Proposed amended text: “means an establishment under the control of the Veterinary Authority where animals are maintained in isolation for observation, and if appropriate testing and treatment, during a specified length of time under adequate biosecurity to prevent specified pathogenic agents from entering ~~into~~ or escaping out of the establishment” Rationale: Would the definition be clearer if we remove the word “into”?	Did not agree as the current wording is clear.
27_ICFAW	Category: editorial Proposed amended text: Commas before and after “if appropriate”: And, if appropriate, testing and treatment, during a specified length of time under appropriate adequate biosecurity to preven Rationale: Grammar Supporting evidence: Not relevant	Agreed but add one comma after ‘if appropriate’.

SEROCONVERSION

means either the change from a seronegative to a seropositive **state condition of an animal**, demonstrated by a serological test specific for the antigen, or a four-fold or more rise in antibody titre in paired sera of an animal, sampled at an appropriate interval, demonstrated by an ordinal test specific for the antigen.

SWILL

means food scraps or food waste, that contain or have been in contact with *animal products*, and ~~which may be used as feed~~.

28_UK	Category: addition/change. Proposed amended text (or precise suggested deletion): means food scraps or food waste, that contain or have been in contact with animal products, and ~~which may be are intended to be used~~ as <u>animal</u> feed. Rationale: Collins dictionary refers to swill as liquid mixture including food waste that is given to pigs (historically). SWILL definition and meaning Collins English Dictionary. But Cambridge one refers to wider waste of human food: SWILL English meaning - Cambridge Dictionary Swill as kitchen waste that had contact with animal products should not be fed to animals, therefore use the wording “ Swill may be fed to animals” – is not appropriate. Supporting evidence: SWILL English meaning - Cambridge Dictionary	Did not agree. It was determined that the dictionary definition was not appropriate for use in the Code. Feed is defined in the Code as such for animals. Some food scraps may not be intended to be used as feed but could be used as such. Therefore, the intention is not primarily important.
29_ICFAW	Category: addition	Refer to comment above

	Proposed amended text (or precise suggested deletion): <u>means food scraps or food waste, that contain or have been in contact with <i>animal products</i>, and which may be used as <i>animal feed</i>.</u> Rationale: Swill is typically feed given to pigs specifically, however for this glossary the distinction should be made that it is feed intended for animals. Supporting evidence: Mary Louise Penrith, WOAHS presentation for South East Asia – swill treatment https://rr-asia.woah.org/app/uploads/2020/05/webinar6_asf_swill-treatment_mary-louise-penrith_9july2019.pdf Merriam Webster dictionary definition: https://www.merriam-webster.com/dictionary/swill	28_UK
30_EU	Category: addition Proposed amended text: <u>means food scraps or food waste, that contain or have been in contact with, <i>or may contain or may have been in contact with, animal products, and may are intended to be used as feed.</i></u> Rationale: It may not always be clear whether such material is actually contained, or if such contact took place, therefore also these possibilities should be included in the definition. Also, the meaning of the third “may” is unclear, and use of “intended” instead would be more targeted.	Refer to comment above 28_UK The proposed text is too broad and less defining.

TRANSIT COUNTRY

means a country through which *commodities* destined for another country ~~an importing country~~ are transported or in which they make a stopover ~~is made at a border post~~.

VEHICLE/VESSEL/MEANS OF TRANSPORT

means ~~any means of conveyance including any land vehicle, a train, truck, trailer, aircraft or ship/vessel~~ that is used for carrying/transporting animals *commodities*.

31_ Colombia	Category: general Texto modificado propuesto (o supresión sugerida): Estamos de acuerdo con la definición adoptada para MEDIOS DE TRANSPORTE (<i>designa cualquier vehículo terrestre, aeronave o embarcación que se utiliza para el traslado transporte de mercancías</i>). No obstante, seguimos considerando importante incluir la definición de MERCANCIAS en el glosario, yendo más allá de la definición de “cosa mueble que se hace objeto de trato o venta”, para abarcar también mercancías vivas (animales, por ejemplo). Colombia agrees with the new definition for means of transport and request to include in the Glossary a definition for commodity (term already defined). Justificación: No obstante, seguimos considerando importante incluir la definición de MERCANCIAS en el glosario. MERCANCIAS es un término que se menciona varias veces en el código, como en	Did not agree as the current Glossary definition for ‘commodity’ already includes ‘animals’, not only the animal products.

	el capítulo 5.4 MEDIDAS Y PROCEDIMIENTOS APLICABLES EN LA EXPORTACIÓN DE MERCANCÍAS	
32_EU	Category: deletion Proposed amended text: means any land vehicle, aircraft or vessel that is used for transporting- <i>commodities</i> <u>or containers</u>. Rationale: To include option of indirect transport of commodities via containers as defined above.	Did not agree as 'means of transports' specifically refers to the vehicle or vessel, whereas a 'container' is an article of transport equipment used to house animals or products.

Reference	Comment	TAHSC response
1.3._1_EU	Category: general The EU supports this revised chapter.	Noted

CHAPTER 1.3. DISEASES, INFECTIONS AND INFESTATIONS LISTED BY WOA

[...]

Article 1.3.1.

The following are included within the category of diseases, *infections* and *infestations* of multiple species:

- Anthrax
- Crimean-Congo hemorrhagic fever
- Heartwater
- Infection with Aujeszky's disease virus
- Infection with bluetongue virus
- Infection with *Brucella abortus*, *Brucella melitensis* and *Brucella suis*
- Infection with *Coxiella burnetii* (Q fever)
- Infection with Crimean-Congo haemorrhagic fever virus
- Infection with *Echinococcus granulosus*
- Infection with *Echinococcus multilocularis*
- Infection with epizootic hemorrhagic disease virus
- Infection with foot and mouth disease virus
- Infection with *Leishmania* spp. (Leishmaniosis)
- Infection with *Mycobacterium tuberculosis* complex
- Infection with Nipah virus
- Infection with rabies virus
- Infection with Rift Valley fever virus
- Infection with rinderpest virus

- Infection with *Trichinella* spp.
- Infection with *Trypanosoma brucei*, *Trypanosoma congolense*, *Trypanosoma simiae* and *Trypanosoma vivax*
- Infection with *Trypanosoma evansi* (Surra)
- Infestation with *Chrysomya bezziana* (Old World screwworm)
- Infestation with *Cochliomyia hominivorax* (New World screwworm)
- Japanese encephalitis
- Paratuberculosis
- Tularemia
- West Nile fever.

[...]

Article 1.3.3.

The following are included within the category of diseases and *infections* of aves:

- Avian chlamydiosis
- Avian infectious bronchitis
- Avian infectious laryngotracheitis
- Duck virus hepatitis
- Fowl typhoid
- Infection of birds other than *poultry*, including *wild* birds, with influenza A viruses of high pathogenicity
- Infection of domestic and *captive wild* birds with low pathogenicity avian influenza viruses having proven natural transmission to humans associated with severe consequences

– Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens)

- Infection with high pathogenicity avian influenza viruses
- Infection with *Mycoplasma gallisepticum* (Avian mycoplasmosis)
- Infection with *Mycoplasma synoviae* (Avian mycoplasmosis)
- Infection with Newcastle disease virus
- Infectious bursal disease (Gumboro disease)
- Pullorum disease

– Turkey rhinotracheitis.

[...]

Article 1.3.7.

The following are included within the category of diseases and *infections* of caprinae:

- Caprine arthritis/encephalitis
- Contagious agalactia
- Contagious caprine pleuropneumonia
- Infection with *Chlamydia abortus* (Enzootic abortion of ewes, ovine chlamydiosis)
- Infection with peste des petits ruminants virus
- Infection with *Theileria lestoquardi*, *Theileria luwenshuni* and *Theileria uilenbergi*
- Maedi–visna
- ~~Nairobi sheep disease~~
- Ovine epididymitis (*Brucella ovis*)
- Salmonellosis (*S. abortusovis*)
- Scrapie
- Sheep pox and goat pox.

[...]

Reference	Comment	TAHSC response
1.6._1_EU	Category: general The EU thanks the Code commission for addressing the previous EU Comments on this draft revision. The EU can support this draft revised chapter only if the provided specific comments below are taken onboard. The EU commends WOAHA for maintaining the system for Official Recognition of Animal Health Status, which ensures transparency and confidence among Members regarding disease-free areas for FMD and other listed diseases. The EU underlines the importance of keeping this system sustainable and compatible with the workload of competent authorities. The process for annual reconfirmation of already-recognised statuses should be proportional and therefore simplified so that Delegates may submit an annual declaration confirming that the epidemiological situation remains unchanged and that the relevant conditions for granting the free status continue to be met. In case the Code Commission intends to proceed with the removal of the questionnaires for official recognition of animal health status from the Terrestrial Code, the EU could support this approach provided that Chapter 1.6. remains clear and sufficiently detailed to ensure transparency and consistency in the recognition process.	Noted

CHAPTER 1.6.

PROCEDURES FOR OFFICIAL RECOGNITION OF AN ANIMAL HEALTH STATUS, ENDORSEMENT OF AN OFFICIAL CONTROL PROGRAMME, AND PUBLICATION OF A SELF-DECLARATION OF ANIMAL HEALTH STATUS, BY WOAHA

Article 1.6.1.

Application for official recognition of an animal health status and endorsement of an official control programme by WOAHA

A Member Country may request:

- 1) official recognition of an animal health status by WOAHA of:
 - a) freedom of a country or zone from African horse sickness (AHS);
 - b) risk status of a country or zone with regard to bovine spongiform encephalopathy (BSE);
 - c) freedom of a country or zone from classical swine fever (CSF);
 - d) freedom of a country or zone from contagious bovine pleuropneumonia (CBPP);

- e) freedom of a country or *zone* from foot and mouth disease (FMD), where *vaccination* is either practised or not practised;
 - f) freedom of a country or *zone* from peste des petits ruminants (PPR);
- 2) endorsement by WOAHP of:
- a) an *official control programme* for CBPP;
 - b) an *official control programme* for FMD;
 - c) an *official control programme* for PPR;
 - d) an *official control programme* for dog-mediated rabies.

WOAH does not grant official recognition of an animal health status or endorsement of an *official control programme* for diseases other than those listed under points 1 and 2 above.

The Member Country should present documentation setting out the compliance of their *Veterinary Services* with the provisions of Chapters 1.1. 'Notification of diseases and provision of epidemiological information', 1.4. 'Animal health surveillance', 2.1. 'Import risk analysis', 3.2. 'Quality of Veterinary Services', 3.3. 'Evaluation of Veterinary Services' and 4.4. 'Zoning and compartmentalisation' of the *Terrestrial Code*, when relevant, and with the provisions of the relevant disease-specific chapters in the *Terrestrial Code* and the *Terrestrial Manual*.

When requesting official recognition of an animal health status or endorsement by WOAHP of an *official control programme*, the Member Country should follow the relevant Standard Operating Procedures (available on the WOAHP website) and submit to WOAHP a dossier providing the information requested in the following chapters (as appropriate): 1.7. (for AHS), 1.8. (for BSE), 1.9. (for CSF), 1.10. (for CBPP), 1.11. (for FMD) or 1.12. (for PPR).

~~The WOAHP framework for the official recognition of animal health status, the endorsement of official control programmes, and their maintenance is described in relevant Resolutions adopted by the World Assembly of WOAHP Delegates.~~

The country or the *zone* will be included in the relevant lists of official *animal health status* or endorsed *official control programmes* only after the evidence submitted has been assessed by experts and the Resolutions listing the country or the zone have been adopted by the World Assembly of WOAHP Delegates.

1.6.1._1_ New Caledonia	Category: editorial Proposed amended text: "Le pays ou la zone ne sera inclus dans les listes appropriées des statuts zoosanitaires officiels ou des programmes officiels de contrôle validés qu'après que les éléments de preuve présentés <u>ont été évalués par des experts et que les Résolutions établissant les listes des pays ou des zones</u> ont été adoptées par l'Assemblée mondiale des Délégués." Rationale: faute de frappe en français au 5ème alinéa suivant la liste des programmes officiels pouvant être validés par l'OMSA :	Agreed (only in French version)

When a Member Country requests official recognition of *animal health status* for a *zone*, the geographical boundaries of the proposed *zone* should be clearly defined. When applying for recognition of a free *zone* that is adjacent to another *zone* of the same status, it should be stated whether the new *zone* is being merged or kept separate. If the proposed *zone* remains separate, details should be provided of the control of the movement of relevant *commodities* between the *zones* in accordance with Chapter 4.4.

The overall objective of the WOAHA endorsed *official control programmes* is for Member Countries to progressively improve their animal health situation and eventually attain official recognition of *animal health status* or in the case of dog-mediated rabies to make a self-declaration as a free country or *zone*. The *official control programme* should be applicable to the entire country even if certain measures are directed towards defined *zones*.

Article 1.6.2.

Maintenance, suspension and recovery of official recognition of an animal health status and endorsement of an official control programme by WOAHA

Retention on the lists of countries and *zones* having an official *animal health status* or of countries having an endorsed *official control programme* requires that the information in relevant chapters be re-submitted annually and confirming that the conditions described in the relevant chapters continue to be met changes in the epidemiological situation or other significant events be notified to WOAHA in accordance with the requirements in Chapter 1.1.

1.6.2._1_ New Zealand	Category: addition Proposed amended text: Retention on the lists of countries and <i>zones</i> having an official <i>animal health status</i> or of countries having an endorsed <i>official control programme</i> requires that the information in relevant chapters be re-submitted annually and confirming that the conditions described in the relevant chapters continue to be met changes in the epidemiological situation or other significant events be notified to WOAHA in accordance with the requirements in Chapter 1.1. and changes in the epidemiological situation or other significant events be notified to WOAHA in accordance with the requirements in Chapter 1.1. Rationale: A clear link to this fundamental requirement should be retained for maintenance of status. Removal is not necessary and retention reinforces that meeting reporting obligations is a requirement for maintenance. Supporting evidence: The WOAHA Information Department have been exploring how to encourage countries to meet their reporting obligations. One way is to provide and reinforce a tangible benefit for meeting reporting obligations.	Agreed
1.6.2._2_ EU	Category: change Proposed amended text: “Retention on the lists of countries and <i>zones</i> having an official animal health status or of countries having an endorsed official control programme requires that information a declaration be submitted annually by the Delegate confirming that the epidemiological situation has not changed and that the conditions described in the relevant chapters continue to be met. Any changes in the epidemiological situation or other significant events should be immediately notified to WOAHA in accordance with Chapter 1.1.” Rationale: As already indicated in previous years, the EU wishes to underline the importance of streamlining the reconfirmation process for Member Countries already having an official status. This is due to the considerable administrative burden on Member Countries veterinary authorities. Given that the proposed wording “<i>information be re-submitted annually confirming that the conditions described in the relevant chapters continue to be met</i>” could be interpreted in several ways, it appears important to streamline the work and not require on an	Did not agree with the change to add ‘a declaration’ ‘by the Delegate’ as this is not sufficient. Agreed to reinstate the last sentence with some changes.

	annual basis a collection of new evidence by the Members and a new assessment by WOAHP secretariat. Finally, we make reference to the similar comments submitted in chapters for FMD and CSF. We suggest that the chapters for AHS and CBPP should be aligned accordingly to ensure consistency.	

Failure to meetNon-compliance with the **requirements conditions** for the maintenance of *animal health status* **due to the occurrence of the relevant listed diseases or non-compliance with surveillance or prevention measures**, results in the suspension of that status. Within 24 months of suspension, except otherwise stated in the disease-specific chapter, a Member Country may apply for the recovery of a previously recognised status, **by submitting evidence that following** the provisions **for recovery of animal health status of** the relevant disease-specific chapter **are met or that any other reasons for suspension have been addressed**. When the status has not been recovered within the specified period of its suspension, it is withdrawn and the Member Country should reapply following the procedure for the application for official recognition of *animal health status*.

1.6.2._3_ Korea (Rep. of)	Category: Addition Proposed amended text: Failure to meetNon-compliance with the requirements conditions for the maintenance of <i>animal health status</i> due to the occurrence of the relevant listed diseases or non-compliance with surveillance or prevention measures, results in the suspension of that status. Within 24 months of suspension, except otherwise stated in the disease-specific chapter, a Member Country may apply for the recovery of a previously recognised status, by submitting evidence that following the provisions for recovery of animal health status of the relevant disease-specific chapter are met or that any other reasons for suspension have been addressed, and may regain its status after expert assessment without adoption by the World Assembly of WOAHP Delegates. When the status has not been recovered within the specified period of its suspension, it is withdrawn and the Member Country should reapply following the procedure for the application for official recognition of <i>animal health status</i>. Rationale: Article 1.6.1. clearly stipulates that the country or the zone will be included in the relevant lists of official animal health status or endorsed official control programmes only after the Resolutions listing the country or the zone have been adopted by the World Assembly of WOAHP Delegates. Therefore, it is necessary to explicitly state in the Code the provision set out in Resolution No. 15 of the 2020, which specifies that the recovery of a previously recognised status that had been suspended does not need to be adopted by the World Assembly of WOAHP Delegates in order to enhance trade facilitation and transparency for Member Countries.	Did not agree as such level of detail should be in the SOP. However, proposed text to clarify that the recovery of status depends on the outcome of the assessment of the evidence.
1.6.2._4_ New Caledonia	Category: editorial Proposed amended text: “Le non-respect des manquements exigés aux conditions relatives au maintien du statut zoosanitaire en raison de l'apparition de maladies pertinentes listées par l'OMSA pertinentes ou le non-respect des mesures de surveillance ou de prévention entraîne la suspension de ce statut. surveillance ou de prévention entraîne la suspension de ce statut. Dans les 24 mois suivant la suspension, un État membre peut, sauf indications contraires figurant dans le chapitre spécifique à la maladie, faire une demande pour recouvrer le statut reconnu précédemment, en se conformant aux dispositions prévues par le chapitre spécifique à la maladie, en présentant des éléments de	Agreed (only in French version)

	<u>preuve démontrant que les dispositions relatives au rétablissement du statut zoosanitaire, figurant dans le chapitre spécifique à la maladie pertinent, sont respectées ou que toute autre raison ayant entraîné la suspension a été traitée.</u> Rationale: pour clarifier le sens de la phrase en français, il est proposé de déplacer le terme "pertinentes" en amont et ajouter une virgule après "zoosanitaire" et "pertinent" :	
1.6.2._5_ EU	Category: general and addition Request for clarification: What justification should the Member Countries provide to demonstrate they are in compliance with surveillance or prevention measures? It appears important that the administrative burden on Member Countries veterinary authorities be kept to a minimum and proportional. Furthermore, we suggest the following amendment: <u>Failure to meetNon-compliance with the requirements conditions for the maintenance of animal health status due to the occurrence of the relevant listed diseases or to regulatory changes that result in non-compliance with surveillance or prevention measures, results in the suspension of that status.</u> Rationale: Only regulatory changes that occur after the initial official status recognition and alter the outcomes of the initial assessment should be relevant for the annual reconfirmation exercise, to avoid contradictions with previous recognition decisions, uphold the credibility of the system and keep the overall burden of the exercise proportional.	Agreed with the rationale. However, did not agree with proposed text as should not be limited to regulatory changes resulting in non-compliance. Proposed alternative text to remove reference to surveillance or prevention measures, but to meet with conditions for the maintenance of animal health status.

WOAH may withdraw the The endorsement of an *official control programme* may be withdrawn if there is evidence of:

- non-compliance with the timelines or performance indicators of the programme; or
- significant problems with the quality of the *Veterinary Services* as described in Section 3 of the *Terrestrial Code*; or
- an increase in the *incidence* or distribution of the disease that cannot be addressed by the programme.

Article 1.6.3.

Publication by WOA of a self-declaration of animal health status by a Member Country

A Member Country may make a self-declaration of freedom of a country, *zone* or *compartment* from a WOA *listed disease* or another animal disease, *infection* or *infestation*. For listed diseases, The Member Country should inform WOA of the claimed status and request publication by WOA of the self-declaration to inform WOA Member Countries.

1.6.3._1_ Canada	Comment Category: Deletion Proposed amended text: A Member Country may make a self-declaration of freedom of a country, <i>zone</i> or <i>compartment</i> from a WOA <i>listed disease</i> or another	Did not agree. Considered that it was unnecessary for WOA to publish self-declarations for non-listed diseases as these should

	animal disease, <i>infection</i> or <i>infestation</i>. ~~For listed diseases, The~~ Member Country ~~should~~may inform WOA of the claimed status and request publication by WOA of the self-declaration to inform WOA Member Countries. Rationale: We suggest that limiting the publication of self-declarations to that of listed diseases is too narrow in scope. Article 1.2.2. point 2 requires that a Member has declared freedom from the disease for it to meet the criteria for listing. This Article should underpin that requirement so that the TCC is aware of different claimed status when considering listing new diseases.	remain a bilateral discussion.
1.6.3._2_ New Zealand	Category: change Proposed amended text: A Member Country may make a self-declaration of freedom of a country, <i>zone</i> or <i>compartment</i> from a WOA <i>listed disease</i> or another animal disease, <i>infection</i> or <i>infestation</i>. ~~For listed diseases, The~~ Member Country ~~should~~may ~~may~~ inform WOA of the claimed status and request publication by WOA of the self-declaration to inform WOA Member Countries. Rationale: The proposed change is unnecessary. The current text does not create any confusion, ensures publication on WOA website is voluntary, and provides necessary flexibility. The publication of a country's self-declaration of freedom on the WOA website should remain voluntary. The change of the word 'may' to 'should' is creating an obligation. The consequence of this would be an expectation that countries would provide self-declarations for publication for all listed diseases for which they are legible to do so, which has not been necessary for safe and fair trade to date. The change would be creating unnecessary and additional administration burden for both Member Countries and WOA. Reverting to the original text and not referring to 'listed diseases', also provides flexibility for self-declaration of non-listed diseases. Such as an important emerging disease that is not/not yet listed. In addition, WOA has previously indicated that the self-declaration procedures can be used for non-listed diseases and that publication of non-listed diseases could be made on the WOA site.	Did not agree to replace 'should' with 'may' as while in agreement that this was voluntary, this is to contrast with non-listed diseases.

A Member Country requesting the publication of a self-declaration should follow the Standard Operating Procedure (available on the WOA website) for submission of a self-declaration of *animal health status* and provide documented information on its compliance with the relevant chapters of the *Terrestrial Code*, including:

- evidence that the *infection* or *infestation* is a *notifiable disease* in the entire country;
- history of absence or eradication of the *infection* or *infestation* in the country, *zone* or *compartment*;
- *surveillance* including an *early warning system* for all relevant species in the country, *zone* or *compartment*;
- measures implemented to maintain freedom in the country, *zone* or *compartment*.

The self-declaration may be published only after all the information provided has been received and ~~screened administrative and technical screening has been performed by WOA~~. Publication does not imply endorsement of the claim of freedom by WOA ~~and does not reflect the official opinion of WOA~~. Responsibility for the accuracy of the information contained in a self-declaration lies entirely with the WOA Delegate of the Member Country concerned.

1.6.3._3_ New Zealand	Category: addition Proposed amended text: The self-declaration may be published only after all the information provided has been received and screened by WOA. by WOA. Rationale: Clarity.	Agreed but used glossary term 'Headquarters'

Except when otherwise provided for in the *listed disease*-specific chapter, an *outbreak* in a **Member Country** **country**, a **zone** or a **compartment** having a self-declared free status results in the loss of **this the self-declared free** status. A Member Country wishing to reclaim a lost free status should submit a new self-declaration following the procedure described in this article.

WOAH does not publish self-declarations for *listed diseases* in point 1 of Article 1.6.1.

1.6.3._4_ EU	Category: editorial Proposed amended text: In the sentence above, please consider inserting the word " listed " or " mentioned " before "in point 1 of Article 1.6.1.".	Agreed

Article 1.6.4.

Specific provisions

The *animal health status of a country or zone* is not affected by:

- the presence of the pathogenic agent in an **imported** *animal product at a border inspection post*.
- the presence of the disease, *infection*, or *infestation* in imported animals in a *quarantine centre*.

1.6.4._1_ Canada	Comment Category: Addition Proposed amended text: – <u>the presence of the disease, <i>infection</i>, or <i>infestation</i> in imported animals in a <i>quarantine centre</i> or at a border inspection post.</u> Rationale: The original wording of Annex 10 - Chapter 5.6. Importation used to state "The animal health status of the importing country or zone is not affected by the presence of disease or infection in imported animals in a quarantine centre or at a border inspection post ," but has now been removed. As this new wording in Chapter 1.6 is replacing the previous wording from Chapter 5.6, the same approach and intent should continue to be applied for imported animals. Not all animals are required to be imported through a quarantine centre, depending on the risk they pose, however, all animals must still be imported through a border inspection post. The presence of disease, infection, or infestation could be detected at the time of import at the border inspection post and this detection should not impact the animal health status of the country or zone. As such, this clarification/guidance that the presence of disease, infection, or infestation in imported animals both in a quarantine centre and at a border inspection post does not impact the animal health status of a country or zone should continue to be maintained for animal imports. Removing this clarification/guidance could lead to member countries	Did not agree as the status at a border inspection post may vary and should be assessed on a case by case basis

	interpreting disease detection upon import differently and applying unnecessary restriction which could result in unnecessary negative affects on a country's health status and trade, or making them reluctant to report detections at the time of import.	

- the importation or the presence of the pathogenic agent, or of *commodities* or organisms carrying the *pathogenic agent*, in a *laboratory* or other *approved facilities* with appropriate laboratory biosafety and laboratory biosecurity in accordance with *Article 5.8.5. and the Terrestrial Manual*.

1.6.4._2_ EU	Category: general and addition Request for clarification: What exactly is meant by “organisms carrying the pathogenic agent” – would this include an animal of a susceptible species infected with the pathogenic agent? If this is the case, we would suggest adding this for clarity reasons in a parenthesis, as follows: the importation or the presence of the pathogenic agent, or of commodities or organisms carrying the pathogenic agent (<i>including infected animals of susceptible species</i>), in a laboratory or other approved facility with appropriate laboratory biosafety and laboratory biosecurity in accordance with Article 5.8.5. and the Terrestrial Manual.	Did not agree as covered under ‘commodities’

This should be supported by evidence of compliance with all relevant standards of the *Terrestrial Code* and *Terrestrial Manual*.

1.6.4._3_ New Zealand	Category: general We support inclusion of the proposed article provided that the proposed definition of “<i>approved</i>” in Annex 17 does not remove the explicit requirement for approval by the Veterinary Authority, as is currently stipulated in the Code. The proposed change to the definition of ‘approved’ will make the use of this article significantly broader, decreasing confidence in the acceptable and suitable management and containment of pathogenic organisms. Approval by the Veterinary Authority is essential to ensure coordinated implementation of standards, maintain system integrity, and uphold confidence in disease control, biosecurity, and safe trade.	Noted
1.6.4._4_ EU	Category: general Request for clarification: The purpose of the sentence above is not entirely clear. Is it intended to refer to similar specific provisions related to “imported cases” in disease chapters of the Code (for instance on rabies in Article 8.15.4. point 2 last bullet)? Perhaps this could be clarified or specified further (e.g. “except if specified otherwise in disease chapters” or “without prejudice to specific provisions in disease chapters” or similar).	Did not agree. Proposed text to clarify the purpose of the sentence which was in particular to comply with Chapters 5.5. to 5.7.

Reference	Comment	TAHSC response
3.X._1_ Australia	Category: Comment Comment Emergency is used across several chapters in the Terrestrial Code. In this chapter, the term is defined as “the organisation, coordination, and management of responsibilities and resources to address emergencies”. However, “emergency” or “emergencies” itself is not defined. A glossary definition for “emergency” could provide clarity and consistency.	Noted. The TAHSC will consider if the definition of ‘emergency’ from this chapter needs to be included in the Glossary.
3.X._2_ Canada	Comment Category: General The all-hazards approach used in this chapter makes the concepts very broad and as the role of different stakeholders may vary between different emergency types it is difficult to encapsulate that all effectively in one chapter. It would be more effective to focus the chapter on a specific hazard, such as disease outbreak response, which exemplifies the principles of emergency management, and then have a separate article either at the end or the start of the chapter on the ‘all-hazards approach’ which would reiterate the principles of the whole of system approach and importance of Veterinary Services involvement in civil emergencies. To follow this approach, it is recommended that the chapter as a whole focus on emergency management for the response to a disease outbreak. This is consistent with the disease-specific chapters and concepts of disease freedom in the Terrestrial Code. This is also consistent with the User’s Guide point A 2, which states that the standards are “notably to set up measures providing for early detection, internal reporting, notification, control or eradication of pathogenic agents, including zoonotic ones, in terrestrial animals (mammals, birds, reptiles and bees) and preventing their spread via international trade in animals and animal products, while avoiding unjustified sanitary barriers to trade.”. As much of the chapter already references disease response management, focusing on this would provide clarity to the chapter.	Did not agree, Resolution 28 adopted at the 89th General Session recommended that WOAHA adopt an all hazards approach to emergency management. The Commission noted that after adoption of this chapter, an explanation may be added to the User’s Guide to explain how the chapter should be used. Also, Chapter 4.19. ‘Official control programmes for listed and emerging diseases’ has an article on emergency preparedness. The Commission also added a definition of ‘hazard’ in this chapter to clarify what hazards were included in this chapter.
3.X._3_ Canada	Comment Category: General This chapter reiterates that the principles and concepts of emergency management should be consistent across all emergencies. Taking this into account, it is important to ensure the WOAHA standards are consistent in how they handle this topic. Two chapters of the Aquatic Code (emergency disease preparedness, disease outbreak management) were adopted in May 2025. This chapter should be reviewed to ensure that the approach and concepts are consistent with adopted approach in the Aquatic Code to allow easier understanding and implementation by Members.	See comment 3.X._2._Canada
3.X._4_ China (People’s Rep. of)	Category: general The chapter emphasizes an “all-hazards approach” but does not specify a graded response mechanism based on the scale of the outbreak, transmission risk, and socio-economic impact. This may lead to misallocation of resources or disproportionate responses. It is recommended to incorporate a graded emergency response principle, whereby incidents are classified into four levels—particularly serious, serious, moderate, and minor—according to their nature, severity, geographic scope, and potential trajectory. Corresponding response	Noted. This concern is addressed in Article 6 of the chapter.

	mechanisms at national, provincial, municipal, or local levels should be activated accordingly. Higher-level responses may mobilize resources from lower administrative levels, but lower-level responses should not unilaterally escalate to higher-level actions without justification, ensuring that control measures remain proportionate to the actual risk. supporting evidence: not relevant	
3.X._5_ Korea (Rep. of)	Category: general The Republic of Korea agrees with the declaratory provisions on emergency management covering the scope, general principles, key components, and the legal framework for preparedness.	Noted.
3.X._6_ New Zealand	Category: general We would like to congratulate the Terrestrial Code Commission for a well-developed first draft of this new proposed chapter.	Noted.
3.X._7_EU	Category: general The EU in general supports this new chapter provided the comments below are addressed. As a general comment, we note the absence of any reference to antigen, vaccine and diagnostic reagent banks, that may be set up in peace time as part of preparedness to provide timely access to key biological products in case of animal health emergencies. Such banks have been available for decades in the EU for certain transboundary animal diseases and have proven very valuable and cost-effective.	Agreed, an addition was made to Article 6, point 3d, to address this.

CHAPTER 3.X.

EMERGENCY MANAGEMENT

Article 3.X.1.

Introduction

Emergency management is the organisation, coordination, and management of responsibilities and resources to address emergencies. It requires proactive preparedness efforts to ensure capabilities and capacities are in place to prevent emergencies from becoming overwhelming. Emergency management requires regular training, practice through exercises and scenario planning.

3.X.1._1_ Australia	Category: Editorial Proposed amended text: Emergency management is the organisation, coordination, and management of responsibilities and resources to address emergencies. It requires proactive preparedness efforts to ensure capabilities and capacities are in place to <u>prevent emergencies from becoming overwhelming, minimise the consequences from emergency events, protect the health and welfare of humans and animals and support rapid recovery from emergencies.</u> Rationale: Edited text to highlight that the aim is much broader than just preventing emergencies from becoming 'overwhelming'.	Agreed.

3.X.1._2_ Chinese Taipei	Category: Change Proposed Amended Text: Emergency management requires regular training, <u>multidisciplinary simulation practice through exercises</u>, and scenario planning <u>integrated with One Health partners</u>. Rationale: This emphasizes that emergency exercises should not be limited to a single sector, but instead involve multidisciplinary simulation exercises that include human health, environmental authorities, and other relevant partners, consistent with the One Health framework that promotes cross-sectoral collaboration. Supporting Evidence: None	Did not agree, too detailed for introduction.
3.X.1._3_ New Zealand	Category: change Proposed amended text: Emergency management is the organisation, coordination, and management of responsibilities and resources to <u>effectively respond to address</u> emergencies. It requires proactive preparedness <u>efforts</u> to ensure capabilities and capacities are in place to increase the <u>potential likelihood of achieving the best</u> a favourable outcome <u>or</u> preventing emergencies from becoming overwhelming. Emergency management requires regular training, practice through exercises and scenario planning. Rationale: Clarity and reflecting that responding to an emergency is not just reactive to minimise impact but is also proactive to achieve the best possible outcome in the given situation.	Agreed to remove 'efforts'. Did not agree to other suggestions as it did not add clarity.

Sudden or unexpected events can lead to emergency situations that can affect animal *populations*, negatively impacting animal health, *animal welfare*, livelihoods, economies, food security, and veterinary public health, often with serious societal and economic consequences.

3.X.1._4_ Australia	Category: Editorial Proposed amended text: Reconsider wording around paragraph "sudden or unexpected events..." Rationale: whilst this sentence is true, there are situations where an emergency event arises that is not necessarily sudden or unexpected.	Agreed, edited to address concern.
3.X.1._5_ Australia	Category: Editorial Proposed amended text: Sudden or unexpected events can lead to emergency situations that can affect animal <i>populations</i>, negatively impacting animal health, <i>animal welfare</i>, livelihoods, <u>communities economies</u>, food security, and veterinary public health, often with serious societal, ~~and~~ economic <u>and environmental</u> consequences. Rationale: There is a repeat of 'economies' and 'economic'. Suggest replacing the former with 'communities' to avoid duplication. Addition of 'environmental' consequences to align with subsequent wording in 'Purpose and Scope' in this chapter that outlines the importance of all-hazards approaches, including wildlife and environmental emergencies.	Agreed.
3.X.1._6_ ICFAW	Category: addition Proposed amended text: Sudden or unexpected events can lead to emergency situations that can	Agreed.

	affect animal <i>populations</i>, negatively impacting animal health, <i>animal welfare</i>, livelihoods, economies, food security, and veterinary public health, often with serious societal, ~~and~~ economic <u>and environmental</u> consequences. Rationale: Emergencies impact all aspects of socioecological systems within a One Health framework. This includes human, animal, environmental, and socioeconomic factors. Supporting evidence: Wichtitsky <i>et al</i> (2020) "Health in" and "Health of" Social-Ecological Systems: A Practical Framework for the Management of Healthy and Resilient Agricultural and Natural Ecosystems, <i>Frontiers in Public Health</i>, vol 8, DOI=10.3389/fpubh.2020.616328, ISSN=2296-2565 https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2020.616328/full	

The *Veterinary Authority* and *Veterinary Services* are the main actors of the response to emergencies requiring animal disease prevention, early detection and control, and maintaining or restoring disease freedom, as well as the protection of *animal welfare*. They may also be called upon to support emergency responses led by other authorities for events caused by hazards beyond animal diseases, such as natural disasters.

3.X.1._7_ Australia	Category: Editorial Proposed amended text: The <i>Veterinary Authority</i> and <i>Veterinary Services</i> are the main actors <u>in of the management and</u> response to <u>animal health</u> emergencies. <u>This requires requiring</u> animal disease prevention, <u>preparedness</u>, early detection and <u>control response to control</u>, and maintaining or restoring disease freedom, as well as the protection of <i>animal welfare</i>. They may also be called upon to support emergency responses led by other authorities for events caused by hazards beyond animal diseases, such as natural disasters. Rationale: Edit Veterinary Authority and Veterinary Services roles to 'management' in addition to response in animal health emergencies, and expand on emergency management concepts to encompass the 5 emergency management steps as outlined in this chapter- prevention, preparedness, detection, response and recovery	Agreed with the rationale, however the text was amended differently.
3.X.1._8_ Canada	Comment Category: Addition Proposed amended text: The <i>Veterinary Authority</i> and <i>Veterinary Services</i> are the main actors of the response to emergencies requiring animal disease prevention, early detection and control, and maintaining or restoring disease freedom, as well as the protection of <i>animal welfare</i>. They may also be called upon to support emergency responses led by other authorities for events caused by <u>threats hazards</u> beyond animal diseases, such as natural disasters. Rationale: It is recommended to provide a definition for the use of the term 'hazard' within the proposed chapter in Article 3.X.3. or more preferably to use a different term such as threat throughout the chapter. Hazard is a defined term in the Glossary for the Terrestrial Code, however the use of this term through this chapter does not appear to meet the definition in the Glossary (<i>means a biological, chemical or physical agent in, or a condition of, an animal or animal product with the potential to cause an adverse health effect.</i>). The use of this term should be defined for this Chapter to avoid confusion, or preferably, a different term used. If the chapter is re-formatted to focus on disease outbreak emergency management, with one article laying out the all-hazards approach, as	Agreed with the rationale, however the text was amended differently. Added a definition for 'hazard' in article 3 under definitions to be specific to this chapter.

	suggested in a General comment, then the Glossary definition of hazard could be used without confusion.	
3.X.1._9_ USA	Comment Category: Addition Proposed amended text: The <i>Veterinary Authority</i> and <i>Veterinary Services</i> <u>or other Competent Authority</u> are the main actors of the response to emergencies requiring animal disease prevention, early detection and control, and maintaining or restoring disease freedom, as well as the protection of <i>animal welfare</i>. Rationale: It may not always be the Veterinary Authority or Veterinary Services as the lead of an animal disease emergency, particularly where the Competent Authority may represent state, provincial or other territorial governance. This addition is also consistent with recent updates recognizing the role of Competent Authorities in other horizontal chapters of The Code, such as biosecurity and movement of animals.	Did not agree. The Competent Authority is not necessarily a main actor, and are covered under the Veterinary Authority.
3.X.1._10_ EU	Category: addition We note that veterinary public health or food safety is not covered in the paragraph above, while it is included in the scope (first paragraph of Article 3.X.2.) and other places in the text. We therefore suggest adding it also here.	Agreed, edited the paragraph to address this concern.
3.X.1._11_ ICFAW	Category: addition Proposed amended text: The <i>Veterinary Authority</i> and <i>Veterinary Services</i> are the main actors of the response to emergencies requiring animal <u>and zoonotic</u> disease prevention, early detection and control, and maintaining or restoring disease freedom, as well as the protection of <i>animal welfare</i>. They may also be called upon to support emergency responses led by other authorities for events caused by hazards beyond animal diseases, such as natural <u>disasters natural hazard events</u>. Rationale: 1. According to the World Health Organisation (WHO), approximately 70% of emerging infectious diseases (EIDs) in humans are from an animal source. Considering One Health principles, zoonotic disease emergencies should involve multiple actors including veterinary authorities, even if the emergency only includes humans and does not have animal cases within the member state at the time. 2. According to the United Nations office for Disaster Risk Reduction (UNDRR), there is “no such thing as a natural disaster”. Hazards become a disaster when they impact a community or people not adequately protected by proper planning, preparedness and mitigation. It is how humans prepare for and react to natural hazards that makes them disasters. Considering the official definition provided by the United Nations Office for Disaster Risk Reduction (UNDRR), <u>Hazard:</u> A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. <u>Disaster:</u> A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity, leading to one or more of the following: human, material, economic, and environmental losses and impacts.	See comment 3.X.1._10._EU

	Supporting evidence, if relevant: 1. Roberto, Sante & Di Guardo, Giovanni. (2025). One health, one earth, one life: The overlooked role of veterinarians in the fight against COVID-19 and other public health emergencies in Italy. One health (Amsterdam, Netherlands). 21. 101207. 10.1016/j.onehlt.2025.101207. https://www.researchgate.net/publication/396251613_One_health_one_earth_one_life_The_overlooked_role_of_veterinarians_in_the_fight_against_COVID-19_and_other_public_health_emergencies_in_Italy 2. World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO) and World Organisation for Animal Health (OIE), 2019. Taking a Multisectoral, One Health Approach: A Tripartite Guide to Addressing Zoonotic Diseases in Countries: https://iris.who.int/server/api/core/bitstreams/00a4190f-ff85-4959-b020-db11bca0565b/content 3. https://www.preventionweb.net/news/natural-disaster-or-natural-hazard-even-experts-interchangeably-use-these-terms 4. United Nations Office for Disaster Risk Reduction (UNDRR). 2017. <i>The Sendai Framework Terminology on Disaster Risk Reduction</i>: Hazard: https://www.undrr.org/terminology/hazard Disaster: https://www.undrr.org/terminology/disaster	

Whether leading the response or not, the *Veterinary Authority* and *Veterinary Services* should be prepared to act swiftly and coordinate with other sectors and stakeholders, contributing their technical expertise, capabilities and capacities, under a whole-of-government approach. Contributions to responses led by other authorities or agencies should be explored and practiced through being part of relevant exercises. All relevant public and private stakeholders should fulfil key roles in the management of emergencies under a One Health approach.

3.X.1._12_ Australia	Category: Editorial Proposed amended text: Contributions to responses led by other authorities or agencies should be explored and practiced through being part of ~~relevant~~ <u>intersectoral</u> exercises. Rationale: Suggested change to improve clarity as the definition of 'relevant' can be interpreted in many ways. 'Intersectoral' is a term used consistently throughout the rest of the document.	Agreed with the rationale, text was amended differently.
3.X.1._13_ Canada	Comment Category: Addition Proposed amended text: Whether leading the response or not, the <i>Veterinary Authority</i> and <i>Veterinary Services</i> should be prepared to act swiftly and coordinate with other sectors and stakeholders, contributing their technical expertise, capabilities and capacities. <u>A comprehensive emergency management strategy relies on the integration of government coordination and industry engagement to ensure a cohesive and effective approach.</u> ~~under a whole-of-government approach.~~ Contributions to responses led by other authorities or agencies should be explored and practiced through being part of relevant exercises. All relevant public and private stakeholders should fulfil key roles in the management of emergencies under a One Health approach. Rationale: A whole of government approach does not align with the first sentence of the paragraph where it stresses the importance of coordination of stakeholders. Stakeholders would not be part of a 'whole of government' approach.	Agreed with the rationale, text was amended differently.

3.X.1._14_ EU	Category: general Please explain what is meant by “other sectors”. It is not clear if this refers to other authorities, and if not, what makes it different from “stakeholders”.	‘Other sectors’ are those other than animal health and welfare. Public health is an example of another sector. ‘Other sectors’ and ‘stakeholders’ are not mutually exclusive.

Emergency management builds resilience by clarifying priorities and strengthening systems. Investing in adaptable capabilities is cost-effective in reducing the overall impact and cost of emergencies and requires sustained and consistent funding and resourcing rather than intermittent or reactive support.

3.X.1._15_ Australia	Category: Change Proposed amended text: Emergency <u>management</u> <u>preparedness</u> builds resilience by clarifying priorities and strengthening systems. Rationale: Technically ‘emergency preparedness’ builds resilience whereas emergency management refers to the entire process of preparedness, response, recovery.	Did not agree, preparedness is part of management.
3.X.1._16_ ICFAW	Category: addition Proposed amended text: Emergency management builds resilience by clarifying priorities and strengthening systems. Investing <u>in disaster risk reduction, mitigation and</u> adaptable capabilities is cost-effective in reducing the overall impact and cost of emergencies and requires sustained and consistent funding and resourcing rather than intermittent or reactive support. Rationale: Emergency resilience, Disaster Risk Reduction (DRR), and Mitigation are interconnected strategies to prevent, prepare for, and minimize disaster impacts, focusing on building strong systems (resilience) through actions like risk assessment, early warnings, resilient infrastructure, and community preparedness, moving beyond just response to long-term risk management and sustainable development. Supporting evidence: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/186874/defining-disaster-resilience-approach-paper.pdf	Did not agree, do not invest in mitigation, mitigation is the objective.

Article 3.X.2.

Purpose and scope

This chapter provides recommendations for preparing for and managing emergencies arising from any hazard, whether natural or artificial, accidental or deliberate, that affects animal health, *animal welfare* or veterinary public health. The chapter addresses key components of emergency management, including prevention, preparedness, detection, response and recovery. Its main objectives are to:

3.X.2._1_ ICFAW	Category: addition Proposed amended text: The chapter addresses key components of emergency management, including prevention and mitigation, preparedness, detection, response and recovery. Its main objectives are to: Rationale: Prevention and mitigation are not the same. Prevention is the aim to <i>eliminate</i> the risk of a hazard, whereas mitigation is to <i>minimise the impact</i> of that hazard. Both should be included. Supporting evidence: https://www.undrr.org/terminology/prevention https://www.undrr.org/terminology/mitigation	Did not agree, mitigation is the objective, not a component.

- 1) Guide Members in developing emergency management structures, processes and supporting systems within a whole-of-government framework;
- 2) Define essential capacities and capabilities required to respond effectively;
- 3) Emphasise the need for sustainable resourcing to increase the resilience of *Veterinary Services*;
- 4) Advocate for planning, training and simulation exercises to improve readiness for emergencies;
- 5) Encourage a commitment to continuous improvement in emergency management.

This chapter may be applied to all emergencies involving *Veterinary Services* and *animals*, including *wildlife*. This chapter takes an all-hazards approach and can be applied to biological as well as chemical or physical hazards, which may arise from technological, environmental (geological, hydrological, meteorological), or even societal causes.

3.X.2._2_ Chinese Taipei	Category: Addition Proposed Amended Text: This chapter may be applied to all emergencies involving Veterinary Services and animals, including wildlife, and should consider risks arising from illegal animal movements, wildlife–livestock interfaces, and transboundary disease spread. Rationale: The original text refers to “emergencies” only in general terms. It is recommended to specify key risk sources such as illegal animal movements, wildlife–livestock interfaces, and transboundary animal diseases, which aligns with the principles reflected in other WOAHA chapters, including those addressing risk analysis and transboundary disease management. Supporting Evidence: None	Did not agree, these are not considered emergencies.
3.X.2._3_ ICFAW	Category: deletion Proposed amended text: This chapter may be applied to all emergencies involving <i>Veterinary Services</i> and <i>animals</i>, including wildlife.	Did not agree, it needs to be stressed that wildlife should be included when addressing emergencies.

	Rationale: Wildlife falls under all <i>animals</i>. If specifying wildlife, then we would need to specify working animals, laboratory animals, livestock, and pets, for example. Supporting evidence: Not relevant	

Article 3.X.3.

Definitions

For the purposes of this chapter, the following definitions apply:

'Event' means the manifestation of a hazard at a particular place and time, which has consequences on the health or welfare of animals.

3.X.3._1_ EU	Category: Addition Proposed Amended Text: We suggest adding also veterinary public health in the definition of event, in line with the scope of the chapter (see first paragraph of Article 3.X.2.), as follows: 'Event' means the manifestation of a hazard at a particular place and time, which has consequences on the health or welfare of animals or on veterinary public health. Reference to veterinary public health could also be added elsewhere, e.g. in the first paragraph of point 1 of Article 3.X.4.	Agreed.

'Risk' means the likelihood of an event and the likely magnitude of its consequences.

3.X.3._2_ Australia	Category: Editorial Proposed amended text: 'Risk' means the likelihood of ~~an event and the likely magnitude of its consequences~~ the occurrence and the likely magnitude of the biological and economic consequences of an adverse event or effect to animal or human health. Rationale: Minor editorial change to be consistent with current WOAHS glossary definition for risk.	Did not agree, 'risk' as used in this chapter is different from that in the Glossary.
3.X.3._3_ Canada	Comment Category: deletion Proposed amended text: ~~'Risk' means the likelihood of an event and the likely magnitude of its consequences.~~ Rationale: Risk is a defined term in the Terrestrial Code glossary and the definition would be appropriate for this chapter. It is confusing for Members to define a term differently in one singular chapter unless the definition varies significantly from that in the Glossary. If it is considered that there is a significant difference in definition as used in this chapter, a different word should be considered to be used to reduce confusion.	See comment 3.X.3._2_ Australia

'Emergency' means a state triggered by an event that creates significant disruption, requiring immediate and coordinated extraordinary measures due to its scale, complexity, or likelihood of further impact.

3.X.3._4_ Colombia	Category: change Texto modificado propuesto: <u>Emergencia: designa una situación inesperada y grave desencadenada por un evento que altera e interrumpe intensamente y que obliga a una coordinada atención y respuesta inmediata debido a su magnitud, complejidad o la probabilidad de consecuencias posteriores.</u> Emergencia designa el estado desencadenado por un evento que crea una perturbación significativa y que requiere medidas extraordinarias inmediatas y coordinadas debido a su magnitud, complejidad o la probabilidad de consecuencias ulteriores. ‘Emergency’ means a state triggered by an event that creates significant disruption, requiring immediate and coordinated extraordinary measures due to its scale, complexity, or likelihood of further impact. Justificación: El término "perturbación significativa" es subjetivo.	Did not agree to change Spanish version

‘Whole-of-government approach’ means the coordinated and collaborative action of multiple public administrations, institutions, bodies and agencies to address complex cross-cutting issues. This approach may include extraordinary mandates.

3.X.3._5_ Australia	Category: Editorial Proposed amended text: Provide clarity around or an example for ‘extraordinary mandates’. Comment: It is unclear what is meant by ‘extraordinary mandates’ under ‘whole-of-government approach’.	‘Extraordinary mandates’ mean that there will be unusual coordination like receiving assistance from the army for animal health emergency.
3.X.3._6_ Canada	Comment Category: change Proposed amended text: <u>‘Whole-of-government Whole of system approach’</u> means the coordinated and collaborative action of multiple public administrations, institutions, bodies ~~and~~ agencies <u>and other stakeholders</u> to address complex cross-cutting issues. This approach may include extraordinary mandates. Rationale: A whole of government approach may be too limited for the concepts described. Integration of government coordination and industry engagement is required to ensure a cohesive and effective approach.	Did not agree, deleted the definition and will explain ‘whole of government’ where it is used in the chapter.

‘Incident management system’ (IMS) means an emergency response coordination mechanism that brings together people, resources, and specific systems and tools, enabling effective collaboration between sectors to support interoperability, situational awareness and efficient decision-making.

3.X.3._7_ ICFAW	Category: addition Proposed amended text: <u>‘Mitigation’ means the lessening or limitation of the adverse impacts of hazards and related disasters.</u> <u>Prevention’ means any action with the intention to completely avoid potential adverse impacts of hazardous events.</u> <u>‘Preparedness’ means a state of readiness and capability of human and material means, structures, communities and organisations enabling them</u>	Did not agree. If dictionary definitions apply, will not create new definitions in the Terrestrial Code.

	<u>to ensure an effective rapid response to a disaster, obtained as a result of action taken in advance.</u> <u>'Response' means the provision of emergency services and public assistance during or immediately after a disaster in order to save human and animal lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people or animals affected.</u> <u>'Recovery' means the restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.</u> Rationale: These definitions are given in WOAHS Guidelines on disaster management and as this terminology is used in this annex, should be included. I have given an updated definition of prevention from UNDRR, as the WOAHS definition mixes prevention and mitigation. Supporting evidence: https://www.woah.org/app/uploads/2021/03/disastermanagement-eng.pdf https://www.undrr.org/terminology/prevention	

Article 3.X.4.

General Principles

Beyond the recommendations of Chapters 3.1. and Chapter 3.2., *Veterinary Authorities* and other *Competent Authorities*, *Veterinary Services* and relevant stakeholders, should follow these principles in the implementation of emergency management:

1. General organisation and framework

The *Veterinary Authority* should provide leadership, advocacy and expertise in the preparedness and response for animal disease emergencies, and for any animal health and *animal welfare* aspects of other emergencies. Legislation on emergency management, consistent with Chapter 3.4., should clearly define lead and supporting agencies, rules for emergency declaration and related extraordinary powers and resourcing to enable effective emergency management actions.

3.X.4._1_ Australia	Category: Editorial Proposed amended text: The <i>Veterinary Authority</i> should provide leadership, advocacy and expertise in the <u>prevention</u>, preparedness, ~~and~~ response <u>and recovery</u> for animal disease emergencies, and for any animal health and <i>animal welfare</i> aspects of other emergencies. Legislation on emergency management, consistent with Chapter 3.4., should clearly define lead and supporting agencies, rules for emergency declaration and related extraordinary powers and resourcing to enable effective emergency management actions Rationale: Incorporate all relevant aspects of emergency management for the Veterinary Authority. 'Detection' left off as this fits more with Veterinary Services response activities.	Agreed.
3.X.4._2_ Canada	Comment Category: change Proposed amended text: The <i>Veterinary Authority</i> should provide leadership, advocacy and expertise in the preparedness and response for animal disease emergencies, ~~and~~ <u>The Veterinary Authority and relevant Competent Authorities should provide leadership</u> for any animal health and <i>animal welfare</i> aspects of other	Agreed with the rationale, however the text was amended differently.

	emergencies. Legislation on emergency management, consistent with Chapter 3.4., should clearly define lead and supporting agencies, rules for emergency declaration and related extraordinary powers and resourcing to enable effective emergency management actions Rationale: The Veterinary Authority may not be the relevant authority for all animal health/disease and welfare aspects. Especially regarding animal welfare, depending on the country, different national or regional authorities may hold responsibility to respond. Including other relevant Competent Authorities provides flexibility depending on jurisdictional make-up of a country.	
3.X.4._3_ ICFAW	Category: addition Proposed amended text: The Veterinary Authority should provide leadership, advocacy and expertise in the preparedness and response for animal disease emergencies, and for any animal health and animal welfare aspects of other emergencies, including the provision of emergency shelter, feed, and water for animals displaced by non-disease emergencies (e.g., climate disasters). Legislation on emergency management, consistent with Chapter 3.4., should clearly define lead and supporting agencies, rules for emergency declaration and related extraordinary powers and resourcing to enable effective emergency management actions Rationale: Climate Resilience: Emergency management must cover natural disasters where the goal is saving animals, not just killing them to control disease.	Did not agree, too detailed.

Veterinary Services should be integrated within national emergency management plans, resourcing and frameworks, and engage in multisectoral coordination across public and private sectors.

3.X.4._4_ Chinese Taipei	Category: Addition Proposed Amended Text: Veterinary Services should be integrated and legally embedded within national emergency management plans and frameworks... Rationale: It is recommended to include the term "legally embedded" to emphasize that the Veterinary Authority should not merely be included in emergency plans, but should hold clearly defined legal mandates and responsibilities within the national emergency management framework, consistent with the emphasis on legal foundations and explicit authorization highlighted in the examples. Supporting Evidence: None	Did not agree, covered in the first paragraph of point one.

The *Veterinary Authority* should prepare for emergencies where they may be expected to provide a supporting role in a response led by another governmental authority, such as managing the *animal welfare* impacts of major fires, floods, storms or other natural or human made disasters.

3.X.4._5_ Canada	Comment Category: change Proposed amended text: The <i>Veterinary Authority</i> and other relevant Competent Authorities should prepare for emergencies where they may be expected to provide a supporting role in a response led by another governmental authority, such	Agreed with the rationale, text was amended differently.

	as managing the <i>animal welfare</i> impacts of major fires, floods, storms or other natural or human made disasters. Rationale: The Veterinary Authority may not be the relevant authority for all animal health/disease and welfare aspects. Especially regarding animal welfare, depending on the country, different national or regional authorities may hold responsibility to respond. Including other relevant Competent Authorities provides flexibility depending on jurisdictional make-up of a country.	
3.X.4._6_ Colombia	Category: editorial Texto modificado propuesto: La autoridad veterinaria deberá prepararse para las emergencias dirigidas por otra autoridad gubernamental, en las que se espera participe en la respuesta, ya sea en términos de la gestión de los impactos sobre el bienestar animal ~~de~~ <u>en</u> incendios, inundaciones, tormentas u otros desastres naturales mayores o provocados por el hombre. Justificación: Redacción (conector)	Did not agree to change Spanish version.

Formal networks and partnerships, such as between government agencies, the police or defence, industry, civil society and international organisations should be developed to enhance coordination and collective capacity. Formal agreements, such as memoranda of understanding (MoUs), can support this coordination by defining roles and responsibilities, establishing communication protocols, and promoting joint action prior to, during and after an emergency.

3.X.4._7_ Australia	Category: Editorial Proposed amended text: <u>Comprehensive stakeholder identification and engagement, and development of f</u>Formal networks and partnerships, such as between government agencies, the police or defence, industry, civil society and international organisations should be developed to enhance coordination and collective capacity. Formal agreements, such as memoranda of understanding (MoUs), can support this coordination by defining roles and responsibilities, establishing communication protocols, and promoting joint action prior to, during and after an emergency. Rationale: Stakeholder identification and engagement is critical to the preparedness process. There are multiple mention of stakeholders throughout the document but no mention of the importance of identifying the correct stakeholders early on (i.e. those that may have an interest or influence over emergency response activities). Included are examples not mentioned in the chapter as examples, such as indigenous groups, landholders, general public etc. Supporting evidence, if relevant IUCN/WOAH Manual of Procedures in Wildlife Disease Risk Analysis (2014). https://portals.iucn.org/library/sites/library/files/documents/2014-007.pdf	Agreed with the rationale, text was amended differently.
3.X.4._8_ USA	Comment Category: Change/Addition Proposed amended text: Formal networks and partnerships, such as between government agencies, the <u>law enforcement</u>~~police~~ or defence,.... Formal agreements, such as memoranda of understanding (MoUs), can support this coordination by defining <u>authorities and</u> roles and responsibilities,	Agreed to add law enforcement. Did not agree with 'authorities', they are defined by laws, not defined in agreements.

	Rationale: 1. "Law enforcement" encompasses the broader group of agencies who keep order and may be involved in managing emergency response. The term has also been used several times later in the chapter. 2. Authority is the power to make decisions, implement requirements etc. and is important to capture in a formal agreement when different groups may be responding to an emergency. It is separate, but complementary to roles (function/position) and responsibilities (duties for each role).	
3.X.4._9_ EU	Category: deletion Proposed Amended Text: The last sentence of the paragraph above seems overly detailed and prescriptive, and could be deleted as it is not essential to keep. If this sentence were to be deleted then memoranda of understanding (MoUs) acronym should be defined somewhere else.	Agreed with the rationale, however the text was amended differently.
3.X.4._10_ ICFAW	Category: addition Proposed amended text: Formal networks and partnerships, such as between government agencies, the police or defence, industry, civil society and international organisations should be developed to enhance coordination and collective capacity. <u>Formal systems, such as cluster systems</u>, or agreements, such as memoranda of understanding (MoUs), can support this coordination by defining roles and responsibilities, establishing communication protocols, and promoting joint action prior to, during and after an emergency. Rationale: Cluster systems such as the Humanitarian Cluster System, used by the <u>United Nations Office for the Coordination of Humanitarian Affairs</u>, can be used to coordinate multi-agency responses to large humanitarian emergencies. Although there are some weaknesses in the UNHCR cluster with regards to local inclusion and capacity, the system improves communication and coordination, and allows for strategic planning, capacity building and improved accountability. Supporting evidence: https://emergency.unhcr.org/coordination-and-communication/cluster-system/cluster-approach	Did not agree, no added value.

Essential functions of both public and private sectors should be maintained as much as possible for ongoing delivery during emergencies, notably to minimise disruptions. Efforts should be made to engage the private sector in emergency preparedness and response activities during peace time, prior to and during emergencies.

3.X.4._11_ Australia	Category: Deletion Proposed amended text: Efforts should be made to engage the private sector in emergency preparedness and response activities <u>during peace time</u>, prior to and during emergencies. Rationale: This is duplicitous because 'peacetime' is the same as 'prior to' an emergency.	Did not agree, it is important to engage during peace time.
3.X.4._12_ ICFAW	Category: addition Proposed amended text: Essential functions of both public and private sectors should be maintained as much as possible for ongoing delivery during emergencies, notably to	Did not agree, private sector includes civil society.

	minimise disruptions. Efforts should be made to engage the private sector <u>and civil society</u> in emergency preparedness and response activities during peace time, prior to and during emergencies. Rationale: According to the WHO's framework for civil society organization engagement in health emergencies (2025), Civil Society Organizations (CSOs) play a critical role in health emergencies, and are seen as trusted intermediaries with communities, often reaching the most vulnerable and hard-to- reach. A systematic approach to engagement of CSOs in health emergencies is therefore important. Supporting evidence: https://www.who.int/publications/b/75235	

2. Data and information management

Decision-making should be supported by robust data systems, integrating relevant data from animal health, public health, environment and other sectors. *Early warning systems*, supported for animal health by *surveillance* in accordance with Chapter 1.4., and risk indicators are crucial to trigger and adjust emergency responses. *Establishment* and *animal identification* and traceability databases should be maintained, up-to-date and accessible for all actions in emergency management, particularly for the tracing of *animal* locations and movements. Information may be required from other *Competent Authorities* such as data on *wildlife populations* and ecosystems.

3.X.4._13_ Canada	Comment Category: change Proposed amended text: Decision-making should be supported by robust data systems, <u>with the sharing of integrating</u> relevant data from animal health, public health, environment and other sectors. <i>Early warning systems</i>, <u>supported</u> for animal health <u>supported</u> by <i>surveillance</i> in accordance with Chapter 1.4., and risk indicators are crucial to trigger and adjust emergency responses. Rationale: Integrated data systems may not always be feasible depending on privacy legislation and pre-existing systems. Having the ability to share relevant data with pre-existing data sharing agreements and relationships facilitates decision making in the absence of an integrated data management system. Edit to sentence on early warning systems for clarity.	Agreed.
3.X.4._13_ EU	Category: editorial Proposed Amended Text: Please insert the word "<u>kept</u>" before "up-to date" in the paragraph above.	Agreed.

3. Effective communication

In order to ensure clear, consistent and timely communication and awareness during and after emergencies, to correctly inform stakeholders, to counter misinformation and disinformation and to promote transparency while maintaining public trust, *Veterinary Authorities* should establish internal and external communication protocols following the principles of Chapter 3.5 on communication.

3.X.4._14_ Canada	Comment Category: deletion Proposed amended text: ~~In order to ensure clear, consistent and timely communication and awareness during and after emergencies, to correctly inform stakeholders, to counter misinformation and disinformation and to promote transparency~~	Did not agree, should explain the objectives of the communication.

	~~while maintaining public trust~~, <i>Veterinary Authorities</i> should establish internal and external communication protocols following the principles of Chapter 3.5. on communication. Rationale: Point 3 of Article 3.5.2. covers the fundamentals of “transparency, consistency, timeliness, balance, accuracy, honesty and empathy”. As the principle already cross-links to Chapter 3.5., these fundamentals are implied and do not need to be re-stated in this point.	
3.X.4._15_ Colombia	Category: change Texto modificado propuesto: Con el fin de garantizar la comunicación de información y la sensibilización de forma clara, coherente y oportuna durante y después de las situaciones de emergencia, informar adecuadamente a las partes interesadas, ~~contrarrestar~~ ~~luchar contra~~ la desinformación y la información errónea, y lograr un equilibrio entre la transparencia y el mantenimiento de la confianza del público, las <i>autoridades veterinarias</i> deberán establecer protocolos de comunicación interna y externa que respeten los principios enunciados en el Capítulo 3.5 relativo a la comunicación. [FR] Afin d’assurer une communication et une sensibilisation claires, cohérentes et au moment opportun durant et après les situations d’urgence, pour informer correctement les parties prenantes, ~~lutter~~ contre la mésinformation et la désinformation, et de trouver un équilibre entre la transparence et le maintien de la confiance du public, les <i>Autorités vétérinaires</i> doivent établir des protocoles de communication interne et externe respectant les principes figurant dans le chapitre 3.5. consacré à la communication. [EN] In order to ensure clear, consistent and timely communication and awareness during and after emergencies, to correctly inform stakeholders, to ~~counter~~ misinformation and disinformation and to promote transparency while maintaining public trust, <i>Veterinary Authorities</i> should establish internal and external communication protocols following the principles of Chapter 3.5 on communication. Justificación: El término "luchar" carece de técnica; se sugiere utilizar la palabra contrarrestar.	Agreed, change to Spanish version.
3.X.4._16_ Japan	Category: Addition Proposed amended text: In order to ensure clear, consistent and timely communication and awareness during and after emergencies, to correctly inform stakeholders, to counter misinformation and disinformation and to promote transparency while maintaining public trust, <i>Veterinary Authorities</i> should establish internal and external communication protocols following the principles of Chapter 3.5 on communication. <u>The external communication protocols should address communication with Veterinary Authorities of the other countries likely to be affected.</u> Rationale: Prompt communication with Veterinary Authorities of the other countries likely to be affected is vital to enable them to take necessary actions.	Agreed.
3.X.4._17_ USA	Comment Category: Editorial and Addition Proposed amended text: ~~In order to ensure clear, consistent and timely communication and awareness during and after emergencies, to correctly inform stakeholders, to counter misinformation and disinformation and to promote transparency while maintaining public trust, Veterinary Authorities should establish internal~~	Agreed with the rationale, text was amended differently.

	<u>and external communication protocols following the principles of Chapter 3.5 on communication.</u> <u>The Veterinary Authority should establish internal and external communication protocols following principles of Chapter 3.5 on Communication. The external communication protocol should ensure clear, consistent and timely communication during and after emergencies. The external communication protocol should address measures to promote transparency to counter misinformation and disinformation and maintain public awareness and trust. The internal communication protocol should address measures to ensure the flow of information to facilitate efficient management of the emergency.</u> Rationale: Edited for clarity, and to address the importance of having an internal communication protocol.	

4. Human, physical and financial resources

Competent Authorities should ensure that trained personnel are available for all components of emergency management. This includes maintaining core staff with defined roles in case of emergency, employing subject matter experts as well as establishing mechanisms for swift mobilisation and surge capacity of personnel, including private sector support e.g. private *veterinarians* or *veterinary paraprofessionals*. The physical and mental wellbeing of emergency management personnel should be prioritised through health, safety and psychosocial support measures, and adequate staff rotations. Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect.

3.X.4._18 _Australia	Category: Addition Proposed amended text (or precise suggested deletion): [...] Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect. <u>The Competent Authorities should have regulatory oversight, power or understanding of the mechanisms required to support Veterinary Services to access financial and physical resources in an emergency response.</u> Rationale: Wording on Veterinary Services should have the capability to access financial and physical resources, but nothing on the role of Competent Authorities to provide access, have oversight, or know how to support access to these resources.	Agreed.
3.X.4._19 _Canada	Comment Category: change Proposed amended text: <i>Competent Authorities</i> should ensure that trained personnel are available for all components of emergency management. This includes maintaining core staff with defined roles in case of emergency, employing subject matter experts as well as establishing mechanisms for swift mobilisation and surge capacity of personnel, including private sector support <u>where relevant e.g. private veterinarians or veterinary paraprofessionals</u>. The physical and mental wellbeing of emergency management personnel should be prioritised through health, safety and psychosocial support measures, and adequate staff rotations. Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect. Rationale: Examples both for private sector as well as financial and physical resources are unnecessary and overly prescriptive.	Agreed with the rationale, text was amended differently.

3.X.4._20 _New Zealand	Category: addition Proposed amended text: <u>The Veterinary Authority and other relevant</u> Competent Authorities should ensure that trained personnel are available for all components of emergency management. This includes maintaining core staff with defined roles in case of emergency, employing subject matter experts as well as establishing mechanisms for swift mobilisation and surge capacity of personnel, including private sector support e.g. private veterinarians or veterinary paraprofessionals. The physical and mental wellbeing of emergency management personnel should be prioritised through health, safety and psychosocial support measures, and adequate staff rotations. Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect. Rationale: The Veterinary Authority may be the agency responsible in the country for the relevant staff particular in the case of animal involvement.	Agreed.
3.X.4._21 _USA	Comment Category: Editorial Proposed amended text: Competent Authorities should ensure that trained personnel are available for all components of emergency management: ~~This includes maintaining core staff with defined emergency roles in case of emergency, employing and subject matter experts. Competent Authorities should as well as establishing mechanisms for swift mobilisation and surge capacity of personnel, including private sector support (e.g. private veterinarians or veterinary paraprofessionals). Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect.~~ The physical and mental wellbeing of emergency management personnel should be prioritised through health, safety and psychosocial support measures, and adequate staff rotations. ~~Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect.~~ Rationale: Edited to improve clarity.	Agreed to move sentence. Did not agree with other changes, did not add clarity.

Veterinary Services should have the capability to access extraordinary financial resources and the necessary physical resources to respond to emergencies. This includes having adequate equipment, such as roadblocks, personal protective equipment or disinfectants pre-purchased, and contingency funding arrangements in place to support operational costs as well as mechanisms for compensation or recovery, as appropriate.

3.X.4._22 _Australia	Category: Change Proposed amended text: This includes having adequate equipment, such as ~~roadblocks, sampling materials,~~ personal protective equipment or disinfectants pre-purchased, and contingency funding arrangements in place to support operational costs as well as mechanisms for compensation or recovery, as appropriate. Rationale: A different example would be more relevant since roadblocks is less commonly used than other equipment such as sampling materials, vaccination equipment, etc.	Agreed with the rationale, text was amended differently.

3.X.4._23 _Canada	Comment Category: change Proposed amended text: <i>Veterinary Services</i> should have the access to appropriate funding and resources to respond to an emergency under its mandate, including considerations for capability to access extraordinary financial resources and the necessary physical resources to respond to emergencies. This includes having adequate equipment, such as roadblocks, personal protective equipment or disinfectants pre-purchased, and contingency funding arrangements in place to support operational costs as well as mechanisms for compensation or recovery, as appropriate. Rationale: Examples both for private sector as well as financial and physical resources are unnecessary and overly prescriptive.	Did not agree, did not add clarity.
3.X.4._24 _USA	Comment Category: Editorial Proposed amended text: <i>Veterinary Services</i> should have the capability to quickly access extraordinary financial resources and the necessary physical resources to respond to emergencies. This includes having adequate pre-purchased equipment, such as roadblocks, personal protective equipment or disinfectants, ~~pre-purchased, and~~ contingency funding arrangements should be in place to support operational costs ~~as well as mechanisms for and~~ compensation or recovery, as appropriate. Rationale: Edited to improve clarity.	Agreed.

5. Continuous improvement and learning

Emergency management components should be regularly monitored, tested, evaluated and updated through training, simulation exercises and learning from real events. Lessons should be identified through after-action reviews.

Competent Authorities should also learn from approaches in other sectors both at the national and international levels.

3.X.4._25 _New Zealand	Category: addition Proposed amended text: The Veterinary Authority and other relevant <i>Competent Authorities</i> should also learn from approaches in other sectors both at the national and international levels. Rationale: As recognised in the introduction the Veterinary Authority is a main actor of the response to animal health emergencies and should also be active in learning from the approaches of other sections.	Agreed.

6. Accountability

Competent Authorities should maintain records of decisions, actions and resource use to ensure transparency, support emergency-related inquiries and to demonstrate responsibility to stakeholders, financial government agencies, and donors.

3.X.4._26 _Canada	Comment Category: deletion Proposed amended text: <i>Competent Authorities</i> should maintain records of decisions, actions and resource use to ensure transparency, ~~support emergency related inquiries~~	Did not agree, other reasons are also important and go beyond transparency.

	~~and to demonstrate responsibility to stakeholders, financial government agencies, and donors.~~ Rationale: Transparency would include responding to emergency related inquiries as well as demonstrating responsibility to stakeholders, financing agencies and donors. The inclusion of the list is unnecessary.	

Article 3.X.5.

Prevention

3.X.5._1_ Canada	Comment Category: addition Proposed amended text: Prevention <u>of Animal Disease Outbreaks</u> Rationale: All the components of Article 3.X.5. focus on disease outbreak prevention, as seen in the second paragraph where all prevention activities described (import controls, biosecurity, traceability, zoning, compartmentalisation and vaccination) are related to animal diseases. The title should be specific to what is covered in the article.	Did not agree, not just dealing with animal disease outbreaks.

While not all emergencies can be prevented, prevention in emergency management aims at avoiding or reducing the likelihood of the occurrence of events that may trigger emergencies, or mitigate their impact so that they do not trigger emergencies.

3.X.5._2_ _ICFAW	Category: Editorial Proposed amended text: While not all emergencies can be prevented, prevention in emergency management aims at avoiding or reducing the likelihood of the occurrence of events that may trigger emergencies, or mitigateing their impact so that they do not trigger emergencies. Rationale: Grammar. Change mitigate to mitigating. Supporting evidence: Not relevant	Agreed.

Routine prevention activities should be integrated into day-to-day operations such as import controls, *biosecurity*, traceability, zoning and compartmentalisation, as well as *vaccination* programmes, as appropriate. Key elements of prevention include, for events caused by animal diseases, the application of the recommendations in Section 4 and Section 5.

3.X.5._3_ Australia	Category: Editorial Proposed amended text: Routine prevention activities should be integrated into day-to-day operations such as import controls, <i>biosecurity</i>, traceability, zoning and compartmentalisation, as well as <u>animal health management such as vaccination</u> programmes, as appropriate. Key elements of prevention include, for events caused by animal diseases, the application of the recommendations in Section 4 and Section 5. Rationale:	Did not agree, 'animal health management' in Glossary refers to actions at the herd or flock level, and does not apply to a broad vaccination program.

	- Edit wording to broaden the scope as animal health management for prevention, with vaccination programmes as the example rather than the only option presented. <i>Animal Health Management</i> appropriate choice of wording here, as is in TAHC Glossary. Supporting evidence, if relevant WOAH Terrestrial Animal Health Code, Glossary: <i>Animal Health Management</i>- means a system designed to optimise the physical and behavioural health and welfare of <i>animals</i>. It includes the prevention, treatment and control of diseases and conditions affecting the individual <i>animal</i> and <i>herd</i> or <i>flock</i>, including the recording of illness, injuries, mortalities and medical treatments where appropriate.	
3.X.5._4_ ICFAW	Category: addition Proposed amended text: Routine prevention and mitigation activities should be integrated into day-to-day operations such as import controls, <i>biosecurity</i>, traceability, zoning and compartmentalisation, as well as <i>vaccination</i> programmes, as appropriate. Key elements of prevention and mitigation include, for events caused by animal diseases, the application of the recommendations in Section 4 and Section 5. Rationale: Prevention and mitigation are not the same and both terms should be included. Mitigation is a better term in general, but may not be adequate alone for animal health and welfare-specific terminology. For example, would a vaccination campaign ensure disease spread is prevented (<i>prevention</i>) or just reduce the chances of disease spread? If so it is <i>mitigation</i>. Supporting evidence: https://www.undrr.org/terminology/mitigation https://www.undrr.org/terminology/prevention	Did not agree, no added value.

In addition, the *Competent Authorities* should take into consideration the following principles:

3.X.5._5_ New Zealand	Category: addition Proposed amended text: In addition, the Veterinary Authority and other relevant <i>Competent Authorities</i> should take into consideration the following principles: Rationale: The Veterinary Authority has the primary responsibility for coordinating implementing the Code standards and is a main actor of the response to animal health emergencies, it should be acknowledged here in the animal health emergency context.	Agreed.

- 1) Prevention actions and measures are based on risk assessments considering all relevant hazards and sectors. Import risk analysis, such as described in Chapter 2.1., aims to prevent the introduction of diseases into a country, potentially causing animal health emergencies. In this context, risk communication should be implemented, including through timely messaging with stakeholders across public and private sectors. Raising awareness on *biosecurity*, *surveillance* and the recognition of such diseases contributes to early detection and reduced spread of disease, minimising the scale of the event.

3.X.5._6_ ICFAW	Category: addition Proposed amended text:	Did not agree to add 'civil society', see comment

	In this context, risk communication should be implemented, including through timely messaging with stakeholders across public and private sectors, <u>as well as civil society</u>. Raising awareness on <i>biosecurity, surveillance</i> and the recognition of such diseases contributes to early detection and reduced spread of disease, minimising the scale <u>and impact</u> of the event. Rationale: 1. According to the WHO's Framework for civil society organization engagement in health emergencies (2025), Civil Society Organizations (CSOs) play a critical role in health emergencies, and are seen as trusted intermediaries with communities, often reaching the most vulnerable and hard-to- reach. A systematic approach to engagement of CSOs in health emergencies is therefore important. 2. Awareness significantly decreases the impact of disasters by translating knowledge into preparedness actions, enabling faster and more organized responses, and fostering long-term community resilience. Supporting evidence: WHO Framework for civil society organization engagement in health emergencies (2025), https://www.who.int/publications/b/75235 Hargono, A., Artanti, K. D., Astutik, E., Widodo, P. P., Trisnawati, A. N., Wardani, D. K., & Lioni, E. (2023). Relationship between disaster awareness and disaster preparedness: online survey of the community in Indonesia. <i>Journal of public health in Africa</i>, 14(9), 2376. https://pmc.ncbi.nlm.nih.gov/articles/PMC10621481/#:~:text=To%20achieve%20a%20community%20that,behavior%20is%20still%20considered%20low	3.X.4._12._ICFAW Agreed to add impact.

- 2) *Risk analysis* should be supported by foresight and intelligence, where risk factors are monitored and understood as well as emerging trends, to enable the early identification of hazards and the relevant adjustments to prevention strategies, before escalation occurs.
- 3) Prevention activities should be adequately funded, supported and implemented by both public and private sector stakeholders. *Competent Authorities* should encourage the private sector to cooperate and contribute to prevention, e.g. through public-private partnerships.

3.X.5._7_ New Zealand	Category: addition Proposed amended text: 3) Prevention activities should be adequately funded, supported and implemented by both public and private sector stakeholders. <u>The Veterinary Authority and other relevant</u> <i>Competent Authorities</i> should encourage the private sector to cooperate and contribute to prevention, e.g. through public-private partnerships. Rationale: The Veterinary Authority has the primary responsibility for coordinating implementing the Code standards and is a main actor of the response to animal health emergencies, it should be acknowledged here in the animal health emergency context.	Agreed.
3.X.5._8_ ICFAW	Category: addition Proposed amended text: Prevention activities should be adequately funded, supported, <u>developed</u> and implemented by <u>both</u> public and private sector stakeholders, <u>civil society and local actors</u>.	Did not agree, see comment 3.X.4._12._ICFAW

	Rationale: Prevention activities need to be co-developed with communities. When considering One Welfare in Emergency Management, a lack of consideration of human-animal factors leads to risks such as failure to evacuate due to unwillingness to leave animals behind, owners returning to unsafe environments to retrieve animals, or abandonment of animals, with subsequent poor animal welfare, or health risks to animal/s, humans and the environment. In addition, Civil Society Organizations (CSOs) play a critical role in health emergencies, and are seen as trusted intermediaries with communities, often reaching the most vulnerable and hard-to- reach. A systematic approach to engagement of CSOs in health emergencies is therefore important. Supporting evidence: 1. Livestock emergency guidelines and standards (LEGS) handbook: https://handbook.hspstandards.org/en/legs/2023/#ch004 2. Squance <i>et al</i> (2021), Strategies for Implementing a One Welfare Framework into Emergency Management: https://www.preventionweb.net/media/85516/download?startDownload=20251128 3. WHO Framework for civil society organization engagement in health emergencies (2025), https://www.who.int/publications/b/75235	

Article 3.X.6.

Preparedness

Emergency preparedness is the ability of the *Competent Authorities* and relevant stakeholders to anticipate, plan for and implement the best and fastest possible response to emergencies, in order to minimise their scale and impact. It is a continuous cycle of planning, equipping, training, and exercising and should be supported by political commitment, dedicated funding and resourcing as well as inter-institutional coordination mechanisms. Preparedness should be scalable to address a range of hazards. In addition to the relevant recommendations in Chapter 4.19., the following should be considered when applying an all-hazards approach to preparedness for emergencies:

3.X.6._1_ Australia	Category: Addition Proposed amended text: Emergency preparedness is the ability of the <i>Competent Authorities</i> and relevant stakeholders to anticipate, plan for and implement the best and fastest possible response to emergencies, in order to minimise their scale and impact. It is a continuous cycle of planning, equipping, training, and exercising and should be supported by political commitment, dedicated funding and resourcing as well as inter-institutional coordination mechanisms. Preparedness should be scalable <u>and flexible</u> to address <u>events of varying magnitude and</u>—a range of hazards. In addition to the relevant recommendations in Chapter 4.19., the following should be considered when applying an all-hazards approach to preparedness for emergencies: Rationale: Scalable refers to managing the size of an event whereas flexible addresses a range of hazards- the existing sentence confuses the use of the term.	Agreed with the rationale, text was amended differently.

3.X.6._2_ New Zealand	Category: addition Proposed amended text: Emergency preparedness is the ability of the <u>Veterinary Authority</u>, <i>Competent Authorities</i> and relevant stakeholders to anticipate, plan for and implement the best and fastest possible response to emergencies, in order to minimise their scale and impact. It is a continuous cycle of planning, equipping, training, and exercising and should be supported by political commitment, dedicated funding and resourcing as well as inter-institutional coordination mechanisms. Preparedness should be scalable to address a range of hazards. In addition to the relevant recommendations in Chapter 4.19., the following should be considered when applying an all-hazards approach to preparedness for emergencies: Rationale: As acknowledged in the introduction the Veterinary Authority is a main actor of the response to animal health emergencies and should be included here given the animal health context.	Agreed.
3.X.6._3_ ICFAW	Category: addition Proposed amended text: Emergency preparedness is the ability of the <i>Competent Authorities</i> and relevant stakeholders to anticipate, plan for and implement the best and fastest possible response to emergencies, in order to minimise their scale and impact <u>and hasten recovery</u>. Rationale: Robust emergency preparedness significantly hastens the recovery process following a disaster. Planning and actions taken <i>before</i> a disaster strikes build capacity and resilience, which makes the subsequent response more effective and the return to normalcy faster and more efficient. Supporting evidence: Schoch-Spana M. (2020). An Epidemic Recovery Framework to Jump-start Analysis, Planning, and Action on a Neglected Aspect of Global Health Security. <i>Clinical infectious diseases : an official publication of the Infectious Diseases Society of America</i>, 71(9), 2516–2520. https://doi.org/10.1093/cid/ciaa486 https://pmc.ncbi.nlm.nih.gov/articles/PMC7713692/#:~:text=By%20contrast%2C%20the%20international%20doctrine,level%E2%80%9494after%20infectious%20disease%20strikes.	Agreed.

1. Legal framework

Legislation should be developed in accordance with Chapter 3.4, and as part of preparedness efforts, it should:

3.X.6._4_ Canada	Comment Category: change Proposed amended text: Legislation should be developed in accordance with Chapter 3.4., <u>and underpin the execution of all the elements and actions that are necessary for a Competent Authority to manage an emergency.</u> ~~and as~~ <u>As a</u> part of preparedness efforts, it should: Rationale: Wording added in the first sentence for consistency with Chapter 4.10. of the Aquatic Code on Emergency disease preparedness.	Did not agree, no added value.
3.X.6._5_	Category: Addition Proposed Amended Text:	Did not agree, review of legislation is

Chinese Taipei	Legislation should be developed and regularly reviewed in accordance with Chapter 3.4 Rationale: The text should be strengthened by specifying that legislation should be “regularly reviewed” to ensure adequate flexibility and operational relevance during emerging events. In addition, under a whole-of-government approach, it is recommended to explicitly include wildlife surveillance, environmental monitoring, and cross-border information sharing, reflecting One Health principles and the characteristics of transboundary animal diseases. Supporting Evidence: None	addressed in Chapter 3.4.

- a) Define roles and responsibilities of *Competent Authorities* in emergencies, including for emergency declarations, planning and decision making, and of other relevant sectors and stakeholders for implementation and support;

3.X.6._6_ New Zealand	Category: addition Proposed amended text: Define roles and responsibilities of the Veterinary Authority and other relevant Competent Authorities in emergencies, including for emergency declarations, planning and decision making, and of other relevant sectors and stakeholders for implementation and support; Rationale: The Veterinary Authority has the primary responsibility for coordinating implementing Code standards and is a main actor in a response to animal health emergencies and should be included here given the animal health context. Supporting evidence: Terrestrial Code Glossary	Agreed.
3.X.6._7_ USA	Comment Category: Addition Proposed amended text: Define authorities and roles and responsibilities of <i>Competent Authorities</i> in emergencies, including for emergency declarations, planning and decision making,... Rationale: Authority is the power to make decisions, implement requirements etc. and is important to capture in a formal agreement when different groups may be responding to an emergency. It is separate, but complementary to roles (function/position) and responsibilities (duties for each role).	Agreed with the rationale, text was amended differently.
3.X.6._8_ EU	Category: addition Proposed Amended Text: “Define roles and responsibilities of Competent Authorities in emergencies, clarify the chain of command, including for emergency declarations, planning and decision making, and of other relevant sectors and stakeholders for implementation and support”. Rationale: Reference is made to Article 8 where the chain of command is addressed. Important to address its legal aspects and ensure clear legal basis in preparation of possible future emergencies. Furthermore, as indicated in a comment on Article 3.X.1., it is not clear what is meant by “other relevant sectors”.	Agreed. Other relevant sectors means private sector, public sector, law enforcement, fire departments, whoever is not directly involved in the animal health emergency.

- b) Provide powers to implement necessary and proportionate emergency measures, including declaring the state of emergency, as well as procuring and allocating resources and ensuring compliance through enforcing required measures;

3.X.6._9_ Canada	Comment Category: change Proposed amended text: Provide powers <u>to Competent Authorities</u> to implement necessary and proportionate emergency measures, including ~~declaring the state of emergency~~ , as well as procuring and allocating resources and ensuring compliance through enforcing required measures; Rationale: Point b - Emergency declarations are references in point a, and is repetitive and unnecessary to reiterate in point b, as if it is the role of the Competent Authority the legislation would provide the power to do so. Please consider whether examples are needed in any of the points as they add a lot of text which may not be necessary to understand the points.	Agreed to add 'Competent Authorities'. Did not agree to add 'state of emergency', did not add clarity.

- c) Contain provisions to account for temporary fast-tracking of decision making, policies or procedures during emergencies such as for quarantine, killing, enhanced *surveillance* and testing, emergency registration of vaccine and expedited procurement of resources;

3.X.6._10_ EU	Category: addition Proposed Amended Text: For clarity, we suggest inserting " <u>of animals</u> " after "testing" in point c above.	Agreed.

- d) Support intersectoral collaboration such as through MoUs;

3.X.6._11_ Canada	Comment Category: deletion Proposed amended text: ~~Support intersectoral collaboration such as through MoUs;~~ Rationale: Point d – While MOUs can be important parts of the emergency framework they are not always legally binding and are created outside of legislation. Reference to MOUs in this section, where the lead in sentences reference creating legislation, is not the appropriate location. A more appropriate location could be under point 2 for planning to add text around a framework for cooperation	Agreed with the rationale, text was amended differently.

- e) Provide legal protection (including safety and protection from potential aggression) for individuals and organisations involved in emergency management;

3.X.6._12_ New Zealand	Category: change Proposed amended text: Provide legal protection (including safety and protection from <u>liability potential aggression</u>) for individuals and organisations involved in emergency management; Rationale: Existing legislation will usually be available to protect from aggression. Specific arrangements may be required in some jurisdictions to	Agreed with the rationale, text was amended differently.

	ensure protection from liability is extended to individuals and organisations acting to protect animal welfare/save life and property etc.	

- f) Ensure funding for emergency management, covering both operational cost and compensation, while facilitating rapid access and use. Compensation of stakeholders for losses can promote both early warning and compliance.

3.X.6._13_ Canada	Comment Category: change Proposed amended text: Ensure funding ~~for sufficient to allow for the execution of relevant elements of~~ emergency management, ~~including covering both~~ operational cost and ~~consideration for payment of~~ compensation, while facilitating rapid access and use. Compensation of stakeholders for losses can promote both early warning and compliance. Rationale: Point f – Wording changed for consistency with Chapter 4.10. of the Aquatic Code on Emergency disease preparedness. The consideration of compensation should be taken into account; however compensation may not be paid at all times and different jurisdictions may have different models for compensation. Changing the text as proposed provides flexibility in implementation.	Agreed.
3.X.6._14_ Colombia	Category: change Texto modificado propuesto: garantizar la financiación de la gestión de emergencias; ~~mediante fondos de contingencia que cubran integralmente cubriendo tanto~~ los costos operativos ~~como y~~ las indemnizaciones ~~asegurando mecanismos de acceso y uso rápido al tiempo que se facilita un acceso y uso rápidos~~. La compensación ~~justa y oportuna~~ de las partes interesadas ~~constituye un incentivo crítico para la eficacia del sistema sanitario; su implementación es determinante para asegurar la sensibilidad de la vigilancia mediante la alerta temprana y para garantizar el cumplimiento de normas. por las pérdidas puede promover tanto la alerta temprana como el cumplimiento de las normas.~~ [EN] Ensure funding for emergency management ~~through contingency funds that fully~~ cover operational costs and compensation, ~~ensuring mechanisms for rapid access and use. Fair and timely~~ compensation of stakeholders for losses ~~can promote both early warning and compliance is a critical incentive for the effectiveness of the health system; its implementation is crucial to ensuring the sensitivity of surveillance through early warning and to guaranteeing compliance with standards.~~ Justificación: ("puede promover"). La compensación a valor es un incentivo epidemiológico crítico, debería redactarse como un componente esencial para la sensibilidad del sistema de vigilancia, no solo como una posibilidad.	See comment 3.X.6._13._Canada Agreed to add 'fair and timely', the remainder is too detailed.
3.X.6._15_ New Zealand	Category: change Proposed amended text: Ensure funding for emergency management; ~~covering both operational cost and compensation;~~ while facilitating rapid access and use. ~~For animal disease incursion and emergence, consideration should be given to~~ compensation of stakeholders for losses. ~~Appropriately designed compensation~~ can promote both early warning and compliance. Rationale: To facilitate early detection and compliance during a biosecurity response, financial compensation for mandatory actions ordered by the Veterinary Authority may be appropriate. However, in a natural disaster much of the infrastructure is insurable and Government's role is not to compensate	See comment 3.X.6._13._Canada

	for loss. Consequently, the proposed wording is too broad. The article's text related to financial compensation systems should be limited to apply to disease detection and control.	

2. Planning

- a) Preparedness planning should be based on *risk analysis* of different scenarios and apply to all components of emergency management. It should:
- i) Be supported by legislation and operational frameworks;
 - ii) Include the development of written emergency preparedness plans and emergency response plans (also known as 'contingency plans') that address a range of potential hazards, define animal health or *animal welfare* emergencies and describe what should be done prior to and during an emergency. The plans should be supported by detailed standard operating procedures;

3.X.6._16 _Australia	Category: Addition Proposed amended text: Include the development of written emergency preparedness plans and emergency response plans (also known as 'contingency plans') that address a range of potential hazards, define animal health or animal welfare emergencies and describe what should be done prior to and during an emergency, <u>including with reference to the relevant Code chapters</u>. The plans should be supported by detailed standard operating procedures; Rationale: We recommend that reference is made to relevant Code chapters, such as the chapter on Killing for disease control purposes, to ensure these are considered when creating plans.	Did not agree, too detailed.

- iii) Ensure that emergency response plans define an IMS, establishing a clear chain of command, at all administrative levels, including decision making persons, communication flows and accountability. All stakeholders should have their roles and responsibilities defined and understood. This should include detailed guidance on interoperability, accountability, and coordination;

3.X.6._17 _Canada	Comment Category: change Proposed amended text: ii) Ensure that emergency response plans define an <u>emergency response coordination mechanism, such as an</u> IMS, establishing a clear chain of command, at all administrative levels <u>with a Competent Authority in overall command</u>, including <u>for</u> decision making <u>persons</u>, communication flows and accountability. iv) <u>Include a framework for cooperation between the Competent Authorities, Veterinary Services and industry stakeholders.</u> All stakeholders should have their roles and responsibilities defined and understood. This should include detailed guidance on interoperability, accountability, and coordination; Rationale: Point iii – in Article 3.X.8. IMS is provided as one example of a coordination mechanism, wording modified here for consistency with that article. A clear chain of command with a Competent Authority who holds the appropriate legislative powers in overall command is important for a functioning IMS.	Agreed with the rationale, text was amended differently.

- iv) Recognise the role of the private sector in preparedness and continuity of business;

3.X.6._18 _Australia	Category: Addition Proposed amended text: iv) Recognise the role <u>and responsibilities</u> of the private sector in preparedness, <u>response</u> and continuity of business; Rationale: Suggested clarification, as individuals and the private sector may have formal responsibilities under legislation. There is an increasing discussion about the role of the private sector during a response as well that may be worth capturing here. Industry already have a role in liaison, communications and technical expertise during a response.	Agreed with the rationale, text was amended differently.
3.X.6._19 _Canada	Comment Category: deletion Proposed amended text: ~~iii) Recognise the role of the private sector in preparedness and continuity of business;~~ Rationale: Point iv - The inclusion of the private sector and the need for continuity of business where relevant are both included in point 1 of the general principles and do not need to be re-iterated here. Instead focus on the operationalisation of the collaboration by referencing the cooperation between different stakeholders. This is also consistent with the wording of Chapter 4.10. on preparedness in the Aquatic Code.	Did not agree, this chapter is not aiming for consistency with the <i>Aquatic Code</i> given that Chapter 4.10. has a more narrow scope.

3.X.6._20_ New Zealand	Category: change Proposed amended text: <u>b) Contingency plans (preparedness and response plans) should:</u> Rationale: Insert a new bullet point. These points are specific to plans, rather than the planning process. Reset current main bullet b) to c) if change accepted. i.e. c) Preparedness planning should also include development of a recovery plan that is integrated into national emergency management arrangements. A recovery plan should:	Agreed with the rationale, text was amended differently.

- v) Be regularly reviewed and updated, incorporating lessons identified through real events and simulation exercises;
- vi) Identify the technical expertise necessary to support decision-making during emergencies;

3.X.6._21 _Canada	Comment Category: addition Proposed amended text: vi) Identify the technical expertise necessary to support decision-making <u>and operational activities</u> during emergencies; Rationale: Point vi – trained personnel who can complete necessary operational activities need to be included in preparedness and contingency planning.	Agreed.

- vii) Ensure that laboratories are able to scale up when required during an emergency;

3.X.6._22_ New Zealand	Category: change Proposed amended text: Ensure that Veterinary Services, including laboratories , are able to scale up when required during an emergency; Rationale: Emergencies will require activation and scaling up of numerous services and resources, including laboratories. Recommend that the standard encourages veterinarians, veterinary paraprofessionals and private sector organisations to take this into account when developing contingency plans.	Did not agree, did not add value.

- viii) Describe the deactivation process of emergency response including the scaling down of logistics and decommissioning of facilities, equipment and personnel.

- b) Preparedness planning should also include development of a recovery plan that is integrated into national emergency management arrangements. A recovery plan should:

- i) Clearly define the objectives and timeline for recovery efforts;
- ii) Establish the chain of command, roles and responsibilities and identify key partners for the delivery of recovery activities;
- iii) Promote intersectoral communication and coordination throughout the implementation of recovery activities;
- iv) Describe funding mechanisms and the prioritisation and coordination of recovery resources;

3.X.6._23_ Canada	Comment Category: Change Proposed amended text: iv) Describe funding mechanisms and the prioritisation and coordination of recovery resources including for community support as appropriate ; ~~v) Define arrangements for community support as appropriate;~~ Rationale: Point v would be included in considerations for funding mechanisms and does not require a separate point.	Did not agree, the two points are distinct.

- v) Define arrangements for community support as appropriate;
- vi) Incorporate risk mitigation strategies, if relevant, including cautious restocking with *surveillance* and prevention measures.

3.X.6._24_ _Canada	Comment Category: Change Proposed amended text: ~~vi)~~ Incorporate risk management risk mitigation strategies, if relevant, including ~~cautious~~ restocking with <i>surveillance</i> and prevention measures. Rationale: Point vi – risk management is a defined term in the Glossary whose definition meets the intention of risk mitigation. Deletion of the word cautious as it is non-specific with potential for different interpretations. Any restocking should be based on risk analysis and where appropriate the	Agreed with the rationale, text was amended differently.

	recommendations of the disease-specific chapters to ensure the risks are appropriately managed.	
3.X.6._25_ ICFAW	Category: addition Proposed amended text: <u>vii) Incorporate key learnings to improve prevention and mitigation strategies.</u> Rationale: In the best case, the reaction to a shock or stress should be to 'bounce back better', not just recover to the previous context and environment. Learnings from the event should be used to enhance capacities or reduce vulnerability, leaving a system that is more able to deal with future shocks and stresses. Supporting evidence: Department for International Development (DFID): Defining Disaster Resilience: A DFID Approach Paper <u>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/186874/defining-disaster-resilience-approach-paper.pdf</u> <u>https://onlinelibrary.wiley.com/doi/epdf/10.1002/9781394208180.ch42?samI_referrer=</u>	Did not agree, this is addressed in point 5 of Article 4.

3. Equipping

Preparedness requires that the *Competent Authority* ensures the availability of appropriate equipment and supplies to implement emergency response plans. Equipping should:

3.X.6._26_ Canada	Comment Category: Addition Proposed amended text: Preparedness requires <u>that all stakeholders ensure the availability of appropriate equipment and supplies relevant to their respective role in the event that are necessary that the Competent Authority ensures the availability of appropriate equipment and supplies</u> to implement emergency response plans. Equipping should: Rationale: Ensuring the availability of supplies is not the responsibility of the Competent Authority but rather that of the relevant stakeholders. All stakeholders should ensure the availability of the appropriate equipment and supplies relevant to their respective role in the event.	Agreed.
3.X.6._27_ New Zealand	Category: addition Proposed amended text: Preparedness requires that the <u>Veterinary Authority or other relevant Competent Authorities</u> ensures the availability of appropriate equipment and supplies to implement emergency response plans. Equipping should: Rationale: The Veterinary Authority has the primary responsibility for coordinating implementing the Code standards and is a main actor of the response to animal health emergencies, they should be included here given the animal health context.	Agreed.

- a) Be based on resource mapping and risk prioritisation for different scenarios;

- b) Include pre-established procurement, contracting and logistics systems adaptable to emergency conditions;
- c) Leverage both public and private capacities and have pre-existing arrangements in place.

3.X.6._28_ Japan	Category: Addition Proposed amended text: <u>d) Establishing network with Laboratories playing a role in controlling, approving and registering veterinary medicinal products, including vaccines, especially for emergency vaccination.</u> Rationale: Japan proposes to move this sentence from Article 3.X.7 (Detection) to this article because this sentence is better placed in Article 3.X.6 (Preparedness).	Agreed to move the sentence, however the text was edited differently.
3.X.6._29_ USA	Comment Category: Addition Proposed amended text: <u>d. Ensure inter-operability of equipment for various response authorities</u> Rationale: Inter-operability of equipment can be a very common oversight in procurement, especially for communications equipment. However, resource-limited environments should pre-plan for multiple-agency responses to most efficiently use personnel.	Did not agree, too prescriptive and detailed.

4. Training and exercising

A comprehensive training and exercise programme should be in place to ensure personnel have the competencies and capabilities required to respond effectively to emergencies as well as to identify gaps in emergency management efforts. This should include:

- a) Regular, multidisciplinary training involving relevant sectors and stakeholders;

3.X.6._30_ New Zealand	Category: addition Proposed amended text: a) Regular, multidisciplinary training involving <u>core staff in the Veterinary Authority, Veterinary Services, and</u> relevant sectors and stakeholders; Rationale: It is important that staff likely to be involved in responding to an animal health or welfare emergency within the Veterinary Authority and Services are well trained. The Code should ensure reference to the staff and not just the organisations generally to encourage a deeper level of preparation. In addition, direct mention of the Veterinary Authority and Veterinary services being included in this training should be present given the animal health context.	Agreed with the rationale, however the text was amended differently.

- b) Simulation exercises conducted at appropriate intervals and levels, addressing key priority hazards and crucial aspects of emergency management. Besides emergency response activities, all mechanisms of coordination within or between authorities and sectors, including for *early warning systems*, should be tested in simulation exercises;
- c) Exercises may also involve other Member Countries, regional and international partners;

- d) Evaluation of exercises through after-action reviews and the identification of lessons to inform future preparedness efforts.

Article 3.X.7.

Detection

Detection in the framework of emergency management is the process of the timely identification and analysis of the occurrence of events that might trigger an emergency, requiring action by the *Competent Authorities* and other relevant authorities and stakeholders.

3.X.7._1_ New Zealand	Category: addition Proposed amended text: Detection in the framework of emergency management is the process of the timely identification and analysis of the occurrence of events that might trigger an emergency, requiring action by the <u><i>Veterinary Authority</i></u>, <i>Competent Authorities</i>, and other relevant authorities and stakeholders. Rationale: The Veterinary Authority has the primary responsibility for coordinating implementation of the standards of the Code and is a main actor of the response to animal health emergencies, it should be included here given the animal health emergency context.	Agreed.

Members should put in place *early warning systems*, as described in Chapter 1.4. and adapted to all types of events and based on early detection, to enable timely decision-making and implementation of control measures to mitigate the impact of the event. *Early warning systems*, should include *surveillance*, intelligence and rapid exchange of information, in order to determine if emergency response is required, based on pre-existing criteria. Detection activities, such as animal health *surveillance* as described in Chapter 1.4., should be a continuous process that maintains a sufficient state of readiness.

The development and maintenance of *early warning systems* are vital for emergency management. The earlier an event is detected and reported to the *Competent Authorities* (and in case of *listed diseases* by the *Veterinary Authorities* in accordance with Chapter 1.1.), the sooner and more effective appropriate actions can be taken, reducing the overall impacts of the event.

3.X.7._2_ New Zealand	Category: change Proposed amended text: The development and maintenance of <i>early warning systems</i> are vital for emergency management. The earlier an event is detected and reported to the <u><i>relevant authorities</i></u> ~~<i>Competent Authorities</i>~~ (and in case of ~~<i>listed animal diseases</i>~~ <i>diseases reported to by</i> the <i>Veterinary Authority</i> ~~<i>ies to allow for fulfilment of obligations</i>~~ in accordance with Chapter 1.1.), the sooner and more effective appropriate actions can be taken, reducing the overall impacts of the event. Rationale: The scope of this chapter (outlined in Article 3.X.1) includes non-infectious animal disease emergencies. Consequently, the text doesn't need to explicitly include Competent Authorities, as for some types of emergencies initial reporting may be required to a government authority with no recognised role associated with implementing the Terrestrial Code standards. As per the current text reporting of significant animal disease events should be reported to the Veterinary Authority to allow for countries to meet obligations within Chapter 1.1. However, we suggest this inclusion should not be limited to just listed diseases because emerging disease (that may not be listed) are also required to be reported to WOAHP by the Veterinary Authority.	Agreed with the rationale, text was amended differently.

Early warning systems should be organised within a whole-of-government approach.

3.X.7._3_ Canada	Comment Category: change Proposed amended text: <i>Early warning systems</i> should be organised within a whole-of- ~~government~~ <u>system</u> approach. Rationale: Early warning systems as outlined in Article 1.4.5. requires the involvement of all stakeholders, not just government to ensure appropriate recognition of disease and appropriate notification to the Veterinary Authority. A whole of government approach may be too limited when discussing early warning systems.	Agreed with the rationale, however the text was amended differently for consistency with the rest of the chapter.
3.X.7._4_ Chinese Taipei	Category: Addition Proposed Amended Text: Early warning systems should be organised within a whole-of-government approach <u>and should include wildlife surveillance, relevant environmental monitoring, and mechanisms for cross-border information sharing.</u> Rationale: It is recommended that, under a whole-of-government approach, the text explicitly incorporate wildlife surveillance, environmental monitoring, and cross-border information sharing, in alignment with One Health principles and the characteristics of transboundary animal diseases.	Did not agree, too detailed.

Raising awareness and maintaining a strong reporting chain linking field-level operations to the *Veterinary Authority* and other relevant *Competent Authorities* is critical. *Veterinary Services* should provide continuous education and outreach to enhance recognition of events that could trigger an emergency.

3.X.7._5_ Canada	Comment Category: Addition Proposed amended text: Raising awareness and maintaining a strong reporting chain linking field-level operations to the <i>Veterinary Authority</i> and other relevant <i>Competent Authorities</i> is critical. <i>Veterinary Services</i> <u>and relevant Competent Authorities</u> should provide continuous education and outreach to enhance recognition of events that could trigger an emergency. Rationale: Not all emergencies which may impact animals will fall under the mandate for the Veterinary Services. For activities such as those around disease response the Veterinary Authority may complete outreach and education to ensure reporting of disease detection. For other emergencies other Competent Authorities may hold responsibility to respond and to provide outreach if appropriate.	Agreed with the rationale, text was amended differently.

Diagnostic laboratories are a key element of early detection and *early warning systems*. They should have a scalable testing capacity and be able to operate as a network to collectively increase testing capacity by sharing competences and workload. Agreements and protocols for sending samples to another country should be established beforehand (in accordance with Chapter 5.8.).

Some laboratories should also play a role in controlling, approving and registering *veterinary medicinal products*, including vaccines, especially for emergency *vaccination*.

3.X.7._6_ Japan	Category: Deletion Proposed amended text: ~~Some laboratories should also play a role in controlling, approving and~~	Agreed to move sentence to Article 3.X.6, text amended differently.

	~~registering veterinary medicinal products, including vaccines, especially for emergency vaccination.~~ Rationale: This sentence is better placed in Article 3.X.6 (Preparedness) because this article refers to detection.	
3.X.7._7_ EU	Category: deletion Proposed Amended Text: ~~"Some laboratories should also play a role in controlling, approving and registering veterinary medicinal products, including vaccines, especially for emergency vaccination."~~ Rationale: This sentence appears out of context in an article dedicated to detection. It is proposed to delete it or move it somewhere else. Also, depending on the country, the tasks described in this sentence will be performed by a government agency or other competent authority, and not a diagnostic laboratory. Such level of prescriptive detail should therefore in general be avoided in this chapter.	Agreed.

For events that may be detected by a *Competent Authority* other than the *Veterinary Authority*, such as extreme weather events or infrastructure failures, there should be a pre-agreed mechanism for the timely exchange of information.

3.X.7._8_ Australia	Category: Addition Proposed amended text: For events that may be detected by a <i>Competent Authority</i> other than the <i>Veterinary Authority</i>, such as extreme weather events or infrastructure failures, there should be a pre-agreed mechanism for the timely notification and exchange of information. Rationale: Both notifications and the exchange of information are recognised as important factors that must be 'timely' when a disease is detected.	Agreed with the rationale, text was amended differently.

Article 3.X.8.

Response

Emergency response is the series of coordinated actions taken to manage an event that triggers an emergency. These actions should be described in principle in the emergency response plan, and be adapted to the event's nature, scale and complexity. Depending on the emergency, the *Veterinary Authority* may lead the response or operate under the coordination of another *Competent Authority* or other relevant authorities. The *Veterinary Authority* may also coordinate closely with *Veterinary Authorities* or other *Competent Authorities* of neighbouring countries.

3.X.8._1_ Canada	Comment Category: Addition Proposed amended text: Emergency response is the series of coordinated actions taken to manage an event that triggers an emergency. These actions should be described in principle in the emergency response plans, and be adapted to the event's nature, scale and complexity. Depending on the emergency, the <i>Veterinary Authority</i> may lead the response or operate under the coordination of another <i>Competent Authority</i> or other relevant authorities. The <i>Veterinary Authority</i> may also coordinate closely with <i>Veterinary Authorities</i> or other <i>Competent Authorities</i> of neighbouring countries.	Agreed.

	Rationale: There should not be just one plan for a given emergency. Each stakeholder should have their own plans, relevant to their particular role.	
3.X.8._2_ ICFAW	Category: deletion Proposed amended text: The <i>Veterinary Authority</i> may also coordinate closely with <i>Veterinary Authorities</i> or other <i>Competent Authorities</i> of <u>other-neighbouring</u> countries. Rationale: Some emergencies require coordination well beyond immediate borders, this could be along further movement, migration or trading routes, depending on emergency type. Supporting evidence: Not relevant	Agreed with the rationale, text was amended differently.

Activation of the response is based on the continuous assessment of risk and the evaluation of the situation. The response plan should identify priorities, decision-making timelines and procedures for maintaining continuity of business. It should remain flexible and be regularly reviewed as new information becomes available.

3.X.8._3_ Australia	Category: Deletion Proposed amended text: Activation of the response is based on <u>the continuous assessment of risk and</u> the evaluation of the situation. Rationale: It is unclear why activation of a response is based on 'continuous assessment of risk' Activation is usually based on triggers which are defined by policy, (which is informed by disease status of the country, confirmation of disease presence, etc.). Suggest either a change to the existing wording to better describe the meaning of this or delete.	Agreed with the rationale, text was amended differently.

An emergency response coordination mechanism, such as an IMS, should be activated as appropriate to coordinate the response. This mechanism should be interoperable across *Competent Authorities* and other relevant authorities to support a whole-of-government response. Key components of a coordinated response include:

3.X.8._4_ Canada	Comment Category: change Proposed amended text: An emergency response coordination mechanism, such as an IMS, should be activated as appropriate to coordinate the response. This mechanism should be interoperable across <i>Competent Authorities</i> and other relevant authorities to support a <u>whole-of-government</u> ~~whole of system~~ response. Key components of a coordinated response include: Rationale: Some incident management system structures will also be implemented by industry, aligning with government structures. This industry involvement is not captured by 'whole of government' terminology.	Agreed with the rationale, text was amended differently.

- 1) Leadership and coordination: A chain of command should be established to ensure decision-making responsibilities are clear at all levels. Emergency operation centres (EOCs) may be set up to collocate dedicated staff and resources, depending on the scale of the emergency, for IMS to operate as effectively as possible. Liaison functions should be set up to maintain coordination between *Competent Authorities* and with other relevant sectors and stakeholders. These functions should allow regularly scheduled briefings and timely information sharing, including for the development of common messaging.

3.X.8._5_ Australia	Category: Addition Proposed amended text: Leadership and coordination: A chain of command should be established to ensure decision-making responsibilities are clear at all levels. Emergency operation centres (EOCs) may be set up to collocate dedicated staff and resources, depending on the scale of the emergency, for IMS to operate as effectively as possible. <u>Remote EOCs (or some roles within an EOC) should be able to function effectively in circumstances where response staff are geographically remote from each other</u>. Liaison functions should be set up to maintain coordination between <i>Competent Authorities</i> and with other relevant sectors and stakeholders. These functions should allow regularly scheduled briefings and timely information sharing, including for the development of common messaging. Rationale: Many emergency responses have been effectively led using online Operation Centres with staff working remotely.	Agreed.
3.X.8._6_ New Zealand	Category: addition Proposed amended text: Leadership and coordination: A chain of command should be established to ensure decision-making responsibilities are clear at all levels. Emergency operation centres (EOCs) may be set up to collocate dedicated staff and resources, depending on the scale of the emergency, for IMS to operate as effectively as possible. Liaison functions should be set up to maintain coordination between <u>the Veterinary Authority, other relevant Competent Authorities</u> and with other relevant sectors and stakeholders. These functions should allow regularly scheduled briefings and timely information sharing, including for the development of common messaging. Rationale: The Veterinary Authority has the primary responsibility for coordinating implementing aspects of the Code standards and is a main actor of the response to animal health emergencies, it should be specifically included in this section on leadership and coordination given the animal health emergency context. In addition, the inclusion of 'Competent Authorities' as written is too broad, not all Competent Authorities may be relevant depending on which part of the Code Standards they are involved with.	Agreed.
3.X.8._7_ ICFAW	Category: addition Proposed amended text: A chain of command should be established to ensure decision-making responsibilities are clear at all levels, <u>including activation of the response</u>. Rationale: It should be made clear who is responsible for activation of the Emergency Response. Supporting evidence: Not relevant	Did not agree, the response has already been activated.

- 2) Planning: The lead *Competent Authority* should continuously collect and analyse data relevant to the emergency to support timely decision making and to guide response activities. This includes rapid risk assessments, situation reports, ongoing epidemiological analysis and real time response planning adapted to the existing generic response plan. This information should be disseminated to relevant stakeholders as appropriate.

3.X.8._8_ New Zealand	Category: change Proposed amended text:	Agreed with second option.

	Planning: The ~~lead~~ <u>Veterinary Authority or relevant</u> ~~Competent Authority~~ should continuously collect and analyse <u>animal health and welfare</u> data relevant to the emergency to support timely decision making and to guide response activities. This includes rapid risk assessments, situation reports, ongoing epidemiological analysis and real time response planning adapted to the existing generic response plan. This information should be disseminated to relevant stakeholders as appropriate. Or Planning: The lead <u>government agency</u>~~Competent Authority~~ should continuously collect and analyse data relevant to the emergency to support timely decision making and to guide response activities. This includes rapid risk assessments, situation reports, ongoing epidemiological analysis and real time response planning adapted to the existing generic response plan. This information should be disseminated to relevant stakeholders as appropriate. Rationale: The lead agency in the response may not be either the Veterinary Authority (VA) or a Competent Authority as defined by the Code. The text should either be generalised about the lead agency or should narrow the scope to animal health and welfare data. If the scope is narrowed, then it may be the Veterinary Authority that is the lead and because of its primary responsibility for coordinating implementing the Code Standards, it should be specifically included in this section given the animal health emergency context.	

- 3) Operations: Operational activities are undertaken as per the strategic and tactical decisions of the response, based on the preparedness plan and the response plan. Field activities should be coordinated and *means of transport* and other operational resources should be secured.

3.X.8._9_ New Zealand	Category: editorial/change Proposed amended text: <u>Different types of emergencies may require different types of response activities, which may include:</u> a) <u>For animal disease emergencies:</u> <u>Zoning in accordance with Chapter 4.4.;</u> <u>Stamping-out (including ensuring animal welfare at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures;</u> <u>Emergency vaccination in accordance with Chapter 4.18.;</u> <u>Carcass disposal in accordance with Chapter 4.13.;</u> <u>Cleansing and disinfection of premises, equipment and vehicles in accordance with chapter 4.14.;</u> <u>Vector control or management of wildlife reservoirs, as appropriate and justified;</u> <u>All these measures should take into account relevant biosecurity recommendations in accordance with Chapter 4.X.</u> b) <u>For veterinary public health emergencies, such as a food safety emergency, providing relevant support by investigating, tracing and managing any animal food products or animal sources.</u>	Agreed with the rationale, text was amended differently.

	c) <u>For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of animal welfare in accordance with Chapter 7.1., including:</u> <u>– Humane euthanasia of badly injured or otherwise suffering animals;</u> <u>– Animal rescue and relocation;</u> <u>– Provisions of temporary shelters;</u> <u>– Ensuring feed, water and veterinary care for displaced animals.</u> d) <u>Surveillance: Although focused on response activities, emergency management at the time of emergency requires regular review and updating of detection measures based on reassessed risks. This includes the strengthening of targeted surveillance, the performance of epidemiological investigations and the raising of awareness among relevant stakeholders. These activities should support the adaptation of the response plan including decisions to intensify or reduce certain measures, such as movement restrictions.</u> e) <u>In case of suspicion of deliberate event:</u> <u>Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.</u> Rationale: Grouping the response activities under the Operations bullet	

- 4) Logistics: Logistics should be scalable to meet the needs of the emergency response and should be planned, although they always should be adapted to the objectives of the response and the field reality. Consideration should be given to sourcing essential services and materials through partnerships with other sectors, including the private sector.
- 5) Public information: External communication and awareness activities should be coordinated, and if needed unified, across involved sectors to ensure consistency and avoid confusion. Designated spokespersons should be identified and communicate clear, accurate information to stakeholders using appropriate channels. Communications should be rapid and consistent to avoid information voids that can foster misinformation and disinformation.

3.X.8._10 _Australia	Category: Addition Proposed amended text: External communication and awareness activities should be <u>timely, tailored to different audiences</u>, coordinated, and if needed unified, across involved sectors to ensure consistency and avoid confusion. <u>Emergency communications work on the concept of 'One Source, One Message (OSOM)' - a common communications platform where consistent key messages are developed and circulated from the lead agency for others to adopt and use within their own organisations.</u> Rationale: The suggested changes provide further context to the public information section to incorporate key factors that are important for emergency communications.	Agreed with the rationale for 'timely, tailored to different audiences', however the text was amended differently. Did not agree with the rest, too detailed.

- 6) Finance and administration: Emergency funding should be easily accessible, and adaptable to the changing scale and scope of response activities. Rapid procurement and contracting systems should be ready to be used under a state of emergency. Arrangements for compensation of stakeholders or other financial

support, including insurance contract services, may be necessary depending on the nature of the emergency.

3.X.8._11_ Colombia	Category: general Texto modificado propuesto (o supresión sugerida): Financiación y administración: la financiación de emergencias deberá ser fácilmente accesible y adaptable a la escala y al alcance cambiantes de las actividades de respuesta. Se deberá disponer de sistemas rápidos de adquisición y contratación que puedan utilizarse en una situación de emergencia. Dependiendo de la naturaleza de la emergencia, se podrían necesitar acuerdos para compensar a las partes interesadas u otro tipo de apoyo financiero, incluidos los servicios de contratación de seguros. Finance and administration: Emergency funding should be easily accessible, and adaptable to the changing scale and scope of response activities. Rapid procurement and contracting systems should be ready to be used under a state of emergency. Arrangements for compensation of stakeholders or other financial support, including insurance contract services, may be necessary depending on the nature of the emergency. Justificación: La recomendación de contratar seguros es una decisión financiera/administrativa. Se sugiere eliminar la referencia específica a seguros y mantener la recomendación general sobre "mecanismos de financiación de contingencia".	Did not agree, need to include option of insurance.

Surveillance: Although focused on response activities, emergency management at the time of emergency requires regular review and updating of detection measures based on reassessed risks. This includes the strengthening of targeted surveillance, the performance of epidemiological investigations and the raising of awareness among relevant stakeholders. These activities should support the adaptation of the response plan including decisions to intensify or reduce certain measures, such as movement restrictions.

3.X.8._12_ _Australia	Category: Change Proposed amended text: Recommend that the <i>Surveillance</i> paragraph be numbered (#7) in accordance with other numbered activities associated with coordinated response in this section, or place elsewhere as a standalone point. Rationale: The paragraph on <i>surveillance</i>, whilst clear, doesn't fit the formatting, and suspect it is just missing formatted numbering to align with this section	Agreed.
3.X.8._13_ _Canada	Comment Category: change Proposed amended text: <u>7)</u> <i>Surveillance:</i> Although focused on response activities, emergency management at the time of emergency requires regular review and updating of detection measures based on reassessed risks. This includes the strengthening of targeted surveillance, the performance of epidemiological investigations and the raising of awareness among relevant stakeholders. These activities should support the adaptation of the response plan including decisions to intensify or reduce certain measures, such as movement restrictions. ~~Different types of emergencies may require different types of response activities, which may include:~~ ~~a) For animal disease emergencies:~~	Agreed.

	~~Zoning in accordance with Chapter 4.4.;~~ ~~Stamping out (including ensuring animal welfare at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures;~~ ~~Emergency vaccination in accordance with Chapter 4.18.;~~ ~~Carcase disposal in accordance with Chapter 4.13.;~~ ~~Cleansing and disinfection of premises, equipment and vehicles in accordance with chapter 4.14.;~~ ~~Vector control or management of wildlife reservoirs, as appropriate and justified;~~ ~~All these measures should take into account relevant biosecurity recommendations in accordance with Chapter 4.X.~~ ~~b) For veterinary public health emergencies, such as a food safety emergency, providing relevant support by investigating, tracing and managing any animal food products or animal sources.~~ ~~c) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of animal welfare in accordance with Chapter 7.1., including:~~ ~~— Humane euthanasia of badly injured or otherwise suffering animals;~~ ~~— Animal rescue and relocation;~~ ~~— Provisions of temporary shelters;~~ ~~— Ensuring feed, water and veterinary care for displaced animals.~~ ~~f) In case of suspicion of deliberate event:~~ ~~Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.~~ <u>87</u>) Human resources a) Personnel dedicated to response activities should have been trained and briefed on their roles as per the preparedness plan, but on the spot training should be considered, including health, safety and conduct rules, and the nature and impacts of the specific emergency that is managed. During response operations, physical safety of responders as well as producers should be prioritised. b) Mobilisation of personnel should consider the regular activities of <i>Veterinary Services</i> and that these have to continue during the response. However, the range of expertise needed across all levels of the response should be made available as per the response plan, including access to subject matter experts. Health, including mental health, well-being and safety of personnel and affected communities should be prioritised. <u>98</u>) Documentation should be maintained throughout the response including records of decisions. A dedicated monitoring and evaluation team should identify lessons during the response and implement real-time improvements if necessary. Records should be also kept to reassess	

	and, if necessary, adapt the preparedness plan for future emergencies. Records are also required for audits and for accountability. <u>109</u>) Response is deactivated when a risk assessment supports it and tasks can be conducted under business as usual. Deactivation should also include the scaling down of logistical operations and reallocation of usable response resources. <u>Different types of emergencies may require different types of response activities, which may include:</u> a) <u>For animal disease emergencies:</u> <u>Zoning in accordance with Chapter 4.4.;</u> <u>Stamping-out (including ensuring <i>animal welfare</i> at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures;</u> <u>Emergency vaccination in accordance with Chapter 4.18.;</u> <u>Carcass disposal in accordance with Chapter 4.13.;</u> <u>Cleansing and <i>disinfection</i> of premises, equipment and vehicles in accordance with chapter 4.14.;</u> <u>Vector control or management of <i>wildlife</i> reservoirs, as appropriate and justified;</u> <u>All these measures should take into account relevant <i>biosecurity</i> recommendations in accordance with Chapter 4.X.</u> b) <u>For veterinary public health emergencies, such as a food safety emergency, Competent Authorities provide relevant support by investigating, tracing and managing any animal food products or animal sources.</u> c) <u>For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of <i>animal welfare</i> in accordance with Chapter 7.1., including:</u> <u>– Humane euthanasia of badly injured or otherwise suffering animals;</u> <u>– Animal rescue and relocation;</u> <u>– Provisions of temporary shelters;</u> <u>– Ensuring feed, water and veterinary care for displaced animals.</u> g) <u>In case of suspicion of deliberate event:</u> <u>Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.</u> Rationale: Surveillance and information on the different types of emergencies do not fit under point 6 which is finance and administration. Surveillance should be its own point or included under operations. The information on the different types of emergencies should follow at the end of the Article, as the intent of the list is to include “key components of a coordinated response” which the ‘types of emergencies’ does not include. In	

	addition, all key components of the response listed would apply to these different types of emergencies	
3.X.8._14 _New Zealand	Category: deletion Proposed amended text: <i>Surveillance:</i> Although focused on response activities, emergency management at the time of emergency requires regular review and updating of detection measures based on reassessed risks. This includes the strengthening of targeted surveillance, the performance of epidemiological investigations and the raising of awareness among relevant stakeholders. These activities should support the adaptation of the response plan including decisions to intensify or reduce certain measures, such as movement restrictions. Rationale: This article would be better to have a generic reference to surveillance, to provide for all relevant emergency events. For example, for disease events, a country should strength general surveillance, including its early warning system, as well as implementing any relevant targeted surveillance.	Agreed.

Different types of emergencies may require different types of response activities, which may include:

3.X.8._15 _Australia	Category: Change Proposed amended text: Recommend moving or numbering <i>Different types of emergencies...</i> section- to the bottom of this section, in more relevant location, or as its own formatted and numbered point here. The rationale behind its current position is not clear. Rationale: The <i>different types of emergencies</i> section doesn't appear to fit in current location and disrupts the flow of this section.	See comment 3.X.8._13._Canada
3.X.8._16 _Canada	Comment Category: change Proposed amended text: ~~Different types of emergencies may require different types of response activities, which may include:~~ ~~a) — For animal disease emergencies:~~ ~~Zoning in accordance with Chapter 4.4.;~~ ~~Stamping out (including ensuring animal welfare at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.10.; Law Enforcement Authorities may be required to support enforcement of these measures;~~ ~~Emergency vaccination in accordance with Chapter 4.18.;~~ ~~Carcass disposal in accordance with Chapter 4.13.;~~ ~~Cleansing and disinfection of premises, equipment and vehicles in accordance with chapter 4.14.;~~ ~~Vector control or management of wildlife reservoirs, as appropriate and justified;~~ ~~All these measures should take into account relevant biosecurity recommendations in accordance with Chapter 4.X.~~	See comment 3.X.8._13._Canada

	~~b) For veterinary public health emergencies, such as a food safety emergency, providing relevant support by investigating, tracing and managing any animal food products or animal sources.~~ ~~e) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of animal welfare in accordance with Chapter 7.1., including:~~ ~~— Humane euthanasia of badly injured or otherwise suffering animals;~~ ~~— Animal rescue and relocation;~~ ~~— Provisions of temporary shelters;~~ ~~— Ensuring feed, water and veterinary care for displaced animals.~~ ~~h) In case of suspicion of deliberate event:~~ ~~Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.~~ <u>87) Human resources</u> <u>[...]</u> <u>98) [...]</u> <u>109) [...]</u> <u>Different types of emergencies may require different types of response activities, which may include:</u> <u>a) For animal disease emergencies:</u> <u>Zoning in accordance with Chapter 4.4.:</u> <u>Stamping-out (including ensuring animal welfare at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures;</u> <u>Emergency vaccination in accordance with Chapter 4.18.;</u> <u>Carcass disposal in accordance with Chapter 4.13.;</u> <u>Cleansing and disinfection of premises, equipment and vehicles in accordance with chapter 4.14.;</u> <u>Vector control or management of wildlife reservoirs, as appropriate and justified;</u> <u>All these measures should take into account relevant biosecurity recommendations in accordance with Chapter 4.X.</u> <u>b) For veterinary public health emergencies, such as a food safety emergency, Competent Authorities provide relevant support by investigating, tracing and managing any animal food products or animal sources.</u> <u>c) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of animal welfare in accordance with Chapter 7.1., including:</u>	

	– <u>Humane euthanasia of badly injured or otherwise suffering animals;</u> – <u>Animal rescue and relocation;</u> – <u>Provisions of temporary shelters;</u> – <u>Ensuring feed, water and veterinary care for displaced animals.</u> i) <u>In case of suspicion of deliberate event:</u> <u>Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.</u> Rationale: The information on the different types of emergencies should follow at the end of the Article, as the intent of the list is to include "key components of a coordinated response" which the 'types of emergencies' does not include. In addition, all key components of the response listed would apply to these different types of emergencies	
3.X.8._17 _Australia	Category: Editorial Proposed amended text: Different types of emergencies may require different types of response activities,. <u>The below list outlines examples of response activities for particular emergencies, though it is important to note that many response activities can address multiple hazards or emergency types and are not necessarily exclusive to any type of emergency;</u> Rationale: Multiple response activities are applicable to multiple emergency types/hazards, so it should be clarified that the listed activities examples are not exclusive to that type of emergency e.g. emergency vaccination is a response activity associated with animal health and veterinary public health emergencies.	Agreed with the rationale, text was amended differently.

a) For animal disease emergencies:

Zoning in accordance with Chapter 4.4.;

3.X.8._18 _Australia	Category: Addition Proposed amended text: Zoning in accordance with Chapter 4.4.; <u>Movement controls/restrictions</u> Rationale: Movement controls/restrictions are a key response activity for animal disease emergencies and are not currently listed.	Agreed with the rationale, text was amended differently.

Stamping-out (including ensuring *animal welfare* at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures;

3.X.8._19 _ICFAW	Category: change Proposed amended text: <u>Stamping out (including ensuring animal welfare at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement</u>	Did not agree, too prescriptive.

	<u>of these measures;</u> <u>Stamping-out operations must strictly adhere to Chapter 7.6. Killing methods that cause prolonged suffering (e.g., Ventilation Shutdown) must be prohibited</u> Rationale: Prohibiting Cruelty: General references to "ensuring welfare" are insufficient during emergencies. Explicit prohibition of inhumane mass-killing methods is necessary to prevent their normalization.	

Emergency vaccination in accordance with Chapter 4.18.;

Carcass disposal in accordance with Chapter 4.13.;

Cleansing and *disinfection* of premises, equipment and vehicles in accordance with chapter 4.14.;

3.X.8._20_ EU	Category: editorial Proposed Amended Text: Please replace "cleansing" with "cleaning" in the point above, for consistency across the Code.	Agreed.

Vector control or management of *wildlife* reservoirs, as appropriate and justified;

3.X.8._21 _Australia	Category: Addition Proposed amended text: Vector control or management of wildlife reservoirs, as appropriate and justified; <u>Management of animal welfare in animals not required to be killed for disease control – including ensuring provision of feed, water and veterinary care; providing shelter, relocation or humane euthanasia as may be required;</u> All these measures should take into account relevant biosecurity recommendations in accordance with Chapter 4.X. Rationale: During an animal disease outbreak the welfare of other animals may be compromised (including those not susceptible to the disease of concern), due to issues such as movement restrictions affecting delivery of food or creating overcrowding on premises, inability to perform required husbandry e.g. milking, lack of access to veterinary care. It is important to ensure this is considered in responding to disease emergencies.	Did not agree, too prescriptive.
3.X.8._22 _EU	Category: editorial Proposed Amended Text: Please consider numbering the points above, for easier reference and overall readability of the text.	Agreed.

All these measures should take into account relevant *biosecurity* recommendations in accordance with Chapter 4.X.

- b) For veterinary public health emergencies, such as a food safety emergency, providing relevant support by investigating, tracing and managing any animal food products or animal sources.

3.X.8._23 _ICFAW	Category: change Proposed amended text: For veterinary public health emergencies, such as a food safety emergency <u>or zoonotic disease outbreak</u>, providing relevant support by investigating, tracing and managing any animal food products or animal sources. Rationale: Zoonotic disease should be considered in any emergency response plan as they pose major emergency threats. Supporting evidence: World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO) and World Organisation for Animal Health (OIE), 2019. Taking a Multisectoral, One Health Approach: A Tripartite Guide to Addressing Zoonotic Diseases in Countries: https://iris.who.int/server/api/core/bitstreams/00a4190f-ff85-4959-b020-db11bca0565b/content	Agreed.

- c) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of *animal welfare* in accordance with Chapter 7.1., including:

3.X.8._24 _USA	Comment Category: Deletion Proposed amended text: ~~c) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of <i>animal welfare</i> in accordance with Chapter 7.1., including:~~ ~~— Humane euthanasia of badly injured or otherwise suffering animals;~~ ~~— Animal rescue and relocation;~~ ~~— Provisions of temporary shelters;~~ ~~— Ensuring feed, water and veterinary care for displaced animals.~~ Rationale: Recommend deleting all-hazards emergency content. The stated aim of this chapter is emergency management guidance for animal disease emergencies. (The introductory paragraph lists: animal disease prevention, early detection and control, and maintaining or restoring disease freedom). Veterinary public health would also be covered by WOAHP mission, but the emergencies listed here go beyond the expected scope of the chapter.	Did not agree, using all hazard approach.

- Humane euthanasia of badly injured or otherwise suffering animals;

3.X.8._25 _Australia	Category: Addition Proposed amended text: — Humane euthanasia of badly injured or otherwise suffering animals <u>(including ensuring <i>animal welfare</i> at the time of killing, in accordance with Chapter 7.6);</u> Rationale: Chapter 7.6 covers humane killing in a range of circumstances, not just for disease control, and would be relevant here	Did not agree, too detailed.
3.X.8._26 _ICFAW	Category: addition Proposed amended text:	Did not agree, did not add clarity.

	Humane euthanasia of badly injured or otherwise <u>acutely or chronically</u> suffering animals; Rationale: Although acute suffering is often more noticeable, those animals with a poor prognosis for a return to a good quality of life following the immediate recovery, such as those with debilitating injuries and in chronic pain, should be included in any end-of-life decision making process. Supporting evidence: ICWE end of Life decision making document: https://www.icworkingequids.org/wesli/end-of-life/	

- Animal rescue and relocation;
- Provisions of temporary shelters;

3.X.8._27 _ICFAW	Category: addition Proposed amended text: Provisions of <u>suitable</u> temporary shelters; Rationale: Shelters must be safe and the appropriate size, have adequate ventilation, etc. Providing feed and water is not enough. Supporting evidence: Mellor (2020) The 5 domains: https://pmc.ncbi.nlm.nih.gov/articles/PMC7602120/ ICWE Working Equids Standards Library of Information: Water, Nutrition, and Shelter chapters: https://www.icworkingequids.org/wesli/	Did not agree, no added value.

- Ensuring feed, water and veterinary care for displaced animals.

3.X.8._28 _EU	Category: editorial Proposed Amended Text: Please consider numbering the points above, for easier reference and overall readability of the text.	Agreed.
3.X.8._29 _ICFAW	Category: addition Proposed amended text: Ensuring <u>adequate and appropriate</u> feed, water and veterinary care for displaced animals. Rationale: Feed and water need to be of sufficient amounts as well as of good quality. Veterinary care should be relevant and appropriate. Supporting evidence: Mellor (2020) The 5 domains: https://pmc.ncbi.nlm.nih.gov/articles/PMC7602120/ ICWE Working Equids Standards Library of Information: Water, Nutrition, and Shelter chapters: https://www.icworkingequids.org/wesli/	Did not agree, no added value.

- j) In case of suspicion of deliberate event:

Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.

7) Human resources

- a) Personnel dedicated to response activities should have been trained and briefed on their roles as per the preparedness plan, but on the spot training should be considered, including health, safety and conduct rules, and the nature and impacts of the specific emergency that is managed. During response operations, physical safety of responders as well as producers should be prioritised.

3.X.8._30 _Australia	Category: Addition Proposed amended text: a) Personnel dedicated to response activities should have been trained and briefed on their roles as per the preparedness plan, but on the spot training should be considered, including health, safety and conduct rules, and the nature and impacts of the specific emergency that is managed. During response operations, physical <u>and psychological</u> safety of responders as well as <u>producers- other stakeholders involved in response activities</u> should be prioritised. Rationale: 'Producer' has too narrow a definition to encompass all potentially relevant people on the ground (beyond responders) during an emergency response. Added "and psychological" to align with other sections of this chapter and as contemporary Work Health & Safety legislation and regulation now include duties relating to psychosocial hazards in addition to physical hazards. Supporting evidence, if relevant: Psychological safety - World Health Organisation: https://www.who.int/tools/occupational-hazards-in-health-sector/psycho-social-risks-mental-health	Agreed.

- b) Mobilisation of personnel should consider the regular activities of *Veterinary Services* and that these have to continue during the response. However, the range of expertise needed across all levels of the response should be made available as per the response plan, including access to subject matter experts. Health, including mental health, well-being and safety of personnel and affected communities should be prioritised.

- 8) Documentation should be maintained throughout the response including records of decisions. A dedicated monitoring and evaluation team should identify lessons during the response and implement real-time improvements if necessary. Records should be also kept to reassess and, if necessary, adapt the preparedness plan for future emergencies. Records are also required for audits and for accountability.

3.X.8._31 _New Zealand	Category: addition Proposed amended text: Consider adding reference in the documentation paragraph to animal disease occurrence information when relevant. Rationale: For animal disease events, information on animal disease occurrence and controls applied (e.g. numbers affected, deaths, slaughtered, vaccinated etc) is desired to facilitate Member Country meeting their WOH reporting obligations and is beneficial when demonstrating recovery and eradication of a disease event. Preplanning for obtaining this information helps to facilitate access to information during a response.	Did not agree, it is already included.

3.X.8._32_ _ICFAW	Category: addition Proposed amended text: Records should be also kept to reassess, review post event, and, if necessary, adapt the preparedness plan for future emergencies. Records are also required for audits and for accountability. Rationale: a critical component of the broader emergency management cycle, After Action Reviews (AARs) ensure continuous improvement and resilience. From the FAO: After Action Reviews (AARs) are essential activities that contribute to the process of continuous improvement. An AAR is a critical review of actions taken to respond to an emergency. It strives to identify best practices, gaps and lessons learned, and is a space for collective learning. It brings together relevant individuals or stakeholders to analyse or assess decisions and actions taken during the response, critically and systematically. The objective of an AAR is learning. This can occur at a personal, collective or institutional level. AARs have been widely used successfully in other sectors such as public health, both in the field and in emergency operation centres. Supporting evidence: Food and Agricultural Organisation (FAO), 2022: Conducting After Action Reviews for animal health emergencies: https://openknowledge.fao.org/server/api/core/bitstreams/b1abd5a7-4a8e-444c-9a4b-b1e956cfb888/content	Did not agree, after action review is part of recovery.

- 9) Response is deactivated when a risk assessment supports it and tasks can be conducted under business as usual. Deactivation should also include the scaling down of logistical operations and reallocation of usable response resources.

3.X.8._33_ Colombia	Category: change Texto modificado propuesto: La respuesta se desactiva cuando lo justifique una <i>evaluación del riesgo, cuando las actividades de control puedan ser asumidas por las operaciones rutinarias del servicio veterinario o cuando se haya recuperado el estatus sanitario previo y que las tareas puedan llevarse a cabo con normalidad</i>. La desactivación también deberá incluir la reducción de las operaciones logísticas, <i>el desmantelamiento de las instalaciones, el retiro de los equipos y el personal, así como la evaluación de los criterios sanitarios para el cese de la emergencia</i> y la reasignación de los recursos de respuesta utilizables. [EN] Response is deactivated when a risk assessment supports it, <i>when control activities can be assumed by the routine operations of the Veterinary Services, or when the previous sanitary status has been recovered and tasks can be conducted under business as usual</i>. Deactivation should also include the scaling down of logistical operations, <i>the dismantling of facilities, the withdrawal of equipment and personnel, as well as the evaluation of sanitary criteria for the cessation of the emergency</i> and reallocation of usable response resources. Justificación: 1. Normalidad es un término subjetivo. 2. Se sugiere agregar la necesidad de criterios sanitarios para el cese de la emergencia.	Did not agree, too detailed.

Article 3.X.9.

Recovery

Recovery is the set of actions required to support affected communities and animal *populations*, restore livelihoods and habitats and to rebuild infrastructure, and to reduce long-term emergency impacts. It generally begins when emergency response activities cease, however some efforts may start in some areas while response continues in others.

3.X.9._1_ Australia	Category: Addition Proposed amended text: Recovery is the set of actions required to support affected communities and animal <i>populations</i>, restore livelihoods and habitats and to rebuild infrastructure, and to reduce long-term emergency impacts. ~~It generally begins when emergency response activities cease, however some efforts may start in some areas while response continues in others. Emergency management doctrine states that recovery should start when a response starts. Every decision that is made during a response has implications for recovery and it should be viewed as a long-term activity that extends beyond the eradication or management of the disease and occurs simultaneously with response activities.~~ <u>Recovery is undertaken across four environments, Social, Economic, Built and Natural, that provide a framework within which recovery can be planned, reported, monitored and evaluated. The environments and their areas of activity can be adapted to meet the needs.</u> Rationale: It is widely recognised that recovery often starts around the same time as a response to be most effective. When talking about recovery care is needed in using terms like 'restore' and 'rebuild'. The intent of recovery is not to replicate what was necessarily there before the emergency but to 'return to an effective level of functioning following an emergency'. In some cases, it may be the opportunity to improve on the original state.	Did not agree, too detailed.
3.X.9._2_ New Zealand	Category: addition Proposed amended text: Recovery is the set of actions required to support affected communities, <i>industries</i>, and animal <i>populations</i>, restore livelihoods and habitats and to rebuild infrastructure, and to reduce long-term emergency impacts. It generally begins when emergency response activities cease, however some efforts may start in some areas while response continues in others. Rationale: More inclusive of impacted stakeholder types.	Agreed.

Recovery involves impact assessment, restoring services and rebuilding systems including veterinary infrastructure, if necessary, with the view to return to a level of pre-emergency continuity of business. The lead *Competent Authority* may differ the one in charge of response.

3.X.9._3_ Australia	Category: Addition Proposed amended text: Recovery involves impact assessment, restoring services and rebuilding systems including veterinary infrastructure, if necessary, with the view to ~~return to a level of pre-emergency continuity of business. returning to an effective level of functioning following an emergency. It is important to understand that what is created after 'recovery' may not be the same state as before the emergency.~~ The lead <i>Competent Authority</i> may differ <u>from</u> the one in charge of <u>a</u> response. Rationale: It is widely recognised that recovery often starts around the same time as a response to be most effective. When talking about recovery care is	Agreed with the rationale, text was amended differently.

	needed in using terms like 'restore' and 'rebuild'. The intent of recovery is not to replicate what was necessarily there before the emergency but to 'return to an effective level of functioning following an emergency'. In some cases, it may be the opportunity to improve on the original state.	
3.X.9._4_ New Zealand	Category: addition Proposed amended text: Recovery involves impact assessment, restoring services and rebuilding systems including veterinary infrastructure, if necessary, with the view to return to a level of pre-emergency continuity of business. The lead <u>government agency</u> ~~Competent Authority~~ may differ <u>from</u> the one in charge of response. Or Recovery involves impact assessment, restoring services and rebuilding systems including veterinary infrastructure, if necessary, with the view to return to a level of pre-emergency continuity of business. The ~~lead Veterinary Authority or relevant~~ <u>Competent Authority leading for animal health and welfare</u> may differ <u>from</u> the one in charge of response. Rationale: The lead agency in the response may not be either the Veterinary Authority (VA) or a Competent Authority as defined by the Code. The text should either be generalised about the lead agency or should narrow the scope to animal health and welfare data. If narrowed, it may be the Veterinary Authority that is the lead agency and given it is meant to have the primary responsibility for coordinating implementation of the Code standards it should be specifically included in this section considering the animal health emergency context. For addition of 'from', improve readability	Agreed with the rationale, text was amended differently.
3.X.9._5_ USA	Comment Category: Editorial Proposed amended text: The lead <i>Competent Authority</i> may differ <u>from</u> the one in charge of response. Rationale: Grammatical correction.	See comment 3.X.9._4._New Zealand
3.X.9._6_ EU	Category: editorial Proposed Amended Text: Please insert "<u>from</u>" before "the one in charge" in the paragraph above.	See comment 3.X.9._4._New Zealand
3.X.9._7_ ICFAW	Category: addition Proposed amended text: Recovery involves impact assessment, restoring services and rebuilding systems including veterinary infrastructure, if necessary, with the view to return to a level of <u>at least</u> pre-emergency continuity of business. Rationale: In the best case, the reaction to a shock or stress should be to 'bounce back better', not just recover to the previous level. Learnings from the event should be used to enhance capacities or reduce vulnerability, leaving a system that is more able to deal with future shocks and stresses. Recovery is an opportunity to establish improved animal health infrastructure which eliminates weaknesses present prior to the emergency - "a robust animal health infrastructure that prospers due to the elimination of persistent issues stemming from systemic root causes."	See comment 3.X.9._4._New Zealand

	Supporting evidence: Department for International Development (DFID): Defining Disaster Resilience: A DFID Approach Paper https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/186874/defining-disaster-resilience-approach-paper.pdf Javed Jameel, A., Justin Davis, K. and Athira, K. (2025). Challenges of Emergency Animal Management During Disasters. In Epidemiology and Environmental Hygiene in Veterinary Public Health, T. Rana (Ed.). https://doi.org/10.1002/9781394208180.ch42 https://onlinelibrary.wiley.com/doi/epdf/10.1002/9781394208180.ch42?saml_referrer=	

For emergencies caused by outbreaks of *listed diseases*, recovery may include steps to return to the *animal health status* prior to the event. Member Countries seeking official recognition of disease freedom or self-declaration of *animal health status* should follow the relevant provisions of Chapter 1.6. and the disease-specific chapters.

3.X.9._8_ New Zealand	Category: change Proposed amended text: For emergencies caused by outbreaks of <i>listed animal</i> diseases, recovery may include steps to return to the <i>animal health status</i> prior to the event. Member Countries seeking official recognition of disease freedom or self-declaration of <i>animal health status</i> should follow the relevant provisions of Chapter 1.4, Chapter 1.6. and the disease-specific chapters. Rationale: i. The epidemiological requirements for countries to regain trading partner recognition of a change in animal health status also applies to non-listed diseases, some of which are significant for trade and transboundary movement despite not being listed by WOA. ii. If the Code Commission changes Chapter 1.6. so it is now limiting its scope to only listed diseases, we suggest adding 'from a <i>listed disease</i>' after 'animal health status' in the second sentence for clarity. iii. The provisions of the horizontal Chapter 1.4, in particular Article 1.4.6, also apply to changes of animal health status, as previously outlined by the Code Commission and the Scientific Commission.	Agreed.

During recovery, the *Competent Authority* should:

- 1) Provide guidance on compensation, where appropriate, available financial assistance and access to counselling and support services.
- 2) Monitor resource availability and assess progress against recovery objectives.
- 3) Define and agree on an endpoint for recovery, based on regular reviews of the situation including availability of resources. Stakeholders should be informed of the recovery timeline.

- 4) Ensure transparency through regular reporting to national, regional and international stakeholders, and to WOA, as appropriate.

3.X.9._9_ Australia	Category: Addition Proposed amended text: 5) liaise and collaborate with affected livestock industries and key stakeholders to determine and deliver appropriate recovery needs. Rationale: The addition of dot point 5) recognises that recovery should be a consultative process to ensure any recovery activities meet the needs of those affected to ensure the resources are delivered efficiently and effectively	Agreed to add as point one, text was edited differently.
3.X.9._10_ Colombia	Category: addition 5) Realizar vigilancia epidemiológica como parte técnica de la recuperación para asegurar que el agente patógeno no resurja. 5) Conduct epidemiological surveillance as a technical component of recovery to ensure that the pathogen does not re-emerge. Justificación: La recuperación socioeconómica debe ir ligada a la seguridad sanitaria para evitar la reintroducción del riesgo. [EN] Socio-economic recovery must be linked to sanitary security to prevent the reintroduction of risk.	Agreed with rationale, see response to comment 3.X.9._9_ Australia

An after-action review of the whole event management (prevention, preparedness, detection, response) should be conducted to identify lessons for improving future emergency preparedness and response. A final report should be prepared and disseminated to relevant stakeholders. Where appropriate, *Competent Authorities* should share lessons with other sectors and stakeholders, including at international level.

3.X.9._11_ New Zealand	Category: addition Proposed amended text: An after-action review of the whole event management (prevention, preparedness, detection, response) should be conducted to identify lessons for improving future emergency preparedness and response. A final report should be prepared and disseminated to relevant stakeholders. Where appropriate, the Veterinary Authority and relevant Competent Authorities should share lessons with other sectors and stakeholders, including at international level. Rationale: See previous comments on inclusion of Veterinary Authority.	Agreed.

SECTION 4.

DISEASE PREVENTION AND CONTROL

Reference	Comment	TAHSC response
4.X._1_ Australia	Category: General There are no considerations of how biosecurity risk may be cost-effectively mitigated by managing impacts (e.g. bio-containment, vaccination, test-&-cull, specific treatments), rather than just by bio-exclusion.	In addition to Article 8, reference to consideration of availability of resources was added in the last paragraph of Article 3. Also, the <i>Terrestrial Code</i> should be considered in its entirety, and Members can implement biosecurity with other prevention and control measures including vaccination.
4.X._2_ Korea (Rep. of)	Category: general The Republic of Korea agrees with the revised Chapter regarding a declaratory statement defining purpose and scope of biosecurity and roles and responsibilities of different actors in biosecurity.	Noted.
4.X._3_ AU-IBAR	Category: general AU-IBAR welcomes the recognition that biosecurity applies across all production systems. However, further emphasis is needed on progressive and risk-based application in extensive, pastoral, and smallholder systems where full implementation of certain measures may not be feasible. Without this, the chapter risks being perceived as overly prescriptive and difficult to operationalise in low-resource settings. African Union supports the inclusion of the livestock–wildlife–human–environment interface. However, further guidance would be useful on managing biosecurity risks in wildlife-livestock interface areas, which are common in East Africa and pose unique epidemiological challenges beyond conventional farm-level controls.	Noting this concern, the Commission highlighted that Members can progressively implement biosecurity, taking into account this chapter. There is already a guidance document on ' Mitigating Disease Transmission Risk at the Wildlife-Livestock Interface .'
4.X._4_EU	Category: General The EU in general supports this proposed chapter and thanks the Code Commission for addressing the previous EU comments. The EU invites the Code Commission to address additional comments provided below.	Noted.

CHAPTER 4.X.

BIOSECURITY

Article 4.X.1.

Introduction

Biosecurity is the cornerstone of animal health programmes and as such should be implemented to prevent and control diseases in *populations*. In addition to reducing the risk of disease, the expected benefits of *biosecurity* include a reduced ~~need for use of~~ veterinary medicinal products; reduced ~~killing of animals~~ for disease control purposes; reduced economic losses; protection of livelihoods; ~~assurance of sustainability of improved~~ animal production; improved food security and food safety; promotion of animal, human and environmental health; ~~and assurance of safe trade and business continuity.~~

4.X.1._1_ Australia	Category: Change Proposed amended text: <i>Biosecurity</i> is the cornerstone of <u>animal</u> health programmes and as such should be implemented to prevent and control diseases in <i>populations</i>. In addition to reducing the risk of disease, the <u>expected</u> benefits of <i>biosecurity</i> include <u>improved food security and safety, safe trade and business continuity, the protection of animal health, human health and the environment through reduced economic losses and assurance of sustainability, and a reduced need for use of veterinary medicinal products.</u> ~~a reduced need for use of veterinary medicinal products; reduced killing of animals for disease control purposes; reduced economic losses; protection of livelihoods; assurance of sustainability of improved animal production; improved food security and food safety; promotion of animal, human and environmental health; and assurance of safe trade and business continuity.~~ Rationale: Biosecurity has many important benefits and it is often the user who categorises its primary benefit based on how they contextualise and apply those to themselves. Benefits like food security and safe trade have been reordered as they are likely to resonate across a broad range of readers.	Did not agree, as these are examples and are not in priority order.
4.X.1._2_ Canada	Comment Category: change Proposed amended text: <i>Biosecurity</i> is the cornerstone of <u>animal</u> health programmes and as such should be implemented to prevent and control diseases in <i>populations</i>. In addition to reducing the risk of disease, the <u>expected</u> benefits of <i>biosecurity</i> <u>could</u> include a reduced <u>need for and need for use of</u> <u>veterinary medicinal products</u>; reduced ~~killing of animals~~ for disease control purposes; reduced economic losses; protection of livelihoods; ~~assurance of sustainability of improved~~ animal production; improved food security and food safety; promotion of animal, human and environmental health; ~~and assurance of safe trade and business continuity.~~ Rationale: The benefits of biosecurity are increased animal health outcomes which in turn could reduce the need for and use of veterinary medicinal products. The decreased use results from a decreased need. The use of 'could' achieves the same outcome as 'expected' within the	Did not agree, comment was addressed previously in the September 2025 TAHSC report, Annex 3.

	draft text and is more appropriate as the inclusion of 'expected' does not completely reflect the unknown impacts of implementation of biosecurity. The proposed wording more accurately represents the relationship between biosecurity and use of veterinary medicinal products.	
4.X.1._3_ UK	Category: addition. Proposed amended text (or precise suggested deletion): <i>Biosecurity</i> is the cornerstone of <u>animal</u> health programmes and as such should be implemented to prevent and control diseases in <i>populations</i>. In addition to reducing the risk of disease, the <u>expected</u> benefits of <i>biosecurity</i> include a reduced ~~need for use of~~ <u>veterinary medicinal products</u>; reduced <i>killing of animals</i> for disease control purposes; reduced economic losses; protection of livelihoods; <u>support of sustainable farming</u>, ~~assurance of sustainability of improved~~ animal production; improved food security and food safety; promotion of animal, human and environmental health; ~~and assurance of~~ safe trade and business continuity. Rationale: Reinstate reference to sustainability as a key benefit of biosecurity. Sustainability is a core element of good farming practices and One Health. Biosecurity measures support disease control and performance goals while promoting sustainable farming. Supporting evidence: BCVA Sustainability Policy FINAL FOR PUBLICATION.pdf	Agreed with the rationale, text was amended differently.
4.X.1._4_ ICFAW	Category: Change Proposed amended text (or precise suggested deletion): <i>Biosecurity</i> is the cornerstone of <u>animal</u> health programmes and as such should be implemented to prevent and control diseases <u>and between</u> <i>populations</i>. In addition to reducing the risk of disease, the <u>expected</u> benefits of <i>biosecurity</i> include <u>an improvement in animal welfare</u>, a reduced ~~need for use of~~ <u>veterinary medicinal products</u>; reduced <i>killing of animals</i> for disease control purposes; reduced economic losses; protection of livelihoods; <u>improved animal welfare</u> ~~assurance of sustainability of improved~~ animal production; improved food security and food safety; promotion of animal, human and environmental health; ~~and assurance of~~ safe trade and business continuity. Rationale: To highlight the importance of zoonotic disease and that biosecurity is important to control diseases that can spread between species, including humans. An important aspect of biosecurity is improved animal welfare standards, not only improved health of animals. Improved biosecurity, or the lack of, has a direct impact on the welfare of animals. The knowledge/awareness between the link of both needs to be increased, starting by the inclusion of animal welfare in the chapter. Supporting evidence: The correlation between on-farm biosecurity and animal welfare indices in large-scale turkey production - ScienceDirect One Biosecurity: a unified concept to integrate human, animal, plant, and environmental health Emerging Topics in Life Sciences Portland Press The Role of Biosecurity in Promoting Farm Animal Welfare in Low- and Middle-Income Countries IntechOpen	Did not agree to add 'and between', due to no added clarity. Agreed to add 'improved animal welfare'.

Article 4.X.2.

Purpose and scope

This chapter provides general principles and recommendations to allow for a consistent approach that could be applied to implement *biosecurity* for a *population* or *subpopulation* irrespective of the settings or scale, such as at *farm/production* or *non-production establishments, herd/flock, compartment, zone, or country, zone, compartment, herd/flock, farm or non-production establishment level*.

The purpose of this chapter is to provide guidance to the *Veterinary Authority* and other relevant actors, as described in Article 4.X.4., on the principles, implementation, *monitoring* and evaluation of *biosecurity* to support disease prevention and control programmes. The chapter applies to *animals*, their gatherings and husbandry systems, to all components of animal keeping, *and transport and processing*, and to the interface between domesticated *animals, wildlife, humans and wildlife and the environment*.

More specifically, this chapter aims to:

- describe the general guiding principles of *biosecurity*;

4.X.2._1_ EU	Category: deletion Proposed amended text: “describe the general <i>guiding</i> principles of biosecurity” Rationale: This amendment ensures that the sentence aligns with the title of Article 4.X.3, maintaining consistency and clarity within the chapter.	Agreed.

- identify the roles and responsibilities of the different actors in *biosecurity*;
- describe the potential sources of pathogenic agents and the pathways involved in their transmission within the *population*; for entry of pathogenic agents into a *population* and the exposure of *animals* and factors for the transmission of pathogenic agents;

4.X.2._2_ ICFAW	Category: Change Proposed amended text (or precise suggested deletion): pathways involved in their transmission <i>in and between within the population</i> : Rationale: To highlight the importance of zoonotic disease and that biosecurity is important to control diseases that can spread between species, including humans. Supporting evidence: Global Zoonotic Disease Surveillance: An Emerging Public Health and Biosecurity Imperative BioScience Oxford Academic	Did not agree because of no added value.

- describe the components of *biosecurity*;
- provide guidance on the design, application, monitoring, evaluation and training with regards to *biosecurity* and *biosecurity plans*.

This chapter should be read in conjunction with other relevant chapters in Section 3 ‘Quality of Veterinary Services’, Section 4 ‘Disease prevention and control’ and Section 5 ‘Trade measures, import/export procedures and veterinary certification’.

4.X.2._3_ ICFAW	Category: Addition Proposed amended text (or precise suggested deletion): <u>This chapter should be read in conjunction with other relevant chapters in Section 3 'Quality of Veterinary Services', Section 4 'Disease prevention and control' and Section 5 'Trade measures, import/export procedures and veterinary certification' and Section 7 'Animal Welfare'.</u> Rationale: Improved biosecurity, or the lack of, has a direct impact on the welfare of animals. The knowledge/awareness between the link of both needs to be increased, starting by the inclusion of animal welfare in the chapter. Supporting evidence: The correlation between on-farm biosecurity and animal welfare indices in large-scale turkey production - ScienceDirect The Role of Biosecurity in Promoting Farm Animal Welfare in Low- and Middle-Income Countries IntechOpen	Did not agree, reference to Section 7 is too broad.

The chapter does not apply to laboratories, ~~whose a~~ Approaches to laboratory biosecurity are addressed in the *Terrestrial Manual*.

Article 4.X.3.

General guiding principles ~~provisions~~ principles

The specific desired objectives of *biosecurity* should be defined. To achieve ~~the these~~ objectives of *biosecurity*, the following should be considered:

- 1) The *population* for which *biosecurity* is to be implemented, including its management, environmental and epidemiological context and size and its *animal health status*.
- 2) The identification of the ~~hazards~~ pathogenic agents of concern and from where and how they may be introduced, and how they may be ~~the pathogenic agents may be introduced, established and spread within in~~ and spread from the population.

4.X.3._1_ Australia	Category: Addition Proposed amended text: 2. The identification of the ~~hazards~~ <u>pathogenic agents of concern</u> and from where and how <u>they may be introduced</u>, and how they may <u>be</u> ~~the pathogenic agents may be introduced, established and spread within in~~ <u>and spread from the population</u> <u>and the likely timeframe for these processes</u>. Rationale: Suggest inclusions of text to consider the public and relevant stakeholders in decision making and the need for earlier and greater emphasis on engagement during these processes.	Did not agree, as the timeframe <i>per se</i> is not a principle.

- 3) The factors and frequency of events that influence the introduction, establishment and spread of pathogenic agents.
- 4) Scientific evidence to assess the risk.

5) ~~and~~ Proportionality of the measures to manage the risk.

4.X.3._2_ Australia	Category: Addition Proposed amended text: 5. ~~and~~ <u>Proportionality</u> <u>and social license</u> ~~of to the measures to manage the risk.~~ Rationale: Suggest inclusions of text to consider the public and relevant stakeholders in decision making and the need for earlier and greater emphasis on engagement during these processes.	Agreed with the rationale, text was amended differently.

6) ~~5)~~ Sustainability, adaptability, ~~and~~ monitoring.

4.X.3._3_ New Caledonia	Category: addition Proposed amended text: 56) la durabilité, l'adaptabilité et le contrôle <u>des mesures</u> Rationale: Article 4.X.3 6) : il paraît nécessaire de préciser à quoi font référence les 3 termes listés : « durabilité » « adaptabilité » et « contrôle » en ajoutant « des mesures » :	Agreed.

7) ~~6)~~ Human behaviour to maximise compliance.

4.X.3._4_ Canada	Comment Category: Deletion Proposed amended text: ~~7)6) Human behaviour to maximise compliance.~~ Rationale: Propose removing point 7 as is captured under point 10. If a biosecurity plan is developed in a manner that supports consistent implementation of biosecurity, human behaviour is accounted for within that biosecurity plan.	Did not agree, this is a separate and important consideration. Removed 'to maximise compliance' as overall behaviour should be addressed.
4.X.3._5_ New Caledonia	Category: change Proposed amended text: Exemple : -67) le comportement humain, afin d'optimiser <u>le respect du plan</u> ~~en observance~~ ; Rationale: Le terme « observance » est utilisé plusieurs fois dans la version française et ne semble pas adapté ni correspondre à la traduction de la version anglaise « compliance ». Il est proposé de le remplacer par « respect » :	Agreed (French version only)
4.X.3._6_ EU	Category: addition Proposed amended text: "Human behaviour to maximise compliance <u>and identification of human-factor vulnerabilities</u> " Rationale: Here the content of the phrase could be specified a little more. Supporting evidence: biosafety failures are often due to human error and the focus must be on adequate staff training.	Agreed with the rationale, text was amended differently.

7) ~~Evaluation of compliance built into the day-to-day operations.~~

8) Socio-economic impacts of *biosecurity*.

9) Impacts on other *populations* and the environment.

4.X3._7_ ICFAW	Category: Addition Proposed amended text (or precise suggested deletion): Protection of animal, human and environmental health to the list of guiding principles Rationale: Biosecurity does not only protect animal health but also human and environmental health. Supporting evidence: Emerging advances in biosecurity to underpin human, animal, plant, and ecosystem health: iScience	Did not agree as the proposed text is not a principle.

10) Development of a *biosecurity plan* that supports promotes consistent implementation of *biosecurity*.

4.X.3._8_EU	Category: change This should be referring to the definition of biosecurity plan and the amendment suggested in Annex 5 – Glossary	Noted.

11) Engagement with, training and awareness of, and communication with, all actors involved in *biosecurity*.

4.X.3._9_ Australia	Category: Addition Proposed amended text: 11. Engagement with, training and awareness of, and communication with, all actors <u>– including the general public –</u> involved in <i>biosecurity</i> . Rationale: Suggest inclusions of text to consider the public and relevant stakeholders in decision making and the need for earlier and greater emphasis on engagement during these processes.	Did not agree, as 'general public' is covered under 'all actors'.
4.X.3._10_ New Caledonia	Category: editorial Proposed amended text: <i>l'engagement <u>et</u> la formation et la sensibilisation de tous les acteurs impliqués dans la sécurité biologique, <u>ainsi que et</u> la communication avec ces acteurs.</i> Rationale: Article 4.X.3.11) Proposition de reformulation car il y a beaucoup de "et" dans la phrase :	Agreed (French version only)

These ~~principles general~~ principles provisions of *biosecurity* apply to any type of activity (intensive, extensive, commercial or non-production); ~~only~~ the measures comprising the *biosecurity* should be adapted to the situation.

4.X.3._11_	Comment category: Editorial	Agreed.

USA	Proposed amended text: These principles—general principles provisions of <i>biosecurity</i> apply to any type of activity (intensive, extensive, commercial or non-production); ~~only~~ the measures comprising ~~the~~ <i>biosecurity</i> should be adapted to the situation. Rationale: Edited for grammar (“the” not needed).	
4.X.3._12_ EU	Category: change Proposed amended text: “These general principles apply to any type of ~~activity~~ <i>animal keeping</i> (intensive, extensive, commercial or non-production); the measures comprising the <i>biosecurity</i> should be adapted to the situation” Rationale: Clarify the meaning of the sentence.	Did not agree, ‘activity’ can include other actions beyond ‘animal keeping’. Nevertheless, the text was amended to improve clarity.

Article 4.X.4.

4.X.4._1_ AU-IBAR	Category: general The roles and responsibilities assigned to Veterinary Authorities and Veterinary Services throughout the chapter assume the availability of adequate financial, human and institutional resources. African Union notes that many Members, particularly in low- and middle-income settings, face significant capacity constraints that may limit immediate and full implementation of all recommended measures. Explicit acknowledgement of these constraints, together with recognition of the need for phased and prioritised implementation based on risk, would enhance feasibility. In addition, reference to the importance of technical cooperation, capacity building and international support would help ensure that the chapter is applied in a realistic and sustainable manner across diverse national contexts.	Noted. Added text in Article 4.X.3. regarding need to consider resources and adapt <i>biosecurity</i> to the setting.
4.X.4._2_ EU	Category: change Proposed amended text: It is proposed to consider moving Article 4 before the current Article 3 to ensure that roles and responsibilities are clarified before the general principles.	Did not agree because of no added clarity.

Roles and responsibilities

The roles and responsibilities of different actors in *biosecurity* should be clearly defined and communicated with consideration made and may vary depending on to the population and level of application context (e.g. such as establishment, compartment, zone, or country, zone, compartment, establishment-level), the scale and type of operations and existing potential public-private partnerships. Implementation of *biosecurity* requires adequate financial and human resources, and engagement and collaboration amongst all actors involved.

4.X.4._3_ Australia	Category: Addition Proposed amended text: The roles and responsibilities of different actors in <i>biosecurity</i> should be clearly defined and communicated with consideration made and may vary depending on to the <u>population and level of application context (e.g. such as establishment, compartment, zone, or country, zone, compartment, establishment-level)</u>, the scale and type of operations and <u>existing potential</u> public-private partnerships. Implementation of <i>biosecurity</i> requires <u>adequate</u>	Agreed with the rationale, text was amended differently.

	financial and human resources, clear, effective and proactive communication, and engagement and collaboration amongst all actors involved. Rationale: Minor changes to emphasise engagement with the public.	
4.X.4._4_ New Caledonia	Category: editorial Proposed amended text: <i>“Les rôles et les responsabilités des différents acteurs impliqués dans la sécurité biologique doivent être clairement définis, et communiqués, en prenant en considération le fait qu’ils sont susceptibles de varier en fonction de la population et du niveau d’application, du contexte (par exemple, au tel que l’exploitation, le compartiment, la zone ou le pays, niveau du pays, de la zone, du compartiment ou de l’exploitation), de l’échelle et le du type d’opérations, ainsi que de l’existence des partenariats public – privé potentiels. La mise en œuvre de la sécurité biologique requiert des ressources financières et humaines appropriées, et ainsi qu’un engagement et une collaboration de tous les acteurs impliqués.”</i> Rationale: Introduction : Proposition de reformulation du premier alinéa car la phrase est très longue et il y a plusieurs “et” successifs :	Agreed (French version only)

12) Veterinary Authority or other relevant *Competent Authorities* should be responsible for the development and oversight of ~~policy on and~~ legislative frameworks and general policies for *biosecurity*. These ~~policies~~ should include the relative contribution and roles of *veterinarians* and *veterinary paraprofessionals* in both the private and public sectors, promote and provide guidance for the implementation of *biosecurity*. When required For for international trade ~~purposes~~, the *Veterinary Authority* should have an active role in ~~enforcement~~, oversight, and verification of *biosecurity* and *biosecurity plans*.

4.X.4._5_ New Caledonia	Category: deletion Proposed amended text: [...] ~~Lorsque cela s’avère nécessaire pour les échanges commerciaux internationaux, l’~~Autorité vétérinaire doit jouer un rôle actif dans l’application, la supervision et la vérification de la <i>sécurité biologique</i> et des <i>plans de sécurité biologique</i>. Rationale: L’autorité vétérinaire doit jouer un rôle actif dans la supervision, et la vérification de la sécurité biologique de façon générale et pas uniquement lorsque cela s’avère nécessaire pour les échanges commerciaux internationaux. Il est proposé de supprimer cette mention :	Did not agree, as biosecurity is mainly the responsibility of the keepers/operators.

42) Veterinary Services should execute and implement policies and legislation on *biosecurity* under the supervision of the *Veterinary Authority* or other relevant *Competent Authorities*.

23) Veterinarians and veterinary paraprofessionals and other relevant advisors should give advice on *biosecurity* and the *biosecurity plans* to all relevant actors. This advice should be aligned with the policies and legislation, where available.

34) Animal Breedersbreeders, owners, managers, keepers, and transporters, feed producers and other relevant actors are responsible for developing, implementing and monitoring *biosecurity* and the *biosecurity plan* and should seek advice from *veterinarians*, *veterinary paraprofessionals* or other relevant advisors.

4.X.4._6_ EU	Category: deletion Proposed amended text: “Animal breeders, owners, managers, keepers, and transporters; ~~feed producers~~ and other relevant actors are responsible for developing, implementing and monitoring biosecurity and the biosecurity plan and should seek advice from veterinarians, veterinary paraprofessionals or other relevant advisors.” Rationale: Point 4 defines roles for all actors that must be responsible for developing, implementing and monitoring <i>biosecurity</i> and the <i>biosecurity plan</i>. In the draft glossary biosecurity is defined as a set of measures targeted to animal populations. There are no such animal populations in the feed production establishments. Moreover, the risk of feed and feed production is correctly referred in other Articles of this draft Chapter as an upfront obligation for those operators that are subjected to biosecurity obligation of this draft Chapter. <i>In particular, for feed draft Article 4.X.7. in Point 1(i) correctly refers to the already existing Chapter 6.4. of the Code setting up production standards based on HACCP, to which the feed entering any animal establishment must be subject.</i> Based on the above, setting up another obligation for feed producers would be a duplication with already existing standard, not in line with the biosecurity draft definition and therefore unnecessary.	Agreed. Feed is covered in Point 1 (i) of Article 7.

45) Training entities should provide training in *biosecurity* for relevant actors. Coordination between the *Veterinary Authority*, other relevant *Competent Authorities*, the *veterinary statutory body* and veterinary educational institutions may be required to ensure biosecurity training delivered to *veterinarians*, *veterinary paraprofessionals* and other relevant advisors meets relevant standards, especially the recommendations of Article 4.X.9.

56) Farmer associations, veterinary and ~~para-veterinary~~ veterinary paraprofessional associations, and other relevant associations should advocate and promote *biosecurity* among their members, and may become directly involved in leading, and overseeing and providing training for the biosecurity planning and implementation by their members.

4.X.4._7_ ICFAW	Category: Addition Proposed amended text (or precise suggested deletion): <u>Civil society should consider biosecurity when interacting with animals and when making consumer decisions.</u> Rationale: The way the public interact with animals and their products will also have an impact on biosecurity.	Did not agree, as it goes beyond the purpose of the <i>Terrestrial Code</i> .

Article 4.X.5.

Potential sources of pathogenic agents

Pathogenic agents can be spread through from different sources, which should be identified and considered when implementing *biosecurity* and developing a *biosecurity plan*. ~~The main Potential sources of pathogenic agents to be considered include:~~

- 1) live animals,
- 2) germinal products,

3) secretions and excretions,

4.X.5._1_ EU	Category: addition Proposed amended text: 3) animal secretions and excretions, Rationale: Clarify the meaning of the sentence.	Agreed.

4) *animal products*,

5) dead *animals* and parts thereof and afterbirth materials,

6) arthropods such as mosquitoes, midges, flies, lice, ~~or ticks~~ or beetles,

7) fomites such as peoples' clothing, ~~bootsfootwear~~, ~~vehicles~~ means of transport, crates, bedding, or farm equipment,

4.X.5._2_ Australia	Category: Editorial Proposed amended text (or precise suggested deletion): 7) fomites such as peoples' clothing, ~~bootsfootwear~~ , ~~vehicles~~ <u>means of transport</u> , <u>containers</u> , <u>crates</u> , bedding, ~~or farm~~ equipment, <u>or other objects that could be directly or indirectly contaminated</u> Rationale: "Containers" is more appropriate than "crates" as the former is within the Terrestrial Animal Health Code (Glossary) and is an appropriate definition in this context. "or other objects..." to include other objects that can act as fomites, and align with wording in the Terrestrial Animal Health Code (Glossary) for 'disinfection' Remove "farm" to broaden the scope of "equipment" to align with animals in all relevant scenarios. Supporting evidence, if relevant Terrestrial Animal Health Code, Glossary- Container: <i>means a non-self-propelled receptacle or other rigid structure for holding animals during a journey by one or several means of transport.</i> Terrestrial Animal Health Code, Glossary- Disinfection: <i>means the application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; this applies to premises, vehicles and different objects which may have been directly or indirectly contaminated.</i>	Agreed to add 'containers' and delete 'farm'. Did not agree to delete 'crates' as they are not just for transport, and did not agree to add other text as it did not add clarity.
4.X.5._3_ New Caledonia	Category: addition Proposed amended text: les fomites tels que les vêtements des personnes, les ~~bottes~~ <u>chaussures</u> , les ~~véhicules-moyens de transport~~ , les cages, la litière ou les équipements destinés à l'élevage <u>ou aux soins vétérinaires</u> ; fomites such as peoples' clothing, bootsfootwear, vehicles means of transport, crates, bedding, or farm equipment <u>or for veterinary care</u> , Rationale: Au-delà des équipements destinés à l'élevage, ceux qui servent aux soins vétérinaires constituent également une source potentielle d'agents pathogènes, il est proposé de l'ajouter :	Agreed with the rationale, however the text was amended differently, by deleting 'farm.' (see comment 4.X.5._2._Australia)

4.X.5._4_ EU	Category: change Proposed amended text: 7) fomites such as peoples' clothing, footwear, 8) means of transport, crates, bedding, or farm equipment, Rationale: Clarify that means of transport are not limited to people means of transport.	Agreed with the rationale, however the text was amended differently. (see comment 4.X.5._2._Australia)

8) *feed* and *feed ingredients* ~~including such as~~ forage, grazing pastures and swill,

4.X.5._5_ New Zealand	Category: addition Proposed amended text: ~~<i>feed</i> and <i>feed ingredients</i> including such as~~ manufactured feed , forage, grazing pastures and swill, Rationale: Clarify manufactured feed is included.	Agreed.

9) water, soil-and air,

4.X.5._6_ New Zealand	Category: editorial Proposed amended text: water, soil-and air, Rationale: Remove line and ensure gap.	Agreed.

10) *biological products*,

11) humans.

4.X.5._7_ ICFAW	Category: Addition Proposed amended text (or precise suggested deletion): Addition of these two items list of potential sources of pathogenic agents: 12) feed troughs/bowls 13) communal water points . Rationale: Food bowls or troughs and communal water points can harbour pathogens if not cleaned or used appropriately. Supporting evidence: Survival of Salmonella Copenhagen in food bowls following contamination with experimentally inoculated raw meat: Effects of time, cleaning, and disinfection - PMC Short Communication: Turbidity as an Indicator of Escherichia coli Presence in Water Troughs on Cattle Farms - ScienceDirect	Did not agree, already covered in other points.

Transmission pathways

Transmission of pathogenic agents can occur either through *animal-to-animal* contact without an intermediate (direct transmission), or through an intermediate such as fomites, air, water, feed, animal products, germinal products, biological products, vectors, humans and the relevant animal environment (indirect transmission). Transmission pathways of pathogenic agents should be assessed based on scientific evidence and considered when implementing biosecurity or developing a biosecurity plan. Transmission pathways are not mutually exclusive and include:

4.X.6._1_ Australia	Category: Change Proposed amended text: ~~Transmission of pathogenic agents can occur either through animal-to-animal contact without an intermediate (direct transmission), or through an intermediate such as fomites, air, water, feed, animal products, germinal products, biological products, vectors, humans and the relevant animal environment (indirect transmission). Transmission of pathogenic agents can be direct, via contact between infected and susceptible animals, or indirect, via intermediaries such as contaminated materials, the environment, or biological vectors.~~ Transmission pathways of pathogenic agents should be assessed based on scientific evidence and considered when implementing biosecurity or developing a biosecurity plan. Transmission pathways are not mutually exclusive and include: Rationale: Refine and shorten explanation of direct and indirect transmission pathways, as the content following below it expands on this concept with examples.	Did not agree, because of no added value.

- 1) Vertical Transmission transmission from parents to offspring *in ovo*, *in utero* or during birth ("vertical transmission").

4.X.6._2_ Australia	Category: Change Proposed amended text: 1) <u>Vertical</u> ~~Vertical~~ ~~Transmission~~ transmission from parents to offspring <i>in ovo</i>, <i>in utero</i> or during <u>or shortly after</u> birth <u>or through colostrum or milk</u> ~~("vertical transmission")~~. Rationale: Animal disease transmission is inherently complex, particularly as some pathways remain poorly understood and can intersect depending on how they are defined. Transmission is generally classified as either vertical or horizontal, with horizontal transmission further divided into direct and indirect mechanisms.	Did not agree, as 'during birth' is general enough, and transmission 'through colostrum or milk' is not necessarily considered vertical transmission.

- 2) Horizontal transmission from one animal to another that is not vertical.

4.X.6._3_ Australia	Category: Change Proposed amended text: 2) ~~Horizontal transmission from one animal to another that is not vertical.~~ <u>Horizontal transmission among individuals of the same or different species that is not parent to offspring.</u>	Did not agree to reorganise or edit text as proposed, because too much detail did not add value. Nevertheless, the Commission took on board some proposed texts.

	- Sexual transmission through reproductive secretions such as semen and vaginal fluids or transmitted directly between <u>mucosal</u> surfaces in contact during mating. - Vector-borne transmission via vectors including blood-feeding arthropods such as mosquitoes, flies, ticks, fleas and lice. Vectors may be mechanical with <u>passive transfer of pathogens without replication; with no biological association between the vector and pathogenic agent</u> or biological where the pathogenic agent undergoes a multiplication, <u>replication</u> or a developmental change within the vector, <u>typically</u> necessary for survival, transmission or host infection. - ~~Droplets or airborne transmission of~~ <u>Inhalation of</u> pathogenic agents through particles suspended in the air (<u>droplet or dust</u>). Pathogenic agents may travel in particles of multiple sizes (droplets and droplet nuclei) that remain suspended in the air or deposited on surfaces. Airborne transmission may include short or long distances (which may be referred to as aerosol or wind-borne transmission, respectively). <u>Where droplet and droplet nuclei are suspended on surfaces, ingestion transmission may be possible.</u> - Transmission through fomites, <u>where pathogenic agents are transferred via people, clothing or inanimate objects.</u> - <u>Transmission of pathogenic agents through</u> germinal products, animal products and biological products <u>directly via the digestive tract (ingestion) or indirectly via other food stuff contaminated with mucosa or other fluids containing pathogenic agents.</u> Rationale: Animal disease transmission is inherently complex, particularly as some pathways remain poorly understood and can intersect depending on how they are defined. Transmission is generally classified as either vertical or horizontal, with horizontal transmission further divided into direct and indirect mechanisms. Refine vector-borne transmission for clarity and expand biological transmission to include 'replication' in addition to multiplication as both occur depending on the pathogen and vector.	

3) Iatrogenic transmission.

4.X.6._4_ Australia	Category: Change Proposed amended text: 3) Iatrogenic transmission, <u>where pathogenic agents are spread indirectly via contaminated equipment or fomites. This may include;</u> - <u>Re-use of needles, syringes, drench guns or medical equipment that unintentionally transfer pathogens</u> - <u>Contaminated biological products (e.g vaccines or semen during artificial insemination)</u> - <u>Improper sanitisation of tools used across animals</u> Rationale: The inclusion of iatrogenic transmission, while primarily a medical term, may provide additional clarity in describing specific indirect pathways. However, its use within an animal biosecurity context requires further consideration to ensure the definition is	Did not agree, dictionary definition of 'iatrogenic' is sufficient.

	appropriate and captures the full range of potential transmission routes. Whilst WOAHP has been a traditionally a technical reference for veterinary and paraprofessionals, biosecurity planning is usually the responsibility of animal owners therefore future definitions needs to be able to be described to a range of audiences.	

- 34) Sexual transmission through reproductive secretions such as semen and vaginal fluids or transmitted directly between surfaces in contact during mating.
- 45) Vector-borne transmission via *vectors* including blood-feeding arthropods such as mosquitoes, flies, ticks, fleas and lice. *Vectors* may be mechanical with no biological association between the *vector* and pathogenic agent or biological where the pathogenic agent undergoes a multiplication or a developmental change within the *vector*, necessary for survival, transmission or host *infection*.
- 56) Droplets or airborne transmission of pathogenic agents through particles suspended in the air. Pathogenic agents may travel in particles of multiple sizes (droplets and droplet nuclei) that remain suspended in the air or deposited on surfaces. Airborne transmission may include short or long distances (which may be referred to as aerosol or wind-borne transmission, respectively).

~~6)7) Transmission through fomites, germinal products, animal products and biological products. Transmission through skin, digestive tract (ingestion) or other mucosa.~~

4.X.6._5_ Chile	Category: editorial Texto modificado propuesto (o supresión sugerida): ~~67) transmisión a través de contacto directo, indirecto, ingestión de agua o alimentos contaminados, la exposición a fluidos corporales infecciosos, como sangre, secreciones vaginales y semen, etc. la piel, el tracto digestivo (ingestión) y otras mucosas~~ ~~fómites, productos germinales, productos animales y productos biológicos.~~ Justificación: Estimamos que aquí hay una confusión conceptual ente transmisión e infección. Por ejemplo, una enfermedad puede transmitirse por contacto directo o indirecto y luego la infección puede ser por vía digestiva. Se sugiere revisión. Evidencia documentada: https://www.who.int/es.	Did not agree, because of no added clarity.
4.X.6._6_ EU	Category: addition Proposed amended text: <u>“6) Transmission through fomites such as clothing, footwear (including boots), means of transport, crates, bedding, or farm equipment.</u> 7) Transmission through skin, digestive tract (ingestion) or other mucosa.” Rationale: In the first paragraph of Article 4.X.6, fomites are mentioned as a transmission pathway but are not explicitly included in the list. To ensure clarity and consistency within the text, this important transmission route be included in the list.	Agreed with the rationale, text was amended differently.

The relative importance of the different transmission pathways will vary depending on the epidemiological characteristics of pathogenic agents of concern.

4.X.6._7_ Australia	Category: Change Proposed amended text: The relative importance of the different transmission pathways will vary depending on the epidemiological characteristics of pathogenic agents of concern, <u>host species and population structure, and management practices and environmental conditions. A comprehensive biosecurity plan should consider all relevant pathways based on risk assessment and local epidemiological context.</u> Rationale: Expand on importance of transmission pathways as it is not just reliant on epidemiological characteristics of the pathogen, but also relies on host species, population structure, current management structures and environmental conditions.	Agreed with the rationale, text was amended differently.

Article 4.X.7.

Components of biosecurity

Biosecurity can be applied to any type of *population*. The components of *biosecurity* focus on reducing the likelihood of transmission of pathogenic agents through interactions with elements outside the *population* (external *biosecurity*) and on reducing risk—the likelihood of transmission of pathogenic agents within the *population* (internal *biosecurity*). The components of *biosecurity* aim at avoiding or breaking the transmission pathways described in Article 4.X.6. All relevant components of *biosecurity* should be applied to address all potential sources of pathogenic agents of concern, transmission pathways as well as unexpected events, and may vary according to the *population*.

1. Components of external biosecurity may include the following:

- a) Introduction of *animals, animal products* and *germinal products* into a *population* should be limited to the extent necessary ~~minimised~~ and if undertaken, the *animal health status* of the source *population* should be assessed.

4.X.7._1_ ICFAW	Category: Addition Proposed amended text: Introduction of <i>animals, animal products</i> and <i>germinal products</i> <u>into a <i>population</i></u> should be <u>limited to the extent necessary</u> ~~minimised~~ <u>and sourced from populations with verified high animal welfare standards and health status should be assessed.</u> Rationale: One Health: Stress creates disease vectors. Sourcing animals from low-welfare/high-stress environments undermines the biosecurity of the receiving population.	Did not agree as the proposed text is not relevant here.

- a) ~~Whenever~~ Before *animals* of unknown or different *animal health status* are ~~newly~~ introduced into the *population*, they should go through a monitored isolation period of sufficient length, during which measures such as tests or treatments may be implemented to ~~reduce~~ mitigate the ~~risk-likelihood~~ of transmission of pathogenic agents.
- b) Contact between *populations* of unknown or different *animal health status* should be avoided through segregation using managerial measures, physical or natural barriers.
- c) Human access to the *population* should be controlled. When humans come in contact with *animals*, they should take measures to ~~reduce~~ mitigate the ~~risk-likelihood~~ of bi-directional transmission of pathogenic agents, ~~which includes as a minimum wearing dedicated clothing and footwear, and hand~~

hygiene. When humans come in contact sequentially with different populations ~~subsequently~~, the order and timing of the visits should be organised to minimise the likelihood of bi-directional transmission.

4.X.7._2_ ICFAW	Category: Addition Proposed amended text: Which includes as a minimum wearing dedicated clothing and footwear, and hand hygiene (remove the strikethrough on this sentence) Rationale: Wearing dedicated clothing and footwear that does not risk spreading pathogens between populations is important. Good hand hygiene is also vital to prevent spread of pathogens between populations.	Did not agree, as the text is too detailed.
4.X.7._3_ ICFAW	Category: Addition Proposed amended text: Regular monitoring and mitigation of other biosecurity hazards and transmission routes as a bullet point above Rationale: The current list is focussed solely on disease prevention but this should also include all biological threats. Supporting evidence: Biosecurity Concept: Origins, Evolution and Perspectives	Did not agree, as the rationale was unclear and the proposed addition did not add value.

- d) Equipment and clothing used to handle or care for *animals* should not be shared between different *populations*. If shared, equipment and clothing should undergo cleaning and *disinfection at least* before each use ~~and after use~~.
- e) Transport vehicles Means of transport in contact with *animals* or their animal products should undergo cleaning and *disinfection at least* before each use ~~and after use~~.

4.X.7._4_ New Caledonia	Category: deletion Proposed amended text: les ~~véhicules-moyens~~ de transport qui entrent en contact avec des animaux ou des produits animaux ~~qui en sont dérivés~~ doivent faire l'objet d'un nettoyage et d'une <i>désinfection au moins</i> avant ~~et après~~ chaque utilisation ; Rationale: Proposition de reformulation pour supprimer "qui en sont dérivés" après les "produits animaux" pour éviter une redondance (cf version anglaise).	Did not agree with change to French version.
4.X.7._5_ EU	Category: addition Proposed amended text: "Means of transport <u>and containers</u> ..." Rationale: Clarify the encompassing meaning of the sentence.	Agreed.
4.X.7._6_ ICFAW	Category: Addition Proposed amended text: Means of transport in contact with animals or their animal products should undergo cleaning and disinfection <u>which should include spraying of wheels and wheel arches</u> at least before each use. Rationale: There is a high risk of spreading pathogens between sites	Did not agree, as it is too detailed.

	on the wheels of vehicles. Supporting evidence: https://pressbooks.umn.edu/vetprevmed/chapter/chapter-13-biosecurity/ APL - 2020_0005.01 Final Report-APPENDICES.pdf	

- f) *Animal products, faeces, manure or other waste materials should be handled in a way to mitigate minimise the spread of pathogenic agents. Special care should be taken to avoid contact with or attraction of other *animals* and arthropods.*

4.X.7._7_ EU	Category: addition Proposed amended text: “g) Animal products, faeces, manure, <u>bedding</u> or other waste materials should be handled in a way to mitigate minimise the spread of pathogenic agents. Special care should be taken to avoid contact with or attraction of other animals and arthropods.” Rationale: To include also this risk factor.	Agreed.
4.X.7._8_ ICFAW	Category: Addition Proposed amended text: Animal products, faeces, manure or other waste materials should be handled, <u>stored and disposed of</u> in a way to minimise the spread of pathogenic agents. Rationale: To make it clear that the way in which animal products and waste is stored and disposed of will have an impact biosecurity.	Agreed.

- g) Dead *animals* and parts thereof should be handled, stored and disposed of in a way to mitigate minimise the spread of pathogenic agents and to avoid contact with or attraction of other *animals* and arthropods.
- h) *Feed* should be produced in accordance with Chapter 6.4. and should be, stored and transported in dedicated equipment to minimise the contact with potential sources of pathogenic agents. Feeding of untreated swill should be avoided.
- j) Water should originate from low-risk sources or be treated to remove or inactivate pathogenic agents. The safety of the water ~~and feed~~ should be checked regularly.

4.X.7._9_ EU	Category: addition Proposed amended text: “Water should originate from low-risk sources or be treated to remove or inactivate <u>potentially present</u> pathogenic agents. The safety of the water should be checked regularly” Rationale: Clarify the encompassing meaning of the sentence without assuming by default the worst case scenario.	Did not agree because of no added clarity.

- k) Contacts between the *population* and *other animals including* pets, birds, rodents, *insects, and other wildlife, as well as arthropods, or pests* should be *minimised/avoided* by selecting an appropriate site and through using engineering, mechanical or chemical control.
- l) To *prevent/minimise* airborne transmission of pathogenic agents, sufficient distance or *physical barriers* between *populations* and *possible/potential* sources of pathogenic agents should be considered. In some circumstances, air treatments might be considered.
- m) When cleaning and *disinfection* or other measures are not feasible or effectiveness is undetermined, an additional period of no contact between potential sources of pathogenic agents (e.g. humans, buildings, *vehicles/means of transport*, equipment, materials, pastures) and the *population* may be applied. The effectiveness of this measure will depend on the specific circumstances and should be verified.

4.X.7._10 _New Caledonia	Category: change Proposed amended text: lorsque le nettoyage et la <i>désinfection</i> ou d'autres mesures ne peuvent être effectués ou que leur efficacité n'est pas établie, une période complémentaire <i>d'isolement en limitant les-sans</i> contacts entre les sources potentielles d'agents pathogènes (par exemple, les humains, les bâtiments, les <i>véhicules-moyens de transport</i>, les équipements, les matériels et les pâturages) et la <i>population</i> peut être appliquée ; l'efficacité de cette mesure dépendra des circonstances spécifiques et doit être l'objet d'une vérification. Rationale: Il n'est pas possible de supprimer totalement les contacts avec les sources potentielles d'agents pathogènes pendant la période d'isolement (puisque'il faut continuer à s'occuper des animaux, à les nourrir...). Par contre il est nécessaire de les limiter au maximum en prenant toutes les précautions d'usage. Il est donc proposé de reformuler ce point :	Agreed with the rationale, text was amended differently.
4.X.7._11 _EU	Category: addition Proposed amended text: "(e.g. humans, buildings, means of transport <i>and containers</i>..." Rationale: Clarify the encompassing meaning of the sentence and aligning with point f) above.	Agreed.

2. Components of internal biosecurity may include the following:

- a) Sick *animals* should be *detected, isolated and diagnosed* to prevent other *animals* from being exposed. Treatments should be administered *in a way that safely to* avoid *s* iatrogenic transmission.

4.X.7._12 _New Caledonia	Category: deletion Proposed amended text: Les <i>animaux</i> malades doivent être <i>détectés, isolés et un diagnostic doit être établi</i> afin d'empêcher que d'autres <i>animaux</i> soient exposés ; les traitements doivent être administrés <i>d'une manière dénuée de risque afin d'une manière permettant</i> d'éviter une transmission iatrogène Rationale: Il semble que la suppression du mot "afin" a été oubliée lors de la modification de la phrase :	Agreed.

4.X.7._13 _UK	Category: general/addition. Proposed amended text (or precise suggested deletion) a) Sick <i>animals</i> should be detected, isolated, and diagnosed to prevent other <i>animals</i> from being exposed. Treatments should be administered in a way that safely to avoid iatrogenic transmission. Rationale: Include reference to animal welfare benefits of isolation, diagnosis, and treatment. These measures not only protect the population but also serve animal welfare objectives. Supporting evidence: not applicable.	Did not agree because of no added clarity.
4.X.7._14 _EU	Category: change Proposed amended text: There is a possible issue here: initially, the sentence was about <i>isolation</i> to prevent exposure. Now it is detect, isolate and diagnose to prevent exposure. It is suggested to review and possibly separate the two aspects for clarity reasons. Furthermore, replace “diagnosed” with “<u>examined by a veterinarian to diagnose a possible infectious disease</u>”.	Agreed with the rationale, the text was amended differently.

- b) All-in all-out management should be applied, as appropriate, to all *animals* kept in the same space including cleaning and *disinfection* of the space between **consecutive** groups of *animals*.
- c) Stocking densities that result in **impaired health through** increased transmission rates, **which and may cause** higher virulence of pathogenic agents, or increased susceptibility to *infections*, should be avoided.

4.X.7._15 _ICFAW	Category: change Proposed amended text: <u>High</u> stocking densities <u>that result in impaired health through increased transmission rates, which and may cause higher virulence of pathogenic agents, or increased susceptibility to infections, should be avoided</u> are a primary driver of pathogen proliferation. Stocking densities must be reduced to levels that support optimal immune function and allow expression of natural behaviors.” Rationale: Disease Driver: High density is a biosecurity risk, not just a welfare issue. Overcrowding suppresses immune function, facilitating rapid viral mutation and spread.	Did not agree, as it is too detailed.

- d) Within the *population*, *units* with different characteristics impacting disease risk should be kept separately.
- e) When the management of the *population* involves contact with different *units*, the workflow should be organised from the lowest to the highest risk of *infection*, considering transmission of pathogenic agents and susceptibility of the *units*. When moving between the *units*, measures to mitigate transmission of pathogenic agents should be applied.
- f) Cleaning and *disinfection* of the equipment and surfaces should be applied between consecutive groups of *animals*.

Article 4.X.8.

4.X.8._1_ AU-IBAR	Category: general The chapter strongly promotes formal biosecurity plans, which is supported in principle. However, African Union notes that for small-scale producers, simplified or modular biosecurity plans may be more practical. Explicit recognition of graduated or simplified biosecurity planning approaches would improve uptake and compliance.	Noted - Addressed above, see comments 4.X._1_Australia, 4.X._2_Korea (Rep. of), and 4.X.4._1_AU-IBAR.

Biosecurity plan

The aim of a *biosecurity plan* is to organise, structure and document *biosecurity* including its evaluation. A *biosecurity plan* promotes consistent implementation of *biosecurity*, while remaining based on scientific knowledge and field experience, scientifically justifiable, and it should balance the objectives and intended benefits with the practicality, cost, regulatory requirements and should include necessary provisions for its maintenance and continuous improvement. The aim of a *biosecurity plan* is to organise, structure and document *biosecurity* including its evaluation.

4.X.8._2_ ICFAW	Category: Addition Proposed amended text: Should balance the objectives and intended benefits with the practicality, cost, regulatory requirements, <u>and impact on animal welfare</u> and should include necessary provisions for its maintenance and continuous improvement. Rationale: It is important to consider the welfare of animals when implementing biosecurity protocols and plans. For example, where a herd animal must be isolated due to infectious disease, it would be important to ensure they are able to see other animals of the same species, as a minimum.	Did not agree, as it is not relevant here.

The *biosecurity plan* should include the following sections:

g) Purpose and scope

This section should provide an overview of the plan, its purpose and scope. In addition, it should outline the goals and objectives of the plan, as well as the *population* characteristics, including animal husbandry systems, and epidemiological context.

h) Roles and responsibilities

Design, implementation, and monitoring is a shared responsibility. Therefore, it is essential to describe the roles and responsibilities of all actors, as well as the chain of command, to ensure for ensuring adherence and compliance with *biosecurity*.

4.X.8._3_ Australia	Category: Editorial Proposed amended text: Design, implementation, and monitoring is a shared responsibility. Therefore, it is essential to <u>identify, and</u> describe the roles and responsibilities of all actors, <u>as well as the chain of command, to ensure for ensuring</u> adherence and compliance with <i>biosecurity</i> .	Agreed.

	Rationale: Stakeholder/actor identification is critical in biosecurity planning to effectively determine those people who may have an impact, or be impacted by, an animal disease event. Supporting evidence, if relevant: World Organisation for Animal Health (OIE) and International Union for Conservation of Nature (IUCN). Manual of Procedures for Wildlife Disease Risk Analysis. OIE and IUCN (2014). Available from: https://portals.iucn.org/library/sites/library/files/documents/2014-007.pdf WOAH Terrestrial Animal Health Code, Section: Risk Analysis, Chapter 2.1 Import Risk Analysis WOAH Guidelines for Addressing Disease Risks in Wildlife Trade (2024)	

c) Identification of pathogenic agents, sources and transmission pathways

4.X.8._4_ Australia	Category: Editorial Proposed amended text: <u>Risk analysis for hazard identification, identification of pathogenic agents, sources and transmission pathways</u> Rationale: Biosecurity plans are largely informed by the outcomes of risk analysis, including risk assessment of identified pathogens, and sources of and transmission pathways for identified hazards. It is worth integrating risk analysis/assessment terminology here to align with other WOA documents. Supporting evidence, if relevant: World Organisation for Animal Health (OIE) and International Union for Conservation of Nature (IUCN). Manual of Procedures for Wildlife Disease Risk Analysis. OIE and IUCN (2014). Available from: https://portals.iucn.org/library/sites/library/files/documents/2014-007.pdf WOAH Terrestrial Animal Health Code, Section: Risk Analysis, Chapter 2.1 Import Risk Analysis WOAH Guidelines for Addressing Disease Risks in Wildlife Trade (2024)	Did not agree, this section is describing the biosecurity plan, not the process to determine the hazards.

In addition to the identification of the potential pathogenic agents of concern, this section should include their potential sources and transmission pathways.

d) Description of biosecurity

This section should describe the relevant components of *biosecurity* in accordance with Article 4.X.7.

It should also include relevant response procedures for emergencies.

4.X.8._5_ Australia	Category: Editorial Proposed amended text: It should also include relevant response procedures <u>and contingency plans</u> for emergencies.	Agreed with the rationale, text was amended differently.

	Rationale: Similarly, use of phrasing “contingency plans” aligns with terminology in other WOAHP chapters and guidelines addressing risk analysis and emergency management. Supporting evidence, if relevant: World Organisation for Animal Health (OIE) and International Union for Conservation of Nature (IUCN). Manual of Procedures for Wildlife Disease Risk Analysis. OIE and IUCN (2014). Available from: https://portals.iucn.org/library/sites/library/files/documents/2014-007.pdf WOAH Terrestrial Animal Health Code, Section: Risk Analysis, Chapter 2.1 Import Risk Analysis WOAH Guidelines for Addressing Disease Risks in Wildlife Trade (2024)	

e) Surveillance of pathogenic agents

The *biosecurity plan* should include the procedures for surveillance for early detection ~~to detect the presence~~ of pathogenic agents of concern, in accordance with Chapter 1.4.

f) Communication and reporting

This section should outline the procedures for communicating information about the *biosecurity plan* to all relevant actors. It should also include procedures for reporting incidents and sharing information with relevant authorities.

4.X.8._6_ ICFAW	Category: Addition Proposed amended text: It should also include procedures for reporting incidents <u>including disease outbreaks and notifiable diseases</u> to all relevant actors. Rationale: To make it clear that it is important to report all outbreaks of disease and notifiable diseases and that these are regarded as ‘incidents’ above.	Did not agree, because of no added value.

g) Training and education

This section should outline the training and education needs and identify programmes to ensure all relevant actors are aware of the *biosecurity plan* and clearly understand their roles and responsibilities to implement and maintain the *biosecurity* and the consequences of non-compliance.

h) Supporting documents

This section should outline the standard operating procedures (SOPs), checklists, and record-keeping templates which describe routine management processes and ensure that responsibilities and duties are consistently fulfilled and documented. It should also include relevant training materials for all actors involved in the implementation of the *biosecurity plan*.

4.X.8._7_ ICFAW	Category: Addition Proposed amended text: It should also include relevant training materials <u>and records of when the training was completed</u> for all actors involved in the implementation	Did not agree, as it is already covered in Article 9.

	of the biosecurity plan. Rationale: To ensure that there is a record of when the training has been completed so that this can be tracked and all actors are aware of when the training should be repeated or updated.	

i) Evaluation and continuous improvement

This section should describe the procedures for monitoring and evaluation of the *biosecurity plan* and its implementation in accordance with Article 4.X.10. Biosecurity incidents and breaches in *biosecurity*, as well as corrective actions taken, should be documented. The *biosecurity plan* should be reviewed and updated regularly to ensure its relevance and effectiveness.

4.X.8._8_ ICFAW	Category: Addition Proposed amended text: This section should describe the procedures for monitoring and evaluation of the <i>biosecurity plan</i> and its implementation in accordance with Article 4.X.10. Biosecurity incidents and breaches in <i>biosecurity</i> , as well as corrective actions taken, should be documented. The <i>biosecurity plan</i> <u>and any training materials</u> should be reviewed and updated regularly to ensure <u>its</u> <u>their</u> relevance and effectiveness. Rationale: Training materials should be updated alongside the biosecurity plan. Supporting evidence: Not relevant	Did not agree, as it is too detailed.

Article 4.X.9.

4.X.9._1_ AU-IBAR	Category: general The emphasis on training and awareness is welcomed. African Union notes that sustained biosecurity compliance depends on continuous capacity building and behavioural change, which require long-term investment. Consideration should be given to community-based approaches and integration into existing extension and animal health service delivery systems.	Noted.

Training and awareness

1. Training

Regular training on *biosecurity* should be undertaken according to the needs identified and should include all relevant actors. Training should be provided by those with sufficient qualifications and experience. The training should be in line with legislative and policy frameworks. Such training may include:

- Principles of *biosecurity*,
- Sources of pathogenic agents, transmission pathways and relevant factors to susceptibility,

4.X.9._2_ ICFAW	Category: Addition Proposed amended text: Sources <u>and types of</u> pathogenic agents, transmission pathways and	Did not agree because of no added value.

	relevant factors to susceptibility Rationale: The pathogens themselves are different to the source, and training should include both. Supporting evidence: Not relevant	

- Components and implementation of *biosecurity*, including emergency planning and response,
- Monitoring and evaluation of *biosecurity*,
- Purpose, development and implementation of a *biosecurity plan*,
- Competency-based training requirements should be identified and documented for each actor. The training achieved should be recorded and monitored to ensure the required level of competencies are obtained or maintained.

2. Awareness

All relevant actors described in Article 4.X.4. and the general public, when applicable, should be made aware of the importance of *biosecurity* (and the *biosecurity plan* if appropriate) at strategic places (e.g. *border inspection posts*, farm entrances, *markets*) and times (e.g. disease *outbreaks*, changes in the epidemiological situation). Raising awareness may be the responsibility of the *Veterinary Authority*, other relevant *Competent Authorities*, or Veterinary Services, ~~or Producers~~, and other relevant actors may also be responsible depending on the context and extent of the *risk*.

4.X.9._3_ New Zealand	Category: addition Proposed amended text: All relevant actors described in Article 4.X.4. and the general public, when applicable, should be made aware of the importance of <i>biosecurity</i> (and the <i>biosecurity plan</i> if appropriate), <u>particularly</u> at strategic places (e.g. <i>border inspection posts</i>, farm entrances, <i>markets</i>) and times (e.g. disease <i>outbreaks</i>, changes in the epidemiological situation). Raising awareness may be the responsibility of the <i>Veterinary Authority</i>, other relevant <i>Competent Authorities</i>, <u>or Veterinary Services</u>, ~~or Producers~~, <u>and</u> other relevant actors <u>may also be responsible</u> depending on the context and extent of the <i>risk</i>. Rationale: Addition to make it clearer that awareness of biosecurity is important during 'normal' conditions as a preventive tool, and not just in higher risk situation or during times of change.	Did not agree, because of no added value.
4.X.9._4_ EU	Category: addition Proposed amended text: "All relevant actors described in Article 4.X.4. and the general public, when applicable, should be made aware of the importance of biosecurity (and the biosecurity plan if appropriate) at strategic places (e.g. border inspection posts, farm entrances, markets) and times (e.g. disease outbreaks, changes in the epidemiological situation) <u>by effective, clear, and understandable communication tools adjusted to the target public</u>. Raising awareness may be the responsibility of the Veterinary Authority, other relevant Competent Authorities, or Veterinary Services, or Producers, or other relevant actors may also be responsible depending on the context and extent of the risk" Rationale: Adding this clarification helps ensure that awareness efforts are not only implemented but are also effective. Different actors	Agreed with the rationale, text was amended differently.

	(farm workers, transporters, visitors, and the general public) do not always respond equally to written instructions or technical language. Providing clear, accessible, and visually engaging materials improves comprehension, supports consistent behaviour, and increases the likelihood that key biosecurity messages are understood and applied correctly in everyday practice. Supporting evidence: biosafety failures are often due to human error, and the focus should be on an adequate communication.	
4.X.9._5_ ICFAW	Category: Addition Proposed amended text: All relevant actors described in Article 4.X.4. and the general public, when applicable, should be made aware of the importance of <i>biosecurity</i> (and the <i>biosecurity plan</i> if appropriate) at strategic places (e.g. <i>border inspection posts</i>, farm entrances, <i>markets and veterinary clinics</i>) and times (e.g. disease <i>outbreaks</i>, changes in the epidemiological situation). Rationale: Veterinary clinics, especially mobile clinics with large gatherings of animals, are a high risk scenario and biosecurity is essential. Supporting evidence: Not relevant	Agreed.

Article 4.X.10.

4.X.10._1 _AU-IBAR	Category: general The introduction of biosecurity scoring and independent evaluation mechanisms is noted. African Union seeks clarification on how such systems would be applied in contexts where independent evaluators are limited, and whether self-assessment or peer-review approaches could be acceptable alternatives, especially outside trade-focused compartments.	Noted. Implementation of this chapter should be adapted to the situation as mentioned.

Evaluation and continuous improvement

The implementation of *biosecurity*, the compliance with the *biosecurity plan* and the effectiveness of implemented measures should be subjected to evaluation for continuous improvement.

- 1) The evaluation of implementation should be based on predefined scope and criteria, taking into consideration the expected scale of the operation and the characteristics of the *population* concerned. This will determine at which level of responsibility the evaluation should be conducted, and at which frequency. The frequency should be adapted to changing circumstances such as new *animal health status*, newly identified pathogenic agents or changes in epidemiological situation, previous evaluations, changes in production or changes in plan. The evaluation should determine the level of implementation of *biosecurity*, through collected evidence that may include documentation of procedures, other routine records, monitoring technologies, onsite audits as well as interviews with personnel. Based on these findings, the evaluation may allow the establishment of a risk-based *biosecurity* score as a whole or for each measure.

4.X.10._2 _New Caledonia	Category: deletion Proposed amended text: L'évaluation doit déterminer <i>si</i> le niveau de mise en œuvre de la <i>sécurité biologique</i>, grâce au recueil d'éléments de preuve pouvant comprendre la documentation des procédures, d'autres	Agreed (French version only)

	enregistrements systématiques, des technologies de suivi, des audits sur site, ainsi que des entretiens avec le personnel. Rationale: Il est proposé supprimer le “si” dans la 3ème phrase pour clarifier le sens de la phrase :	
4.X.10._3 _New Zealand	Category: addition Proposed amended text: The evaluation of implementation should be based on predefined scope and criteria, taking into consideration the expected scale of the operation and the characteristics of the <i>population</i> concerned. This will determine at which level of responsibility the evaluation should be conducted, and at which frequency. The frequency should be adapted to changing circumstances such as new <i>animal health status</i>, newly identified pathogenic agents or changes in epidemiological situation, previous evaluations, changes in production or changes in <u>the biosecurity</u> plan. The evaluation should determine the level of implementation of <i>biosecurity</i>, through collected evidence that may include documentation of procedures, other routine records, monitoring technologies, onsite audits as well as interviews with personnel. Based on these findings, the evaluation may allow the establishment of a risk-based <i>biosecurity</i> score as a whole or for each measure. Rationale: Clarity.	Agreed.

- 2) Compliance with the *biosecurity plan* should be evaluated routinely or following a change in production type, the epidemiological situation, or other significant change. Documented evidence of compliance should be collected routinely and be provided for any evaluation. The evaluation of compliance with the *biosecurity plan* should be executed preferably by an independent party, in accordance with the policies and legislation, where available.
- 3) The effectiveness of the *biosecurity plan* should be evaluated routinely or following a change in production type, epidemiological situation, or other significant change, to ensure the *biosecurity plan* is complete, fit for purpose and up to date. The evaluation should be based on animal health or performance data. The outcomes of the evaluations should be communicated to all relevant actors and should inform if the plan needs to be modified, and which risk mitigation or corrective actions are needed so that the *biosecurity plan* can be updated accordingly.

4.X.10._4 _UK	Category: general/addition. Proposed amended text (or precise suggested deletion): The effectiveness of the <i>biosecurity plan</i> should be evaluated routinely or following a change in <u>production type, epidemiological situation, or other significant change</u>, to ensure the <i>biosecurity plan</i> is complete, fit for purpose and up to date. The evaluation should be based on animal health or performance data. The outcomes of the evaluations should be communicated to all relevant actors and should inform <u>if the plan needs to be modified, and</u> which risk mitigation or corrective actions are needed so that the <i>biosecurity plan</i> can be updated accordingly. Rationale: The phrase “other significant change” is ambiguous and could lead to inconsistent interpretation. We suggest defining or providing examples of what constitutes a significant change to ensure clarity and uniform application. This point was not addressed in the current draft, where the wording was duplicated without explanation. Supporting evidence: not applicable.	Agreed, the text was amended for clarity.

NOT FOR COMMENT

Reference	Comment	TAHSC response
5.4._1_Chile	Category: general Justificación: Chile reconoce y agradece a OMSA y los expertos, por el trabajo que están realizando. Chile solicita que en algún momento se remita un borrador con un texto plano, para revisión de los países. Lo anterior, teniendo en consideración que el texto propuesto difiere en su totalidad del capítulo 5.4 vigente, desde el título hacia abajo. En consecuencia, desde el título hasta el final, todo el capítulo es por lo pronto un borrador, que deberá ser aprobado por la Asamblea de Delegados en su totalidad.	The Commission acknowledged the concern. However, it noted that the tracked changes enable Members to identify the amendments made and promote transparency in standard-setting procedures.
5.4._2_Korea (Rep. of)	Category: general The Republic of Korea supports the new revisions which reflects the reviews of the Member countries regarding the clear definitions of terms related to exportation, the detailed explanation regarding the responsibilities of Operators, and the Official Controls of Veterinary Authority for exportation.	Noted
5.4._3_New Caledonia	Category: general - Il est proposé d'harmoniser les références à la section 7 (bien-être animal) du Code dans ces 4 chapitres. En effet, elle est mentionnée soit en tant que "partie 7" (6ème alinéa article 5.6.4) soit en tant que "titre 7" (avant dernier alinéa de l'article 5.4.2, dernier alinéa de l'article 5.4.2.1, avant dernier alinéa de l'article 5.4.2.2.a, dernier alinéa de l'article 5.4.4.1, 2ème alinéa de l'article 5.4.5, dernier alinéa de l'article 5.5.2, dernier alinéa de l'article 5.5.3, article 5.5.4, 2ème alinéa et avant dernier de l'article 5.6.2, article 5.6.5, 1er alinéa de l'article 5.7.5), sachant qu'il s'agit bien d'une section dans l'architecture du code terrestre. - La notion de dédouanement est mentionnée à plusieurs reprises dans ces annexes en français, alors qu'en anglais, le terme utilisé est « clearance ». En français le dédouanement est uniquement une compétence de l'autorité douanière, différente de l'autorité vétérinaire. Il semble donc préférable d'utiliser le terme « libération » qui est plus adaptée à une autorisation sanitaire (domaine couvert par le code terrestre de l'OMSA).	Agreed (only in French version) The term 'titre' should be used for the English term 'Section' throughout the <i>Terrestrial Code</i>. The term 'liberation' should be used for the English term 'release' in Chapters 5.4. to 5.7.
5.4._4_New Zealand	Category: general Proposed text has been drafted in the context of commercial international trade, and recommendations may be difficult to apply to the non-commercial transport of animals and animal products across international borders. Consider adding text: - reflecting that the regulated movement of personal commodities should align with sanitary measures within disease specific chapters as appropriate. - clarifying that references to operators (e.g. control over transport containers and the recommendation for operators to document a plan for unexpected events) are unlikely to be relevant for individual persons traveling with their own animals or carrying animal products (food, souvenirs etc.) on their person/luggage when traveling.	The Commission explained that the current Glossary definition for 'international trade' is not limited to commercial movement. To clarify this, it proposed text in the first paragraph of Article 5.4.1.

	We also suggest considering whether it is useful to have recommendations on who is responsible for planning for emergencies for non-commercial movements. Rationale: Individuals take their pets (dogs and cats, but also other animals) and animal product items with them when they travel, and in the case of service animals this may be essential. However, any international movement of animals and animal products (including food, souvenirs) may introduce animal diseases and should be managed.	
5.4._5_New Zealand	Category: general Within this chapter the proposed text refers to the exporter/operator meeting the <i>importing country requirements</i>. Amend text to reflect that exporters should meet the requirements set out in the zoosanitary certificate as agreed between the importing and exporting countries. An example is provided under Article 5.4.3 point 2 a). Rationale: For the purposes of trade, it is the responsibility of the exporter/operator to meet the zoosanitary requirements agreed between the importing and exporting countries. This ensures the appropriate level of protection (ALOP) of the importing country is met. By referring to <i>importing country requirements</i> it is not clear that the ALOP of the importing country may be achieved through measures equivalent to the importing country's requirements, where agreed between the importing and exporting countries. Furthermore, requirements in this section should be limited to zoosanitary, thus specifying such rather than talking about generic requirements, is important.	While the Commission acknowledged the rationale, it noted that the term 'importing country requirements' is sufficiently broad to encompass all agreed conditions. Furthermore, the current text is appropriate as it also accounts for requirements set independently by the importing country.
5.4._6_EU	Category: general The EU in general supports this draft revised chapter. Comments are inserted in the text below.	Noted
5.4._7_ICFAW	Category: general Proposed amended text: Deletion of the word ~~commodities~~ and change for ~~live animals and animals-~~ based products. Rationale: In the current standard in Chapter 5.6. it is named "live animals" and "animals' carcass". And according to Paola et al. (2022), when we treat animals as a commodity by general consent as a medium of economic exchange, it is said that money applies to the value of animals. Money is also convenient for weighing different interests that affect public decisions. However, thinking just in terms of money for public health decisions or treating the animals as a commodity can affect how populations deal with zoonoses, food safety, antibiotic resistance, sustainable development, and welfare. Thus, decision making based on just monetary equivalents bears serious ethical concerns and calls for alternative practices. "Commodities" should be completely deleted. All the words commodities at the long of the text should be also changed for "live animals" and "animals-based products" Supporting evidence, if relevant Alternative Paradigms in Animal Health Decisions: A Framework for Treating Animals Not Only as Commodities Lively commodities and endemic diseases: Shifting commodity situations and nonhuman disability in cattle and sheep on UK farms - ScienceDirect	Did not agree as the Glossary term of 'commodity' already addresses this.

CHAPTER 5.4.

MEASURES AND PROCEDURES APPLICABLE IN- TO THE EXPORTATION OF COMMODITIES

Article 5.4.1.

Purpose and scope

This chapter provides general principles for measures and procedures that are applicable in-to the exportation of *commodities* to prevent the spread of pathogenic agents through *international trade of commodities*, without creating unjustified trade restrictions, covering from facilities of origin (such as an establishment, *slaughterhouse/abattoir*, *semen collection centre*) to the *point of exit*.

5.4.1._1_ Japan	Category: Deletion Proposed amended text: This chapter provides general principles for measures and procedures that are applicable <u>in-to</u> the exportation of <i>commodities</i> to prevent the spread of pathogenic agents through <i>international trade of commodities</i> , without creating unjustified <u>trade</u> restrictions, covering from facilities of origin (such as <u>an establishment</u> , <i>slaughterhouse/abattoir</i> , <i>semen collection centre</i>) to the <i>point of exit</i> . Rationale: According to the <i>Glossary</i> , <i>international trade</i> means importation, exportation and transit of <i>commodities</i> .	Agreed
5.4.1._2_ ICFAW	Category: addition Proposed amended text: This chapter provides general principles for measures and procedures that are applicable <u>in-to</u> the exportation of <i>commodities</i> to prevent the spread of pathogenic agents through <i>international trade of commodities</i> , without creating unjustified <u>trade</u> restrictions, covering from facilities of origin (such as <i>establishment</i> , <u>farms</u> , <u>feedlots</u> , <i>slaughterhouse/abattoir</i> , <i>semen collection centre</i>) to the <i>point of exit</i> . Rationale: As the section also cover live animals, farms and feedlots should be included as a point of exit.	Did not agree, as the current Glossary definition for 'establishment' already covers the proposed additions.

For the purposes of this chapter, 'operator' means any natural or legal entity or person responsible for export of commodities subject to the provisions of this chapter.

For the purposes of this chapter, 'Veterinary Authority' and 'Competent Authorities' refer to the 'Veterinary Authority' and 'Competent Authorities' of the exporting country unless otherwise specified.

This chapter provides *exporting countries* with recommendations on measures and procedures, and the roles and responsibilities of their Veterinary Authority or other relevant Competent Authorities, and of operators, business operators any natural or legal entity or person responsible for export of commodities subject to the provisions of this chapter (hereafter 'operator'), in addition to responsibilities that are described in Article 5.1.3. This chapter provides guidance to ensure the quality and performance implementation of official controls for exportation.

~~While this~~ This chapter applies to all *commodities*; some recommendations are specifically addressed to certain ~~of these commodities~~.

5.4.1._3_ EU	Category: editorial Proposed amended text: in the sentence above, please replace “,” with “.”	Agreed

Article 5.4.2.

General considerations

The *Veterinary Authority* ~~of the exporting country~~ should ~~ensure that~~ make ensure operators are aware of the *importing country* requirements, if they are available to the *Veterinary Authority* in accordance with Chapters 5.1. and 5.2. In addition, the *Veterinary Authority* should make operators aware of the processes required to meet the conditions of the *international veterinary certificate* including the *importing country* requirements. ~~including all information required for the agreed *international veterinary certificate*, in accordance with Article 5.1.1. and Chapter 5.3., are available to exporters.~~

5.4.2._1_ New Caledonia	Category: general. Proposed amended text L'Autorité vétérinaire ~~du pays exportateur~~ doit <u>s'assurer que</u> ~~veiller à informer les opérateurs ont connaissance des ce que les~~ exigences précisées par le <i>pays importateur</i> si l' <i>Autorité vétérinaire</i> en dispose, conformément aux chapitres 5.1. et 5.2. L' <i>Autorité vétérinaire</i> doit en outre informer les opérateurs ~~de la des~~ <u>procédures requises</u> pour satisfaire aux conditions du <i>certificat vétérinaire international</i> , comprenant notamment les exigences des <i>pays importateurs</i> . Rationale: Il y a une faute d'accord dans la première phrase à “des procédures requises” :	Agreed (only in French version)

The *Veterinary Authority* ~~of the exporting country~~ should be responsible for the implementation performance of official controls in coordination with other relevant *Competent Authorities* in accordance with *veterinary legislation* to ensure that exported *commodities* can be traded safely and meet the requirements of the importing country requirements. ~~It-Their~~ legal mandate and responsibilities of the *Veterinary Authority* and other relevant *Competent Authorities*, as described in Article 3.4.5. and 3.4.13., should include the export official controls activities at any step in the export process and the opportunity to request from the operator-exporter any necessary information. Where appropriate, the *Veterinary Authority* and other relevant *Competent Authorities* may delegate certain tasks ~~in accordance with point 2 of Article 3.4.5.~~ Adequate human, technical, physical and financial resources should be available in the *exporting country* for the *Veterinary Services* to allow these effectively implement official controls ~~to be undertaken effectively~~ and to properly apply the certification obligations and procedures laid down in Chapters 5.1. and 5.2., in accordance with the quality principles ~~described in Article Chapter 3.2.2.~~

5.4.2._2_ New Caledonia	Category: change. Proposed amended text “ ~~Sur Leur~~ mandat légal ~~et leurs~~ <u>les</u> responsabilités de l' <i>Autorité vétérinaire</i> et d'autres <i>Autorités compétentes</i> pertinentes ~~tel qu'il est décrit aux articles 3.4.5. et 3.4.13. doit doivent~~ comprendre ~~des~~ activités ~~de les~~ <u>contrôles officiels des exportations</u> à toutes les étapes <u>du processus d'exportation d'importation</u> , ainsi que <u>la possibilité de recueillir auprès de l'opérateur l'exportateur</u> toutes les	Agreed (only in French version)

	informations nécessaires. Rationale: Il y a une erreur dans la 3ème phrase qui fait référence au “processus d'importation” alors que le chapitre porte sur l'exportation :	
5.4.2._3_ UK	Category: general. Proposed amended text (or precise suggested deletion) The <i>Veterinary Authority of the exporting country</i> should be responsible for the <u>implementation performance</u> of official controls in coordination with other relevant <i>Competent Authorities</i> in accordance with <i>veterinary legislation</i> to ensure that exported <i>commodities</i> <u>can be traded safely and meet the requirements of the importing country requirements</u>. ~~Its~~ <u>Their</u> legal mandate and responsibilities of the <i>Veterinary Authority</i> and other relevant <i>Competent Authorities</i>, as described in Article 3.4.5. and 3.4.13., should include <u>the export official controls activities at all steps any step in the export process and the opportunity</u> to request from the <u>operator-exporter</u> any necessary information. Where appropriate, the <i>Veterinary Authority</i> and other relevant <i>Competent Authorities</i> may delegate certain tasks in accordance with point 2 of Article 3.4.5. Adequate human, technical, <u>physical</u> and financial resources should be available in the <i>exporting country</i> for the <i>Veterinary Services</i> <u>to allow those effectively implement</u> official controls <u>to be undertaken effectively</u> and to properly apply the certification obligations and procedures laid down in Chapters 5.1. and 5.2., in accordance with the quality principles <u>described in Article Chapter 3.2.2.</u> Rationale: We suggest replacing “any step” with “all steps” of the export process. The word “any” introduces a sense of randomness, whereas competent authorities are responsible for official controls throughout the entire export process. Supporting evidence: UK export control procedures.	Agreed

The *Veterinary Authority* should cooperate closely with all relevant authorities, including the customs authority and other law enforcement authorities of the *exporting country* dealing with exports to ensure that official controls are implemented/performed effectively; and to protect to maintain the status compliance of the *commodities with importing country requirements* without creating unjustified barriers to trade. This cooperation should also cover actions to prevent and combat fraud or illegal pathways.

The *Veterinary Authority* should have procedures, as applicable, for certification of the *animal health status* of the herd/flock, compartment, zone, or country, zone, compartment, or herd/flock as well as of the disease situation in *establishments* and other premises and communicate with the operator-exporter regarding any additional documentary evidence that may be required to support such certification.

The *Veterinary Authority* ~~in the exporting country~~ should ensure that the applicable certified *animal health status* of the herd/flock, compartment, zone, or country, zone, compartment, or herds/flock or animals, is based on appropriate *surveillance* and reporting in accordance with Chapter 1.4.

5.4.2._4_ Chile	Category: editorial Texto modificado propuesto (o supresión sugerida): La <i>autoridad veterinaria</i> ~~en el país exportador~~ deberá garantizar que el <i>estatus zoonosanitario</i> certificado, <u>aplicable al del rebaño, compartimiento, zona o país, zona, compartimento o rebaño</u> se basa en la <i>vigilancia</i> y en la notificación apropiadas de acuerdo con el Capítulo 1.4.	Did not agree as the term 'applicable' is referring to the 'animal health status', not the 'certificate'. For Spanish version, keep 'al' and delete 'del' for clarity.

	Justificación: En el párrafo precedente, la palabra “certificado” es una forma verbal, exactamente, el participio. Por lo tanto, el adjetivo “aplicable” no corresponde. Así, el texto limpio debe leerse como sigue: La <i>autoridad veterinaria</i> deberá garantizar que el <i>estatus zoosanitario</i> certificado, <u>del rebaño, compartimiento, zona o país</u>, se basa en la <i>vigilancia</i> y en la notificación apropiadas de acuerdo con el Capítulo 1.4.	

The *Veterinary Authority* or other relevant Competent Authorities ~~in the exporting country~~ should have procedures for registration and approval of *establishments* of origin, where applicable, and other facilities used for production and handling of consignments, to comply with the ~~agreed international veterinary certificate~~. Operators should not hinder access by the *Veterinary Authority* to the *commodities*, the premises where they are located and the ~~means by which they are transported~~ of transport. During official controls, operators should assist and cooperate with the *Veterinary Authority Services* and make available all relevant information concerning the consignment.

The *Veterinary Authority* should have procedures for the international veterinary certification of sanitary conditions of individual animals.

5.4.2._5_ EU	Category: editorial Proposed amended text: The <i>Veterinary Authority</i> should have procedures <u>in place</u> for the international veterinary certification of sanitary conditions of individual <i>animals</i>. Rationale: Editorial.	Agreed

The *Veterinary Authority* ~~of the exporting country~~ should ensure that appropriate identification of *commodities* is in place to support traceability offer the consignment to comply with its ~~the~~ ~~agreed international veterinary certificate~~. *Animal identification* should be in accordance with Chapter 4.2. and Chapter 4.3.

Upon request from the *Veterinary Authority* of the *importing country* or from the *Veterinary Authority* of a the transit country, the *Veterinary Authority* of the exporting country should provide additional information on the process to ensure compliance with the conditions included in the ~~agreed international veterinary certificate~~, and undertake investigation and reporting, or and give reasonable access for audit in case of repeated non-compliant consignments ~~jeopardising the safety of trade~~. The *Veterinary Authority* of the exporting country should take ensure that the appropriate and necessary preventive measures ~~to ensure that the status of the commodities~~ remain compliant ~~is not jeopardised~~ before and during transport to the point of exit. The *exporting country* should suspend the export of a *commodity* when there is reason to believe that it may present a risk to ~~for~~ animal health or and public health ~~or that if it does not comply with the agreed international veterinary certificate~~.

5.4.2._6_ ICFAW	Category: addition Proposed amended text: The <i>Veterinary Authority</i> <u>of the exporting country</u> should ~~take ensure that~~ the appropriate and necessary preventive measures ~~to ensure that the status of the commodities~~ <u>animals and animals-based products remain compliant</u> ~~is not jeopardised~~ before and during transport <u>to the point of exit</u>. <u>For animals the recommendations on Chapter 7.4. (transport) should be follow</u>. The <i>exporting country</i> should suspend the export of a <i>commodity</i> when there is reason to believe that it may present a risk <u>to</u> ~~for~~ animal <u>welfare and health or and</u> public health ~~or that if it does not comply with the agreed international veterinary certificate~~.	Did not agree, comment addressed above. For animal welfare, it is already covered in the text below.

	Rationale: The transport of the animals should be in accordance with the Chapter 7.4 (Transport) all decision the welfare status of the animals should be considering, not only the health status.	

The *Veterinary Authority of the exporting country* should promptly communicate to the *Veterinary Authority of the importing country*, and any transit country, any change ~~of or~~ situation, such as a change of the animal health status, that may affect its capacity to fulfil/certify the conditions of the ~~agreed~~ *international veterinary certificate*.

5.4.2._7_ UK	Category: change. Proposed amended text (or precise suggested deletion): The <i>Veterinary Authority of the exporting country</i> should promptly communicate to the <i>Veterinary Authority of the importing country</i>, <u>and any transit country</u>, any change ~~of or~~ situation, <u>such as a change of the animal health status</u>, that may affect its capacity to <u>fulfil/certify</u> the conditions of the ~~agreed~~ <i>international veterinary certificate</i>. Rationale: We consider that the change of “fulfil” by “certify” is acceptable when the certificate has not yet been issued. However, <i>fulfil</i> is a better option as it applies retrospectively if a certificate has already been issued before the change in situation was known. Yet the following article (5.4.3.) seems to address this as it concerns changes after the commodity left the exporting country. Supporting evidence: not applicable.	Did not agree as the phrase ‘its capacity’ speaks to the capacity of the Veterinary Authority to certify. It is also not the responsibility of the Veterinary Authority to fulfil the conditions in the certificate.
5.4.2._8_ EU	Category: editorial Proposed amended text: The <i>Veterinary Authority</i> should promptly communicate to the <i>Veterinary Authority of the importing country</i>, and <u>to the Veterinary Authority of any transit country</u>, any change... Rationale: Editorial, for clarity and consistency with paragraph above. [Comment relevant also for the paragraph below.]	Agreed to add ‘of’ for clarity.

The *Veterinary Authority of the exporting country* should also inform without delay the *Veterinary Authority of the importing country*, and, where necessary, the *transit country*, in the event that a particular issue such as the occurrence of a listed disease or a disease referred to in the importing country requirements which may affects the compliance status of a *commodity* which has already left the *exporting country*. This information should be part of the relevant emergency response plan developed in accordance with Chapter 4.19.

5.4.2._9_ Japan	Category: Addition/Deletion Proposed amended text: The <i>Veterinary Authority of the exporting country</i> should also inform without delay the <i>Veterinary Authority of the importing country</i>, and, where necessary, the <i>transit country</i>, <u>of any case in the event that a particular issue such as the occurrence of a listed disease or a disease referred to in the importing country requirements and other relevant issues which may affects the compliance status</u> of a <i>commodity</i> which has already left the <i>exporting country</i>. <u>This information should be part of the relevant emergency response plan developed in accordance with Chapter 4.19.</u> Rationale: Information concerning compliance of a <i>commodity</i> is of vital importance and Japan proposes to use words “any case” in alignment with draft of Article 5.6.4.	Agreed with the rationale, text was amended differently for clarity.

In case of *animals*, operators should ensure that *animal welfare* is maintained throughout the export process in accordance with Section 7 as relevant.

The ~~Veterinary Authority of the exporting country~~ should carry out collaborative activities with other relevant Competent Authorities, customs, and other law enforcement authorities, and operators, and with *Veterinary Authorities* in other countries, to control the risk posed by the illegal or informal cross-border movement of commodities, e.g. i.e. the international movement of commodities done in a way that avoids official controls intentionally (illegal) or that may be unregulated but may present risks (informal). ~~to expressly and intentionally avoid official controls.~~

Article 5.4.3.

General principles applicable to procedures for official controls for exportation

1. Preparation for exportation

~~Operators~~Exporters should ~~announce~~ inform the Veterinary Authority of their intention to the export to the Veterinary Authority sufficiently in advance as to allow for meet ~~these~~ conditions of the ~~agreed-international veterinary certificate~~ and the administrative requirements of the *exporting, transit and importing countries* to be met.

5.4.3._1_ New Caledonia	Category: editorial Proposed amended text Les ~~exportateurs~~ <u>opérateurs</u> doivent informer l'Autorité compétente vétérinaire de <u>leur intention d'exporter l'exportation</u> suffisamment à l'avance ~~pour afin de~~ <u>permettre que les satisfaire aux</u> conditions précisées dans le <u>certificat vétérinaire international convenu</u> ainsi <u>que les qu'aux</u> exigences administratives des <i>pays exportateurs, de transit et importateurs</i> <u>soient respectées.</u> Rationale: Il y a une erreur de syntaxe suite au remplacement de "pour" par "afin de permettre que" :	Agreed (only in French version)

~~Operators~~Exporters should provide to the *Veterinary Authority* ~~the~~as required details of the consignment. The *Veterinary Authority* should outline to the ~~operator~~exporter the procedures, standards and timeframe for preparation of the consignment, and the documentary evidence required to demonstrate compliance with these requirements. Where relevant, the *Veterinary Authority* should identify eligible bodies or officers for the implementationperformance and certification of procedures specified in the ~~agreed-international veterinary certificate~~. Operators should also provide information relevant to safe handling of consignment, including any treatments that may pose risks to personnel.

The ~~operator~~exporter and the *Veterinary Authority* should coordinate the implementation, and its documentation, of the conditions of the ~~agreed-international veterinary certificate~~. Implementation of these conditions and its documentation should be in accordance with the procedures and standards communicated by the *Veterinary Authority* of the exporting country and will form the basis upon which the *Official Veterinarian* will issue the *international veterinary certificate* for the consignment.

The *Veterinary Authority* should ensure that the facilities and operational procedures required for isolation of *animals* or processing of products comply with the conditions of the ~~agreed-international veterinary certificate~~, which may including include registration, approval, and inspection, in accordance with ~~Chapters 4.6., 4.7. and 5.7. or other relevant chapters of the Terrestrial Code.~~

5.4.3._2_	Category: general	The Commission explained that this term

EU	Proposed amended text: Should the word “ <i>isolation</i> ” be in italic to refer to the new glossary definition?	will be italicised once it is adopted.

Testing of *commodities* required to fulfil the conditions of the ~~agreed-international veterinary certificate~~ should be in accordance with Article 3.2.10. and with the *Terrestrial Manual*. The *Veterinary Authority* should define and communicate to the ~~operator~~exporter the procedures for sample collection, identification and submission, the list of ~~approved-laboratories~~ and the *approved* diagnostic tests.

The *Veterinary Authority* should define and communicate to the ~~operator~~exporter the procedures for *vaccination* and treatment if required to fulfil the conditions of the ~~agreed-international veterinary certificate~~. The ~~operator~~exporter should arrange for *vaccination* or treatment of *animals in line with these conditions*, noting timeframes relevant to the scheduled date of exportation. *Vaccination* and treatment of *animals* should use *veterinary medicinal products* registered or ~~allowed~~ **approved for use** in the exporting country, ~~in line with the conditions of the agreed-international veterinary certificate~~.

5.4.3._3_ UK	Category: general. Proposed amended text (or precise suggested deletion): The <i>Veterinary Authority</i> should define and communicate to the ~~operator~~ exporter the procedures for <i>vaccination</i> and treatment if required to fulfil the conditions of the ~~agreed-international veterinary certificate~~ . The ~~operator~~ exporter should arrange for <i>vaccination</i> or treatment of <i>animals in line with these conditions</i> , noting timeframes relevant to the scheduled date of exportation. <i>Vaccination</i> and treatment of <i>animals</i> should use <i>veterinary medicinal products</i> registered or ~~allowed~~ approved for use in the exporting country, ~~in line with the conditions of the agreed-international veterinary certificate~~ . Rationale: While feedback is agreed and the text has been amended, it is not clear that changes address the request to replace “allowed” by “approved”.	‘Allowed’ was replaced with ‘approved for use’ at the Commission’s last meeting as ‘allowed’ suggests the possibility of using products that are not officially registered. The currently revised Glossary definition for ‘approved’ was amended to add ‘register’ (refer to Item 5.1. of the report). Based on this revision, the text was amended for clarity (refer to the comment addressed below).
5.4.3._4_ EU	Category: editorial Proposed amended text: “[...] ~~Vaccination and treatment of animals should use~~ <u>Animals should be vaccinated or treated using</u> ~~veterinary medicinal products registered or approved for use in the exporting country~~ ”. Rationale: Editorial.	Agreed with rationale, and the text was amended differently for clarity.

The *Veterinary Authority* should define and communicate to the ~~operator~~exporter the standards and procedures for *disinfection of and disinsection* ~~disinsection elimination of arthropod vectors from of vehicles/vessels/the means of transport~~ and *containers* in accordance with Chapter 4.14., if required to fulfil the conditions of the ~~agreed-international veterinary certificate~~.

5.4.3._5_ EU	Category: editorial Proposed amended text: “[...] disinsection ~~from of~~ <u>of</u> the means of transport and [...]”. Rationale: Editorial.	Agreed with rationale, and the text was amended differently for clarity.

In the case of *animals*, ~~The operator/exporter~~ should also be able to provide to the *Veterinary Authority* a ~~journey travel~~ transport plan from the ~~point of exit in the exporting country~~ to the point of unloading in the *importing country*. In the case of *animals*, it should be in accordance with Chapters 7.2., 7.3. or 7.4. Section 7, and in compliance with the *importing country requirements* as relevant.

2. Procedures of exportation

a) Verification and certification

The ~~operator/exporter~~ should cooperate with the *Veterinary Authority* to demonstrate that the conditions of the ~~agreed-international veterinary certificate~~ have been met and that the consignment is eligible for certification and export. The ~~operator/exporter~~ should provide all documentary evidence of compliance with the *importing country requirements* ~~conditions of the agreed- and the international veterinary certificate~~ as required by the *Veterinary Authority*, including an import permit where appropriate. There should be clear traceability and linkage, at every stage of preparation of ~~animals and animal product/commodities~~, to the final consignment presented for export, as relevant to fulfil the conditions of the ~~agreed-international veterinary certificate~~.

5.4.3. 6_ New Zealand	Category: change Proposed amended text: The ~~operator/exporter~~ should cooperate with the <i>Veterinary Authority</i> to demonstrate that the conditions of the ~~agreed-international veterinary certificate~~ have been met and that the consignment is eligible for certification and export. The ~~operator/exporter~~ should provide all documentary evidence of compliance with the <u>conditions of the agreed importing country requirements</u> ~~conditions of the agreed and the international veterinary certificate~~ as required by the <i>Veterinary Authority</i>, including <u>an</u> import permit where appropriate. There should be clear traceability and linkage, at every stage of preparation of ~~animals and animal product/commodities~~, to the final consignment presented for export, as relevant to fulfil the conditions of the ~~agreed-international veterinary certificate~~. Rationale: For the purposes of trade, it is the responsibility of the exporter/operator to meet the zoosanitary requirements agreed between the importing and exporting countries. This ensures the ALOP of the importing country is met. By referring to <i>importing country requirements</i> it is not clear that the ALOP of the importing country may be achieved through measures equivalent to the importing country's requirements, where agreed between the importing and exporting countries.	Did not agree as there may be importing country requirements which are not agreed between the exporting and importing countries.

The *Official Veterinarian* should review the preparation of the export consignment to confirm that ~~commodities animals and animal products~~ have been clearly identified at every stage of their preparation, that the consignment complies with the conditions of the ~~agreed-international veterinary certificate~~ and is in accordance with Chapters 5.1. and 5.2. of the *Terrestrial Code*. The *Official Veterinarian* should also review ~~all transport arrangements the journey travel plan~~ for the consignments of animals to ensure it they support maintenance compliance with the importing country requirements and relevant national regulations which may include the animal welfare recommendations in Section 7. of the commodity's status and animal welfare.

Once satisfied that preparations and ~~journey travel plan~~transport arrangements are appropriate and that the consignment is eligible for certification and export, the *Official Veterinarian* should issue the *international veterinary certificate*.

b) Domestic transportation of commodities

The *Veterinary Authority* should collaborate with other relevant authorities and stakeholders to ensure that management of the consignment ~~pre-export~~ before and during transport to the point of exit is consistent with ~~agreed-established~~ processes and standards.

The ~~operator~~exporter should ensure that the assembly, *loading* and crating of ~~animals or other commodities~~ is appropriate to maintain compliance with the importing country requirements ~~preserving the status and animal welfare of the consignment from the place of shipment~~, including adequate *disinfection* ~~of~~ and ~~disinsection~~ ~~disinsection-elimination of arthropod vectors~~ of from of the ~~vehicle/vessel~~means of transport and container.

5.4.3._7_ New Caledonia	Category: editorial Proposed amended text L'opérateur doit s'assurer que le rassemblement, le <i>chargement</i> et la mise en cage des ~~animaux ou d'autres~~ <u>animaux ou d'autres</u> marchandises sont appropriés pour <u>maintenir la conformité avec les exigences du pays importateur</u> ~~préserver le statut et le bien-être animal du lot depuis le lieu de chargement~~ , ce qui comprend notamment la <i>désinfection</i> <u>ainsi que la désinsection adéquates des moyens de transport et la désinsection adéquates</u> ~~ainsi que l'élimination appropriée des arthropodes vecteurs provenant de ceux-ci et des du véhicule / navire et du conteneurs~~ . Rationale: Il est proposé de déplacer le mot "adéquates" pour une meilleure formulation :	Agreed (only in French version) In addition, replace 'ainsi que' with 'et'

The *Veterinary Authority* ~~in the exporting country~~ may require health and welfare inspection of consignments of *animals* at the *point of exit*, which includes the possibility to deny permission to export if concerns are identified.

Article 5.4.4.

Specific recommendations depending on commodities

1. Animals

~~In the case of animals, the Veterinary Authority should ensure that animal welfare is maintained throughout the whole process of exportation, in accordance with Chapters 7.1., 7.2., 7.3. and 7.4. as relevant.~~

The ~~operator~~exporter should ensure that ~~vehicles/vessels~~means of transport used for transportation of *animals* throughout the ~~whole export process of exportation~~ undergo adequate *disinfection*, and that measures are implemented to prevent and control vermin such as rodents or arthropods. These measures should be applied before every *loading* of *animals*. ~~Vehicles/vessels~~Means of transport should contain only *animals* meeting the same sanitary requirements of the same health status except where effectively adequately separated to prevent disease transmission.

5.4.4._1_ Japan	Category: Addition Proposed amended text: The ~~operator~~ exporter should ensure that ~~vehicles/vessels~~ <u>means of transport</u> used for transportation of <i>animals</i> throughout the ~~whole export process of exportation~~ undergo adequate <i>disinfection</i> , and that	Did not agree as exports should comply with the importing country requirements, and the current text is considered

	measures are implemented to prevent and control vermin such as rodents or arthropods. These measures should be applied before every <i>loading of animals</i>. ~~Vehicles/vessels~~ <u>Means of transport</u> should contain only <i>animals</i> <u>meeting the same sanitary requirements of the same health status except where effectively adequately separated to prevent disease transmission and their compliance with importing country requirements is maintained.</u> Rationale: Japan appreciates the Code Commission's response to our previous comment. Although approval of the measure by the importing country is not always required, the compliance with <i>importing country</i> requirements is requisite as mentioned by the Report of the meeting of ad hoc Group in April 2024, "(...) the ad hoc Group, in line with the opinion of the Code Commission, agreed with a comment that more than one consignment of animals could be shipped at the same time on a vehicle/vessel, provided that the animals are adequately separated <u>and importing country requirements allow for this to occur.</u>"	sufficient.
5.4.4._2_ EU	Category: addition Proposed amended text: "The operator should ensure that means of transport used for transportation of animals throughout the export process undergo adequate disinfection <u>and, if appropriate, disinsection</u>, and that measures are implemented to prevent and control vermin such as rodents or arthropods. These measures should be applied before every loading of animals". Rationale: Following wording in previous Article.	Agreed to add 'disinsection' and removed 'arthropods' as they are included in the definition of disinsection. It is not necessary to add 'if appropriate'.
5.4.4._3_ ICFAW	Category: addition Proposed amended text: The ~~operator/exporter~~ should ensure that ~~vehicles/vessels~~ <u>means of transport</u> used for transportation of <i>animals</i> throughout the ~~whole export process of exportation~~ undergo adequate <i>disinfection</i>, and that measures are implemented to prevent and control vermin such as rodents or arthropods <u>and guarantee the safe conditions for the animals during all journey.</u> Rationale:	Did not agree as it is clear with the current text.

Containers should be either new or cleansed and disinfected before every *loading of animals*, in accordance with Chapter 4.14., ~~or be for single use~~

The *Veterinary Authority* should ensure that, before leaving the *exporting country*, consignments of *animals* ~~should be~~ subjected to a visual examination, at an appropriate place and time according to the ~~procedures of the exporting country and the agreed international veterinary certificate and the requirements of the exporting country.~~ It should be ensured that, from the time of this visual examination inspection until the time of leaving the *exporting country*, the *animals* in the consignment are not in contact with other *animals* of a different health status.

The *Veterinary Authority* ~~in the exporting country~~ may require welfare inspection of consignments of *animals* at the *point of exit*. Such inspections should be supported by *veterinary legislation*, which should also ascribe authority to deny permission to export if *animal welfare* requirements, in accordance with Section 7 concerns are not met/identified.

2. Germinal products

Consignments of *germinal products* should be packed, dispatched, and transported in a way that preserves the viability and integrity of the products.

Consignments of *hatching eggs* should be dispatched from parental *flocks* that meet the conditions of the ~~agreed-international veterinary certificate~~. *Containers* should be either new or cleaned and disinfected before every use, in accordance with Chapter 4.14.

5.4.4._4_ New Zealand	Category: addition Proposed amended text: Consignments of <i>hatching eggs</i> should be dispatched from parental <i>flocks</i> <u>or hatcheries</u> that meet the conditions of the ~~agreed-international veterinary certificate~~. <i>Containers</i> should be either new or cleaned and disinfected before every use, in accordance with Chapter 4.14. Rationale: Hatching eggs may be transported from the establishment housing the parental flocks to a hatchery for storage while additional eggs for a consignment are collected. Some procedures, including the sanitisation and grading to discard unsuitable eggs may be performed at the hatchery. The eggs would then be dispatched for export from the hatchery.	Agreed In addition, the term 'establishments' was added for clarity.

Cryogenic tanks for semen, oocytes or, embryos should be dispatched from *semen collection centres* or *collection centres* that meet the conditions of the ~~agreed-international veterinary certificate~~. They should be single-use cryogenic tanks or be cleaned and disinfected before use in accordance with Chapter 4.14. and use new liquid nitrogen.

Consignments of semen, oocytes or, embryos, should be identified in accordance with the relevant recommendations of Chapters 4.6. to 4.11.

The *Veterinary Authority* should ensure that, before leaving the *exporting country*, consignments of *germinal products* ~~be~~ are subjected to a visual examination and documentary check and cryogenic tanks for semen, oocytes or, embryos ~~be~~ are sealed and marked, according to the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country.

3. Animal products

Containers used for transporting *animal products* should be suitable for the type of product, protect the *animal products* from damage or contamination, and fulfil the conditions of the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country.

The *Veterinary Authority* should ensure that adequate measures are taken to clean and, where necessary after cleaning, to disinfect before use, *containers* and *means of transportation* in accordance with Chapter 4.14., particularly when conveying or transporting unpacked materials.

The *Veterinary Authority* should ensure that, before leaving the *exporting country*, consignments of *animal products* ~~should be~~ are subjected to a visual examination and documentary check, according to the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country.

Article 5.4.5.

Emergency pPlanning for unexpected events

~~The *Veterinary Authority* should develop a plan to address the occurrence within the exporting country after the commodities have been exported, of a listed disease or a disease referred to in the importing country~~

requirements, which may have impacted the status of the exported commodities. The Veterinary Authority should be guided by importing country requirements in implementing the plan.

The Veterinary Authority should ensure that the ~~operator~~ exporter develops and documents a plan to address emergencies ~~unexpected events~~ which may impact the ~~compliance status of the commodities with importing country requirements and animal welfare recommendations in Section 7.~~ ~~being exported, failure of transport arrangements.~~ The plan should address concerns such as deviation from the journey plan for animals, incidents compromising the sanitary conditions or other characteristics of the commodities including those captured in the international veterinary certificate, failure to reach the transit or importing country, or rejection of the consignment by them ~~transit or importing country~~. The emergency plan may be generic or specific to each consignment, and should focus on preserving the status of the consignment and animal welfare in accordance with Chapters 7.2, 7.3, and 7.4.

5.4.5._1_ EU	Category: editorial Proposed amended text: "The plan should address concerns such as deviation from the journey plan for animals, incidents compromising the sanitary conditions or other characteristics of the commodities including those captured described in the international veterinary certificate, failure to reach the transit or importing country, or rejection of the consignment by them". Rationale: Editorial.	Agreed
5.4.5._2_ ICFAW	Category: addition and change Proposed amended text: The plan should address any concerns that changes the original planned journey such as deviation from the journey plan for animals, incidents compromising the sanitary conditions or other characteristics of the animals or animals products commodities including those captured in the international veterinary certificate, failure to reach the transit or importing country, or rejection of the consignment by them ~~transit or importing country~~ . Rationale: In the current standard in Chapter 5.6. it is named "live animals" and "carcasses of animals". I think these words should be used instead of commodities. "Commodities" should be completely deleted. All the words commodities at the long of the text should be changed too	Did not agree, comments are addressed above.

The emergency plan should identify responsibility for development and communication of alternative transport arrangements when necessary. The relevant Competent Authority in the exporting, transit and importing countries should be consulted as appropriate by the operator regarding revised transport arrangements to assess the implications for the compliance status of the commodities with importing country requirements and animal welfare recommendations. The Veterinary Authority in the exporting country should be consulted on alternative transport arrangements for consignments of animals to ensure that animal welfare is preserved.

5.4.5._3_ ICFAW	Category: deletion Proposed amended text: The emergency plan should identify responsibility for development and communication of alternative transport arrangements when necessary. Rationale: A contingency (or emergency) plan is always necessary, no matter if the emergency happened or not. It must be clear before	Did not agree as it provides flexibility.

	the journey takes place, what will happen with the animals in case of getting stuck at the border or in case of rejection by the importing country. There must be the insurance that the animals can be unloaded at a resting station close by the port to be cared for, even if a country rejects the animals for import.	

~~The emergency plan should include procedures for managing exported consignments that fail to reach the designated transit or importing countries or are rejected by them.~~

NOT FOR COMMENT

Reference	Comment	TAHSC response
5.5._1_Chile	Category: general Justificación: Chile reconoce y agradece a OMSA y los expertos, por el trabajo que están realizando. Chile solicita que en algún momento se remita un borrador con un texto plano, para revisión de los países. Lo anterior, teniendo en consideración que el texto propuesto difiere en su totalidad del capítulo 5.5 vigente, desde el título hacia abajo. En consecuencia, desde el título hasta el final, todo el capítulo es por lo pronto un borrador, que deberá ser aprobado por la Asamblea de Delegados en su totalidad.	Refer to comment 5.4._1_Chile
5.5._2_ Korea (Rep. of)	Category: general The Republic of Korea supports the revised Chapter reflecting the comments from Member Countries.	Noted
5.5._3_New Zealand	Category: general The proposed text has been drafted in the context of commercial international trade, and recommendations may be difficult to apply to the non-commercial transport of animals and animal products across international borders. Consider adding text: - reflecting that the regulated movement of personal commodities should align with sanitary measures within disease specific chapters as appropriate. - clarifying that references to operators (e.g. control over transport containers and the recommendation for operators to document a plan for unexpected events) are unlikely to be relevant for individual persons traveling with their own animals or carrying animal products (food, souvenirs etc.) on their person/luggage when traveling. We also suggest considering whether it is useful to have recommendations on who is responsible for planning for emergencies for non-commercial movements. Rationale: Individuals take their pets (dogs and cats, but also other animals) and animal product items with them when they travel, and in the case of service animals this may be essential. However, any international movement of animals and animal products (including food, souvenirs) may introduce animal diseases and should be managed.	Refer to comment 5.4._4_New Zealand
5.5._4_EU	Category: general The EU in general supports this draft revised chapter. Comments are inserted in the text below.	Noted
5.5._5_ ICFAW	Category: general Proposed amended text: Deletion of the word commodities and change for live animals and animals- based products. Rationale: In the current standard in Chapter 5.6. it is named "live animals" and " animals' carcass". And according to Paola et al. (2022), when we treat animals as a commodity by general consent as a medium of economic exchange, it is said that money applies to the value of animals. Money is also convenient for weighing different interests that affect public decisions. However, thinking just in terms of money for public	Refer to comment 5.4._7_ICFAW

	health decisions or treating the animals as a commodity can affect how populations deal with zoonoses, food safety, antibiotic resistance, sustainable development, and welfare. Thus, decision making based on just monetary equivalents bears serious ethical concerns and calls for alternative practices. "Commodities" should be completely deleted. All the words commodities at the long of the text should be also changed for "live animals" and "animals-based products" Supporting evidence, if relevant Alternative Paradigms in Animal Health Decisions: A Framework for Treating Animals Not Only as Commodities Lively commodities and endemic diseases: Shifting commodity situations and nonhuman disability in cattle and sheep on UK farms - ScienceDirect	

CHAPTER 5.5.

MEASURES AND PROCEDURES APPLICABLE TO THE TRANSIT OF COMMODITIES

Article 5.5.1.

Purpose and scope

This chapter provides general principles for measures and procedures that are applicable to prevent the spread of pathogenic agents through international trade, without creating unjustified trade restrictions, when *commodities* destined for another country are either making a stopover in, or transported through a *transit country*, covering from the *point of entry* to the *point of exit*.

For the purposes of this chapter, 'operator' means any natural or legal entity or person responsible for transit of *commodities* subject to the provisions of this chapter.

For the purposes of this chapter, 'Veterinary Authority' and 'Competent Authorities' refer to the 'Veterinary Authority' and 'Competent Authorities' of the *transit country* unless otherwise specified.

This chapter provides *transit countries* with recommendations on measures and procedures, and the roles and responsibilities of their *Veterinary Authority* and other relevant *Competent Authorities* and of operators ~~any natural or legal entity or person responsible for transit of *commodities* subject to the provisions of this chapter~~ (hereafter '*operator*'). An international movement of *commodities* may be considered a 'transit' if *commodities* are transported from an *exporting country* through a *transit country* to an *importing country*. The transit period should not exceed the time necessary for transport and logistics, and *commodities* and all relevant conditions as stated in the certificate issued by the *exporting country* should remain unchanged; otherwise the operation should be interpreted as an importation and exportation.

This chapter provides guidance to ensure the quality and implementation of official controls for transit.

Article 5.5.2.

General considerations

The *Veterinary Authority* or other relevant *Competent Authorities* ~~of the transit country~~ should ensure that *transit country* requirements and procedures, including a list of the *border inspection posts* designated for the transit of *commodities*, are made available to operators and to the *Veterinary Authority* of the *exporting country*.

A *transit country* may require adequate advance notice or approval regarding the date of entry into and exit from its territory of *commodities*, stating the type of *commodity*, species, quantity, *means of transport* and the *point of entry* or *border inspection post*, route, holding locations and *point of exit* to be used.

Operators should be aware of the *transit country* requirements and procedures before shipment, which may include announcing to the *Veterinary Authority* or other relevant *Competent Authorities* ~~of the transit country~~ the arrival of consignments at the *point of entry*. Operators should ensure that *commodities* are presented for official controls, including the original official certificates or documents, or digital equivalents, in accordance with *transit country* requirements, and that requirements and procedures defined by the *Competent Authorities* ~~of the transit country~~ are met.

Operators should ensure that the *commodities* are separated from any other commodities in the *transit country* not meeting the same sanitary requirements, that all relevant conditions as stated in the certification issued by the *exporting country* remain unchanged, and that the *Veterinary Authorities* of the *transit country* and the *importing country* are informed of any unforeseen unloading of *commodities* in the *transit country* ~~is informed to the *Veterinary Authorities* of the *transit country* and the *importing country*~~.

In the case of *animals*, operators should ensure that *animal welfare* is maintained throughout the transit process, in accordance with Section 7 as relevant.

Article 5.5.3.

General principles applicable to procedures for official controls for transit

The *Veterinary Authority* or other relevant *Competent Authorities* should implement official inspection, with appropriate frequency, based on risk ~~and with appropriate frequency~~ to ensure compliance with the *transit country* requirements. ~~By way of derogation, the~~ The *Veterinary Authority* may exempt from inspection *safe commodities* or *commodities* posing a negligible risk and for which inspection is not considered necessary.

A *transit country* may refuse not accept the transit of *commodities* not complying with its requirements.

The *Veterinary Authority* or other relevant *Competent Authorities* should ensure that conditions included in the *international veterinary certificate* at origin are maintained during official controls, stopover, storage and transport, that *biosecurity* is applied to prevent transmission of pathogenic agents throughout the transit process and that unnecessary delays are avoided. They should also ensure *animal welfare* is maintained during transit in accordance with Section 7. Original documentation intended for the *importing country* should remain with the consignment.

Article 5.5.4.

Planning for the unexpected events

The *Veterinary Authority* or other relevant *Competent Authorities* should ensure that the operator develops and documents a plan to address unexpected events which may compromise the compliance of the transited *commodities* with the requirements of the *transit country* or the *importing country*. The plan may be generic, or specific to each consignment, and should focus on preserving the sanitary conditions of the consignment, and preventing the introduction to the *transit or the importing country* of a *listed disease* or a disease referred to in the *transit or the importing country* requirements, and The plan should also focus on ensuring *animal welfare* recommendations in Section 7 are addressed. The plan should identify responsibilities and include procedures for *commodities* not complying with the *transit or the importing country* requirements.

5.5.4._1_	Category: deletion	Did not agree as the exported commodity should

Chile	Texto modificado propuesto (o supresión sugerida): La <i>autoridad veterinaria</i> u otras <i>autoridades competentes</i> <u>relevantes</u> deberán garantizar que el operador desarrolla <u>y documente</u> un plan para responder a eventos inesperados que puedan tener un impacto en la conformidad de las <i>mercancías</i> en tránsito con respecto a los requisitos del <i>país de tránsito</i> o del <i>país importador</i>. El plan ~~de contingencia~~ podrá ser general o específico para cada remesa y centrarse en <u>preservar las condiciones sanitarias de la remesa y</u> prevenir la introducción en el <i>país de tránsito</i> ~~o en el país importador~~ de una <i>enfermedad de la lista</i> o de otra enfermedad contemplada en los requisitos el <i>país de tránsito</i> ~~o del país importador~~. <u>y El plan también deberá centrarse</u> en garantizar el bienestar animal de conformidad con <u>las recomendaciones del Título 7 los Capítulos 7.2., 7.3. y 7.4.</u> El plan ~~de contingencia~~ deberá identificar las responsabilidades e incluir procedimientos para las <i>mercancías</i> no conformes con los requisitos del <i>país de tránsito</i> ~~y del país importador~~. [EN] The <i>Veterinary Authority</i> or other relevant <i>Competent Authorities</i> should ensure that the operator develops <u>and documents</u> a plan to address unexpected events which may compromise the compliance of the transited <i>commodities</i> with the requirements of the <i>transit country</i> or the <i>importing country</i>. The plan may be generic, or specific to each consignment, and should focus on <u>preserving the sanitary conditions of the consignment, and</u> preventing the introduction to the <i>transit</i> ~~or the importing country~~ of a <i>listed disease</i> or a disease referred to in the <i>transit</i> ~~or the importing country~~ requirements., <u>and The plan should also focus on ensuring animal welfare recommendations in Section 7 are addressed.</u> The plan should identify responsibilities and include procedures for commodities not complying with the <i>transit</i> ~~or the importing country~~ requirements. Justificación: Teniendo en consideración que el párrafo se refiere a lo que la autoridad veterinaria (u otras autoridades competentes) del país de tránsito, debe garantizar, no se le puede exigir que garantice lo mismo del país importador. Claramente, el operador de la exportación encargada del tránsito debe generar un plan ante eventos, cada autoridad veterinaria debe ver su parte: la AV del país exportador, la AV del país de tránsito y, por último, la AV del país importador. Adicionalmente, eso se complejiza más, si hay más de un país de tránsito.	comply with both the transit and importing country requirements.
5.5.4._2_ New Zealand	Category: change The <i>Veterinary Authority</i> ~~or~~ <u>and</u> other relevant <i>Competent Authorities</i> should <u>collaborate to</u> ensure that the operator develops <u>and documents</u> a plan to address unexpected events which may compromise the compliance of the transited <i>commodities</i> with the requirements of the <i>transit country</i> or the <i>importing country</i>. Or The <i>Veterinary Authority</i> ~~or other relevant Competent Authorities~~ should ensure that the operator develops <u>and documents</u> a plan to address unexpected events which may compromise the compliance of the transited <i>commodities</i> with the requirements of the <i>transit country</i> or the <i>importing country</i>. Rationale: An international veterinary certification is an official document that the Veterinary Authority of an exporting country issues, listing the animal health requirements and, where relevant, public health requirements for the exported commodity. Because the plan for unexpected events is ensuring the maintenance of the	Agreed Furthermore, the Commission reviewed the phrase 'the Veterinary Authority and/or other relevant Competent Authorities' throughout Chapters 5.4 to 5.7., and replaced 'and' with 'or', and vice versa, as appropriate, to accurately reflect the involvement of the respective authorities. These amendments are shown in the text of each chapter.

	certification of health status and animal welfare, the Veterinary Authority should be involved in ensuring its reliability and alignment with the WOAHS standards. This is also consistent with Article 5.4.5.	
5.5.4._3_ EU	Category: editorial Proposed amended text: “[...] The plan may be generic, or specific to each <u>type of</u> consignment, and should focus on preserving the sanitary conditions of the consignment, and preventing the introduction to the transit or the importing country of a listed disease or a disease referred to in the transit or the importing country requirements. The plan should also focus on <u>ensuring</u> animal welfare recommendations in Section 7 <u>are addressed</u>. [...]” Rationale: Editorial changes. The second change suggests a uniform wording as in Article 5.6.5.	Agreed

Article 5.5.5.

General recommendations on measures to address identified informal or illegal movement of commodities at border inspection posts

To control the *risks* posed by informal or illegal cross-border movement at *border inspection posts*, the *Veterinary Authority* or other relevant *Competent Authorities* should coordinate and cooperate with the customs or relevant law enforcement authority as described in Article 5.6.8.

5.5.5._1_ EU	Category: general Proposed amended text: Consider adding similar wording as in the last paragraph of Article 5.4.2. regarding what is meant by “informal” and “illegal”. Alternatively, those terms could be defined e.g. in Article 5.4.1. and 5.5.1. for the purposes of the respective chapters.	Agreed with rationale The Commission added a reference to ‘Article 5.4.2.’.

Reference	Comment	TAHSC response
5.6._1_ Chile	Category: general Justificación: Chile reconoce y agradece nuevamente a OMSA y los expertos, por el trabajo que están realizando. Chile solicita que en algún momento se remita un borrador con un texto plano, para revisión de los países. Lo anterior, teniendo en consideración que el texto propuesto difiere en su totalidad del capítulo 5.6 vigente, desde el título hacia abajo. En consecuencia, desde el título hasta el final, todo el capítulo es por lo pronto un borrador, que deberá ser aprobado por la Asamblea de Delegados en su totalidad.	Refer to comment 5.4._1_Chile
5.6._2_ Korea (Rep. of)	Category: general The Republic of Korea supports the revised Chapter reflecting the comments from Member Countries regarding the clear definitions of terms related to importation, the detailed explanation regarding the responsibilities of Operators, and the Official Controls of Veterinary Authority for importation.	Noted
5.6._3_ New Zealand	Category: general The proposed text has been drafted in the context of commercial international trade, and recommendations may be difficult to apply to the non-commercial transport of animals and animal products across international borders. Consider adding text: - reflecting that the regulated movement of personal commodities should align with sanitary measures within disease specific chapters as appropriate. - clarifying that references to operators (e.g. control over transport containers and the recommendation for operators to document a plan for unexpected events) are unlikely to be relevant for individual persons traveling with their own animals or carrying animal products (food, souvenirs etc.) on their person/luggage when traveling. We also suggest considering whether it is useful to have recommendations on who is responsible for planning for emergencies for non-commercial movements. Rationale: Individuals take their pets (dogs and cats, but also other animals) and animal product items with them when they travel, and in the case of service animals this may be essential. However, any international movement of animals and animal products (including food, souvenirs) may introduce animal diseases and should be managed.	Refer to comment 5.4._4_New Zealand
5.6._4_ New Zealand	Category: general Proposed amended text: Throughout the chapter the following options for change should be considered: 'The <i>Veterinary Authority</i>, ~~or~~<u>and</u> other relevant <i>Competent Authorities</i>'₂ The <i>Veterinary Authority</i>, ~~or~~<u>'in collaboration with'</u> other relevant <i>Competent Authorities</i>'₂ Rationale: The Veterinary Authority within the Member Country should be primarily responsible for coordinating implementing the	Refer to comment 5.5.4._2_New Zealand

	standards of the Terrestrial Code¹. Consistent with this, the Code should support coordinated implementation of standards and the Veterinary Authorities in this role. However, the use of 'or' in relation to other relevant Competent Authorities is in some text undermining this coordinating role in trade and biosecurity animal health and welfare. Preventing the transboundary disease movement is a key role of the Veterinary Authority and Veterinary Services. Ensuring appropriate import measures and procedures related to animal <i>commodities</i> is arguably the most important part of biosecurity and in the facilitation of trade, consequently the role of the Veterinary Authority should be maintained throughout this chapter where coordination of implementation applies. The use of 'and' or 'in collaboration with' still allows for other relevant Competent Authorities to undertake roles as appropriate for individual countries' government structures, but also ensures the Veterinary Authority the mandate to enable coordinated systems aligned with the WOAH standards. Rather than repeating similar comment throughout this chapter, we have highlighted in green where we suggest the text should recognise the involvement of the Veterinary Authority.	
5.6._5_EU	Category: general The EU generally supports this draft revised chapter provided the comments below are taken into consideration.	Noted
5.6._6_ ICFAW	Category: general Proposed amended text: Deletion of the word ~~commodities~~ and change for ~~live animals and animals-~~ based products. Rationale: In the current standard in Chapter 5.6. it is named "live animals" and " animals' carcass". And according to Paola et al. (2022), when we treat animals as a commodity by general consent as a medium of economic exchange, it is said that money applies to the value of animals. Money is also convenient for weighing different interests that affect public decisions. However, thinking just in terms of money for public health decisions or treating the animals as a commodity can affect how populations deal with zoonoses, food safety, antibiotic resistance, sustainable development, and welfare. Thus, decision making based on just monetary equivalents bears serious ethical concerns and calls for alternative practices. "Commodities" should be completely deleted. All the words commodities at the long of the text should be also changed for "live animals" and "animals-based products" Supporting evidence, if relevant Alternative Paradigms in Animal Health Decisions: A Framework for Treating Animals Not Only as Commodities Lively commodities and endemic diseases: Shifting commodity situations and nonhuman disability in cattle and sheep on UK farms - ScienceDirect	Refer to comment 5.4._7_ICFAW

CHAPTER 5.6.

MEASURES AND PROCEDURES APPLICABLE INTO THE IMPORTATION OF COMMODITIES

Article 5.6.1.

Purpose and scope

This chapter provides general principles for measures and procedures that are applicable to in the importation of *commodities* to prevent the spread of pathogenic agents through *international trade of commodities*, without creating unjustified trade restrictions, covering from the time of arrival at the point of entry border of the *importing country* until clearance of *commodities*.

5.6.1._1_ Japan	Category: Deletion Proposed amended text: This chapter provides general principles for measures and procedures that are applicable <u>to in</u> the importation of <i>commodities</i> to prevent the spread of pathogenic agents through <i>international trade of commodities</i> , without creating unjustified <u>trade</u> restrictions, covering from the time of arrival at the <u>point of entry border of</u> the <i>importing country</i> until clearance of <i>commodities</i> . Rationale: According to the <i>Glossary</i> , <i>international trade</i> means importation, exportation and transit <u>of commodities</u> .	Agreed
5.6.1._2_ ICFAW	Category: addition and deletion Proposed amended text: This chapter provides general principles for measures and procedures that are applicable <u>to in</u> the importation <u>of animals and other animal-based</u> the spread of pathogenic agents through <i>international trade commodities; in some cases, such as for animals to prevent compromises on animal welfare, animal suffering and</i> without creating unjustified <u>trade</u> restrictions, covering from the time of arrival at the <u>point of entry border of in</u> the <i>importing country</i> until clearance of <i>commodities</i> . Rationale: To guarantee the safe of the animals the inclusion of animal welfare and separation between the animals and products should be done. During importation, that is need all the occasion a transport the animal welfare need to be included to minimize the risks of suffering and stress of the animals during the whole importation process.	Did not agree, because this level of detail is not appropriate in the <i>Terrestrial Code</i> . Refer to comment 5.4._7_ICFAW

For the purposes of this chapter, 'operator' means any natural or legal entity or person responsible for transitimport of *commodities* subject to the provisions of this chapter.

For the purposes of this chapter, 'Veterinary Authority' and 'Competent Authorities' refer to the 'Veterinary Authority' and 'Competent Authorities' of the *importing country* unless otherwise specified.

This chapter provides *importing countries* with recommendations on measures and procedures, and the roles and responsibilities of their *Veterinary Authority* and other relevant *Competent Authorities*, and of operators, any natural or legal entity or person responsible for import of commodities subject to the provisions of this chapter business operators (hereafter 'operator'), in addition to responsibilities that are described in Article 5.1.2. This chapter provides guidance to ensure the quality and implementation performance of official controls for importation. This chapter not only covers legal importation, but also provides general recommendations for illegal or informal entry of commodities.

5.6.1._3_ EU	Category: general Consider adding in the paragraph above similar wording as in the last paragraph of Article 5.6.2. regarding what is meant by “informal” and “illegal”. Alternatively, those terms could be defined in this article for the purposes of this chapter.	Agreed The text was amended for clarity.

~~The animal health status of the importing country or zone is not affected by the presence of disease or infection in imported animals in a quarantine centre or at a border inspection post.~~

Article 5.6.2.

General considerations

The Veterinary Authority or other relevant Competent Authorities of the importing country should ensure that the importing country requirements, which may be included in international veterinary certificates, and as well as up-to-date information relevant to the import procedures, including a list of the border inspection posts designated for the import and transit of those commodities, are made available to operators and to the exporting countries. Operators should collaborate to ensure the documentation complies with the importing country's requirements.

5.6.2._1_ New Zealand	Category: deletion Proposed amended text: <u>Operators should collaborate to ensure the documentation complies with the importing country's requirements.</u> Rationale: Delete as the text is ambiguous. It appears to recommend operators collaborate with each other to ensure documentation complies with requirements.	Did not agree, the text was amended in response to the comment below.
5.6.2._2_ UK	Category: change Proposed amended text: Replace “collaborate” with “ensure” or clarify meaning. The <u>Veterinary Authority or other relevant Competent Authorities of the importing country</u> should ensure that the <u>importing country requirements, which may be included in international veterinary certificates, and as well as up-to-date information relevant to the import procedures, including a list of the border inspection posts designated for the import and transit of those commodities,</u> are made available to operators and to the <u>exporting countries.</u> <u>Operators should collaborate to ensure the documentation complies with the importing country's requirements.</u> Rationale: Collaboration implies joint work (noting this might meant sharing information/supporting chain of certification requirements), but operators are individually responsible for ensuring documentation complies with importing country requirements.	Agreed

The Veterinary Authority or other relevant Competent Authorities of the importing country should be responsible for the performance implementation of official controls in accordance with veterinary legislation to ensure that imported commodities can be safely imported. They should also ensure animal welfare is maintained in accordance with Section 7. Its Their legal mandate and responsibilities of the Veterinary Authority and other relevant Competent Authorities, as described in Articles 3.4.5. and 3.4.13., should include the import official controls activities at any step and the possibility to request from the operator importer any necessary information. Where appropriate, the Veterinary Authority or other relevant Competent Authorities may delegate certain tasks

in accordance with point 2 of Article 3.4.5. Adequate human, technical, physical and financial resources should be available in the importing country for the Veterinary Services to effectively implement ~~perform~~ official controls inspection in accordance with the quality principles ~~described in Article Chapter~~ 3.2-2.

5.6.2._3_ New Zealand	Category: change Proposed amended text: <u>They should also ensure ~~animal welfare of live animals~~ is maintained in accordance with Section 7.</u> Rationale: This clarifies that the importing country is responsible only for ensuring that the welfare of live animals upon arrival complies with the relevant parts of Section 7. It removes ambiguity that could imply the importing country must enforce aspects of Section 7 that fall under the exporting country's responsibility, such as verifying that animal products imported from the exporting country were slaughtered in accordance with Section 7.5.	Did not agree, however the text 'as relevant' was added for clarity.
5.6.2._4_ UK	Category: change Proposed amended text: Replace "should be responsible" with "are responsible." <u>The Veterinary Authority or other relevant Competent Authorities of the importing country should be are</u> responsible for the <u>performance implementation</u> of official controls in accordance with <u>veterinary legislation</u> to ensure that <u>imported commodities</u> can be safely imported. <u>They should also ensure animal welfare is maintained in accordance with Section 7. Its—Their legal mandate and responsibilities of the Veterinary Authority and other relevant Competent Authorities, as described in Articles 3.4.5. and 3.4.13., should include the import official controls activities at any step at all steps</u> and <u>the possibility</u> to request from the <u>operator importer</u> any necessary information. Where appropriate, the <u>Veterinary Authority or other relevant Competent Authorities</u> may delegate certain tasks <u>in accordance with point 2 of Article 3.4.5. Adequate human, technical, physical and financial resources should be available in the importing country for the Veterinary Services to effectively implement</u> ~~perform~~ official controls <u>inspection</u> in accordance with the quality principles ~~described in Article Chapter~~ 3.2-2. Rationale: 1. Authorities are responsible by law; "should be" implies uncertainty. 2. The word "any" introduces randomness; competent authorities are responsible for official controls throughout the entire process. Supporting evidence: UK Official Controls Regulations UK import control procedures	Did not agree with the replacement of 'should be' with 'are', as 'should' is established convention for expressing standards within the <i>Terrestrial Code</i>. Agreed with the replacement of 'any steps' with 'all steps'.
5.6.2._5_ EU	Category: editorial Proposed amended text: <u>Their legal mandate and responsibilities of the Veterinary Authority and other relevant Competent Authorities, should include the import official controls at any step of the import process</u> and <u>the possibility</u> to request from the <u>operator</u> any necessary information. Rationale: Editorial.	Agreed

An *importing country* may require adequate advance notice or approval regarding the date of entry of commodities into its territory ~~of commodities~~, stating the type of *commodity*, species, quantity, means of transport and the *border inspection post* to be used.

~~The Veterinary Authority or other Competent Authorities when relevant, should perform~~ Official inspections ~~should be implemented, with appropriate frequency, in accordance with Article 3.2.12. regularly, based on a risk basis and with appropriate frequency~~ to ensure compliance with the *importing country* requirements. By way of derogation, the *Veterinary Authority* or other relevant Competent Authorities may exempt from the inspection, *safe commodities* or *commodities* posing a negligible risk and for which inspection is not considered necessary.

5.6.2._6_ New Caledonia	Category: deletion Proposed amended text: ~~Par dérogation, L'Autorité vétérinaire ou d'autres Autorités compétentes pertinentes~~ peut / peuvent exempter d'inspection les <i>marchandises dénuées de risques</i> ou les <i>marchandises</i> présentant un risque négligeable et pour lesquelles l'inspection n'est pas jugée nécessaire. Rationale: Proposition de supprimer l'expression "par dérogation" à l'image de ce qui a été fait dans la même phrase dans le chapitre 5.5 :	Agreed
5.6.2._7_ New Zealand	Category: addition Proposed amended text: ~~Official~~ <u>border</u> inspections <u>should be implemented, with appropriate frequency.</u> Rationale: Currently, the text is ambiguous. We suggest amending the text to clarify that it refers to border inspection and not other forms of official inspections, such as in country audits.	Did not agree as this is referring to the import inspection and not limited to border inspection. The Commission noted that 'control' is a broad term regarding any processing measures and procedures during the international movement of a commodity, and 'inspection' is one of the measures and procedures, which is included in 'control', such as document or visual inspection.
5.6.2._8_ UK	Category: editorial/deletion Proposed amended text: ~~The Veterinary Authority or other Competent Authorities when relevant, should perform~~ Official inspections ~~should be implemented, with appropriate frequency, in accordance with Article 3.2.12. regularly, based on a risk basis and with appropriate frequency~~ to ensure compliance with the <i>importing country</i> requirements. By way of derogation, the <i>Veterinary Authority</i> or other <u>relevant Competent Authorities</u> may exempt from the inspection, <i>safe commodities</i> or <i>commodities</i> posing a negligible risk ~~and for which inspection is not considered necessary.~~ Rationale: 1. We consider further clarification is needed for the following sentence "Official inspections should be implemented regularly, based on risk assessment, with appropriate frequency to ensure compliance." As current wording is unclear; This line is unclear. Official inspections are based on evidence and on the assessment of a risk, not on risk itself. The assessment of the risk is what will determine the frequency of the inspections.	Agreed

	2. If the commodities are exempt from inspection, it is clear the inspection is not considered necessary so the last part of the sentence is redundant.	
5.6.2._9_ EU	Category: editorial Proposed amended text: "Official <u>inspections controls</u> should be implemented, with appropriate frequency, based on risk to ensure compliance with the importing country requirements. By way of derogation, the Veterinary Authority or other relevant Competent Authorities may exempt from the <u>inspection control</u>, safe commodities or commodities posing a negligible risk and for which <u>inspection control</u> is not considered necessary". Rationale For consistency, the term "controls" should be used instead of "inspections". In Article 5.6.2 and 5.6.3 both controls and inspections are used to describe the same procedure. To harmonize this should be changed to controls.	Refer to comment 5.6.2._7_New Zealand
5.6.2._10_ ICFAW	Category: addition Proposed amended text: ~~The Veterinary Authority or other Competent Authorities when relevant, should perform~~ <u>Official inspections should be implemented, with appropriate frequency, in accordance with Article 3.2.12, regularly, based on a risk basis and with appropriate frequency to ensure compliance with the importing country requirements and the safety of the animals.</u> Rationale: During importation, that is need all the occasion a transport the animal welfare needs to be included to minimize the risks of suffering and stress of the animals during the whole importation process.	Did not agree as it is standard practice.

Biosecurity should be applied to prevent transmission of pathogenic agents from *commodities* throughout the import process.

An *importing country* may prohibit the introduction entry into its territory of a consignment of commodities not complying with the *importing country* requirements.

5.6.2._11_ ICFAW	Category: addition Proposed amended text: An <i>importing country</i> may prohibit the <u>introduction entry</u> into its territory <u>of a consignment of commodities</u> not complying with the <i>importing country</i> requirements. <u>In some cases, such as animals, the importing country may verify the requirements before the animals leave the exit point, to avoid suffer and risks on welfare and health of the animals.</u> Rationale:	Did not agree as it is not necessary to provide this type of example in standards.

Operators/Importers should be aware of the *importing country* requirements and import procedure before the importation and inform announce, in advance, to the Veterinary Authority or other relevant Competent Authorities the arrival of consignments at the *border inspection post*, in accordance with *importing country* requirements. Operators/Importers should ensure that *commodities* are presented for official controls inspection at the *border inspection post*, together with the original official international veterinary certificates or documents, or digital equivalents, which are required to accompany the consignments.

5.6.2._12_ EU	Category: editorial Proposed amended text: <u>Operators</u> should be aware of the <i>importing country</i> requirements and import procedure before the importation and <u>inform</u> , in advance, the <u>Veterinary Authority or other relevant Competent Authorities</u> of the arrival of consignments at the <i>border inspection post</i> , in accordance with <i>importing country</i> requirements. Rationale Editorial	Agreed

In case of *animals*, ~~operators~~~~importers~~ should ensure that *animal welfare* is maintained throughout the ~~whole import process of importation~~, in accordance with ~~Chapters 7.1., 7.2., 7.3. and 7.4.~~ Section 7 as relevant.

5.6.2._13_ ICFAW	Category: deletion Proposed amended text: In case of <i>animals</i> , ~~operators~~ ~~importers~~ should ensure that <i>animal welfare</i> is maintained throughout the ~~whole import process of importation~~ , in accordance with ~~Chapters 7.1., 7.2., 7.3. and 7.4.~~ <u>Section 7 as relevant</u> . Rationale: the section 7 – animal welfare should be considering as a priority, once the living beings are using on the trade.	Did not agree as the text refers only to the relevant chapters in Section 7.

The ~~Veterinary Authority of the importing country~~ should carry out collaborative activities with other relevant Competent Authorities, customs, and other law enforcement authorities, and operators, and with *Veterinary Authorities* in other countries, to control the risk posed by ~~the illegal or informal~~ cross-border movement of *commodities*, i.e. e.g. international movement of commodities done in a way that avoids official controls intentionally (illegal) or that may be unregulated but may still present risks (informal). ~~to expressly and intentionally avoid official controls.~~

Article 5.6.3.

General principles applicable to procedures for import official controls for importation

Veterinary Authority or other relevant Competent Authorities should ~~take control of~~ the imported *commodities* to ~~decide~~ determine whether ~~or not~~ the consignment complies with the *importing country* requirements.

5.6.3._1_EU	Category: editorial Proposed amended text: <u>The</u> <i>Veterinary Authority</i> or other <u>relevant Competent Authorities</u> should control the imported <i>commodities</i> to <u>determine</u> whether the consignment complies with the <i>importing country</i> requirements. Rationale Editorial	Agreed

~~Import Official controls~~ should be ~~performed~~ implemented at an appropriate place which might include a *border inspection post*, a point of entry, *quarantine centre*, the place of destination, or premises of the operator responsible for the consignment. The consignment should remain under the control of the *Veterinary Authority* or other relevant Competent Authorities until formal clearance and release.

5.6.3._2_UK	Category: change Proposed amended text:	Did not agree as the term 'implemented' is

	~~Import~~ <u>Official controls</u> should be ~~performed~~ <u>implemented</u> at an appropriate place which might include a <i>border inspection post</i>, a point of entry, <i>quarantine centre</i>, the place of destination, or premises of the operator responsible for the consignment. The consignment should remain under the control of the <i>Veterinary Authority</i> or other <u>relevant Competent Authorities</u> until formal clearance <u>and release</u>. Rationale: replace “implemented” by “<u>undertaken</u>” when referring to physical act of inspection. “Implemented” refers to controls being in place; “undertaken” refers to performing the inspection. Supporting evidence: UK terminology in official controls.	appropriate for use in relation to measures. The Commission highlighted that the wording within the <i>Terrestrial Code</i> is follows the established conventions in language for consistency.

In case of emergency, ships and aircrafts may be granted access to a port or airport ~~which that~~ are not their intended destination. In those cases, they should be subjected to the animal health and animal welfare measures which the *Veterinary Authority* or other relevant Competent Authorities may consider necessary based on the potential risk.

1. Official inspection

Where official inspections of *commodities* are ~~performed~~ implemented, they should always include a documentary check and, depending on the risk to human health, and animal health ~~and or~~ animal welfare, should also include identity checks and physical inspection checks. When the *Veterinary Authority* ~~or other Competent Authorities~~ Services needs to have full access to the consignment for the purpose of identity checks or physical inspection, consignments should be partially or fully unloaded from the means of transport.

5.6.3._3_EU	Category: editorial Proposed amended text: “1. Official <u>inspection control</u> Where official <u>inspections controls</u> of commodities are [...]”. Rationale Same comment again, see also point a) below. For consistency, the term controls should be used instead of inspections. In Article 5.6.2 and 5.6.3 both controls and inspections are used to describe the same procedure. To harmonize this should be changed to controls.	Refer to comment 5.6.2._7_New Zealand
5.6.3._4_ICFAW	Category: deletion and addition Proposed amended text: When the <i>Veterinary Authority</i> ~~or other Competent Authorities~~ <u>Services</u> needs to have full access to the consignment for the purpose of identity checks or physical inspection, consignments should be <u>partially or</u> fully unloaded from the means of transport. <u>The unloaded animals must be accommodated in secure stables with a roof for shade, bedding, water and feed to be sufficiently cared for during the time of inspection and prepared for the further journey.</u> Rationale:	Did not agree as it not necessary to mention such detail in the standards.

a) Documentary check

A documentary check should be ~~implemented~~ performed on all consignments presented for official controls ~~inspection~~ to ensure that they meet the *importing country* requirements.

A ~~D~~ocumentary check should include examination of the *international veterinary certificate*, and possibly of laboratory reports or other documents, including those of a commercial nature, which are required to accompany the consignment.

5.6.3._5_ New Zealand	Category: deletion Proposed amended text: <u>A</u> ~~D~~ ocumentary check should include examination of the <i>international veterinary certificate</i> , and possibly of laboratory reports or other documents, including those of a commercial nature, ~~which are required to accompany the consignment.~~ Rationale: Veterinary certificates do not always accompany consignments, for instance they may be transmitted via electronic exchange.	Did not agree, however the term 'accompany' was replaced with 'match' for clarity.

When ~~implementing~~performing a documentary check, the ~~Veterinary Authority or other Competent Authorities/Services~~ should inspect the required documents, in original or their digital equivalents as agreed between the *importing* and *exporting country*, to ensure that:

- i) the *international veterinary certificate* has been issued by the *Official Veterinarian* of the *exporting country*; complies with relevant principles set out in Article 5.2.3. and corresponds as relevant to the model ~~established~~ established by the *importing country* or agreed between the *exporting* and *importing country* for that commodity and intended use, based on Chapters 5.10. to 5.13.; and
- ii) the information contained in the checked documents complies with the *importing country* requirements.

b) Identity check

An ~~identity~~ check should be ~~implemented~~performed upon arrival of ~~the~~ consignment at the point of inspection, as a visual inspection to verify that the content and the labelling of a consignment, including the identification of *commodities*, seals and means of transport, correspond to the information declared in the *international veterinary certificate* and accompanying documents.

5.6.3._6_ EU	Category: editorial Proposed amended text: "An identity check should be implemented upon arrival of the consignment at the point of <u>inspection control</u> , as a visual inspection to verify that the content and the labelling of a consignment, including the identification of commodities, seals and means of transport, correspond to the information declared in the <i>international veterinary certificate</i> and accompanying documents". Rationale Same comment again as above.	Agreed, however the newly proposed Glossary definition for 'point of entry' was applied for clarity.

The frequency of identity checks, the quantity of *commodities* to be inspected as well as the criteria for ~~sampling selection for checking~~ should be determined by the *Veterinary Authority* or other relevant Competent Authorities of the *importing country* based on *risk assessment*.

c) Physical inspection

To verify compliance with importing country requirements and physical integrity, Pphysical inspection should include, as appropriate:

- i) clinical examination of ~~an animals~~ for evidence of ~~transmissible~~ diseases and *animal welfare* issues

5.6.3._7_ ICFAW	Category: addition Proposed amended text: i) clinical examination of ~~an animals~~ for evidence of ~~transmissible~~ diseases and <i>animal welfare</i> issues, <u>such as, heat stress, debilitation, pregnancy, animals that have birth, dehydration.</u> Rationale:	Did not agree as it is not necessary to provide examples in this context.

~~ii)ii) and physical checks of animal products and germinal products.~~

~~iii)iii) and, as appropriate, checks on packaging, seals, or and labelling.~~

5.6.3._8_ EU	Category: deletion Proposed amended text: “checks on packaging, ~~seals, or and~~ labelling.”. Rationale: Duplication: seals are already checked in the previous para, a) Identity check.	Agreed

~~iv) checks on the means of transport, labelling and temperature records,~~

5.6.3._9_ ICFAW	Category: addition Proposed amended text: ~~iv) checks on the means of transport, labelling and temperature records,~~ <u>duration of the journey (tachometry)</u> Rationale:	Did not agree as the current text is clear and sufficient.

~~v)v) the sampling for analysis, testing or diagnosis, and~~

- vi) any other checks required by the *Veterinary Authority* or other relevant Competent Authorities to verify compliance with the *importing country* requirements.

The frequency of physical inspection, the quantity of *commodities* to be inspected as well as the criteria for sampling selection for physical inspection should be determined by the *Veterinary Authority* or other relevant Competent Authorities of the importing country based on risk assessment, and considering the following:-

- i) For aAnimals

The ~~Veterinary Authority or other Competent Authorities of the importing country~~ should determine the number of *animals* to be clinically examined should be determined in accordance with the overall number of *animals* in the consignment and the declared purpose of the animals, ~~which it~~ may be increased if the physical checks carried out have not been satisfactory.

~~In some cases, such as, for animals that are not required to be identified individually and animals considered to be dangerous, clinical examination should could consist of observation of the state of health and behaviour of the entire group or of a representative number of animals.~~

If the clinical examination reveals an anomaly, a more thorough clinical examination may be carried out, including sampling and testing, where appropriate.

5.6.3._10_ New Caledonia	Category: change Proposed amended text: ~~Si l'examen clinique révèle une anomalie, u~~Un examen clinique plus approfondi comprenant, s'il y a lieu, des prélèvements et des épreuves de dépistage, peut être effectué, <u>notamment si l'examen clinique révèle une anomalie.</u> Rationale: Article 5.6.3.1.c) dernier alinéa du paragraphe sur la fréquence des inspections physiques des animaux : certains pays peuvent exiger des prélèvements et des épreuves de dépistages systématiques dans le cadre du suivi des animaux importés après leur arrivée, même en l'absence d'anomalies. Il est donc proposé de reformuler la phrase ainsi :	Agreed with the rationale, text was amended differently for clarity.

ii) ~~Germinal~~For germinal products

~~The Veterinary Authority or other Competent Authorities should carry out Physical checks of the consignment should be carried out to verify the compliance of labelling and the transport conditions with importing country requirements, including, when relevant, temperature records when relevant and the integrity of the seals, packaging material and cryogenic tanks.~~

~~The Veterinary Authority or other Competent Authorities of the importing country should determine the number of items to be checked, which may be increased if the checks carried out have not been satisfactory.~~

~~The Veterinary Authority or other Competent Authorities may carry out physical checks to verify that the labelling complies with importing country requirements.~~

Physical inspection may include laboratory testing of the *germinal products*.

If the physical checks reveal an anomaly, a more thorough inspection may be carried out.

iii) ~~For A~~animal products

~~The Veterinary Authority or other Competent Authorities should carry out pPhysical checks of the consignment should be carried out to verify the compliance of labelling and the transport conditions with importing country requirements, including temperature records when relevant and the integrity of the packaging material and seals.~~

~~The Veterinary Authority or other Competent Authorities may carry out physical checks to verify that the labelling complies with importing country requirements.~~

Physical inspection may include sensory examination and laboratory testing of the *animal products*.

If the physical checks reveal an anomaly, a more thorough inspection may be carried out.

2. Sampling and testing

Sampling and testing of imported *commodities* with a view to checking compliance with the ~~health-importing country~~ requirements laid down in the ~~international veterinary certificate~~, may be ~~implemented~~performed

following a risk-based sampling plan or upon suspicion of non-compliance resulting from the documentary, identity or physical checks of *commodities*, ~~without creating unjustified barriers to trade~~. Testing should be ~~implemented~~ performed in an ~~approved~~ laboratory.

5.6.3._11_ UK	Category: grammar correction Proposed amended text: Sampling and testing of imported <i>commodities</i> ~~with a view to checking compliance with the health importing country requirements laid down in the international veterinary certificate~~, may be ~~undertaken~~ performed following a risk-based sampling plan or upon suspicion of non-compliance resulting from the documentary, identity or physical checks of <i>commodities</i>, ~~without creating unjustified barriers to trade~~. Testing should ~~be undertaken~~ performed in an ~~approved~~ laboratory. Rationale: This edit improves the grammatical structure of the sentence. Replacing “performed” with “be undertaken” reads more naturally and aligns better with standard WOAHPH phrasing for official controls.	Refer to comment 5.6.2._7_New Zealand

The *Veterinary Authority* ~~or~~ other relevant Competent Authorities may develop a risk-based sampling plan for imported consignments, that should specify the percentage of consignments to be sampled, taking into account the animal health status of the importing and exporting country, the species concerned, the nature and declared purpose of the *commodities*, the number of incoming consignments and the results of previous sampling.

Where no immediate danger to animal health or public health is suspected from *commodities* sampled in accordance with a sampling plan, a consignment may be released before the results of laboratory tests are available. A traceability mechanism to recall commodities system should be in place ~~to recall commodities if needed~~.

3. Sanitary measures at import

To meet the *importing country* requirements, in addition to the *sanitary measures* implemented in the *exporting countries*, the *Veterinary Authority* ~~or~~ other relevant Competent Authorities of importing country may require *sanitary measures* to be implemented at importation before release of the *commodities* from official controls. Measures may include *disinfection* ~~of~~ and *disinsection* ~~of~~ *disinsection* ~~elimination of arthropod vectors from~~ *vehicles/vessels/means of transport* and *containers* used in the transportation and unloading of *commodities*, in accordance with Chapter 4.14.

5.6.3._12_ New Caledonia	Category: editorial Proposed amended text: Pour satisfaire aux exigences du <i>pays importateur</i>, en plus des <i>mesures sanitaires</i> mises en œuvre dans les <i>pays exportateurs</i>, l'<i>Autorité vétérinaire</i> ou d'autres <i>Autorités compétentes pertinentes</i> du ~~pays importateur~~ peut / peuvent exiger que des <i>mesures sanitaires</i> soient mises en œuvre à l'importation, avant la libération des <i>marchandises</i> <u>suite aux</u> ~~des~~ contrôles officiels. Rationale: Article 5.6.3.3 Mesures sanitaires à l'importation : il est proposé de reformuler la phrase pour clarifier son sens :	Agreed (only in French version)
5.6.3._13_UK	Category: general Proposed amended text: To meet the <i>importing country</i> requirements, in addition to the <i>sanitary measures</i> implemented in the <i>exporting countries</i>, the	Did not agree, however deleted 'at importation' for clarity.

	<i>Veterinary Authority</i> or other <u>relevant</u> <i>Competent Authorities</i> of ~~importing country~~ may require <u>sanitary measures to be implemented at importation</u> before release of the <i>commodities</i> from official controls. Measures may include <u>disinfection of</u> and <u>disinsection of</u> ~~disinsection~~ <u>elimination of arthropod vectors from</u> ~~vehicles/vessels~~ <u>means of transport</u> and <u>containers</u> used in the transportation and <u>unloading of commodities</u>, in accordance with Chapter 4.14. Rationale: The term “importation” refers to a process with multiple stages. For operational clarity and consistent application, it is important to specify that these measures apply at the specific point of import (e.g. border inspection post/official control point) prior to release from official controls.	

In the case of *animals*, measures may include vaccination, testing, treatment or isolation. In the case of other *commodities*, measures may include a holding period or the application of physical or chemical treatment.

5.6.3._14_ EU	Category: editorial Proposed amended text: For this text: “In the case of animals, measures may include vaccination, testing, treatment or isolation” it is suggested to check with an editor if the word “or” clearly allows to put either of these measures and not all of them in a compulsory way. It appears important that isolation be performed systematically but the other measures might not be systematically needed.	Not necessary, these are provided as examples.

4. Release of consignments

Based on the ~~implement~~ performed import official controls implemented, the *Veterinary Authority* or other relevant *Competent Authorities* of ~~importing countries~~ should decide whether the consignment complies with the *importing country* requirements.

When the decision is made that the consignment complies with the *importing country* requirements and has been cleared for release, the *Veterinary Authority* or other relevant *Competent Authorities* should notify the ~~operator~~ importer and the information should be made available to the customs authorities.

Article 5.6.4.

Further action for non-compliant commodities

Commodities identified as non-compliant based on the ~~implement~~ performed import official controls implemented should not be released by the *Veterinary Authority* or other relevant *Competent Authorities* and should be ~~isolated~~ detained under appropriate conditions including isolation for animals, pending further decision ~~by the Competent Authority~~.

Depending on the type of *commodity* and the *risk* the *commodity* represents to animal health, human health and animal health, and the environment, or ~~for due to animal welfare~~ reasons, the *Veterinary Authority* or other relevant *Competent Authorities*, should identify the options for the disposition of the *commodities* and notify the ~~operator~~ importer. Disposition of *commodities* may include:

5.6.4._1_	Category: editorial Proposed amended text:	Agreed (only in French version)

New Caledonia	En fonction du type de <i>marchandise</i> et du <i>risque</i> que celle-ci représente pour <i>la santé animale et la santé humaine et la santé animale</i>, ainsi que pour l'environnement, ou pour des raisons de <i>bien-être animal</i>, l'<i>Autorité vétérinaire</i> ou d'autres <i>Autorités compétentes pertinentes</i> doivent établir les options relatives au <i>devenir retrait</i> des <i>marchandises</i> et en informer l'<i>importateur</i> l'opérateur. Le <i>devenir retrait</i> des <i>marchandises</i> peut comprendre les éléments suivants Rationale: proposition de changer le mot "retrait" par "devenir" qui correspond mieux à ce qui figure dans les versions anglaise et espagnole. Par ailleurs, le retrait est déjà "une décision" quant au devenir d'une marchandise :	

- a) ~~re-dispatching-re-shipping~~ the *commodity* back to the *exporting country* or another country, with the agreement, where appropriate, of the receiving *Competent Authority*;
- b) subjecting the *commodity* to treatment or to other risk mitigation measures necessary to allow importation;
- c) *killing* and disposal of *animals*, or destruction of other *commodities*.

5.6.4._2_ Canada	Comment Category: Addition Proposed amended text: c) <i>killing</i> and disposal of <i>animals</i>, or destruction <u>and disposal</u> of other <i>commodities</i>. Rationale: In addition to destruction, it is essential that non-compliant materials are safely disposed of, for example by incineration or deep burial. This ensures that they are not exposed to animals in the importing country, and therefore do not present a risk of disease introduction in imported products.	Agreed with rationale To avoid the misunderstanding, the term 'destruction' was replaced with 'disposal'.

Any action applied to consignments of *animals* should comply with ~~Chapters 7.1. and 7.6.~~ the relevant provisions of Section 7.

The *Veterinary Authority* or other relevant Competent Authorities of the importing country should notify any decision and reasons to refuse entry of a *commodity* to the customs authorities and are encouraged to communicate it to the *Veterinary Authority* of the *exporting country*. Where appropriate, the Veterinary Authority of the exporting country should be given the opportunity to explain the situation in an attempt to have the consignment released.

Following decisions taken in relation to non-compliant *commodities*, the *Veterinary Authority* or other relevant Competent Authorities should supervise the effective disposition of the *commodities* and apply measures to prevent the introduction into the country of *commodities* which have been refused import, and the reuse of the *international veterinary certificate* that accompanied the consignment.

The *Veterinary Authority* or other relevant *Competent Authority* of the importing country should inform the *exporting country* of any case of a *listed disease* or disease referred to in the *importing country requirements* in a consignment of *animals*.

5.6.4._3_ China (People's Rep. of)	Category: change Proposed amended text : <u>Subject to prior consultation, if the exporting country/region proactively requests to meet the needs of epidemic prevention and control, the Veterinary Authority or other relevant Competent</u>	Did not agree as the current text is clear and sufficient.

	<u>Authority of the importing country</u> should inform the exporting country of <u>any the</u> case of a <i>listed disease</i> or disease referred to in the <i>importing country requirements</i> in a consignment of <i>animals</i>. Rationale : The detection of disease in the Quarantine Centre does not affect the health status of the member animal, and the importing country/member has no obligation to notify the exporting country/region, in accordance with the revised Chapter 1.6. Therefore, the requirement for notifying the exporting country needs to be phrased with additional qualifying conditions. Secondly, the use of the word "any" in the original English version could easily lead members to interpret that all listed diseases or other disease cases required by the importing country must be notified to the exporting country/region. Such an interpretation might impose unreasonable notification obligations. Replacing "any" with "the" can effectively eliminate this ambiguity.	
5.6.4._4_ Japan	Category: Clarification Proposed amended text: <u>The Veterinary Authority or other relevant Competent Authority of the importing country</u> should inform the exporting country of any case of a <i>listed disease</i> or disease referred to in the <i>importing country requirements</i> in a consignment of <i>animals</i>. Rationale: Japan appreciates the Code Commission's response to our previous comment. According to the response, this is not meant to cover all <i>listed diseases</i>, but only the diseases referred to in the importing country requirements. However, there was no change to the text. Should a case of a <i>listed disease</i> be provided only when the disease is referred to in the <i>importing country requirements</i>?	To clarify, the text was amended to align with the text in Article 5.4.2. Furthermore, the phrase 'other relevant Competent Authority' was deleted as it is not the responsibility of other Competent Authorities to inform the occurrence of disease.
5.6.4._5_ New Caledonia	Category: editorial Proposed amended text: <u>L'Autorité vétérinaire ou toute autre Autorité compétente pertinente du pays importateur</u> doit informer le <i>pays exportateur</i> de tout cas de <u>détection d'un agent pathogène d'une maladie listée ou d'une de</u> maladie à laquelle il est fait référence dans les exigences du <i>pays importateur</i>, détectée dans un lot de <u>marchandises d'animaux</u>. Rationale: il fait référence à une "maladie détectée dans un lot d'animaux" mais ne convient-il pas d'informer le pays exportateur en cas de détection d'un agent pathogène dans un lot de marchandises (tel que le virus de l'IAHP ou la PPA dans des produits animaux) ?	Did not agree as this paragraph relates only to animals.

Article 5.6.5.

5.6.5._1_ ICFAW	Category: general Proposed amended text: Somewhere it must be mentioned that in case of animals, there must be a confirmation that animals once, they are on the journey cannot be rejected. There must be an insurance that animals are living beings cannot get stuck on a transport truck without being unloaded. There must be resting stables in place with sufficient spear capacities and re-importation into the EU must be possible. In case an importing country rejects animals, there must be an emergency plan how to deal with the animals. Rationale:	Did not agree, as this is not the scope of the standards.

Emergency planning for unexpected events

The ~~Veterinary Authority or other Competent Authorities of the importing country should develop a plan to address the occurrence, within the exporting country after the commodities have been exported or within the transit country after the commodities have transited, of a listed disease or a disease referred to in the importing country requirements which may have impacted the status of the exported commodities.~~

The ~~Veterinary Authority or other Competent Authorities may also develop a plan to address the occurrence of a listed disease, or a disease referred to in the importing country requirements, within the importing country before the animals have been released.~~

The ~~Veterinary Authority~~ or other relevant Competent Authorities should ensure that the ~~operator/importer~~ develops and documents a plan to address unexpected events emergencies which may impact the ~~compliance status of the commodities with importing country requirements being imported, and non-compliant commodities described in Article 5.6.4.~~ The ~~emergency~~ plan may be generic, or specific to each consignment, and should focus on preventing the introduction to the *importing country* of a *listed disease* or a disease referred to in the *importing country* requirements, and on animal welfare recommendations in accordance with Section 7 ~~Chapters 7.2., 7.3. and 7.4.~~ The ~~emergency~~ plan should identify responsibility and include procedures for actions taken for non-compliant *commodities* described in Article 5.6.4.

Article 5.6.6.

General recommendations applicable to vehicles/vessels/means of transport and containers that transported infected animals

~~Vehicles/vessels~~ Means of transport and *containers* that transported *animals* found to be infected with a pathogenic agent of a *listed disease* or a disease referred to in the *importing country* requirements should be considered as contaminated, and the *Veterinary Authority* or other relevant Competent Authorities should apply the following measures as appropriate to the risk:

- treatment or safe disposal of the litter, forage and any other potentially contaminated material, by its removal from the ~~vehicles/vessels/means of transport~~ and *containers* for immediate transportation to an establishment assigned in advance, where the animal health measures required by the *importing country* should be strictly applied;
- disinfection* of all parts of the ~~vehicles/vessels/means of transport~~ and *containers* which were used in the transport, feeding, watering, moving and *unloading* of the *animals*, as well as all baggage of travelling attendants, in accordance with Chapter 4.14.;
- ~~disinsection~~ disinsection elimination of arthropod vectors from ~~of vehicles/vessels of means of transport~~ and *containers* in case of vector borne diseases.

Article 5.6.7.

General principles applicable to disposal of international catering waste

International catering waste that may contain or may have been in contact with animal products, or other forms of untreated swill, is ~~are considered a high-risk category of product~~ and should therefore be subject to strict controls to minimise the risk of introduction of pathogenic agents.

5.6.7._1_ EU	Category: editorial Proposed amended text:	Agreed

	"International catering waste that may contain or may have been in contact with animal products ~~(including , or other forms of untreated swill)~~ are considered a high-risk [...]" Rationale: Proposed for clarity reasons.	

The *Veterinary Authority* **or** other relevant Competent Authorities should ensure that **all** ~~all~~ **high risk** international catering waste entering the country from the international means of transport is handled, collected and disposed of in a way to minimise the risk of introduction of pathogenic agents.

Article 5.6.8.

General recommendations on measures to address identified **informal or** illegal movement of commodities at border inspection posts

To control the *risks* posed by **informal or** illegal cross-border movement at *border inspection posts*, the *Veterinary Authority* **or** other relevant law enforcement Competent Authorities should coordinate and cooperate closely with **all relevant authorities, including** the customs ~~authority and other law enforcement authorities~~ to ensure that the official ~~controls inspection of for commodities entering the country are is implemented performed~~ in accordance with the rules of this chapter and national legislation, including when fraud is suspected.

For that purpose, the *Veterinary Authority* **or** other relevant Competent Authorities should ensure the timely exchange with **all relevant authorities, including** the customs ~~and other relevant law enforcement authorities authority~~, including via electronic means, of information and decisions made relevant to the organisation and conduct of their respective activities for *commodities* entering the country. The *Veterinary Authority* or other relevant Competent Authorities should collaborate with **all relevant authorities, including** the customs ~~and other relevant law enforcement authorities authority~~ to ensure immediate notification to the *Veterinary Authority* **or** other relevant Competent Authorities ~~if of circumstances where a declaration is submitted to the customs authority for a consignment of those categories of commodities that should be subject to official inspection control but with no evidence of an official inspection control having been conducted~~.

5.6.8._1_ New Caledonia	Category: change Proposed amended text: ~~L'Autorité vétérinaire ou d'autres Autorités compétentes pertinentes doivent collaborer avec l'ensemble des autorités pertinentes, comprenant notamment l'autorité douanière et d'autres autorités pertinentes chargées de faire appliquer la loi, afin de s'assurer de la notification immédiate à l'Autorité vétérinaire ou à d'autres Autorités compétentes pertinentes des circonstances dans lesquelles une déclaration est transmise à l'autorité douanière pour un lot appartenant aux à ces catégories de marchandises qui doivent être l'objet d'un contrôle officiel soumises à une inspection officielle, mais pour lequel il n'y a aucun élément prouvant qu'il a été procédé à un une inspection officielle contrôle officiel.~~ <u>L'ensemble des autorités pertinentes chargées de faire appliquer la loi, y compris l'Autorité vétérinaire et l'autorité douanière, doivent collaborer pour s'assurer d'être informées si un lot de marchandises présenté à l'autorité douanière n'a pas été soumis à un contrôle officiel, alors qu'il doit faire l'objet d'un tel contrôle.</u> Rationale: la phrase est incompréhensible. Il est proposé de la reformuler pour améliorer sa compréhension :	Agreed with rationale The text was amended differently to improve the clarity.

The *Veterinary Authority* **or** other relevant Competent Authorities, in collaboration with **all relevant authorities, including** the customs **authority** and other ~~relevant law enforcement authorities~~, should have practical

arrangements in place to ensure the implementation of the measures described in Article 5.6.4. in case of detection of illegal cross-border movement of *commodities* at a *border inspection post*.

Article 5.6.9.

General recommendations on measures to address identified informal or illegal movement of commodities outside border inspection posts

To effectively control the *risks* posed by the informal or illegal cross-border movement of *commodities* outside of *border inspection posts*, the *Veterinary Authority*, in collaboration with or other relevant *Competent Authorities* should:

- 1) coordinate with border authorities (police, customs, transport, immigration) to provide technical support for identification of informal or illegal cross border movement of *commodities*;
- 2) develop and implement practical mechanisms to address informal or illegal cross border movement of *commodities* and ~~implementation thereof~~ in close collaboration with border authorities.

Reference	Comment	TAHSC response
5.7._1_Chile	Category: general Justificación: Chile apoya el cambio de nombre y los cambios profundos en el capítulo 5.7, acorde al avance del comercio y a los nuevos tiempos. Chile reconoce y agradece a OMSA y los expertos, por el trabajo que están realizando. Chile solicita que en algún momento se remita un borrador con un texto plano, para revisión de los países. Al igual que en los borradores propuestos de los capítulos precedentes (5.4, 5.5 y 5.6), el texto propuesto en este borrador del un nuevo capítulo 5.7, difiere en su totalidad del capítulo 5.7 vigente, desde el título hacia abajo. En consecuencia, desde el título hasta el final, todo el capítulo es por lo pronto un borrador, que deberá ser aprobado por la Asamblea de Delegados en su totalidad.	Refer to comment 5.4._1_Chile
5.7._2_Korea (Rep. of)	Category: general The Republic of Korea supports the revised Chapter reflecting the comments from Member Countries.	Noted
5.7._3_EU	Category: general The EU supports this draft revised chapter and refers to comments below.	Noted
5.7._4_ICFAW	Category: general Proposed amended text: Deletion of the word ~~commodities~~ and change for ~~live animals and animals-~~ based products. Rationale: In the current standard in Chapter 5.6, it is named "live animals" and "animals' carcass". And according to Paola et al. (2022), when we treat animals as a commodity by general consent as a medium of economic exchange, it is said that money applies to the value of animals. Money is also convenient for weighing different interests that affect public decisions. However, thinking just in terms of money for public health decisions or treating the animals as a commodity can affect how populations deal with zoonoses, food safety, antibiotic resistance, sustainable development, and welfare. Thus, decision making based on just monetary equivalents bears serious ethical concerns and calls for alternative practices. "Commodities" should be completely deleted. All the words commodities at the long of the text should be also changed for "live animals" and "animals-based products" Supporting evidence, if relevant Alternative Paradigms in Animal Health Decisions: A Framework for Treating Animals Not Only as Commodities Lively commodities and endemic diseases: Shifting commodity situations and nonhuman disability in cattle and sheep on UK farms - ScienceDirect	Refer to comment 5.4._7_ICFAW

CHAPTER 5.7.

BORDER INSPECTION POSTS AND QUARANTINE CENTRES

Article 5.7.1.

Purpose and scope

This chapter provides recommendations on *border inspection posts* and *quarantine centres* to support effective implementation of measures and procedures applicable to the exportation, transit and importation of *commodities*, in order to prevent the spread of pathogenic agents through international trade of commodities without creating unjustified trade restrictions.

5.7.1._1_ Japan	Category: Deletion Proposed amended text: This chapter provides recommendations on <i>border inspection posts</i> and <i>quarantine centres</i> to support effective implementation of measures and procedures applicable to the exportation, transit and importation of <i>commodities</i> , in order to prevent the spread of pathogenic agents <u>through international trade of commodities</u> without creating unjustified trade restrictions. Rationale: According to the <i>Glossary</i> , <i>international trade</i> means importation, exportation and transit <u>of commodities</u> .	Agreed

Quarantine centres may be used for isolation of *animals* either pre-exportation in accordance with disease-specific chapters in the *Terrestrial Code* or post-arrival. The *Veterinary Authority* or other relevant *Competent Authorities* should ensure that the application of *biosecurity* at *quarantine centres* is appropriate to the type of isolation being undertaken, and effectively mitigates risks in accordance with disease-specific chapters of the *Terrestrial Code* (pre-export isolation) or via *risk analysis* (post-arrival quarantine).

Border inspection posts are meant to keep *commodities* contained under adequate *biosecurity* until inspections are complete and decisions are taken on their destination.

5.7.1._2_ Japan	Category: Clarification Rationale: According to the draft of <i>Glossary</i> , <i>border inspection posts</i> means any <i>point of entry</i> for <i>commodities</i> and associated <i>facilities</i> , where official inspection is performed by <i>Veterinary Services</i> . We would like to ask for clarification whether facilities in which official inspection of <i>animals</i> transferred from a <i>point of entry</i> is performed by <i>Veterinary Services</i> are regarded as “associated facilities”.	Yes
5.7.1._3_ New Zealand	Category: change Proposed amended text: <i>Quarantine centres</i> may be used for isolation of <i>animals</i> either pre-exportation in accordance with disease-specific chapters in the <i>Terrestrial Code</i> or post-arrival. The <i>Veterinary Authority</i> , ~~or~~ and other relevant <i>Competent Authorities</i> , should ensure that the application of <i>biosecurity</i> at <i>quarantine centres</i> is appropriate to the type of isolation being undertaken, and effectively mitigates risks in accordance with disease-specific chapters of the <i>Terrestrial Code</i> (pre-export isolation) or via <i>risk analysis</i> (post-arrival quarantine). Rationale: While a Member Country’s Veterinary Authority may not directly undertake all the roles outlined in the <i>Terrestrial Code</i> , it should be primarily responsible for coordinating the implementation of the WOAHA animal health trade standards ¹ . To enable a Veterinary Authority to assure the validity of animal health quarantine systems in their country – systems that are underpinning disease status and included in international veterinary certification – the Veterinary Authority should be included in decisions related to the implementation of the standards in accordance with disease specific chapters and system of as a whole. The use of ‘and’ still allows for other relevant Competent Authorities to undertake roles, but while ensuring Veterinary Authority the mandate to enable coordinated systems aligned with the WOAHA standards. This also avoids siloed approaches to safe trade and biosecurity where shortcomings can follow. Supporting evidence: ¹ Terrestrial Code Glossary	Agreed

Article 5.7.2.

General considerations

Appropriate legislation should be in place, in accordance with Chapter 3.4., to define the facilities, the resourcing and operation of *border inspection posts* and *quarantine centres*, and for their approval.

Material and financial resources should be available at *border inspection posts* and *quarantine centres* as necessary to undertake the relevant functions of the facility while managing official controls, *biosecurity*, health and safety risks and *animal welfare* associated with the type and volume of *commodities* presented for inspection.

Appropriate administration systems should be available to personnel at *border inspection posts* and *quarantine centres* as necessary for the functions of the facility, including record keeping and information and communication technology, to support decision-making and communication.

Biosecurity consistent with Chapter 4.X. is critical to fulfil the functions of *border inspection posts* and *quarantine centres*.

The *Veterinary Authority* or other relevant *Competent Authorities* should ensure that:

5.7.2._1_ New Zealand	Category: change Proposed amended text: The <i>Veterinary Authority</i> ~~or~~ <u>and</u> other relevant <i>Competent Authorities</i> should ensure that: Rationale: See previous comment.	Agreed

- Operations at *border inspection posts* and *quarantine centres* are supported by sufficient authorised personnel who are operating under the principles of Chapter 3.2., appropriately qualified with access to regular training, consistent with the intended use and the type and quantity of *commodities* presented.
- Operational details for *border inspection posts* and *quarantine centres* are made available to operators described in Chapters 5.4., 5.5. or 5.6., including the intended use and the categories of *commodities* for which they are designated, exact locations, contact details, hours of operation, booking requirements and costs.
- Standard Operating Procedures (SOPs) are available to personnel at *border inspection posts* and *quarantine centres* describing the procedures undertaken there. Auditable records documenting the performance of these procedures should be kept, including the maintenance of *biosecurity*. Records should include the results of official controls, regular *surveillance* and *monitoring* in the facilities and the surrounding areas.

5.7.2._2_ New Caledonia	Category: change Proposed amended text: le personnel des <i>postes d'inspection frontaliers</i> et des <i>centres de quarantaine</i> ont des procédures <u>opérationnelles officielles</u> normalisées à leur disposition, décrivant les procédures qui y sont mises en œuvre ; des registres vérifiables documentant les performances de ces procédures doivent être tenus, notamment en ce qui concerne le maintien de la <i>sécurité biologique</i> ; les résultats des contrôles officiels, de la <i>surveillance</i> et du <i>suivi</i> régulier menés dans les installations et les zones environnantes doivent être consignés dans ces documents ; Rationale: Article 5.7.2, les 2 derniers alinéas et article 5.7.4.6) : Les SOPs sont traduits par "procédures officielles normalisées", le O de "Operating" correspond plus à "Opérationnelle" en français. Ces procédures ne revêtent d'ailleurs pas forcément un caractère officiel :	Agreed (only in French version)

- *Border inspection posts* and *quarantine centres* have access to *laboratories* and other *approved* service providers with SOPs as necessary to support the implementation of official controls and the measures described in Chapters 5.4., 5.5. and 5.6. consistent with Article 3.2.6.

5.7.2._3_ New Caledonia	Category: change Proposed amended text: les <i>postes d'inspection frontaliers</i> et les <i>centres de quarantaine</i> ont accès à des <i>laboratoires</i> et à d'autres prestataires de services <i>agréés</i>, des procédures <u>opérationnelles officielles</u> normalisées étant mises à disposition selon les besoins, afin d'aider à la mise en œuvre des contrôles officiels et des mesures décrites aux chapitres 5.4., 5.5. et 5.6., conformément à l'article 3.2.6. Rationale: Article 5.7.2, les 2 derniers alinéas et article 5.7.4.6) : Les SOPs sont traduits par "procédures officielles normalisées", le O de "Operating" correspond plus à "Opérationnelle" en français. Ces procédures ne revêtent d'ailleurs pas forcément un caractère officiel :	Agreed (only in French version)

Article 5.7.3.

Cooperation with other agencies

The *Veterinary Authority* or other relevant *Competent Authorities* should engage with other governmental authorities with responsibilities at international borders in the design and operation of *border inspection posts and quarantine centres*, to ensure that official inspection and clearance of transit or import consignments is streamlined where possible. Co-use of facilities and equipment at international borders with other authorities could be considered as long as it does not hinder *normal* operations *and measures* described in this chapter. Key principles of the World Trade Organization (WTO) Trade Facilitation Agreement should be considered to facilitate importation and transit of *commodities*.

5.7.3._1_ New Zealand	Category: deletion Proposed amended text: The <i>Veterinary Authority</i> <u>or other relevant Competent Authorities</u> should engage with other governmental authorities with responsibilities at international borders in the design and operation of <i>border inspection posts and quarantine centres</i>, to ensure that official inspection and clearance of transit or import consignments is streamlined where possible. Co-use of facilities and equipment at international borders with other authorities could be considered as long as it does not hinder <i>normal</i> operations <i>and measures</i> described in this chapter. Key principles of the World Trade Organization (WTO) Trade Facilitation Agreement should be considered to facilitate importation and transit of <i>commodities</i>. Rationale: The text is not necessary, as the sentence is already asking Veterinary Authorities to engage with other relevant government authorities, which would include any relevant Competent Authorities. Deletion would also support the role of the Veterinary Authority in trade, biosecurity animal health and animal welfare.	Did not agree Given the governmental structures within Members, all authorities are expected to coordinate with one another. The term 'or' was replaced with 'and' for clarity. Furthermore, to avoid misunderstanding regarding the term 'governmental authorities', it was replaced with 'agencies', as used in the article's title, to clarify the cooperation required between the authorities and other agencies.

Article 5.7.4.

Requirements for a border inspection post

Design and operation of a *border inspection post* should be based on *risk analysis* and *biosecurity* including the following:

- 1) Separation between public areas and restricted areas for inspection of consignments.
- 2) Perimeter security of restricted areas to prevent entry of unauthorised people and *means of transport*, and unwanted animals, with access control for entry and exit of authorised personnel and *means of transport*.
- 3) Facilities and equipment suitable for the type and volume of *commodities* presented, necessary for implementation of the official control procedures described in Article 5.6.3, including secure unloading and loading, inspection, sampling and storage or detention of *commodities*, including adequate lighting and temperature control with surfaces appropriate for cleaning and *disinfection*.
- 4) Facilities and equipment for cleaning, ~~and disinfection~~ and ~~disinsection elimination of arthropod vectors~~ of *means of transport* and *containers* that have been used in transportation of *commodities*, consistent with Article 5.6.6.
- 5) Waste management for restricted areas with storage facilities as necessary, for solid and liquid waste ~~and, including discarded feed~~, rejected consignments, ~~dead animals and used bedding~~, with access and secure transportation to facilities for treatment of waste.
- 6) Operational procedures SOPs for cleaning and disinfection, waste management, and control of rodents and potential vectors.

5.7.4._1_ New Caledonia	Category: change Proposed amended text: 16)des procédures ~~opérationnelles~~ ~~officielles~~ <u>opérationnelles normalisées</u> pour le nettoyage et la <i>désinfection</i> , la gestion des déchets, et le contrôle des rongeurs et des <i>vecteurs</i> potentiels. Rationale: Article 5.7.2, les 2 derniers alinéas et article 5.7.4.6) : Les SOPs sont traduits par "procédures officielles normalisées", le O de "Operating" correspond plus à "Opérationnelle" en français. Ces procédures ne revêtent d'ailleurs pas forcément un caractère officiel :	Agreed
5.7.4._2_ USA	Comment category: Addition Proposed amended text: 6) ~~Operational procedures~~ ~~SOPs~~ for cleaning and <i>disinfection</i> , <u>management of sick or dead animals</u> , waste management, and control of rodents and potential vectors. Rationale: To capture biosafety measures needed at border inspection posts, and align language with that used to capture biosafety measures needed at quarantine posts (Art 5.7.7 point 12)	Agreed

Article 5.7.5.

Additional requirements for a border inspection post for animals

In addition to the principles described in Article 5.7.4., a *border inspection post* for consignments of *animals* should be designed and operate in accordance with *animal welfare* principles in Section 7 and should specifically include the following:

- 1) Separate access to restricted animal inspection areas via road infrastructure, to minimise delays.
- 2) Facilities and equipment necessary for the management of consignments of *animals* according to Article 5.6.3, including containment, feeding, watering, restraint and inspection, consistent with the type and number of *animals* presented.

5.7.5._1_ ICFAW	Category: addition Proposed amended text: Facilities and equipment necessary for the management of consignments of <i>animals</i> according to Article 5.6.3, including containment, feeding, watering, restraint and inspection, consistent with the type, <u>age</u> and number of <i>animals</i> presented. Rationale: animals from different species must receive suitable feed according to their age, species, as also mentioned on the article 7.5.4.	Agreed

- 3) Facilities for temporarily holding *animals*, with adequate **housing or restraint mechanisms**, space, light, ventilation and separation as appropriate between consignments, **and species or treated and untreated animals**.

5.7.5._2_ ICFAW	Category: addition Proposed amended text: Facilities for temporarily holding <i>animals</i> , with adequate housing or restraint mechanisms , space, light, bedding material ventilation and separation as appropriate between consignments, and species or treated and untreated animals . Rationale:	Did not agree as 'housing' already includes the notion of bedding.

- 4) Separate facilities to isolate sick animals.

5.7.5._3_ ICFAW	Category: addition Proposed amended text: Separate facilities to isolate sick animals and treat sick animals . Rationale Should we included that animals with no possibility of treatment, because of debilitation or suffer, should be emergency killing with appropriate methods according the 7.6 Chapter.	Did not agree Treatment is included in the management of sick animals in the point below.

- 5) Facilities and equipment for the management of sick or dead animals. Animal animal waste management for dead animals, discarded feed, solid and liquid waste and used bedding.

Article 5.7.6.

Facilities involved in official inspection other than **the** border inspection post

When the *Veterinary Authority* or other relevant *Competent Authority* defines that official inspection could be implemented at an appropriate place other than a *border inspection post*, the facilities involved should be *approved* following the principles outlined in Articles 5.7.4. and 5.7.5., and the consignment should remain under *biosecurity* and the control of the *Veterinary Authority* or other relevant *Competent Authorities* until formal clearance.

5.7.6._1_ New Zealand	Category: change Proposed amended text: When the <i>Veterinary Authority</i>, ~~or~~ and other relevant <i>Competent Authority</i>, defines that official inspection could be implemented at an appropriate place other than a <i>border inspection post</i>, the facilities involved should be <i>approved</i> following the principles outlined in Articles 5.7.4. and 5.7.5., and the consignment should remain under <i>biosecurity</i> and the control of the <i>Veterinary Authority</i> or other relevant <i>Competent Authorities</i> until formal clearance. Rationale: The Veterinary Authority should have the authority to ensure biosecurity controls are met before the commodity enters the country to provide confidence that appropriate import measures are being applied to protect the country's animal health status and to provide assurances to trade partners. The use of 'and' still allows for other relevant Competent Authorities to undertake roles, but while still ensuring the Veterinary Authority has appropriate authority in ensuring alignment with the WOAHS standards Supporting evidence: Terrestrial Code Glossary	Did not agree as that this decision may be considered not only by the Veterinary Authority.

Article 5.7.7.

Requirements for a quarantine centre

Design and operation of a *quarantine centre* should be based on consideration of the following:

- 1) The disease situation of the country, *zone* or area surrounding the *quarantine centre*.
- 2) Location of facilities at a distance from other *establishments*, sufficient to avoid transmission of diseases of concern, taking into account relevant risk factors.
- 3) Site topography, to minimise disease risks associated with the flow of contaminated water.
- 4) Perimeter security to prevent entry of unauthorised people and *means of transport*, and unwanted animals.
- 5) Controls, including sanitary requirements, for entry and exit of authorised personnel, and the facilities necessary to apply these controls including changing rooms and showers. Controls for exit of authorised personnel may not be necessary for the isolation of *animals* before exportation or clearance.
- 6) Controls, including sanitary requirements, for entry and exit of *means of transport* and equipment, including veterinary instruments and supplies, and the facilities necessary to apply these controls. Controls for exit of means of transport and equipment may not be necessary for the isolation of animals before exportation or clearance.
- 7) Controls for entry of supplies, including the sources, sanitary status and entry process for *feed* and bedding, and facilities necessary to handle and store these supplies.
- 8) Facilities and equipment for cleaning and *disinfection*, and removal of arthropod *vectors* including control of waste and effluent, for *means of transport* and *containers* that have been used in transportation of import consignments of *animals*.

5.7.7._1_ EU	Category: editorial "Facilities and equipment for cleaning and disinfection, and ~~removal of arthropod vectors disinsection~~ including control of waste and effluent, for means of transport and containers that	Agreed

	have been used in transportation of import consignments of animals.”.	
	Rationale: Align wording with point 11.	

- 9) ~~Waste management~~—In the case of isolation of *animals* after arrival, waste management should be in accordance with a *biosecurity plan* including storage facilities as necessary, for solid and liquid waste, including discarded *feed*, rejected consignments, dead *animals* and used bedding, with access and secure transportation to facilities for treatment of waste.
- 10) Facilities and equipment for the containment and management of consignments of *animals*, including as appropriate to the animal species separation between consignments, unloading and loading, housing, feeding, watering, yards, restraint and handling, isolation, *vector* control, and for undertaking interventions required by *risk analysis* and/or relevant disease-specific chapters of the *Terrestrial Code*, including sample collection, testing, *vaccination*, treatment and veterinary inspection.

5.7.7._2_ New Caledonia	Category: editorial Proposed amended text: <u>10) des installations et des équipements pour le confinement et la gestion des lots d'animaux y compris comprenant, en fonction des espèces animales, des installations et des équipements pour la séparation entre les lots, le déchargement, / et le chargement, l'hébergement, l'alimentation, l'abreuvement, des cours, des installations ainsi que pour l'immobilisation, et la manipulation, l'isolement, le contrôle des vecteurs, et pour la mise en œuvre des interventions requises par l'analyse des risques et / ou par les chapitres spécifiques à des maladies pertinents du Code terrestre, notamment le prélèvement d'échantillons, les épreuves de dépistage, la vaccination, le traitement et l'inspection vétérinaire :</u> Rationale: la coupure de la phrase avec le mot “des cours” rend sa compréhension difficile, il est proposé de reformuler pour éviter les répétitions des termes « installations et équipements » et supprimer les mots « des cours » qui sont intégrés dans la notion « d'hébergement » :	Agreed with rationale. Text was amended differently for clarity (only in French version).

- 11) Equipment for cleaning, and disinfection and disinsection ~~removal of arthropod vectors~~—in the facility between consignments of *animals*.
- 12) SOPs Operational procedures for cleaning and *disinfection*, management of sick or dead animals, waste management, and control of rodents and potential vectors.

5.7.7._3_ Canada	Comment Category: Addition Proposed amended text: <u>SOPs Operational procedures for cleaning and disinfection, management of sick, non-negative, positive or dead animals, waste management, and control of rodents and potential vectors.</u> Rationale: The detection of positive or non-negative animals during post import testing needs to be captured under SOP as this part is not included under unexpected events.	Agreed with rationale Text amended differently for clarity. The term ‘non-compliant’ means the animal does not meet any of the inspection held including identity check, documental check etc.

13) Separate facilities to isolate sick animals.

A *quarantine centre* for isolation of *animals* before exportation should be used to address the specific requirements in disease-specific chapters of the *Terrestrial Code*. Unless specified in those chapters or importing country requirements, isolation of *animals* before exportation may be performed in other approved facilities.

5.7.7._4_ New Zealand	Category: change Proposed amended text: A <i>quarantine centre</i> for isolation of <i>animals</i> before exportation should be used to address the specific requirements in disease-specific chapters of the <i>Terrestrial Code</i>. <u>Unless</u> specified in those chapters <u>or importing country requirements</u>, isolation of <i>animals</i> before exportation may be performed in other <u>approved</u> facilities. Rationale: Change provides clarity that the baseline position is a quarantine centre is used prior to export unless otherwise specified in the disease specified chapter or import conditions. As it is currently written it provides ambiguity on the standard of facilities, particularly when the proposed changes to the glossary definition of 'approved' are considered.	Did not agreed as this reflects an established principle and wording convention used in the <i>Terrestrial Code</i> .

Article 5.7.8.

Planning for unexpected events

The management of consignments at *border inspection posts* and *quarantine centres* that have failed clearance and have thus been refused transit or import is covered in Chapters 5.4. to 5.6.

The *Veterinary Authority* or other relevant *Competent Authorities* should ensure that plans are available to personnel at *border inspection posts* and *quarantine centres* that support responses to foreseeable but uncommon events. The plans should address communication, *biosecurity*, health and safety, and *animal welfare* in each instance, and may cover:

5.7.8._1_ New Zealand	Category: change Proposed amended text: The <i>Veterinary Authority</i>, ~~or~~<u>and</u> other relevant <i>Competent Authorities</i>, should ensure that plans are available to personnel at <i>border inspection posts</i> and <i>quarantine centres</i> that support responses to foreseeable but uncommon events. The plans should address communication, <i>biosecurity</i>, health and safety, and <i>animal welfare</i> in each instance, and may cover: Or The <i>Veterinary Authority</i>, ~~or~~<u>in collaboration with</u> other relevant <i>Competent Authorities</i>, should ensure that plans are available to personnel at <i>border inspection posts</i> and <i>quarantine centres</i> that support responses to foreseeable but uncommon events. The plans should address communication, <i>biosecurity</i>, health and safety, and <i>animal welfare</i> in each instance, and may cover: Rationale: Consistency with the proposed Chapter on Emergency Management, which recognises the Veterinary Authority and Veterinary Services as the main actors in a response to an emergency requiring animal disease prevention, early detection and control, and maintaining or restoring disease freedom, as well as the protection of animal welfare. In addition, preventing the transboundary disease movement is a key role of the Veterinary Authority and Veterinary Services. Ensuring appropriate import measures and procedures related to animal commodities is arguably the most important part of biosecurity and the facilitation of trade in relation to animal health, consequently the role of the Veterinary Authority should be included in this text.	Agreed (replace 'or' with 'and')

- Unexpected arrival of *commodities*.
- Evidence of a *listed disease* or a disease included in the *transit* or *importing country* requirements in a consignment of imported or transiting *animals* at a *border inspection post* or *quarantine centre*.
- Veterinary emergency in *animals* at a *border inspection post* or undergoing post-arrival isolation in a *quarantine centre*.
- Escape of *animals* or unwanted entry of *animals*.
- Evidence of *animal products* presenting a risk to animal or public health.
- Natural disasters and interruption of critical services threatening the operation of the *border inspection post* or *quarantine centre*.

CHAPTER 7.5.

ANIMAL WELFARE DURING SLAUGHTER

Reference	Comment	TAHSC response
7.5._1_EU	The EU in general supports this revised Article having one comment.	Noted.
7.5._2_ Korea (Rep. of)	The Republic of Korea agrees with the revised Article 7.5.30 on electrical water-bath stunning for poultry and confirms that national practices in the Republic of Korea are consistent with this Article.	Noted.
7.5._3_ New Zealand	Category: General comment Proposed amendment text: The Standard should recognise that multiple electrical frequencies and waveforms can be used for effective stunning, and that specifying minimum currents for all is impractical. Instead, routine inspection should confirm the adequacy of stunning and neck-cutting procedures. The critical factor is that birds must not regain consciousness. This is particularly important for certain religious slaughter requirements, where the animal must die from severing both carotid arteries rather than from the stun. The proposed parameters would not consistently achieve this outcome, making the standard unusable for many member countries with large religious populations. If the guiding principle of this WOAHA Chapter is to harmonise welfare standards for the best animal welfare outcomes, then the standard must be achievable by member states. The submitter notes that many countries currently allow exemptions for religious slaughter, meaning animals may be slaughtered without stunning. If the Standard does not allow for alternative validated parameters, it leaves Member Countries with little option but to adopt a non-stun approach to meet religious requirements. The submitter suggests that if the welfare standard included provisions to achieve both welfare and religious requirements, it would be more widely adopted.	The Code Commission noted this comment but stated that this chapter only focuses on the stunning parameters for ensuring that animals are unconscious before being killed; it does not provide stunning parameters required to kill animals.
7.5._4_ Switzerland	Category: General comment Switzerland thanks the WOAHA for the opportunity to comment on the report of the September 2025 meeting of the Terrestrial Animal Health Standards Commission. Switzerland supports the work programme and the proposed changes to all presented chapters. We do not have any specific comments	Noted.
7.5._5_ UK	Draft speaking note The United Kingdom thanks WOAHA for its extensive work on the revision of the chapter on animal welfare during slaughter, and for taking UK comments into account. Given the importance of this Article, the UK welcomes the refinements introduced, which align with scientific evidence. Good animal welfare at slaughter is not only a moral obligation; it is also a matter of public health. Animals that experience pain, distress, or fear at slaughter undergo physiological stress	The Code Commission noted this comment and stated that this chapter does ensure that animals are unconscious not only immobilised.

	responses, which can increase the release of pathogens into the bloodstream and surrounding tissues. This raises the risk of contamination during processing and compromises food safety. Humane handling and effective stunning therefore serve a dual purpose: they protect animals from unnecessary suffering and reduce the likelihood of pathogen transmission to humans. The UK's support for adoption of the proposed changes is therefore conditional upon a review of the text to ensure that the necessity of effective stunning is explicitly maintained and that the original meaning is not diluted. [If needed, As some countries may again suggest aligning parameters to practical trials: The UK wishes to reiterate that electrical waterbath parameters should only be agreed where they are supported by robust scientific evidence. This ensures that parameters adopted guarantee animals are rendered unconscious, rather than merely immobilised by the current, thereby safeguarding animal welfare.]	

[...]

Article 7.5.30.

Electrical water-bath stunning for poultry

1. Animal welfare concerns

In electrical water-bath *stunning* poultry are inverted and shackled by the legs from a shackle line. The bird's head has direct contact with the water-bath, and an electric current is passed from the water through the bird to the leg shackle. *Hazards* that may prevent effective electrical *stunning* are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency).

Hazards that increase the likelihood of animals experiencing pre-stun shocks are: poor handling at shackling, inappropriate line speed, physical contact between birds, incorrect angle of entry ramp, entry ramp wetted by charged water, incorrect water-bath height, and shallow immersion.

Factors affecting individual bird resistance include the resistance between the shackle and the leg (leg/shackle interface), shackling on top of a severed foot, shackling by one leg, poor shackle position, incorrect shackle size, dry shackles, scale on the shackle surface, and keratinised skin on the legs (e.g. older birds).

Where insufficient inappropriate electrical *stunning* parameters (current, voltage and frequency of current, and exposure time) are used, conscious animals are at risk of being electro-immobilised or paralysed causing *pain* and suffering.

7.5.30_1_ UK	Comment: Replace 'intensity' with 'current' The use of the word intensity is not standard in publications or law. In reference to the term "intensity" is this to mean "the amount of current" e.g. the amps ? If so, use of the word "current" instead of intensity might be best. Justification:	Agreed. The Code Commission noted that if this chapter is adopted, 'intensity' will be replaced by 'current' throughout the chapter.

	All papers relating to electrical current and manufacturers guidelines refer to current and amps not intensity. Change to read “(voltage, current and frequency, and exposure time)”. Reflecting this, electrical waterbath parameters in EU Regulation 1099/2009 Annex 1 refer to current rather than intensity. Scientific references: Perez-Palacios, S., and S. B. Wotton. "Effects of salinity and the use of shackle/leg sprays on the electrical conductivity of a commercial waterbath stunner for broilers." <i>Veterinary record</i> 158.19 (2006): 654-657. Prinz, S., et al. "Electrical waterbath stunning: influence of different waveform and voltage settings on the induction of unconsciousness and death in male and female broiler chickens." <i>Poultry Science</i> 91.4 (2012): 998-1008 EU Regulation 1099/2009 on the protection of animals at the time of killing	
7.5.30_2_ Chile	Categoría: editorial. Texto modificado propuesto (o supresión sugerida): Cuando se utilizan parámetros inapropiados insuficientes de aturdimiento eléctrico (intensidad, voltaje y frecuencia de la corriente, al igual que tiempo de exposición), los animales conscientes corren el riesgo de electro-inmovilizarse electo-inmovilizarse o paralizarse causándoles dolor y sufrimiento. Justificación: Aprovechar de corregir, ya que hay un error tipográfico (falta una “r”). Evidencia documentada: no corresponde por ser una modificación editorial.	Agreed. Only in the Spanish version

2. Animal-based and other measures

Multiple indicators should be used to determine whether a stun is effective and the animal is unconscious. Animal-based measures of an effective stun are: tonic-clonic seizures; apnoea; and absence of corneal or palpebral reflex.

7.5.30_2_ USA	Comment Category: Addition Proposed amended text: Animal-based measures of an effective stun are: tonic-clonic seizures; apnoea; and absence of comb, corneal or palpebral reflex. Rationale: In U.S. slaughter plants, assessing comb reflex can determine efficacious stunning: “Typically, a bird is considered stunned by plant personnel when it becomes unresponsive to stimulation of the cornea or comb with its eyes wide open, an arched neck, and tucked wings.³⁹” Supporting evidence: AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition (page 28, under “Behavioral reactions”)	Did not agree; this is a pain reflect and there may still be negative effects on the comb whilst the animal is still conscious.

Animal-based measures of ineffective stun or recovery of consciousness are: vocalisation; spontaneous blinking; righting reflex; presence of corneal or palpebral reflex; rhythmic breathing; spontaneous swallowing; and head shaking.

3. Recommendations

The height of the water-bath stunner should be adjusted so that the birds' heads are completely immersed in the water. Avoid distractions such as people walking under the birds because this can cause birds to pull up.

Personnel should watch for short or stunted birds as these birds will not be able to make contact with the water and will not be stunned. These birds should be stunned in the slaughter line (e.g. penetrative captive bolt) or removed and euthanised.

The rail of the shackle line should run smoothly. Sudden movement such as jolts, drops or sharp curves in the line may cause birds to flap and avoid the stunner.

To minimise any disturbance to birds during shackling, where shackles are wet to improve conductivity, they should be wetted only prior to birds' legs being placed in them.

7.5.30_3_ USA	Comment Category: Addition Proposed amended text: To minimise any disturbance to birds during shackling, where shackles are wet to improve conductivity, they should be wetted only prior to birds' legs being placed in them. Or, if using a foot spray to improve conductivity, the spray should be applied to the feet of the shackled birds immediately prior to stunner entry. Rationale: It is important to note that shackles are usually NOT wet prior to the shackling process. Rather, there is a spray added to the line just prior to the entry to the stunner to improve the conductivity (head in stunner and wet feet in shackles) for the electric stunning. Supporting evidence: Poultry Science. Volume 93, Issue 8, 1 August 2014, Pages 2087-2095. https://www.sciencedirect.com/science/article/pii/S0032579119384809#:~:text=Stunning%20Procedure&text=Following%20commercial%20practice%2C%20the%20feet,allow%20bleeding%20for%20150%20s. See section under Materials and Methods titled Stunning Procedure; specifically: "Following commercial practice, the feet of the live broilers were attached to metal shackles and the broilers were hung upside down as they were plunged into an electrified water bath (containing 1% NaCl) up to the base of their wings. The feet and shackles had been sprayed with water (containing 1% NaCl) to improve conductivity and to minimize different conductivities caused by variations in the contact areas between the feet and shackles."	Did not agree; this part of the chapter was not open for Member comment.

Pre-stun shocks should be avoided and can be reduced by having a smooth shackle line and entry to the water-bath and by adjusting the water level of the bath to minimise overflow.

In the case of ineffective *stunning* or recovery, animals should be re-stunned using a backup system or be killed immediately. Ineffective *stunning* or return to consciousness should be systematically recorded and the cause of the failure identified and rectified.

Stunning equipment should be used, cleaned, maintained and stored following the manufacturer's recommendations.

Constant current stunners should be preferred to constant voltage stunners because the former ensure that the minimum current is provided to the animals independently from their impedance.

Regular calibration of the equipment according to the manufacturer's procedure is recommended. Effectiveness of the *stunning* should be monitored regularly.

Slaughterhouses/abattoirs should have standard operating procedures that define key operating parameters or follow the manufacturer's recommendations for *stunning*, such as:

- water level, **salinity and temperature**;
- number of birds in the water-bath;
- contact between water and head, as well as between the legs and the leg shackle;
- electrical parameters (current intensity [A], waveform type [AC and DC], voltage [V] and frequency [Hz]);
- visual or auditory warning system to alert the operator to proper or improper function, such as a device that monitors and displays voltage and applied current.

7.5.30_4_ Thailand	Category: General It was observed that routine adjustment of both salinity and temperature is not always necessary for the effective operation of commercial poultry water-bath stunners. Adjustments to water conductivity may be applied as appropriate, considering relevant factors such as the condition of the poultry, water quality, and specific operational parameters. Proposed amended text: No text proposed Rationale: - Supporting evidence: -	Did not agree; no values of salinity or temperature were provided.
7.5.30_5_ Thailand	Category: Clarification In practice, for the poultry electrical water- bath stunners, the reliability of the stunning process is verified through regular operator assessment of animal-based indicators to confirm that effective unconsciousness has been achieved. However, it remains uncertain whether this form of monitoring fulfils the requirement for a visual or auditory warning system as specified in the Code. Proposed amended text: No text proposed Rationale: - Supporting evidence: -	Did not agree and clarify that if the specified criteria are verified then this is satisfactory.

Ensure an optimum The combination of intensity, voltage and frequency (for **AC and pulsed DC**) of current and exposure time during electrical water-bath *stunning* practices, **to maximise** **should ensure** the effectiveness of *stunning*. Lower frequencies ensure an effective stunning. Higher frequencies provide the lowest probability of a successful stun even at the highest intensity.

7.5.30_6_ USA	Comment Category: Deletion Proposed amended text: ~~Lower frequencies ensure an effective stunning. Higher frequencies provide the lowest probability of a successful stun even at the highest intensity.~~ Rationale: The final two proposed sentences are unnecessary. The United States uses different frequencies for stunning than other countries. Moreover, the USA does not have stunning failures because of the lower frequency used. Supporting evidence: For the United States, there are applicable references listed in the AVMA Guidelines for the Humane Slaughter of Animals, 2024 Edition https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf, pp 28-29	Did not agreed as this is an unnecessary addition.
7.5.30_7_ UK	Comment: Replace 'should ensure' with "must ensure", or "shall ensure" Justification: The word "should" suggests advice or recommendation. Both 'must' and "shall" terms preserve the original meaning 'ensure an optimum'. Effectiveness of stunning is not a recommendation, it is a necessary action to preserve the welfare of animals at the time of killing. Justification: Language point Scientific reference: N/A	The Code Commission did not agree; the code consists of recommendations only.
7.5.30_8_ New Zealand	Category: Change Proposed amendment text: ~~Lower frequencies ensure an effective stunning. Higher frequencies provide the lowest probability of a successful stun even at the highest intensity.~~ <u>Validated parameters may be used where the outcome of an effectively stunned bird is demonstrated to be met.</u> Rationale: The first section of this paragraph accurately describes that to have an effective stun, an appropriate combination of intensity (current), frequency, voltage and exposure time is required. High frequency stunning can be effective when used in combination with the correct intensity, voltage and duration settings. However, there are many types of electrical frequency and waveform that can be used for stunning, and it is not possible to specify minimum currents for every frequency and waveform. Instead, there should be routine inspection of the adequacy of the stunning and neck-cutting procedures. The key factor is that the chosen system should not allow birds to regain consciousness. The suggested additional text allows for other parameters to be used provided that the stun is shown to be effective, providing more flexibility, as is required by some countries.	Agreed with rationale but the text was amended differently.

	For some countries, religious requirements must also be met, which require that the birds are not killed as a result of the stun. Use of AC, DC and combined DC/AC stunners at high frequency are effectively used by some countries to ensure that birds are stunned but not killed by the waterbath. The proposed wording of this paragraph is limiting to these circumstances. Supporting evidence: Carne Technologies and Ministry for Primary Industries (2018) A review of the principles of electrical stunning. New Zealand Code of Welfare: Commercial Slaughter, part 5.1.2 “Two alternative approaches can be used in selecting the appropriate stunning current, frequency and waveform for water bath stunners. The first approach is to select a current which induces cardiac arrest at stunning. When using a 50 Hz sinusoidal AC, the average current per bird that will induce cardiac arrest is approximately: Chickens 120 mA Ducks 130 mA Turkeys 150 mA The second approach is to choose a stunning frequency or waveform that does not produce cardiac arrest at stunning, and to make sure that the birds are rendered unconscious by the stunning process and that they remain unconscious. One way of achieving this is to check that the birds are adequately stunned and that both carotid arteries are severed at neck cutting.” EFSA, (2004) Welfare Aspects of Animal Stunning and Killing Methods: pg 129, 132, 133 “Based on the existing scientific knowledge, it can be suggested that the minimum RMS current necessary to stun chickens would be 100, 150 and 200 mA per bird in a water bath supplied with up to 200, above 200 and up to 400, and above 400 and up to 1500 Hz AC, respectively. When currents of lower than this are applied, the depth and duration of unconsciousness induced by the stun may not be adequate to prevent resumption of consciousness before neck cutting or during bleeding.” Pg 130 “a minimum RMS current of 400 mA, which was found to be satisfactory for head-only electrical stunning of turkeys, could also be recommended for water bath stunning of turkeys with high frequencies of AC or pulsed DC.” – high frequencies were up to 1500Hz. Sabow, A. B., Nakyinsige, K., Adeyemi, K. D., Sazili, A. Q., Johnson, C. B., Webster, J., & Farouk, M. M. (2017). High frequency pre-slaughter electrical stunning in ruminants and poultry for halal meat production: A review. <i>Livestock Science</i>, 202, 124-134. Wotton, S. S., Zhang, X., McKinstry, J. J., Velarde, A., & Knowles, T. G. (2014). <i>The effect of the required current/frequency combinations (EC 1099/2009) on the incidence of cardiac arrest in broilers stunned and slaughtered for the halal market</i> (No. e255v1). PeerJ PrePrints. High frequency (1000Hz) applied at 200mA per bird resulted in stunned birds without cardiac arrest, that were able to recover, indicating that high frequency stunning of chickens in waterbaths can meet both religious and animal welfare requirements. This	

	paper concluded “that in order to meet both the legislative requirements (EC Regulation 1099/2009) for pre-slaughter stunning and the halal requirements for a live bird at slaughter, a minimum AC frequency of 1000 Hz at 200 mA per bird would be a reasonable compromise.”	
7.5.30_9_ People's Republic of China	Category: change Proposed amended text : ~~Ensure an optimum~~ The combination of <u>intensity</u>, voltage and frequency (for <u>AC and pulsed DC</u>) of current and exposure time during electrical water-bath <i>stunning</i> practices, <u>to maximise should ensure</u> the effectiveness of <i>stunning</i>. <u>Lower frequencies ensure an effective stunning. Higher frequencies provide the lowest probability of a successful stun even at the highest intensity.</u> Rationale : The effective stunning depends not only on the frequency, but also on the voltage (current). The assessment of high-frequency electrocution effects may be overly absolute. Contreras similarly observed varying stunning efficacy across frequencies of 60, 200, 350, 500, and 1,000 Hz at 40 V, with 1,000 Hz yielding optimal results characterised by increased blood yield and minimal carcass damage. This indicates that at constant voltage, appropriately increasing frequency can enhance superior stunning efficacy. In practice, high-frequency, low-voltage stunning systems can be applied to reduce cull rates and the severity of carcass damage. supporting evidence: Contreras, C. C. and Beraquet, N. J. (2001) 'Electrical stunning, hot boning, and quality of chicken breast meat', <i>Poultry Science</i>, 80, pp. 501-507.	Addressed above (7.5.30_8_).

Hazards to animal welfare such as inversion of conscious birds, pre-stun shocks, and variability in electrical current delivered to each bird are inherent risks of electrical water-bath *stunning*. Thus, alternative *stunning* systems which avoid these associated *hazards* should be preferred.

4. Species-specific recommendations

Effective electrical parameters should be based on scientific evidence for different species of birds.

7.5.30_10_ Singapore	Article 7.5.30. of Chapter 7.5. Animal welfare during slaughter – Point 4 Category Deletion Proposed amended text It is proposed that any minimum electrical stunning values (as indicated by the red boxes) be removed from the following section as it may not suit all commercial conditions.	Addressed above (7.5.30_8_).

	4. <u>Species-specific recommendations</u> Effective electrical parameters should be based on scientific evidence for different species of birds. Effective electrical parameters should be based on scientific data with field evidence on the welfare outcomes for different types and conditions of animals in accordance with point 5 of Article 7.1.4. For water-bath <u>stunning depending on the frequency</u>, minimum recommended parameters <u>minimum intensities per frequency</u> are recommended <u>for the following and</u> species <u>are</u>: - For frequency below 200 Hz: 100 mA for chicken, 250 mA for turkeys, 130 mA for ducks and geese, 45 mA for quails. - For frequency from 200 to 400 Hz: 150 mA for chicken, 400 mA for turkeys. - For frequency from 400-600 Hz: 200 mA for chicken, 400 mA for turkeys. Birds should receive the current for at least 4 seconds. Rationale: In Singapore, poultry slaughterhouses process a variety of poultry breeds and sizes to process daily. This requires continuous stunning parameter adjustments, and therefore it is challenging to follow the prescribed stunning parameters. This may differ from other countries where facilities typically process uniform breeds and sizes on a given day. Supporting evidence, if relevant: In Singapore, stunning efficacy is assessed through observation rather than equipment readings. The poultry should show clear signs of unconsciousness after exiting the stunner and remain unconscious until bleeding. There should not be signs of over-stunning such as carcass congestion. We had also received feedback from a local poultry slaughterhouse that when the WOAHA recommended parameters were applied, the poultry were inadequately stunned. This causes considerable pain and distress to the poultry.	

Effective electrical parameters should be based on scientific data with field evidence on the welfare outcomes for different types and conditions of animals in accordance with point 5 of Article 7.1.4.

For water-bath stunning depending on the frequency, minimum recommended parameters minimum current per frequency (AC) are recommended for the following and species are:

7.5.30_11_ UK	Comment: replace intensities with current The use of the word intensity is not standard in publications or law. In reference to the term "intensity" is this to mean "the amount of current" e.g. the amps ? If so, use of the word "current" instead of intensity might be best.	Agreed, addressed above (7.5.30_1_).

	Justification: All papers relating to electrical current and manufacturers guidelines refer to current and amps not intensity. Change to read "(voltage, current and frequency, and exposure time)". Reflecting this, electrical waterbath parameters in EU Regulation 1099/2009 Annex 1 refer to current rather than intensity. Scientific references: Perez-Palacios, S., and S. B. Wotton. "Effects of salinity and the use of shackle/leg sprays on the electrical conductivity of a commercial waterbath stunner for broilers." Veterinary record 158.19 (2006): 654-657. Prinz, S., et al. "Electrical waterbath stunning: influence of different waveform and voltage settings on the induction of unconsciousness and death in male and female broiler chickens." Poultry Science 91.4 (2012): 998-1008 EU Regulation 1099/2009 on the protection of animals at the time of killing	
7.5.30_12_ EU	The EU suggests amending the paragraph above as follows: 'For water-bath stunning, recommended minimum intensities per frequency (for AC) and species are:' Rationale: The EU would like to stress that stunning methods using pulsed DC are less effective than those using AC and may need different electric parameters to achieve the same results. From literature it seems difficult at present to recommend parameters for pulsed DC stunning. Consequently, the EU proposes that the recommended parameters are limited to AC stunning methods, and that this is clearly mentioned. - <i>HSA online guide on electrical waterbath stunning of poultry</i> S Prinz, G Van Oijen, F Ehinger, W Bessei, A Coenen https://doi.org/10.3382/ps.2009-00137	Agreed. The code provides recommendation combinations of frequency, current and species that are known to be effective. If other combinations are demonstrated to be successful, they can be used.

- For frequency below 200 Hz:
 - 100 mA for chicken,
 - 250 mA for turkeys,
 - 130 mA for ducks and geese,
 - 45 mA for quails.

7.5.30_13_ Korea (Rep. of)	In the Republic of Korea, chickens are stunned using a minimum current of 100 mA and ducks using a minimum current of 130 mA when a 60 Hz sinusoidal alternating current is applied, which complies with paragraph 4 of Article 7.5.30.	Noted.

- For frequency from 200 to 400 Hz:
 - 150 mA for chicken,
 - 400 mA for turkeys.
- For frequency from 400-600 Hz:

- 200 mA for chicken,
- 400 mA for turkeys.

Birds should receive the current for at least 4 seconds.

For dDucks, geese and quails should not be stunned at frequencies higher than 200 Hz will not achieve effective stunning and therefore are not recommended. [under study].

7.5.30_14_ UK	Comment: Replace 'are not recommended' with "must not be used for stunning", or "shall not be used for stunning". Justification: Replacing 'should not be used' for 'are not recommended' suggests a weakening of a key measure to protect animal welfare. Both 'must' and "shall" terms make clear that frequencies not achieving effective stunning are not to be used. Effectiveness of stunning is not a recommendation, it is a necessary action to preserve the welfare of animals at the time of killing. Justification: Language point Scientific references: N/A	Did not agree; the code is recommendations only.

For cChicken and turkeys should not be stunned at frequencies higher than 600 Hz will not achieve effective stunning and therefore are not recommended. [under study].

7.5.30_15_UK	Comment: Add 's' at the end of 'chicken' Justification: Language point - since turkeys is written in the plural form, chickens should also be plural to maintain consistency. Scientific references: N/A	Agreed.
7.5.30_16_ New Zealand	Category: Delete Proposed amended text: <u>For dDucks, geese and quails should not be stunned at frequencies higher than 200 Hz will not achieve effective stunning and therefore are not recommended. [under study].</u> <u>For cChicken and turkeys should not be stunned at frequencies higher than 600 Hz will not achieve effective stunning and therefore are not recommended. [under study].</u> <u>Alternative parameters that achieve an equivalent outcome, as assessed in line with 7.5.30 (2), may be used.</u> Rationale: The standard should allow alternative settings that achieve an equivalent outcome, as per the guiding principles of Article 7.1.2(8). There are many types of electrical frequencies and waveforms that can be effective, and it is not feasible to specify minimum currents for every combination. Instead, routine inspection should verify the adequacy of both stunning and neck-cutting procedures, as per 7.5.30(2). Two alternative approaches can be used when selecting the appropriate stunning parameters for water bath stunners: Select a current that induces cardiac arrest at stunning.	Did not agree; scientific evidence states using frequencies higher than 600Hz for chickens and turkeys will not achieve effective stunning.

	Select a frequency or waveform that does not induce cardiac arrest but ensures birds are rendered unconscious and remain so. One way to achieve this is by confirming that birds are adequately stunned and that both carotid arteries are severed during neck cutting. Settings in 7.5.30(4) likely induce cardiac arrest before neck cutting. However, language allowing validated alternatives would enable effective stunning (per 7.5.30(2)) while supporting the second approach. Some religious requirements do not allow bird to die from cardiac arrest, the standard must permit alternative validated parameters to meet those requirements; otherwise, Member Countries may resort to non-stun methods (see general comment). Supporting evidence: New Zealand Code of Welfare: Commercial Slaughter, part 5.1.2	
7.5.30_17_ Thailand	Category: Deletion Proposed amended text: Propose to remove specific details on the recommended minimum parameters and keep only the 2nd paragraph as follows; ~~Effective electrical parameters should be based on scientific evidence for different species of birds.~~ Effective electrical parameters should be based on scientific data with field evidence on the welfare outcomes for different <u>species</u>, types and conditions of animals in accordance with point 5 of Article 7.1.4. ~~For water bath stunning depending on the frequency, minimum recommended parameters minimum intensities per frequency are recommended for the following and species are:~~ ~~For frequency below 200 Hz:~~ ~~o 100 mA for chicken,~~ ~~o 250 mA for turkeys,~~ ~~o 130 mA for ducks and geese,~~ ~~o 45 mA for quails.~~ ~~For frequency from 200 to 400 Hz:~~ ~~o 150 mA for chicken,~~ ~~o 400 mA for turkeys.~~ ~~For frequency from 400-600 Hz:~~ ~~o 200 mA for chicken,~~ ~~o 400 mA for turkeys.~~ ~~Birds should receive the current for at least 4 seconds.~~ ~~For dDucks, geese and quails should not be stunned at frequencies higher than 200 Hz will not achieve effective stunning and therefore are not recommended. [under study].~~ ~~For eChicken and turkeys should not be stunned at frequencies higher than 600 Hz will not achieve effective stunning and therefore are not recommended. [under study].~~ Rationale: To reduce redundancy between the first two paragraphs and simplify	Did not agree. The Code is based on scientific evidence; countries should adapt these recommendations to their own ways of working.

	the Code's recommendation, focus primarily on assessing the outcome of the stunning process. Supporting evidence: The parameters recommended by WOAHA may not constantly achieve an optimal balance between animal welfare and carcass quality. Given the wide variability in poultry species, body sizes, and the types of stunning equipment employed across slaughterhouses, evaluating stunning efficacy through animal-based indicators, such as behavioral and physiological responses, offers a more reliable approach to ensuring welfare outcomes.	
7.5.30_18_ UK	Comment: Replace 'are not recommended' with "must not be used for stunning", or "shall not be used for stunning" [or 'are not permitted'] Justification: Language point - Replacing 'should not be used' for 'are not recommended' suggests a weakening of a key measure to protect animal welfare. Both 'must' and "shall" terms make clear that frequencies not achieving effective stunning are not to be used. Effectiveness of stunning is not a recommendation, it is a necessary action to preserve the welfare of animals at the time of killing. Scientific references: N/A	Did not agree.

[...]

Reference	Comment	TAHSC response
7.6._1_EU	Category (general): The EU thanks the Code Commission and in general supports this revised Chapter. The EU would like to propose some comments.	Noted
7.6._2_Australia	Category: General comment on Chapter 7.6 We appreciate the amount of work it has taken to develop this chapter. However, the chapter could benefit from further development to provide a practical and useful guide for Members when deciding on appropriate methods of depopulation of animals. Examples of areas that could be improved or expanded upon include: • Additional guidance should be added regarding appropriate circumstances for use of different methods. For example, several methods note they should be considered as a last resort however it is not obvious what would constitute such a situation. • Several articles could benefit from the addition of further detail regarding the methodology and species-specific factors affecting their use. For example, if there are specific size limits. • There are also obvious differences in the level of detail in some articles compared to others – for example, some articles provide detailed lists of animal welfare indicators, while other note only two or three items. Articles could be made more consistent in this regard. • References are occasionally provided in text however do not align with the reference list provided, which is also inconsistent in its formatting. In some cases, it is unclear which document is referenced – for example, EFSA 2019 is included in text but not mentioned in the reference list, and EFSA published several documents that year which are relevant and could be the source of the information. In-text references should be reviewed to assure they are represented in the reference list. • To further facilitate the general principle that ‘when loss of consciousness is not immediate, induction of unconsciousness should not cause avoidable distress, fear, and pain’, the recommendations in the killing articles for having a back-up method need to be followed with suggestions/recommendations for an appropriate method. Factors to consider include the primary killing method employed and its use context, the animal species, and the likely level of distress and pain experienced when the primary method is ineffective. For example, if use of a firearm or captive bolt has caused injury but not death then distress is not avoidable, and rapid killing methods otherwise recommended for use in unconscious animals may be appropriate. Failing to employ an effective back-up procedure promptly can greatly amplify poor animal welfare and risks creating a worse welfare outcome than is expected from effective use of any of the methods presented in the chapter. In the proposed amended texts for each killing method, a back-up method sentence has been added however suitable backup method(s) need to be specified. • The suitability of each method is dependent on the animal species. If the wrong method is chosen for the species and is ineffective, the attempt may result in considerable distress, fear, and pain. One solution to avoid any uncertainty or ambiguity in the Code is to state the species suitability at the beginning of each method. In the proposed amended texts, a species sentence has been moved or added to the beginning of the article.	Noted

	• Guidance should be provided to assist users of the Code in identifying appropriate and preferred methods of primary and secondary killing, such as through a table identifying preferred options for different species. Many of the killing methods described in the articles explicitly state significant animal welfare concerns with their use, including that loss of consciousness is not immediate and can take a long time, and that conducting the procedure while conscious is expected to cause considerable distress and pain. To optimise animal welfare utilising guidance in the Code, the responsible agent needs to readily see which killing methods are most suitable and which methods are not recommended and why. Without this clarity in Chapter 7.6, there is a risk that providing recommendations for the use of all methods may be interpreted that each method may be suitable, and that the WOAHS equally sanctions each method. Further, when the responsible agent considers cost-effectiveness, there is a risk that this lack of clarity in the Code, could be used to unnecessarily trade optimal welfare for the lowest cost method. Several comprehensive sources of information may be of use in further development of this chapter, including: • AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf. • AVMA Humane Slaughter Guidelines 2024, available at https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf • Hewitt, L. and Small, A., 2021. An independent animal welfare assessment of mass destruction methods for pigs on-farm. An independent animal welfare assessment of mass destruction methods for pigs on-farm. Accessed 12 May 2025. • EFSA Journal articles on killing for purposes other than slaughter for horses, poultry, sheep and goats, cattle, pigs and other species – available at https://www.efsa.europa.eu/en/search?s=&f%5B0%5D=topic%3A363 • AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/ • Humane Slaughter Association (UK) guidelines including humane killing of livestock using firearms, emergency slaughter, and on-farm killing for disease control purposes, available at https://www.hsa.org.uk/publications/online-guides	
7.6._3_CANADA	Comment: General Canada requests clarification regarding the intent of the inclusion of references within the body of this chapter. References are not used within the WOAHS Codes and should be removed prior to adoption. However, we do note that several citations included within the text (for ex, Johnson et al. 2015 and Benson et al. 2009) are not included within the reference section which needs to be complete if they are included for Member support. Comment : General Methods of killing listed in this chapter vary greatly in the degree of how humane they are considered to be (for example captive bolt vs. water based foam). It would be helpful if the chapter categorized or somehow discriminated these methods on such a basis for example as is done in the AVMA guidelines for depopulation which categorizes	All references are deleted after the adoption of the chapter

	methods as: preferred, permitted in constrained circumstances or not recommended. Rationale: It would be an unintended consequence of this standard if based on the information provided, certain methods with questionably welfare outcomes were used as a first line option. https://certifiedhumane.org/wp-content/uploads/AVMA-Depopulation-Guidelines-2019.pdf Comment Category: General Canada requests that the chapter be updated to outline key criteria to consider when use of methods which do not cause immediate death might be warranted, for example humane health risks, worse welfare outcomes if killing is delayed etc. Rationale: To expand on the above rationale, it would be helpful to provide criteria when some of these methods with more questionable welfare outcomes may be warranted.	
7.6._4_ICFAW	Category: General ICFAW would like to thank the <i>ad hoc</i> committee for their work on chapter 7.6. The revised chapter contains many important updates, particularly the addition of nitrogen-based depopulation methods, which hold great promise for making substantial welfare improvements to the mass killing of herds and flocks. This addition is noted with gratitude. Most of the chapter's content is technically accurate. However, some important corrections are needed, and these are detailed in the relevant places below. WOA's guidance is particularly needed to provide clarity on depopulation methods that are widely misunderstood such as the welfare implications of different types of foams and gases. Revision of the recommendations on mechanically assisted cervical dislocation and gassing with carbon dioxide are also needed for scientific accuracy. The profoundly negative welfare implications of ventilation shutdown methods cannot be overlooked, and our comments reflect this in detail in Article 7.6.32.	Noted
7.6._5_NORWAY	Category: General Norway thanks WOA's for its work in amending this chapter and for taking many of our previous comments into account. We can in general support the changes made. Yet, we do still have additional comment as indicated below. Supporting evidence: not relevant	Noted
7.6._5_ SWITZERLAND	Switzerland supports the modifications to the chapter. We have a few editorial comments (see articles 7.6.8., 7.6.11. and 7.6.21.).	Noted
7.6_6_USA	General Comment: This chapter has variable levels of detail regarding the various methods of depopulation, which can result in confusion as to when each is appropriate to use and in which species. Recommend providing the same level of specificity for each depopulation method section, perhaps using a chart or table to clearly list various commodities and the suitability of using a specific method for them,	Noted

	with further clarification for particular production types, where needed (ex. Floor-reared, confined poultry—preferred methods includes whole-house gassing, foaming). For useful chart reference, see American Veterinary Medical Association. (2019). AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf Recommend an update of this chapter's reference list, as there is a need for more complete sources and/or newer research references, particularly for water-based foam, high-expansion nitrogen and ventilation shutdown with supplementation methods.	

CHAPTER 7.6.

ANIMAL WELFARE AT THE TIME OF KILLING **FOR PURPOSES OTHER THAN SLAUGHTER**

Title_Australia	Change: Editorial Proposed amended text: ANIMAL WELFARE <u>AT THE TIME OF WHEN KILLING ANIMALS</u> FOR PURPOSES OTHER THAN <u>SLAUGHTER PRODUCING ANIMAL PRODUCTS</u> Rationale: The title needs revision because use of the term slaughter in the title is inconsistent with the Code definition in its glossary: <i>Slaughter means any procedure that causes the death of an animal by bleeding.</i> We recommend therefore that this change is reflected across the chapter accordingly.	Following the advice of the <i>ad hoc</i> Group, the Code Commission proposed a modified title for the chapter to avoid any confusion with Chapter 7.5. Animal Welfare during slaughter.
Title_the People's Republic of China	Proposed amended text : CHAPTER 7.6. ANIMAL WELFARE AT THE TIME OF KILLING FOR ANIMAL DISEASE CONTROL PURPOSES PURPOSES OTHER THAN SLAUGHTER Rationale: The purposes of killing other than slaughter are extensive, covering disease control, disaster management, animal welfare, and population management, etc. Disease control and disaster management prioritize operational efficiency and human safety, and may allowing for measures with relatively flexible animal welfare requirements, typically led by governmental authorities. In contrast, animal welfare and population management focus on the welfare needs of animals prior to death, requiring strict adherence to animal welfare standards through methods such as humane stunning or euthanasia. These measures are generally implemented by non-governmental organizations (e.g., enterprises) or professional entities. Therefore, from the perspectives of implementing entities, operational efficiency, and animal welfare standards, there are fundamental distinctions between killing (or mass killing) and euthanasia. They should not be confused and should not be regulated under a unified standard system. According to the current title of Chapter 7.6, it combines the culling led by the government and the euthanasia led by enterprises, which is inappropriate. Although the content of the revised Chapter 7.6	Did not agree, want to expand the scope of the chapter. Standards does not just apply to vet services.

	distinguishes disposal methods according to the number of animals slaughtered, the main body of its standardization is still the culling behavior of disease prevention and control led by the government. Therefore, it is recommended to clearly limit the chapter name to "animal welfare at the time of killing for disease control purposes" to more accurately reflect the specificity of the standardized object. supporting evidence: not relevant.	

Article 7.6.1.

Introduction

Animals are killed for a variety of reasons, including those that may not make the transport for slaughter or the safe use of their products possible. Such reasons may include for contagious disease control, in cases where their welfare may be compromised due to ~~of~~ natural or ~~man-made~~ human-made disasters, when they are otherwise suffering from disease or injuries, for animal population control or for economic reasons. It is important to consider ~~consider~~ ~~optimise~~ ~~their~~ animal welfare during such killing for purposes other than slaughter ~~this process~~ within the practical constraint of the situation.

7.6.1._1_UK	Category: Change. Proposed amended text (or precise suggested deletion): Animals are killed for a variety of reasons, including <u>those that may not make the transport for slaughter or the safe use of their products possible</u>. Such reasons may include for contagious disease control, in <u>cases where their welfare may be compromised due to</u> ~~of~~ natural or ~~man-made~~ human-made disasters, when they are otherwise suffering from disease or injuries or for economic reasons. It is important to <u>consider</u> ~~consider~~ ~~optimise~~ their welfare during <u>such killing for purposes other than slaughter</u> ~~this process~~. Rationale: Grammar point – existing sentence does not read correctly. Supporting evidence: Ohms law.	Did not agree with the term 'optimise', which is difficult in reality
7.6.1._2_MALAYSIA	Category: Addition Proposed amended text: Animals are killed for a variety of reasons, including <u>those that may not make the transport for slaughter or the safe use of their products possible</u>. Such reasons may include for contagious disease control, in <u>cases where their welfare may be compromised due to</u> ~~of~~ natural or ~~man-made~~ human-made disasters, when they are otherwise suffering from disease or injuries, <u>for animal population control</u> or for economic reasons. Rationale: Animal killing as a means of population control is important to solve several things, including reducing ecological damage from overpopulation, managing disease transmission, and minimizing human-animal conflict. Malaysia Animal Welfare Act 2015 allows the killing of animals for animal population control (not only dogs), but it must be done only by an authorised authority under the law, humanely. Supporting evidence: Malaysia Animal Welfare Act 2015	Agreed, pest animals in country or overpopulation that needs to be controlled.
7.6.1._3_COLOMBIA	ES (Spanish versión only)	Did not agree.

	Categoría: Editorial Texto modificado propuesto: En artículo 7.6.1 – Introducción: Se matan animales por diferentes razones, entre ellas aquellas que no permiten el transporte para el sacrificio o impiden la utilización segura de sus productos. Tales razones pueden incluir el control de enfermedades contagiosas, situaciones en las que su bienestar se vea comprometido como consecuencia de desastres naturales o causadas por el humano hombre, si los animales padecen enfermedades o presentan lesiones, o por razones económicas. Durante este proceso <u>de matanza para fines que no sean el sacrificio</u>, <u>Ee</u>s importante <u>priorizar optimizar</u> el bienestar de los animales <u>durante la matanza para fines que no sean el sacrificio</u>. Justificación: Ajustes para mejorar la comprensión. Evidencia documentada, si corresponde: N/A	
7.6.1._4_CHILE	ES Categoría: supresión Texto modificado propuesto (o supresión sugerida): ~~La matanza de animales puede darse~~ <u>Se matan animales</u> por diferentes razones, entre ellas aquellas que no permiten el transporte para el sacrificio o impiden la utilización segura de sus productos. <u>Tales razones pueden incluir el control de, por ejemplo, para controlar</u> enfermedades contagiosas, <u>situaciones en las que su bienestar se vea comprometido</u> como consecuencia de desastres <u>naturales</u> o causadas por el hombre... Justificación: El término correcto actualmente es solo desastres, los fenómenos pueden ser naturales pero los desastres no, puede haber desastres de origen de fenómenos naturales u ocasionados por los hombres. Evidencia documentada, si corresponde: (por ejemplo, referencias científicas, informes nacionales o internacionales, experiencias referidas al tema). Oficina de las Naciones Unidas para la Reducción de Riesgos de desastres.	Did not agree, as it's already considered
7.6.1._5_CANADA	Category: Editorial Proposed amended text (or precise suggested deletion): Section 7.6.1 Animals are killed for a variety of reasons, including <u>those not able to be transported for slaughter that may not make the transport for slaughter or the safe use of their products is not possible.</u> Rationale: Canada suggests rewording the first sentence to read a bit clearer.	Did not agree
7.6.1._6_EU	Category (addition): Proposed amended text: For clarity reasons, the EU suggests re-phrasing the paragraph as follows:	Agreed with the rationale, text was amended differently

	'Animals are killed for a variety of reasons <u>such as economic ones (related to the production of food, wool, skin or fur or for other farming purposes), as well as animal health (e.g. disease control), public health (e.g. zoonoses, unsafe products) and animal welfare (e.g. injuries, diseases, disasters).</u> It is important to optimise the welfare of the animals during such killing.' <u>Justification:</u> The two examples given in the 1st sentence (unfit for transport, unsafe products) stand for a tiny fraction of the animals killed for other purposes than slaughter, the vast majority being killed to prevent the spread of animal diseases. It is therefore more appropriate to enumerate reasons by order of importance. The 2nd sentence is grammatically inconsistent and 'economic reasons' without further context seems inconsistent with the 'ethical responsibility to optimise the welfare' laid down in guiding principle 6 of Art. 7.1.2. Farming as such is an economic activity, and the slaughter or the animals is not its only purpose. The killing of animals for "animal health (e.g disease control)" in many cases, is due to economic reason, no to protect the health of the animals. The farming activity should be sustainable, and the economic sustainability is part of it.	
7.6.1._7_ AUSTRALIA	Category: Change Proposed amended text: Animals are killed for a variety of reasons, including <u>those that may not make the transport for slaughter or the safe use of their products possible. Such reasons may include</u> for contagious disease control, in <u>cases where their welfare may be compromised due to</u> ~~of~~ natural or ~~man-made~~ <u>human-made</u> disasters, when they are otherwise suffering from disease or injuries ~~or for economic reasons~~. It is important to ~~consider~~ <u>optimise their animal welfare during such when killing for purposes other than slaughter</u> ~~this process~~. Rationale: Minor editorial changes to improve readability. Given this is a short and non-exhaustive list Australia recommends that killing animals for economic reasons should be omitted from this text. This is to avoid implying that killing (separate to slaughter, or euthanasia for health/welfare reasons) should be routinely used as a method of economic management of a farm or establishment.	Did not agree because it could be economic but still respecting welfare recommendations. Agreed with the rationale, text was amended differently.

Article 7.6.2.

Scope

This chapter identifies hazards to animal welfare during killing for purposes other than slaughter and provides recommendations for the appropriate procedures for such killing. It provides animal-based and other measures to assess the level of welfare during the process and recommends appropriate remedial actions to be applied.

7.6.2._1_EU	For reasons of clarity and alignment with the introduction paragraph, the EU suggests amending the first sentence as follows: 'This chapter identifies hazards to animal welfare during <u>killing</u> for purposes other than <i>slaughter</i> and provides	Did not agree. Appropriate means the protection of animals at the time of killing.

	recommendations for the appropriate procedures for <u>the protection of animals at the time of killing</u>. It provides animal-based and other measures to assess <u>and optimise</u> the level of welfare during the process and recommends appropriate remedial actions to be applied.'	

This chapter applies to the killing of domestic and *captive wild ruminants, equids, birds, pigs, rabbits, camelids and mustelids for all purposes, except for slaughter which is covered by Chapter 7.5. Animal welfare during slaughter mammals and birds (hereafter animals). The numbers of animals killed is situation dependent and could range from an individual to a large scale population.*

Killing of reptiles is covered by Chapter 7.14. Killing of reptiles for their skin, meat and other products and killing of dogs for population management is covered by Chapter 7.7. Killing of animals used in research and education is covered by Chapter 7.8. The numbers of animals killed is situation dependent and could range from an individual to a large scale population.

7.6.2._2_COLOMBIA	ES (only for Spanish version) Categoría: Editorial Texto modificado propuesto (o supresión sugerida): En artículo 7.6.2 – Ámbito de aplicación: Este capítulo se refiere a la matanza de mamíferos y aves, domésticos o silvestres <u>cautivos</u> (en adelante, <u>los animales</u>). La matanza de reptiles se cubre en el Capítulo 7.4. "Matanza de reptiles por sus pieles, su carne y otros productos" y la matanza de perros con fines de manejo de las poblaciones de <u>estos animales</u> ~~perros~~ se trata en el Capítulo 7.7. El número de animales que se matan depende de la situación y puede variar <u>desde</u> ~~de~~ un individuo a un <u>a</u> población a gran escala. Justificación: Completar palabras y mejorar redacción. Evidencia documentada, si corresponde: N/A	Already considered. Translation will be checked
7.6.2._3_CANADA	Comment: Addition Proposed amended text: This chapter applies to the killing of domestic and <i>captive wild ruminants, equids, birds, pigs, rabbits, camelids and mustelids for all purposes, except for slaughter which is covered by Chapter 7.5. Animal welfare during slaughter mammals and birds (hereafter animals). other than reptiles and dogs. Killing of reptiles is covered by Chapter 7.14. Killing of reptiles for their skin, meat and other products and killing of dogs for population management is covered by Chapter 7.7. The numbers of animals killed is situation dependent and could range from an individual to a large scale population.</i> Rationale: Text has been added to clarify the scope of this chapter, and provide a lead into the next sentence explaining where the chapters for reptiles and dogs are found.	Did not agree. Dogs and reptiles are covered. Reptiles are not mammals or birds.
7.6.2._4_EU	The EU suggests amending the first sentence and to delete the last sentence of this paragraph as follows: 'This chapter applies to the killing of domestic and captive wild mammals and birds (hereafter animals) <u>on individual</u>	Agreed with the rationale, text was amended differently.

	<u>and large-scale level.</u> Killing of reptiles is covered by Chapter 7.14. Killing of reptiles for their skin, meat and other products and killing of dogs for population management is covered by Chapter 7.7. ~~The numbers of animals killed is situation dependent and could range from an individual to a large-scale population.~~ Justification: The EU proposes to improve clarity by shortening the paragraph, and to delete the reference to population which seems more related to invasive animals and keep only the term large scale.	
7.6.2._5_EU	The EU proposes including a reference to chapter 7.8 related to the "Use of animals in research and education": <u>'Killing animals used in research and education is covered by Chapter 7.8.'</u> Justification: The EU suggests this add for consistency with similar references to other Chapters.	Agreed

This chapter should be read in conjunction with the guiding principles for *animal welfare* provided in Chapter 7.1.

Article 7.6.3.

General principles ~~for the operations regarding the killing of animals~~

The decision as to whether to kill animals due to compromised welfare should not be delayed if there is any risk to the welfare of those animals. The recommendations in this Chapter are based on the premise that a decision to kill the animals has been made and they address the need to ensure consider the animal welfare of the animals until they are dead.

7.6.3._1_ AUSTRALIA	Category: Change Proposed amended text: <u>The A decision as to whether to kill animals <u>due to compromised welfare</u> should not be delayed <u>longer than necessary if there is any risk to the welfare of those animals. To optimise welfare, an assessment should consider the welfare impact of killing.</u></u> The recommendations in this Chapter are based on the premise that a decision to kill the animals has been made and they address the need to ensure the welfare of the animals until they are dead. Rationale: The principle of deciding to kill for welfare reasons needs to be qualified to avoid causing additional and avoidable distress fear and pain. The addition of "longer than necessary" removes the implication that killing should occur without some time for consideration of other important factors outside of animal welfare, such as availability of properly trained personnel, equipment needed, and the ability to remove and destroy carcasses safely (as noted further into this article). Even with	Add 'due to compromised welfare' but not add 'longer than necessary'. Are killing them because they already have compromised welfare.

	advanced planning, the logistics of implementing these may require some further time. These factors themselves can have negative impacts on animal welfare during the killing process if minimum requirements are not met.	

During decision making and prior to *killing* the animals, appropriate husbandry, especially supply of feed and water and thermal comfort, should be maintained until the animals are killed. Medical care should be provided if needed.

7.6.3._2_ COLOMBIA	ES (Only Spanish Version) Categoría: Cambio Texto modificado propuesto: En artículo 7.6.3 – Principios generales: Durante la toma de decisiones y antes de la matanza, ~~los métodos de cría el manejo y el cuidado de los animales~~, particularmente en lo que respecta al suministro de agua y alimento, ~~se~~ deberán mantenerse hasta la muerte de los animales. Justificación: Se sugiere el cambio para mayor claridad de las ideas expresadas en el párrafo. Rationale: The change is suggested for clarity of the ideas expressed in the paragraph.	To be checked during the translation of the modifications
7.6.3._3_ CANADA	Comment Category: addition Proposed amended text: <u>During decision making and prior to <i>killing</i> the animals, appropriate husbandry, especially supply of feed and water and thermal comfort, and medical care should be maintained as necessary until the animals are killed confirmed dead. Medical care should be provided if needed.</u> Rationale: Canada suggests that to add clarity that addressing animal welfare does not stop at the point of killing but continues until the animals are confirmed dead. Also recommend including as necessary as feed and medical care may not be needed in all situations.	Did not agree.
7.6.3._4_ EU	The EU suggests replacing the term “medical” by “veterinary”: ‘~~Medical~~ <u>Veterinary</u> care should be provided if needed.’ Justification: Using the term “veterinary care” is more appropriate than “medical care”, when speaking about animals.	Did not agree. Veterinary care may only imply care administered by a veterinarian.

Advanced planning for various scenarios, including adverse events, should clearly identify operational procedures and responsibilities.

For large scale killing, specific planning and preparedness should be in place.

7.6.3._5_ USA	Category: Addition Proposed amended text:	Did not agree. Such details come later.

	<u>For large scale killing, specific plans should be in place</u>—and adequate preparedness measures, such as resource procurement, personnel training and practice drills, taken to ensure ready access to higher-welfare methods of depopulation. Rationale: Preparedness is also important. For example, a plan to carry out whole house gassing may be in place, but without the necessary contracts with suppliers of gas tankers, the plan cannot be carried out. Training and practice drills are other examples of preparedness. Supporting reference: APHIS. (2024). USDA APHIS Veterinary Services Emergency Preparedness and Response Training and Exercise Strategy and Plan. https://www.aphis.usda.gov/sites/default/files/vs-ntep.pdf	
7.6.3._6_ICFAW	Category: Addition Proposed amended text: For large scale killing, specific plans <u>and preparation</u> should be in place. Rationale: Planning is important but insufficient. Preparation includes measures such as obtaining depopulation equipment, training and practice, securing resources (such as contracts for ready access to gas tankers), equipment maintenance, etc. Without preparing, there is a tendency to fall back on methods that do not meet animal welfare expectations.	Agree with rationale text was amended differently.
7.6.3._7_CHILE	ES Categoría: adición: Texto modificado propuesto (o supresión sugerida): <u>Para una matanza a gran escala es necesario contar con una planificación y preparación específicas así como desarrollar simulacros de entrenamiento.</u> Justificación: La planificación por sí sola no basta. También será importante el almacenamiento de equipo y el fácil acceso a los gases, las instalaciones, las herramientas y los recursos necesarios, por ejemplo. Los simulacros de entrenamiento, el desarrollo de conocimientos, la práctica y la formación son necesarios para la preparación y van más allá de simplemente tener un plan. La preparación para la gestión del riesgo debe incluir todas las fases, no solamente tener el plan, sino los insumos que se requieren y también hacer los simulacros correspondientes para probar el plan. EN Proposed amended text: <u>For a large-scale killing operation, specific planning and preparation are required, as well as training exercises.</u> Rationale: Planning alone is not enough. Equipment storage and easy access to the necessary gases, facilities, tools, and resources, for example, will also be important. Training drills, knowledge development, practice, and training are necessary for preparation and go beyond simply having a plan.	Agreed with rationale however text was amended differently

	Risk management preparation must include all phases: not only having the plan, but also the required inputs and conducting the corresponding exercises to test the plan. <u>Evidencia documentada/ Supporting reference::</u> (por ejemplo, referencias científicas, informes nacionales o internacionales, experiencias referidas al tema). Etapas de la GIRD : Prevención Mitigación Preparación Auxilio Recuperación y reconstrucción • Proceso de planeación, participación, evaluación y toma de decisiones. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwilj_PW-p6NAXVH48kDHRp2AgAQFnoECBcQAw&url=https%3A%2F%2Fwww.gob.mx%2Fcms%2Fuploads%2Fattachment%2Ffile%2F727374%2FTEMA_5_ANR.pdf&usg=AOvVaw3w1vqWaTsb_bE840QzZkd&opi=89978449	
7.6.3._8_ CANADA	Category: Addition Proposed amended text: For large scale killing, preparation and specific documented detailed plans should be in place including a procedure for re-review of the plan. Rationale: Canada suggests that preparation for emergency depopulation is also important. For example, equipment, standard operating procedures, staff training and practice, field trials, and service contracts (e.g., for gas tankers) should all be documented and in place ahead of time. If needed, consultants or depopulation service companies could be hired. This should be added to ensure that animal welfare is prioritized. In addition, a procedure for re-reviewing Supporting evidence: An example of a depopulation service company is Livestock Welfare Strategies: https://livestockwelfarestrategies.com	Did not agree. All is part of planning.
7.6.3._9_ BRAZIL	Category: Change Proposed amended text: For large scale killing, specific plans planning and preparing should be in place. (...) Rationale: To be consistent with text in article 7.6.6. A plan in isolation, per se, does not ensure well-executed actions. Planning alone is not enough. Stockpiling of equipment and having ready access to the necessary gasses and facilities, tools and resources, for example, will also be important. Training drills, development of expertise, practice and education are all necessary for preparing and are more than simply having a plan. Supporting evidence: N/A	Agreed, already dealt with.
7.6.3._10_ AUSTRALIA	Category: Addition Proposed amended text:	Agreed, already dealt with.

	<u>For large scale killing, specific planning and preparation should be in place.</u> Rationale: It is important to ensure necessary provisions are in place in advance through both effective planning and preparation. It is also important to stockpile any relevant equipment that may be required. For example, specific gasses, facilities, resources and tools may be needed. These must be accessible and available, especially if required at short notice. For maximum preparedness, all relevant personnel should undertake training and preparedness activities in advance.	

The decision maker should be clearly identified to ensure decision making is not delayed.

7.6.3._11_CANADA	Comment Category: addition Proposed amended text: <u>The decision maker should be clearly identified to ensure decision making is not delayed, and all necessary preparations have considered the welfare of the animals to be humanely killed.</u> Rationale: Canada suggests there are many things a “decision maker” would need to consider ensuring decision making is not delayed.	Did not agree. Already covered.

All personnel involved in the killing of animals should have the relevant skills and competencies acquired through training or experience.

As necessary, operational procedures should be evidence-based adapted to the specific circumstances in the affected locations or on the premises and should address, apart from animal welfare, the cost, effectiveness, and the speed of implementation of the method. operators’ safety and mental health, biosecurity and environmental aspects relevant to the species.

7.6.3._12_ SOUTH AFRICA	Category: Deletion Proposed amended text: As necessary, operational procedures should be <u>evidence-based</u> adapted to the specific circumstances <u>in the affected locations or</u> on the premises and should address, apart from animal welfare, <u>the cost, effectiveness, and the speed of implementation of the method.</u> operators’ safety and mental health, biosecurity and environmental aspects <u>relevant to the species.</u> Rationale: Elsewhere in the draft, references to cost were removed because cost is not considered an animal welfare issue, as clarified in the Code Commission’s February 2025 report. For consistency, it should be removed here as well. While cost is undeniably a factor that member countries will consider, it falls outside the scope of this animal welfare chapter.” Supporting evidence: 2025 February report of the Code Commission (p. 178) www.woah.org/app/uploads/2025/03/a-tahsc-feb-2025-report-2.pdf stating in response to a member comment on the addition of	Did not agree. Cost needs to be taken into consideration.

	language about cost: "Did not agree, as this is not an animal welfare consideration"	
7.6.3._13_ CANADA	Comment Category: addition Proposed amended text: As necessary, operational procedures should be <u>informed by evidence-based and be aligned with ethical standards</u> adapted to the specific circumstances <u>in the affected applicable locations or on the</u> premises and should address... Rationale: Canada suggests that operational procedures should be 'informed by evidence' as there may not be evidence on every specific situation. Ethics are different from evidence and both are required here. Editorial changes suggested	Did not agree. Covered by Chapter 7.1.
7.6.3._14_ AUSTRALIA	Category: Deletion Proposed amended text: As necessary, operational procedures should be evidence-based adapted to the specific circumstances in the affected locations or on the premises and should address, apart from animal welfare, <u>the cost, effectiveness, and the speed of implementation of the method</u>, operators' safety and mental health, biosecurity and environmental aspects relevant to the species. Rationale: The consideration of cost has been deleted in Article 7.6.6 (d) and needs deleting here for consistency. Inclusion of the terms 'effectiveness' and 'speed' are a contradiction in the sentence ('apart from animal welfare') because the degree to which the operational procedure of killing is effective, and the speed of implementation, are factors directly affecting animal welfare.	Did not agree. Legitimate considerations.

During decision making and prior to killing the animals, normal husbandry, especially supply of feed and water, should be maintained until the animals are killed.

Animals might be killed on site or moved to a dedicated place for killing. The handling and movement of animals should be minimised and carried out in accordance with the recommendations described below.

When restraint is required Animal restraint it should be sufficient to facilitate effective killing, and in accordance with animal welfare and operator safety requirements. When restraint is required, and killing should follow with out minimal delay. The type and size of restraint deployed should be appropriate for the age, size and species of animal to be killed. When herding or corralling is applied, a low-stress method using appropriate apparatus to facilitate the safe and effective killing of animals should be used.

7.6.3._15_ COLOMBIA	ES (Only Spanish versión) Categoría: editorial Texto modificado propuesto (o supresión sugerida): En artículo 7.6.3 – Principios generales: Cuando la sujeción es necesaria, deberá ser suficiente para facilitar la matanza eficaz y cumplir los requisitos de <i>bienestar de los animales</i> y de seguridad de los operadores, <u>y se dará Una vez sujetos, se debe dar</u> muerte a los animales sin demora. El tipo y el <u>nivel tamaño</u> de la sujeción impuesta deberán ser apropiados a	To be checked on the translation

	la edad, tamaño y a las especies de los animales que se matarán. Cuando se recurre al agrupamiento o acorralamiento, se deberá emplear un método poco estresante con aparatos que faciliten la matanza segura y efectiva. Justificación: corregir errores de digitación y mejorar redacción Evidencia documentada, si corresponde: N/A	

Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness ~~should involve as little aversion as possible and~~ should not cause avoidable distress, fear and pain. ~~A backup procedure method should be available and used to kill the animal immediately the first method does not result in death or unconsciousness within the expected time frame.~~

7.6.3._16_ USA	Category: Addition Proposed amended text: Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness ~~should involve as little aversion as possible and~~ should not cause avoidable distress, fear and pain. ~~A backup procedure method should be available and used immediately to kill the animal if the first method does not result in death or unconsciousness.~~ Rationale: Recommend including “immediately” to reiterate the importance of earlier language that killing methods should result in immediate death or loss of consciousness, free of avoidable distress, fear and pain. Animals who are subjected to a killing method but not killed or rendered unconscious by it are at risk of experiencing pain, fear, and distress. They are also likely to be injured or debilitated. For example, survivors of captive bolt often have skull fractures, remain sensible to pain, and may be heard to bellow, moo, or groan (Kamenik et al 2019). Animals who survive airway obstruction may experience respiratory distress, and attendant fear and anxiety, due to post-obstructive noncardiogenic pulmonary edema (Unger & Martin 2023). Supporting reference: Kamenik, J., Paral, V., Pyszko, M., & Voslarova, E. (2019). Cattle stunning with a penetrative captive bolt device: A review. <i>Animal Science Journal</i>, 90(3), 307–316. https://doi.org/10.1111/asj.13168 Unger, K., & Martin, L. G. (2023). Noncardiogenic pulmonary edema in small animals. <i>Journal of Veterinary Emergency and Critical Care</i> (San Antonio, Tex. : 2000), 33(2), 156–172. https://doi.org/10.1111/vec.13278	Agreed with rationale however text was amended accordingly
7.6.3._17_ ICFAW	Category: Editorial Proposed amended text: Killing methods used ~~should-must~~ result in immediate death or loss of consciousness lasting until death. Rationale: While use of the word “must” is used sparingly in WOAHS texts, this seems an appropriate place to use it.	Did not agree. The term must in not applicable in this context

7.6.3._18_ CANADA	Comment Category: change Proposed amended text: Killing methods used should result in <u>the timely immediate</u> death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness ~~should involve as little aversion as possible and should not~~ cause avoidable distress, fear and pain. <u>A backup procedure should be available for immediate access and immediately used to kill the animal if the first method does not result in death or unconsciousness.</u> Rationale:. Canada questions how the first 2 sentences of this paragraph align with the proposal to include methods of last resort such as bleeding and ventilation shut down within this chapter. It is potentially problematic to include methods of last resort, as WOAHA approved methods, when the information provided in the Chapter indicate they contradict these general principals. Many of the methods included within this Chapter do not result in immediate death and some are prolonged and result in avoidable pain. Perhaps 'timely death' may more accurately reflect the principals for the methods described. The addition of "immediate access and immediately" imposes a stronger sense of urgency.	Did not agree. Covered with 'without delay'.
7.6.3._19_ AUSTRALIA	Category: Editorial Proposed amended text: Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness ~~should involve as little aversion as possible and~~ should not cause avoidable distress, fear and pain. ~~A backup procedure~~ <u>An alternative method for killing should be available and used to kill the animal if the first method does not result in death or unconsciousness.</u> Rationale: Use of 'method' for consistency of language throughout document. However, clarity around the difference between "method" and "procedure" in this context should be considered as the terms appear to be used interchangeably in Chapter 7.6 Supporting evidence, if relevant: WOAH Terrestrial Animal Health Code, Chapters 7.6.1 Points 2, 6; 7.6.3, 2a, part i; 7.6.4 Points 4 & 6. 'Method' in reference to euthanasia and killing mentioned 91 times in Chapter 7.6. Category: Addition Proposed amended text: Killing methods used should result in immediate death or loss of consciousness lasting until death <u>and be appropriate for the age, size and species of animal.</u> When loss of consciousness is not immediate, induction of unconsciousness ~~should involve as little aversion as possible and~~ should not cause avoidable distress, fear and pain. <u>A backup procedure should be available and used to kill the animal if the first method does not result in rapid death or unconsciousness.</u> Rationale:	It was included with a different wording.

	Killing methods need to be appropriate for the species and age/weight class of animal in order to be effective and to ensure that animal welfare is optimised. As an example, a penetrating captive bolt followed by a secondary terminal procedure may be a suitable destruction method for weaner, grower and finisher pigs whereas a non-penetrating captive bolt is only suitable for piglets <10kg and manual blunt force trauma to the head is only suitable for piglets <5kg. Addition of “rapid” as it may also be necessary to use a backup procedure should the first method appear to be working, but more slowly than is expected or acceptable for welfare reasons. Supporting evidence, if relevant: Hewitt, L & Small, A 2021, <i>An independent animal welfare assessment of mass destruction methods for pigs on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, November. CC BY 4.0. Animal Health Australia (2015). <i>Operational manual: Destruction of animals (Version 3.2)</i>. Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3, Agriculture Ministers’ Forum, Canberra, ACT. European Food Safety Authority (EFSA) Scientific Panel on Animal Health and Welfare, Nielsen, SS, Alvarez, J, Bicout, DJ, Calistri, P, Depner, K, Drewe, JA, Garin-Bastuji, B, Gonzales Rojas, JL, Gortázar Schmidt, C, Michel, V, Miranda Chueca, MÁ, Roberts, HC, Sihvonen, LH, Spooler, H, Stahl, K, Viltrop, A, Winckler, C, Candiani, D, Fabris, C, Van der Stede, Y & Velarde, A, 2020b, Scientific Opinion on the welfare of pigs during killing for purposes other than slaughter, EFSA Journal, vol. 18, no. 7, pp. 1-72, DOI: 10.2903/j.efsa.2020.6195	

~~Young animals should be killed before older animals on which they are dependent to reduce potential distress.~~

Planning should take into account the order in which animals are killed. Where possible vulnerable animals should be killed as a matter of priority, which may include:

- groups with symptomatic animals,
- animals that are unable to ~~obtain~~ access feed or water.

7.6.3._20_ CANADA	Category (addition, deletion, change, editorial, general): Addition Proposed amended text (or precise suggested deletion): Section 7.6.3 “...animals that are unable to obtain feed or water (non-ambulatory)...” Rationale: Canada suggests adding the above wording to add clarity, as we think this is what the bullet is referring to.	Did not agree, but ‘obtain’ was replaced with ‘access’. As it is a more adequate term in this context.
7.6.3._21_ EU	The EU suggests rewording the point as follows: ‘animals that are unable to obtain feed or water <u>cannot be watered or fed.</u>’	Agreed with rationale, text was amended differently.

	Justification: The current wording lacks clarity as kept animals are often unable to obtain feed or water by themselves and rely on their keepers in this regard.	

- animals that have compromised housing or are without shelter,
- young [REF] or unweaned animals **that** should be killed before older animals on which they are dependent,

7.6.3._22_EU	The EU suggests phrasing the point as follows: ~~'young or unweaned animals should be killed before older animals on which they are dependent that depend on older animals.'~~ Justification: The current wording is inconsistent with the chapeau sentence ('which may include:') and should follow the same structure than the other points.	Agreed with rationale however text was amended differently.

- potentially dangerous or aggressive animals, such as bulls, sows with litters, or boars,
- animals in late stage of pregnancy or in parturition, and
- animals in-utero **may should need** to be ~~humanely~~killed following the killing of the dam if the amniotic sac is ruptured **and foetal viability is apparent.**

~~For disease control purposes and for biosecurity considerations, infected animals should be killed first, followed by in-contact animals, and then remaining animals.~~

There should be continuous monitoring of the operational procedures **and corrective actions** to ensure they are consistently effective regarding animal welfare, operator safety and mental health ~~and,~~ biosecurity and environmental aspects.

7.6.3._23_USA	Category: Addition Proposed amended text: There should be continuous monitoring of the operational procedures and corrective action to ensure they are consistently effective regarding animal welfare, operator safety and mental health and, biosecurity and environmental aspects. Rationale: Recommend including "and corrective action," to resolve any issues with operational procedures when monitoring shows they are not consistently effective.	Agreed
7.6.3._24_ICFAW	Category: Addition Proposed amended text: There should be continuous monitoring of the operational procedures to ensure they are consistently effective regarding animal welfare, operator safety and mental health and, biosecurity and environmental aspects. <u>Prompt corrective action should be taken if they are not consistently effective.</u>	Did not agree. Already included

	Rationale: Monitoring is not enough. If the operational procedures do not ensure consistent effectiveness, corrective action will be required.	
7.6.3._25_ CANADA	Category: addition Proposed amended text There should be continuous monitoring of the operational procedures to ensure they are consistently effective <u>regarding at safeguarding</u> animal welfare, operator safety <u>and mental health and, biosecurity and environmental aspects</u> . Rationale: Substitute 'safeguarding' for 'regarding' to add clarity .	Agreed

When large scale or disease control the killing operational procedures are concluded, there should be a debriefing session or written report describing the practices adopted and their effect on animal welfare, operator safety and welfare, biosecurity and environment, responsible personnel including any recommendation for improvement.

7.6.3._26_ USA	Category: Addition Proposed amended text: When <u>large scale or disease control</u> the operational procedures are concluded, there should be a <u>debriefing session or</u> written report describing the practices adopted and their effect on animal welfare, operator safety, <i>biosecurity and responsible personnel</i> . <u>The debriefing session or written report should also describe and assess potential means by which (1) vulnerability to the circumstances necessitating large scale killing can be reduced, and (2) means by which negative animal welfare impacts can be reduced in the future.</u> Rationale: This chapter (7.6) essentially refers to the "Response" phase of the Disaster Management Cycle, a cycle that also encompasses prevention, preparedness, risk mitigation, and recovery phases (Tulane School of Public Health 2023; Anthony & De Paula Viera 2022). To protect both animal welfare and human interests, it is important that entities involved in carrying out large-scale killing operations reflect upon those operations and make changes to potentially: (1) reduce risk that such operations will be needed in the future; and (2) ensure that negative animal welfare impacts will be minimized (Anthony & De Paula Viera 2022; Marchant-Forde & Boyle 2020; Grandin 2021). Including reflections in the debriefing session or written report would help ensure that, during the recovery phase of the disaster management cycle, any necessary changes will be enacted. Supporting references: Grandin, T. (2021). Methods to prevent future severe animal welfare problems caused by COVID-19 in the pork industry. <i>Animals: An Open Access Journal from MDPI</i> , 11(3), 830. https://doi.org/10.3390/ani11030830 Marchant-Forde, J. N., & Boyle, L. A. (2020). COVID-19 effects on livestock production: A One Welfare issue. <i>Frontiers in</i>	Agree with rationale however the text was amended differently.

	Veterinary Science, 7, 585787. https://doi.org/10.3389/fvets.2020.585787 Tulane School of Public Health (2023). What is a Disaster Management Cycle?. https://publichealth.tulane.edu/blog/disaster-management-cycle/ Anthony, R., & De Paula Vieira, A. (2022). One Health animal disaster management: An ethics of care approach. Journal of Applied Animal Welfare Science: JAAWS, 25(2), 180–194. https://doi.org/10.1080/10888705.2022.2040360	
7.6.3._27_ MEXICO	ES Categoría: adición Texto modificado propuesto (o supresión sugerida): Una vez concluidas las operaciones a gran escala o de control de enfermedades, se organizará una reunión recapitulativa o se redactará un informe en el que se describirán <u>las poblaciones relacionadas, principales datos de trazabilidad</u>, los métodos empleados y sus efectos en el <i>bienestar de los animales</i>, la seguridad de los operarios, la <i>bioseguridad</i> y el personal responsable. Justificación: Incluir datos que son importantes, cuando se trata de eventos de emergencia sanitaria. EN When large scale or disease control the operational procedures are concluded, there should be a debriefing session or written report describing the practices adopted, <u>concerned populations, main traceability data</u> and their effect on animal welfare, operator safety, <i>biosecurity and responsible personnel</i>. Rationale: To include data that are important when it comes to sanitary emergency events.	Did not agree. Covered elsewhere.
7.6.3._28_ JAPAN	Category: General Proposed amended text: <u>In emergency situations, it may be difficult to ensure that all animal welfare considerations are taken into account.</u> Rationale: Firstly, Japan thanks the Code commission for its work on revising this chapter. Japan understands that animal welfare should be considered when killing animals for any reasons, however, available resources in the situation of disasters are fewer than the situation of disease outbreaks, and priorities will differ in each situation. It is questionable whether it would be appropriate to combine killing for all purposes other than slaughter in one chapter. If the chapter should be one, the following sentence should be included in general principles;	Did not agree. This is one of the scope of the revised chapter. To include emergency situations

	"In emergency situations, it may be difficult to ensure that all animal welfare considerations are taken into account."	
7.6.3._29_ICFAW	Category: Addition Proposed amended text: When <u>large scale or disease control</u> the operational procedures are concluded, there should be a <u>debriefing session or</u> written report describing the practices adopted and their effect on animal welfare, operator safety, <i>biosecurity and responsible personnel</i>. <u>The session or report should be used to improve subsequent operational procedures through the planning and preparation process and should consider means by which animals' vulnerability to depopulation can be reduced, for example, through vaccination, improvements in biosecurity, or changes to animal management, housing, or supply chain management practices.</u> Rationale: There must be follow-up action as well, or the debriefing/report will not be useful. This chapter essentially refers to the "Response" phase of the Disaster Management Cycle, a cycle that also encompasses prevention, preparedness, risk mitigation, and recovery phases (Tulane School of Public Health 2023; Anthony & De Paula Viera 2022). To protect both animal welfare and human interests, it is essential that entities involved in carrying out large-scale killing operations reflect upon those operations and make changes to: (1) reduce the risk that such operations will be needed in the future; and (2) ensure that, if they are, negative animal welfare impacts will be minimized (Anthony & De Paula Viera 2022; Marchant-Forde & Boyle 2020; Grandin 2021). Including such reflections in this report would help ensure that, during the recovery phase of the cycle, necessary changes will be enacted. Supporting Evidence: Grandin, T. (2021). Methods to prevent future severe animal welfare problems caused by COVID-19 in the pork industry. <i>Animals: An Open Access Journal from MDPI</i>, 11(3), 830. https://doi.org/10.3390/ani11030830 Marchant-Forde, J. N., & Boyle, L. A. (2020). COVID-19 effects on livestock production: A One Welfare issue. <i>Frontiers in Veterinary Science</i>, 7, 585787. https://doi.org/10.3389/fvets.2020.585787 Tulane School of Public Health (2023). What is a Disaster Management Cycle?. https://publichealth.tulane.edu/blog/disaster-management-cycle/ Anthony, R., & De Paula Viera, A. (2022). One Health animal disaster management: An ethics of care approach. <i>Journal of Applied Animal Welfare Science: JAAWS</i>, 25(2), 180–194. https://doi.org/10.1080/10888705.2022.2040360	Did not agree. Too much detail.
7.6.3._30_COLOMBIA	ES Categoría: Editorial Texto modificado propuesto (o supresión sugerida): En artículo 7.6.3 – Principios generales: Una vez concluidas las operaciones a gran escala o de control de enfermedades, se organizará una reunión recapitulativa o se redactará un informe en el que se describirán los métodos	Agreed

	empleados y sus efectos en el bienestar de los animales, la seguridad de los operarios, la bioseguridad y ~~el personal responsable~~ <u>el medio ambiente</u>. Justificación: los efectos no inciden directamente sobre el personal responsable de coordinar la matanza, más sobre los operarios, que ya están involucrados. Sí es importante evaluar el efecto en el medio ambiente de la actividad de matanza. EN When <u>large scale or disease control</u> the operational procedures are concluded, there should be a <u>debriefing session or</u> written report describing the practices adopted and their effect on animal welfare, operator safety, <i>biosecurity and</i> ~~responsible personnel~~ <u>the environment</u>. Rationale: The effects do not directly affect the personnel responsible for coordinating the slaughter, but rather the operators, who are already involved. It is important to evaluate the environmental impact of the killing operations. Evidencia documentada/ Supporting Evidence: N/A	
7.6.3._31_ CANADA	Comment Category: addition Proposed amended text: When <u>large scale killing or disease control</u> the operational procedures are concluded, there should be a <u>debriefing session or</u> written report describing the practices adopted and their effect on animal welfare, operator safety, <i>biosecurity and responsible personnel</i> <u>to facilitate improvements, if necessary, in procedures for future responses</u>. Rationale: editorial to add killing for consistency within the chapter. It is important to identify the goal of such review exercises.	Agreed, but already covered.
7.6.3._32_ AUSTRALIA	Category: Editorial Proposed amended text: There should be continuous monitoring of the operational procedures to ensure they are consistently effective <u>regarding at meeting</u> animal welfare, operator safety <u>and mental health and, biosecurity and environmental aspects</u> ~~requirements~~. When <u>large scale or disease control</u> the operational procedures are concluded, there should be a <u>debriefing session or</u> written report describing the practices adopted and their effect on animal welfare, operator safety, <u>efficacy of biosecurity and</u> ~~responsible personnel~~ <u>environmental impact</u>. Rationale: Wording adjusted in first sentence to improve readability and to emphasise that the operational destruction procedures should be consistently meeting the minimum requirements across all of the listed categories. Recommend removal of “responsible personnel” in the second sentence as unable to find a definition for this term in the WOAHS Terrestrial Animal Health Code Glossary and it also seems to be out-of-place in this sentence. Suggested additions to align	Agreed, but not using the term requirement regarding the environment.

	with the text provided under Article 7.6.5 1. Team Leader a) Responsibilities point (viii)	
7.6.3._33_AU	Category of comments: General and editorial The African Union supports the general principles outlined in Article 7.6.3 but recommends that the Commission provide more clarity on the management of in-utero animals during emergency killing operations. The current language could create practical and ethical challenges in field conditions where feasibility is limited. Proposed amended text: <u>"In rare cases, unborn animals in-utero may need to be humanely killed following the killing of the dam, particularly if the amniotic sac is ruptured and fetal viability is apparent."</u> Rationale: The feasibility of conducting separate humane killing procedures for unborn animals especially in emergency disease control scenarios, remote settings, or under high workload is questionable from both operational and ethical perspectives. Key considerations include: • Practical limitation where in most field or abattoir settings, identifying, accessing, and killing fetuses humanely following dam slaughter is not practically achievable, especially in cases involving ruminants or swine. • Animal welfare prioritization where if the fetus is still enclosed within the uterus and the amniotic sac remains intact, it is unlikely to suffer due to oxygen deprivation during or immediately after the dam's death. Only in cases where the sac is ruptured and fetal distress is likely should additional humane action be considered. There is need to provide guidance that balances animal welfare intent with technical and practical feasibility, including an acknowledgment that in most cases, further action is unnecessary unless signs of fetal distress are observed post mortem.	Agreed with rationale, text was amended differently.

Article 7.6.4.

Organisational structure for the operations regarding the of large scale killing or killing for disease control of animals

7.6.4._1_AU	Category of comments: General Organisational structure for the operations <u>regarding the of large scale</u> killing <u>or killing for disease control of animals</u> Agree with the text in the Article 7.6.4 as presented. Rationale: The Article has improved clarity, both content and structure, with the insertions and deletions effected onto the Article.	Noted. Already considered

Plans for large scale killing or killing for disease control should contain details of responsibilities, management structure, contact details, disease control strategies, operational procedures and necessary equipment and resources. *Animal welfare* considerations should always be addressed as a priority in these plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the *killing* of animals is available.

7.6.4._2_ USA	Category: Addition Proposed amended text: Plans for large scale killing or killing for disease control should contain <u>comprehensive details</u>, with <u>veterinary oversight</u>, to ensure preparedness and effective execution. These plans should address <u>responsibilities, management structure, contact details, disease control strategies, operational procedures and the acquisition and allocation of necessary equipment and resources</u>. <u>Pre-established contracts and supply agreements should guarantee timely access to critical resources</u>. <u>Animal welfare considerations should always be prioritized addressed as a priority</u> in these plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the <i>killing</i> of animals is available. Rationale: Edits recommended to emphasize how supply chain disruptions, lack of needed equipment, and other obstacles can significantly hinder the ability to procure essential resources for preferred depopulation methods, such as the USA has experienced, at times, during the current HPAI disease event (2022-present). Additional edits recommended to improve clarity.	Did not agree with the proposed text to be considered too much detail.
7.6.4._3_ JAPAN	Category: Deletion Proposed amended text: Plans for large scale killing or killing for disease control should contain details of responsibilities, management structure, contact details, disease control strategies, operational procedures and necessary equipment and resources. <i>Animal welfare</i> considerations should <u>always</u> be addressed as a priority in these plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the <i>killing</i> of animals is available. Rationale: Animal welfare considerations cannot always be a priority, especially in unforeseeable earthquakes and other disaster emergencies.	Agreed to delete the word 'always'
7.6.4._4_ CANADA	Comment Category: addition Proposed amended text: Plans for large scale killing or killing for disease control should contain details of responsibilities, management structure, contact details, disease control strategies, operational procedures and necessary equipment and <u>resources including a list of critical supplies that may require proactive preparation and storage such as CO2</u>. <u>Animal welfare considerations should must always be addressed considered as</u> a priority in these plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the <i>killing</i> of animals is available. Rationale:	Did not agree. Too much detail – use 'should', not use 'must'.

	Canada suggests that it is very difficult, if not impossible, to access sufficient carbon dioxide within 24-48 hours if contracts with gas distributors have not previously agreed to preparation and storage. This could lead to use of inhumane depopulation strategies. The sentence as written speaks to addressing animal welfare. It does not specify how, therefore there is some subjectivity in how that is determined, so "must" is more appropriate in this context.	
7.6.4._5_ BRAZIL	Category: change Proposed amended text: <u>Plans for large scale killing or killing for disease control should contain details of responsibilities, management structure, contact details, disease control strategies, operational procedures and necessary equipment and resources. Animal welfare considerations should always be addressed as a priority one of the priorities in these plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the killing of animals is available.</u> (...) Rationale: Animal welfare considerations should not be the only priority, but be addressed as one of the priority aspects, among others such as type and structure of facilities, availability and access to human, financial, organisational and time resources, also considering the risk of exposition of personnel to pathogenic agents. Supporting evidence: N/A	Did not agree. This is an animal welfare chapter and animal welfare should be considered a priority

The personnel responsible for the handling, moving, restraining and killing the animals should follow the recommendations of this chapter.

In case of disease control, oOperational activities should be led by the Competent ~~authority~~ Authority who has the authority to ensure the required *animal welfare* and *biosecurity* standards.

The Competent ~~authority~~ Authority should nominate a responsible agent for all activities across one or more affected locations or premises who should be supported by coordinators for planning operations and logistics to facilitate efficient operations.

7.6.4._6_ CANADA	Comment Category: addition Proposed amended text: <u>In the case of killing for disease control purposes or for regional holdings, t</u>The Competent authority should nominate a responsible agent for all activities across one or more affected locations or premises who should be supported by coordinators for planning operations and logistics to facilitate efficient operations. Rationale: Canada suggests that the competent authority is only required in certain situations, not in all cases.	Did not agree, as it is unclear what regional holdings mean. Also, it is not up to WOA to say if CAs involved should be at the national or regional level. This is internal organisation to be decided by each country depending of the situation.

The nominated responsible agent of the ~~Competent authority~~ should provide overall guidance to personnel and logistic support for operations at all affected locations or premises to ensure consistency in adherence to the *Terrestrial Code's animal welfare* and animal health recommendations.

A specialist team, led by a team leader answerable to the nominated responsible agent ~~nominated by the Competent Authority~~, should be deployed to work on each affected location or premises. ~~In some situations, When needed~~ personnel may be required to fulfil more than one function. Each team should contain a competent veterinarian or have access to veterinary advice at all times.

~~Emergency plans should be in place and contain details of responsibilities, management structure, disease control strategies, operational procedures and necessary equipment and resources. Animal welfare considerations should always be addressed in these emergency plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the killing of animals is available.~~

~~Depopulation under disease control emergency plans should be performed under the supervision of Competent Authority and address any animal welfare issues that may result from standstill or any other animal movement restriction.~~

In considering the *animal welfare* issues associated with *killing* animals, the key personnel, their responsibilities, and competencies required are described in Article 7.6.5.

Whenever animals are killed for emergency or disease control purposes, the country's Competent Authority should be involved to protect animal welfare and biosecurity. In other situations that do not necessarily involve the *Competent Authority*, the personnel responsible should follow the recommendations of this chapter.

7.6.4._7_USA	Category: Addition Proposed amended text: <u>Whenever large numbers of animals are killed outside of slaughter or routine on-farm killing (end-of-lay hens), the country's Competent Authority should be involved to protect the welfare of the animals.</u> In other situations that do not necessarily involve the <i>Competent Authority</i>, the personnel responsible should follow the recommendations of this chapter. Rationale: RATIONALE: Changes to industrial farming mean that depopulation is becoming a regular part of animal agriculture in some countries, even absent of concerns about infectious disease. For example, flocks or herds may be depopulated because of bankruptcy, feed contamination, insufficient workforce, or reduced slaughterhouse capacity (USA references available upon request). Because humane care of animals is a public good (Mellor & Uldahl 2025), it is important that the Competent Authority oversee this process. Supporting reference: Mellor, D. J., & Uldahl, D. M. (2025). Translating ethical principles into Law, Regulations and workable animal welfare practices. <i>Animals: An Open Access Journal from MDPI</i>, 15(6), 821. https://doi.org/10.3390/ani15060821.	Agreed with rationale however the text was amended differently.

Article 7.6.5.

Responsibilities, training and competencies of the specialist team for the operations regarding the mass killing of animals

All personnel have a crucial role to play in ensuring good animal welfare conditions through to the killing. Training for all personnel should emphasise the importance of animal welfare and their responsibility in contributing to the welfare of the animals.

7.6.5._1_ USA	Category: Addition Proposed amended text: <u>All personnel have a crucial role to play in ensuring good animal welfare conditions through to the killing. Training for all personnel should emphasise the importance of worker safety and animal welfare and their responsibility in contributing to the welfare of the animals.</u> Rationale: Recommend adding 'worker safety', because it should be an equal consideration to animal welfare.	Did not agree. Focus is animal welfare.
7.6.4._2_ CANADA	Comment Category: change Proposed amended text: <u>All personnel have a crucial role to play in ensuring good animal welfare conditions outcomes through to the killing and confirmation of death. Training for all personnel should must emphasise the importance of animal welfare and their responsibility in contributing to the welfare of the animals.</u> Rationale: 1st change: 'conditions' is not the correct word in this context. We could speak to the condition of animals, but not to the conditions of animal welfare. The goal is to ensure good animal welfare outcomes. 2nd change : Canada suggests that this section speaks to thought processes not specific operational requirements. As such "must" is appropriate here.	Agreed with the 1st rationale but amended differently. Did not agree. The use of must is limited to extreme cases

Competencies may be gained through a combination of formal training and practical experience. These competencies should be assessed, **when relevant**, by the *Competent Authority* or by an independent body recognised by the *Competent Authority*

7.6.5._3_ JAPAN	Category: Deletion Proposed amended text: <u>Competencies may be gained through a combination of formal training and practical experience. ~~These competencies should be assessed by the Competent Authority or by an independent body recognised by the Competent Authority~~</u> Rationale: It is difficult to assess the competence of all personnel, including animal handlers and personnel in charge of killing animals in a country, if the specialist team includes all of the following parties. In addition, in emergency situations the team could include all kinds of people, and it is difficult to assess the competencies of all of them.	Did not agree but, include the world 'when relevant', to make it less restrictive
7.6.5._4_ AUSTRALIA	Category: Addition Proposed amended text: <u>Competencies may be gained through a combination of formal training and practical experience. These competencies should, where relevant, be assessed by the <i>Competent Authority</i> or by an independent body recognised by the <i>Competent Authority</i></u> Rationale: Not all situations for the killing of animals will involve the Competent Authority, and in smaller scale situations there may be no formal training or assessment. For example, a farmer who is	Agreed with rationale however the text was amended differently.

	performing killing of a moderate number of animals for non-notifiable disease control purposes may rely on their own expertise in conjunction with veterinary advice but without government involvement, and government authorities would not normally assess the competency of a farmer. Alternatively, the previous changes to remove reference to mass killing for this article should be rejected and/or other clarification added to indicate it only applies to large scale killing of animals under competent authority control.	

1. Team leader

a) Responsibilities

- (i) plan overall operations on affected location or premises;
- (ii) determine and address requirements for *animal welfare*, operator safety and *biosecurity*;
- (iii) organise and manage team of people to facilitate *killing* of the relevant animals on the location or premises in accordance with national regulations and these recommendations;

7.6.5._5_ COLOMBIA	ES Categoría: Adición Texto modificado propuesto: En artículo 7.6.5 – ítem 1, a), numeral iii iii) Organizar y dirigir el equipo de modo que facilite la matanza de los animales pertinentes <u>priorizando a los animales vulnerables</u>, en los lugares o establecimientos de conformidad con la reglamentación nacional y las presentes recomendaciones; Justificación: Se considera pertinente resaltar la importancia de priorizar animales vulnerables dentro de las responsabilidades del jefe de operaciones. EN Proposed amended text: (iii) organise and manage team of people to facilitate <i>killing</i> of the relevant animals <u>giving priority to vulnerable animals</u>, on the location or premises in accordance with national regulations and these recommendations; Rationale: To highlight the importance of prioritising vulnerable animals within the responsibilities of the operations manager.	Did not agree

- (iv) determine logistics required;
- (v) monitor operations to ensure *animal welfare*, operator safety and *biosecurity* requirements are met;
- (vi) seek and use veterinary advice;
- (vii) report upwards on progress and problems;

- (viii) provide a written report at the conclusion of the *killing* operation, describing the practices adopted and their effect on *animal welfare*, operator safety, efficacy of *biosecurity* and environmental impact.

7.6.5._6_ USA	Category: Addition Proposed amended text: <u>ix) if last resort methods are employed, include in the debriefing session or written report planning and preparedness to enable future use of more humane alternatives</u> Rationale: This WOAHA Code chapter (7.6), as well as many international guidelines, reflect that killing methods should result in immediate death or loss of consciousness and, when this is not possible, methods should not cause avoidable distress, fear, and pain. Last resort depopulation methods generally result in more animal distress, and it is important to minimize their use during mass depopulation events through planning and preparedness, allowing a transition to higher humane methods which keep animal welfare a priority. Supporting references: American Veterinary Medical Association (AVMA). (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. AVMA. European Union Council Regulation (EC) No 1099/2009 on the Protection of Animals at the Time of Killing. Official Journal of the European Union, 2009.	Did not agree, as it is not the place to mentioned it.

b) **Training and Competencies**

- i) **knowledge understanding of and experience with** relevant animal husbandry practices;

7.6.5._7_ USA	Category: Addition Proposed amended text: i) knowledge understanding of and experience with relevant animal husbandry practices <u>and behaviour of the species, and knowledge of anatomical or physiological characteristics of the species that may impact the effectiveness and animal welfare impacts of potential killing methods.</u> Rationale: Additional language recommended because knowledge of species-typical behavioral characteristics is essential for the team leader of a killing operation to possess (AVMA 2024). This includes considerations such as animals' reaction to being separated from conspecifics or dependent young and the impact of handling and restraint on the animal. For some species, the effectiveness and animal welfare impacts of the killing method(s) will be impacted by unique anatomical or physiological characteristics of the species. Supporting reference: American Veterinary Medical Association. (2024). AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition. https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf	Did not agree to include too many details. Understanding and experience in husbandry practice should include the other aspects mentioned in the comment

7.6.5._8_ CANADA	Comment Category: addition Proposed amended text: <u>knowledge understanding of and experience with relevant animal husbandry practices knowledge of the behavior and physiology of species, age specific requirements and a comprehensive understanding of the pathophysiology resulting from the killing methods under consideration</u> Rationale: Canada suggests that this is important because some species and some ages within those species have evolutionary adaptations that influence whether the welfare impacts of certain methods, e.g., tolerance of high CO2 levels or low oxygen levels.	Comment addressed above

- ii) knowledge understanding of animal welfare, impact of , different killing methods, and the details, planning and implementation of the killing operation, ; and the underpinning behavioural, anatomical and physiological processes involved in the killing operation;

7.6.5._9_ CANADA	Comment Category: addition i) Proposed amended text: <u>knowledge understanding of animal welfare, impact of , different killing methods, and the details, planning and implementation of the killing operation for the species in question, ; and the underpinning behavioural, anatomical and physiological processes involved in the killing operation;</u> Rationale: Canada suggests that this is important because some species and some ages within those species have evolutionary adaptations that influence whether the welfare impacts of certain methods, e.g., tolerance of high CO2 levels or low oxygen levels.	Did not agree. The relevant species for this chapter are mentioned in the scope and after each method

- ii) leadership and ability to skills to manage all activities on the location or premises and deliver outcomes on time;
- iii) awareness of psychological effects on farmer, team members or person(s) in charge of animals [AVMA, 2019], and general public;
- iv) v) awareness of fatigue effects on those carrying out repeated killing of large numbers of animals and on the effectiveness of the procedure [AVMA, 2019].

7.6.5._10_ AUSTRALIA	Category: Deletion Proposed amended text: <u>iv) v) awareness of fatigue effects on those carrying out repeated killing of large numbers of animals and on the effectiveness of the procedure [AVMA, 2019].</u> Rationale: Repeated killing does not require large numbers to be fatiguing. Fatigue can occur with repetition involving small to moderate numbers of animals. Fatigue can also occur from killing a small number of challenging animals (such as those referred to previously as dangerous or aggressive).	Did not agree, as the size of animals is an important factor to consider

- iv) vi) ability to communicate effectively with different audiences communication skills;

vi) vii) capacity to evaluate the environmental impacts caused by their operation.

7.6.5._11_ CANADA	Category addition Proposed amended text i) <u>vii)</u> capacity to evaluate the environmental impacts caused by their operation. ii) <u>ability to implement biocontainment measures in their operations</u> Rationale: To be consistent with wording in section: 7.6.3 which includes consideration for biosecurity impacts. However, with respect to disease control activities, the ability to ensure effective implementation for biocontainment measures also should be a requirement to ensure disease is contained.	Did not agree. This point is developed in the specific methods

2. Veterinarian

a) Responsibilities

- i) advise on ~~determine~~ and supervise the implementation of the most appropriate *killing* method to ensure that animals are killed with minimal ~~without avoidable pain and distress~~ minimising pain, fear and suffering;

7.6.5._12_ MALAYSIA	Category: Editorial Proposed amended text: i) <u>advise on</u> ~~determine~~ and supervise the implementation of the most appropriate <i>killing</i> method to ensure that animals are killed ~~without avoidable pain and distress~~ <u>while</u> <u>minimising pain, fear and suffering</u> ; Rationale: Insertion of the word <u>while</u> to give the sentence more meaning. Supporting evidence: Not relevant	Agreed, but amended differently for clarity.

- ii) determine and implement any necessary ~~the~~ additional requirements for *animal welfare*, including the order of *killing*;
- iii) ensure that confirmation of the *death* of the animals is carried out by competent persons as soon as possible ~~at appropriate times~~ after the *killing* procedure;
- iv) minimise the risk of disease spread within and from the location or premises through the supervision of *biosecurity*;
- v) ~~continuously monitor~~ ensuring ensure *animal welfare* and *biosecurity* during the killing process;

7.6.5._13_ CANADA	Category (addition, deletion, change, editorial, general): Editorial Proposed amended text (or precise suggested deletion): Section 7.6.5 (2.a(v) Responsibilities) <u>...continuously monitor</u> <u>ensuring</u> <u>ensure</u> <i>animal welfare</i> and <i>biosecurity</i> during killing process	Agreed

	Rationale: Canada suggests using the word “ ensure ” to be consistent with previous points	
7.6.5._14_EU	The EU suggests including the article “the” before “killing”. v) ‘ensuring <i>animal welfare</i> and <i>biosecurity</i> during <u>the</u> killing process;’ <u>Justification:</u> Linguistic change	Agreed

vi) collaborate with the team leader on the written report at the conclusion of the *killing*.

b) Training and Competencies

- i) understanding of ~~ability to assess~~ *animal welfare* and ability to assess it;
- ii) Understanding knowledge of especially the effectiveness of ~~the~~ *killing process* and ~~the~~ *ability* to correct any deficiencies;
- iii) knowledge of the different killing methods and their impacts on animal welfare, and the underlying anatomy, physiological and behavioural processes involved in the killing operation.

7.6.5._15_ COLOMBIA	ES (Only Spanish versión) Categoría: Adición Texto modificado propuesto: En artículo 7.6.5 – ítem 2, b), numeral iii iii) conocimiento de los distintos métodos de matanza matanza y sus repercusiones en el bienestar de los animales, así como de los procesos anatómicos, fisiológicos y conductuales subyacentes a la operación de matanza Justificación: Se corrige la doble palabra. Evidencia documentada, si corresponde: N/A	Agreed

iv) ability to assess *biosecurity* risks.

3. Animal handlers

a) Responsibilities

- i) review on-site facilities in terms of their appropriateness;
- ii) design temporary animal handling facilities, when required;
- iii) move and restrain animals;

7.6.5._16_ CANADA	Category (addition, deletion, change, editorial, general): Addition Proposed amended text (or precise suggested deletion): Section 7.6.5 (3.a(iii)) Responsibilities) ~~iii)~~ move and restrain animals safely and humanely Rationale:	Did not agree

	Canada suggests adding the words “safely and humanely” to be emphasize positive animal welfare handling practices.	

iv) report *animal welfare* and *biosecurity* issues to the *veterinarian*.

7.6.5._17_ COLOMBIA	ES (Only Spanish versión) Categoría: Editorial Texto modificado propuesto: En artículo 7.6.5 – Ítem 3) Operarios cuidadores de animales: a) Responsabilidades i) comprobar la adecuación de las instalaciones <i>in situ</i> ; ii) diseñar, si es necesario, instalaciones temporales para el manejo de los animales; iii) desplazar <i>y</i> e inmovilizar <i>a</i> los animales; iv) informar al <i>veterinario</i> de cualquier problema de <i>bienestar de los animales</i> y de <i>bioseguridad</i> . Justificación: Corregir errores de digitación Evidencia documentada, si corresponde: N/A	Agreed

b) **Training and c**Competencies

i) **understand the species-specific behavioural patterns of the animals they are working with and the underlying principles for carrying out the required tasks;**

ii) **animal handling in emergency situations and in close confinement is required; capable to identify signs of distress, fear, and pain and to take preventive and corrective actions;**

iii) understanding of *biosecurity*.

4. Personnel in charge of killing animals

a) Responsibilities

i) *killing* of the animals using an appropriate method;

7.6.5._18_ USA	Category: Addition Proposed amended text: i) <i>killing</i> of the animals using an appropriate method <u><i>in a manner that protects animal welfare</i></u> . Rationale: Additional language recommended to emphasize that personnel performing animal killing should be aware of important animal welfare considerations, for example, low stress handling techniques and performance of the killing technique in a manner that protects the animals from avoidable pain, fear, and distress.	Did not agree. This is an animal welfare chapter.
7.6.5._19_ CANADA	Comment Category: addition i) Proposed amended text: <i>killing</i> of the animals using an appropriate method <u><i>that prioritizes animal welfare</i></u> ;	Did not agree. This is an animal welfare chapter.

	Rationale: Canada suggests the additional words to add specificity regarding the choice of killing method.	
7.6.5._20_ AUSTRALIA	Category: Addition Proposed amended text: i) <i>killing</i> of the animals using an appropriate method as advised upon by the veterinarian ; Rationale: This addition provides clarity that the “Personnel in charge of killing animals” is using the appropriate method as advised upon by the Veterinarian, and not what they feel is most appropriate. This is consistent with the previously described responsibilities of the Veterinarian.	Did not agree. Difficult to do it in any situation and context.

ii) **when applicable confirm the unconsciousness of the animals;**

7.6.5._21_ CANADA	Comment Category: editorial Proposed amended text: ii) when applicable confirm ~~the unconsciousness of the animals; that animals are unconscious~~ Rationale: editorial for simplicity	Agreed

iii) confirm the death of the animals.

7.6.3._22_ ICFAW	Category: Addition Proposed amended text: iv) report animal welfare issues to the veterinarian. Rationale: If animals are not effectively being killed (i.e. recovering consciousness, not being immediately killed, etc), the veterinarian should be made aware in case the method or training requires adjustment.	Did not agree.
7.6.5._23_ USA	Category: Addition Proposed amended text: iv) report conscious and surviving animals to the veterinarian, team leader or appropriate official. Rationale: If methods are not effectively killing the animals, the appropriate official should be informed.	Did not agree.

b) **Training and c**Competencies

i) Safely **ly and correctly** use and maintain **ance of relevant** equipment;

7.6.5._24_ COLOMBIA	ES (Only Spanish versión) Categoría: Editorial Texto modificado propuesto: En artículo 7.6.5 – Ítem 4, i):	Already considered. To check the Spanish version

	i) uso seguro, correcto y mantenimiento de los materiales <u>y equipos</u> Justificación: Se adiciona equipos, por los diferentes equipos para realizar la matanza Evidencia documentada, si corresponde: N/A	

- ii) Operate familiarity with the techniques of restraining and killing equipment for the species involved;

7.6.5._25_ AUSTRALIA	Category: Addition Proposed amended text: <u>ii) Ability to effectively Operate familiarity with the techniques of</u> restraining and killing <u>equipment for</u> the species involved; Rationale: Operators of restraining and killing equipment have to do so effectively to uphold animal welfare outcomes and work health and safety.	Did not agree
7.6.5._26_ EU	With a purpose of streamlining the text, the EU suggests merging points i) and ii): i) 'Safely and correctly use and maintain <u>restraining and killing equipment for the species involved</u>; ii) <u>Operate familiarity with the techniques of restraining and killing equipment for the species involved;</u>	Did not agree

- iii) knowledge ability to assess effective killing, to recognize signs of recovery of consciousness, and the skill to take immediate corrective action.

7.6.5._27_ EU	The EU proposes to add 'or signs of life' in point iii) and rename it as point ii) after merging i) and ii). iii) 'Ability to assess effective killing, to recognize signs of recovery of consciousness <u>or signs of life</u>, and the skill to take immediate corrective action' Justification: For consistency with Article 7.6.6 (f)	Did not agree

5- Personnel in charge of disposal of dead animals

a) Responsibilities

i) An ensuring efficient dead animal disposal so that (to ensure killing operations are not hindered) should be ensured

ii) understanding of biosecurity and ensuring compliance with Chapter 4.13

b) Training and Competencies

i) The personnel should be competent to safely use and maintain available equipment and apply techniques for the species involved.

ii) Recognise signs of life.

7.6.5._28_	Category: Addition	Text was deleted

JAPAN	Proposed amended text: <u>5. Personnel in charge of disposal of dead animals</u> <u>a) Responsibilities</u> <u>i) An ensuring efficient dead animal disposal so that (to ensure killing operations are not hindered) should be ensured</u> <u>ii) understanding of biosecurity and ensuring compliance with Chapter 4.13</u> <u>b) Training and Competencies</u> <u>i) The personnel should be competent to safely use and maintain available equipment and apply techniques for the species involved.</u> <u>ii) Recognise signs of life.</u> Rationale: Japan seeks to understand the rationale behind the deletion of these point. These points will also be important in considering the killing procedure as this chapter refers not only to animal welfare, but also to operator safety and mental health, biosecurity and environmental aspects (Article 7.6.3 “General Principles”).	

5. Breeder, owner, farmer or keeper or manager

a) Responsibilities

i) assist when requested.

b) Training and cCompetencies

i) specific knowledge of his/her the animals that are they are responsible for and their environment premises.

7.6.5._29_AU	5.(b) i). <u>Desirable</u> specific knowledge of <u>his/her the animals that are they are responsible for</u> and their <u>environment premises</u> .	Did not agree as the term 'desirable' is too vague.
7.6.5._30_ SINGAPORE	b) <u>Training and cCompetencies</u> i) specific knowledge of <u>his/her the animals that are they are responsible for</u> and their <u>environment premises under their responsibility</u>. Rationale: Suggested amendments (highlighted in green) below, for clarity	Did not agree.

Article 7.6.6.

Considerations in the planning of the operations regarding the mass large scale killing of animals

Many activities will need to be conducted on affected locations or premises, including the *killing* of animals. The team leader should develop a plan and prepare for large scale killing of animals on the location or premises which should include consideration of:

minimising handling, restraint and movement of animals;

killing the animals on the affected location^s or premises; however, there may be circumstances where the animals may need to be moved to another location for *killing*; when the *killing* is conducted at a *slaughterhouse/abattoir*, the recommendations in Chapter 7.5. should be followed;

the species, number, age and size of animals to be killed, and the order of *killing* them, ensuring animals at higher risk of suffering are prioritized in the order of killing;

7.6.6._1_ USA	Category: Addition Proposed amended text: the species, number, age and size of animals to be killed, and the order of <i>killing</i> them, <u>species-specific anatomical, physiological, and behavioural considerations relevant to potential killing methods and procedures</u>; Rationale: Additional language recommended because knowledge of species-typical behavioral characteristics is essential information to incorporate into the plan for killing animals (AVMA 2024). This includes considerations such as animals' reaction to being separated from conspecifics or dependent young and the impact of handling and restraint on the animal. For some species, the effectiveness and animal welfare impacts of the killing method(s) will be impacted by unique anatomical or physiological characteristics of the species. Supporting reference: American Veterinary Medical Association. (2024). AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition. https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf	Agreed, with a different wording.
7.6.6._2_ UK	Category: Addition. Proposed amended text (or precise suggested deletion): c) the species, number, age and size of animals to be killed, and the order of <i>killing</i> them, <u>ensuring animals at higher risk of suffering are prioritized in the order of killing</u>. Rationale: Young, injured and lactating animals are likely to have a higher risk of suffering than others and should be prioritized for killing Supporting evidence: not relevant.	Agreed, with a different wording.

methods of *killing* the animals, and their cost;

available resources, including cost, staff numbers, and any other practical elements

description of the process and criteria to assess unconsciousness and confirmation of death;

7.6.6._3_ Australia	Category: Change Proposed amended text: <u>f) description of the process and assessment of state of consciousness and signs of life criteria to confirm unconsciousness and death of animals;</u> Rationale:	Agreed

	It is critical that, following any killing method, animals are assessed to confirm they are dead before they are moved for appropriate disposal. Hence, focussing on signs of unconsciousness and death rather than signs of life should be the priority here. Supporting evidence, if relevant: https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	

housing, husbandry, location of the animals as well as accessibility of ~~the farm or~~ the place they are situated;

the availability and effectiveness of equipment needed for *killing* of the animals, as well as the time necessary to kill the required number of animals using such methods;

the availability on the locations or premises of facilities that will ~~be used to~~ assist with the *killing*, and the necessity of any additional facilities;

potential *biosecurity* and environmental impact of the operations;

the health and safety of personnel conducting the *killing*;

~~any legal issues that may be involved, for example where restricted veterinary drugs may be used, or where the process may impact on the environment;~~

~~the presence of other nearby premises holding animals;~~

~~possibilities for removal and disposal of dead animals.~~

7.6.6._4_ JAPAN	Category: Addition Proposed amended text: ~~l) any legal issues that may be involved, for example where restricted veterinary drugs may be used, or where the process may impact on the environment;~~ ~~m) the presence of other nearby premises holding animals;~~ ~~n) possibilities for removal and disposal of dead animals.~~ Rationale: Japan seeks to understand the rationale behind the deletion of these point. These points will also be important in considering the killing procedure as this chapter refers not only to animal welfare, but also to operator safety and mental health, biosecurity and environmental aspects (Article 7.6.3 “General Principles”).	Did not agree, as it's included in Chapter 4.13. 'Disposal' of dead animals'
7.6.6._5_ AUSTRALIA	Category: Addition Proposed amended text: ~~k) the health and safety of personnel conducting the <i>killing</i>;~~ ~~l) any legal issues that may be involved, for example where restricted veterinary drugs may be used, or where the process may impact on the environment;~~ ~~m) safe removal and disposal of dead animals and any chemical or other residue.~~ Rationale: Legal and safety should be included as considerations when planning for killing. It is important to ensure appropriate handling of dead animals and any pharmaceuticals used to avoid secondary poisoning, environmental contamination, disease transmission (e.g. including to nearby premises) or other aversive	Did not agree, as it's included in Chapter 4.13. 'Disposal' of dead animals'

	outcomes, including to non-target animals. In addition legal requirements can influence which methods of killing are feasible or best suited to specific circumstances, and should be identified early in the planning process so they do not later cause unnecessary delays in killing. Editorial change also made, to correct the lettering of the above points. Supporting evidence, if relevant:	

The plan should ensure animal welfare at the time of *killing* by taking into account the different phases of the procedures to be applied for *killing* including handling, restraint, killing method, confirmation of death and backup methods.

7.6.6._6_ ICFAW	Category: Editorial Proposed amended text: The plan should minimise the negative animal welfare impacts of the <i>killing</i> by taking into account the different phases of the procedures to be applied for <i>killing</i>. Rationale: The sentence isn't clear as written. Explanation of what is meant by "different phases of the procedure" is needed.	Did not agree
7.6.6._7_ CANADA	Category: clarification Proposed amended text : The plan should minimise the negative animal welfare impacts of the <i>killing</i> by taking into account the different phases of the procedures to be applied for <i>killing</i>. Rationale: It is not clear what 'phases of the procedures' is being referred to in this paragraph. Does it mean different steps prior to the application of the killing method such as mustering animals into a pen, moving them into the chute, application of restraint and finally application of the killing method? Additional clarity should be added to this point but alternative wording could not be suggested as it is not clear what is being referred to.	Did not agree

Competences and skills of the personnel handling and *killing* animals should be included in the operational plan.

Article 7.6.7.

Hazards to animal welfare

For the purpose of this chapter, *hazards to animal welfare* means a factor with the potential to adversely affect animal welfare.

When killing animals, they may be exposed to different *hazards to animal welfare* including improper *restraining restraint*, rough handling, forced movement, absence of or improper design of *premises*, inadequate construction and maintenance of premises, improper use of equipment, adverse weather conditions, unexpected loud noise and potentially aversive or ineffective *killing* methods.

7.6.7._1_ USA	Category: Addition Proposed amended text: When killing animals, they may be exposed to different <i>hazards to animal welfare</i> including improper <i>restraining restraint</i>, rough	Agreed, but worded in a different way

	handling, forced movement, absence of or improper design <u>of premises</u>, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and <u>ineffective killing methods which take longer and/or cause increased negative affective states, such as pain, fear, anxiety, overheating, chilling, or panic.</u> Rationale: Language added to 1. capture an additional hazard if the killing method takes a long time and 2. emphasize that the negative affective states listed here negatively impact animal welfare, particularly if they are intense or prolonged (Mellor 2016; Mellor & Beausoleil 2015). Some methods inherently cause negative affective states in conscious animals by virtue of their pathophysiology, while other methods can do so if improperly applied. Supporting references: Mellor D. J. (2016). Updating Animal Welfare Thinking: Moving beyond the "Five Freedoms" towards "A Life Worth Living". <i>Animals</i> : an open access journal from MDPI, 6(3), 21. https://doi.org/10.3390/ani6030021 Mellor, D., & Beausoleil, N. (2015). Extending the "Five Domains" model for animal welfare assessment to incorporate positive welfare states. <i>Animal Welfare</i>, 24(3), 241–253. https://doi.org/10.7120/09627286.24.3.241	
7.6.7._2_ SOUTH AFRICA	Category: Addition Proposed amended text: When killing animals, they may be exposed to different <u>hazards to animal welfare hazards</u> including improper <u>restraining restraint</u>, rough handling, forced movement, absence of or improper design <u>of premises</u>, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and ineffective <u>or lengthy</u> killing methods. Rationale: A method may be effective, but if it takes too long to kill the animal, it still poses a risk to animal welfare. Supporting evidence: Not relevant	Did not agree
7.6.7._3_ NORWAY	Category: Addition Proposed amended text: When killing animals, they may be exposed to different hazards to animal welfare including <u>lack of the appropriate skills by staff (leading to e.g. improper restraint, rough handling, or forced movement)</u>, absence of or improper design of premises, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and ineffective killing methods. Rationale: All EFSA opinions on welfare at slaughter or killing for purposes other than slaughter identify skills of staff as an important hazard not only during restraint/handling, but also at stunning and killing. Some of the opinions are listed below: Supporting evidence: EFSA, 2024: Welfare of horses during killing for purposes other than slaughter. • EFSA 2024: Welfare of sheep and goats during killing for purposes other than slaughter.	Did not agree.

	• EFSA, 2020: Scientific opinion concerning the killing of rabbits for purposes other than slaughter. In this opinion, the staff was identified as the origin for all 14 hazards, either due to lack of the appropriate skill sets needed to perform tasks or due to fatigue.	
7.6.7._4_ MALAYSIA	Category: Addition Proposed amended text: When killing animals, they may be exposed to different hazards to animal welfare hazards including improper restraining restraint, rough handling, forced movement, absence of or improper design of premises and equipment/ tools, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and ineffective <i>killing</i> methods. Rationale: It is essential to kill animals using the proper tools to ensure rapid death, and the process is done humanely. Supporting evidence: Not relevant	Did not agree. It's already included as 'wrong use of equipment'
7.6.7._5_ ICFAW	Category: Addition Proposed amended text: When killing animals, they may be exposed to different hazards to animal welfare hazards including improper restraining restraint, rough handling, forced movement, absence of or improper design of premises, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and ineffective, <u>aversive or prolonged</u> <i>killing</i> methods. Rationale: Another important hazard is prolonged killing methods, if they cause pain and suffering during the period leading to unconsciousness and death.	Already considered
7.6.7._6_ COLOMBIA	ES (Only ES versión) Categoría: Editorial Texto modificado propuesto: En artículo 7.6.7: Durante la matanza, los animales pueden quedar expuestos a diversos peligros <u>para el bienestar animal que pongan en riesgo su bienestar</u>. Justificación: Se sugiere el cambio para mayor claridad de las ideas expresadas en el párrafo. Evidencia documentada, si corresponde: N/A	Did not agree
7.6.7._7_ CANADA	Comment Category: addition Proposed amended text: When killing animals, they may be exposed to different hazards to animal welfare hazards including improper restraining restraint, rough handling, forced movement, absence of or improper design of premises or equipment, inadequate construction and maintenance of premises <u>or equipment</u>, adverse weather conditions, unexpected loud noise and ineffective <i>killing</i> methods <u>(killing methods that cause negative affective states (including pain, fear, anxiety, distress, frustration, panic,) or that results in a prolonged period to loss of consciousness)</u>. Rationale:	Agreed only the first amendment regarding the 'equipment'.

	Problems with equipment can lead to distress or ineffective killing. Equipment is a key component of many of the methods including captive bolt, electrical, gas etc. Canada suggests the use of the word ineffective does not meet the intent of this section which is to ensure that animals are killed humanely. Some killing methods may lead to distress before animals are rendered unconscious/dead for example, water- based foam, gas, ventilation shutdown etc.	
7.6.7._8_ BRAZIL	Category: addition Proposed amended text: When killing animals, they may be exposed to different hazards to animal welfare hazards including improper restraining restraint, rough handling, forced movement, absence of or improper design of premises, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and ineffective or extremely lengthy killing methods. Rationale: A method could be effective, but if it takes a very long time to kill the animal, it would still be an animal welfare hazard. Supporting evidence: N/A	Did not agree
7.6.7._9_ EU	The EU suggests adding 'lack of the appropriate skills by staff' in the above paragraph: 'When killing animals, they may be exposed to different hazards to <i>animal welfare</i> including <u>lack of the appropriate skills by staff (leading to e.g. improper restraint, rough handling, forced movement)</u>, absence of or improper design of premises, inadequate construction and maintenance of premises, adverse weather conditions, unexpected loud noise and ineffective <i>killing</i> methods.' <u>Justification:</u> All EFSA opinions on welfare at slaughter or killing for purposes other than slaughter identify skills of staff as an important hazard not only during restraint/handling, but also at stunning/and or killing. Some examples of them are: • EFSA, 2024: Welfare of horses during killing for purposes other than slaughter. • EFSA 2024: Welfare of sheep and goats during killing for purposes other than slaughter. • EFSA, 2020: Scientific opinion concerning the killing of rabbits for purposes other than slaughter. In this opinion, the staff was identified as the origin for all 14 hazards, either due to lack of the appropriate skill sets needed to perform tasks or due to fatigue.	Agreed

Exposure to multiple hazards to *animal welfare* can have a negative cumulative effect on the animals [Moberg and Mench, 2000].

Hazards to animal welfare can be minimised by appropriate design of premises and choice of equipment, **and method of killing and through**, good management, training and competency of personnel.

7.6.7._10_	Category: change	Did not agree

CHINA (PR)	Proposed amended text : Hazards to animal welfare can be minimised by appropriate design of premises and choice of equipment, <u>and method of killing and through, good effective</u> management, training and competency of personnel. Rationale: “Effective management” is more rational than “good management”. supporting evidence: not relevant.	
7.6.7._11_ CANADA	Comment Category: addition Proposed amended text: Hazards to animal welfare can be minimised by appropriate design of premises and choice of equipment, <u>advanced planning and preparation and method of killing and through,</u> good management, training and competency of personnel. Rationale: Canada suggests the additional wording is needed to ensure that the need for preparation in advance of the emergency is fully understood. This was discussed previously in the case of advanced preparation and storage of CO2 in 7.6.4.	Did not agree
7.6.7._12_ AU	Hazards to animal welfare can be minimised by appropriate design of premises, <u>and</u> choice of equipment, <u>and method of killing, and through</u> good management, training and competency of personnel. Rationale: Enhanced readability and clarity EFSA, 2020: Scientific opinion concerning the killing of rabbits for purposes other than slaughter. In this opinion, the staff was identified as the origin for all 14 hazards, either due to lack of the appropriate skill sets needed to perform tasks or due to fatigue.	Did not agree.

Article 7.6.8.

Measures to assess animal welfare at the time of killing for purposes other than slaughter

Hazards to Animal welfare at the time of killing for purposes other than slaughter should be assessed using animal-based measures. However, consideration should be given to the resources provided as well as the design and management of the method.

7.6.8._1_ COLOMBIA	ES (Only Spanish versión) Categoría: Editorial Texto modificado propuesto: En artículo 7.6.8: Deberán evaluarse los peligros para el bienestar animal durante la matanza con fines diferentes <u>al matanza al sacrificio</u> utilizando medidas basadas en el animal. Justificación: Se corrige según el título de este capítulo 7.6. Evidencia documentada, si corresponde: N/A	Did not agree. According to the RAE m. Matanza de animales, especialmente para el consumo.

Measures to assess welfare during handling and restraint in Chapter 7.5 are applicable to this chapter.

Animal-based measures should be routinely used in the monitoring of the state of consciousness and death, with the most appropriate to be used in relation to the method applied.

7.6.8._2_ SWITZERLAND	A brief description of the following sections, such as in paragraph 4 of article 7.6.10, would be helpful for understanding.	Noted
7.6.8._3_ EU	The EU proposes to delete the word “these” at the beginning of the above sentence and add ‘to confirm’ before the word ‘death’: ~~‘These a~~Animal-based measures should be routinely used in the monitoring of the state of consciousness and <u>to confirm</u> death, with the most appropriate to be used in relation to the method applied.’ <u>Justification:</u> The initial wording gives the impression that only the measures in chapter 7.5. should be used for this chapter, which is not the case. Death is a permanent state. Consequently, it does not make sense to monitor the state of death. Death should be confirmed using animal-based measures.	Agreed

1. The following animal-based measures can be useful indicators of animal welfare. These measures can be considered as tools to monitor the effectiveness of the loss of consciousness and confirmation of death . It may be useful to use multiple indicators to determine effectiveness of the method.

7.6.8._4_ ICFAW	Category: Change Proposed amended text: The following animal-based measures can be useful indicators of animal welfare. These measures can be considered as tools to monitor the <u>effectiveness and efficiency of design and management the killing method</u>, given that they can affect animal welfare. Rationale: A change in wording is needed because “design and management” don’t make sense in the context of killing methods. The language may be a holdover from the slaughter chapter, where the design and management of slaughter facilities are important animal welfare inputs.	Agreed with some changes
7.6.8._5_ CANADA	Category : Addition Proposed amended text The following animal-based measures ~~can be useful indicators of animal welfare. These measures~~ can be considered as tools to monitor ~~the efficiency the efficacy of the method of design and management, to render animals unconscious in the progression to death since this is one of the key factors given that they can~~ affecting animal welfare <u>during the killing process. Multiple indicators should be used to determine effectiveness of the method. The timing of indicators is also important, since more rapid onset of unconsciousness mitigates the risk for animals to experience pain or distress during the killing process.</u> Rationale: The animal-based measures (various indicators) listed below do not demonstrate efficiency of design and management but rather evaluate the effectiveness of the killing method, more specifically in inducing unconsciousness in animals in the progression to death.	Did not agree
7.6.8._6_ EU	The EU suggests replacing the term ‘efficiency’ by ‘effectiveness’:	Agreed

	'[...] tools to monitor the ~~efficiency~~ <u>effectiveness</u> of design and management [...].' <u>Justification:</u> Efficiency means performing or functioning effectively with the least waste of time, effort, cost, energy, etc. Effectiveness means producing the desired or intended effect or result (animal welfare in this case).	

a) Immediate collapse

~~stunning~~ Loss of consciousness can be recognised from the immediate loss of posture leading to collapse of the animal. ~~Ineffectively stunned~~ Conscious animals, on the other hand, will fail to collapse or will attempt to regain posture after collapse. ~~Some ineffectively stunned animals, may occur, for example, if captive bolt shooting position is wrong or electrically immobilised animals lose posture, but remain conscious.~~

7.6.8._7_ USA	Category: Addition Proposed amended text: For captive and penetrating bolt methods, and electrical methods, effective <u>stunning loss of consciousness</u> can be recognised from the immediate loss of posture leading to collapse of the animal. ~~Ineffectively stunned~~ <u>Conscious</u> animals, on the other hand, will fail to collapse or will attempt to regain posture after collapse. ~~Some ineffectively stunned animals, may occur, for example, if captive bolt shooting position is wrong or electrically immobilised animals lose posture, but remain conscious.~~ The absence of immediate collapse is always indicative of consciousness. Rationale: To be consistent with the next point (b), recommend adding language to clarify which methods immediate collapse is a useful indicator. It would not be useful for gas stunning methods, for example.	Agree in part.
7.6.8._8_ ICFAW	Category: Addition Proposed amended text: Effective <u>electrical and captive or penetrative bolt methods result in stunning loss of consciousness, which</u> can be recognised from the immediate loss of posture leading to collapse of the animal. ~~Ineffectively stunned~~ <u>Conscious</u> animals, on the other hand, will fail to collapse or will attempt to regain posture after collapse. ~~Some ineffectively stunned animals, may occur, for example, if captive bolt shooting position is wrong or electrically immobilised animals lose posture, but remain conscious.~~ The absence of ~~immediate~~ collapse is always indicative of consciousness <u>with these methods</u>.	Agreed

	Rationale: Immediate collapse is only useful as a measure to assess animal welfare with certain methods. Further, immediate collapse is not always associated with unconsciousness, for example a missed shot with a firearm could cause the animal to collapse from a severe injury to the head, body or legs, without rendering the animal insensible. Bleeding without prior stunning could cause an animal to collapse yet would not result in immediate unconsciousness (animals may even try to stand up again). To be consistent with the statement above asking users to select “the most appropriate [method] to be used...” and the next sections, we recommend clarifying which methods should result in immediate collapse. Otherwise, there is a risk of confusion, for example, with gas stunning methods, which cause the animals to sit down or go into recumbency and could be mistaken for “collapse”. Despite the careful addition of “immediate” in the description of the method, misunderstanding about use of recumbency as a measure of unconsciousness is widespread, so clarifying for which methods immediate collapse can be used to assess unconsciousness would aid understanding. Further, for the final sentence in the paragraph, the word “immediate” is not necessary because a standing animal is always conscious. Supporting evidence: Gregory, N. G., Fielding, H. R., von Wenzlawowicz, M., & Von Holleben, K. (2010). Time to collapse following slaughter without stunning in cattle. <i>Meat science</i>, 85(1), 66-69. https://www.sciencedirect.com/science/article/pii/S0309174009003854 link to pdf Verhoeven, M., Gerritzen, M., Velarde, A., Hellebrekers, L., & Kemp, B. (2016). Time to loss of consciousness and its relation to behavior in slaughter pigs during stunning with 80 or 95% carbon dioxide. <i>Frontiers in veterinary science</i>, 3, 38. https://www.frontiersin.org/articles/10.3389/fvets.2016.00038/pdf Verhoeven, M. T. W., Gerritzen, M. A., Hellebrekers, L. J., & Kemp, B. (2015). Indicators used in livestock to assess unconsciousness after stunning: a review. <i>Animal</i>, 9(2), 320-330. Link to pdf	
7.6.8._9_ CANADA	Comment Category: addition Proposed amended text: <u>For many methods, Effective stunning loss of consciousness</u> can be recognised from the immediate <u>and permanent</u> loss of posture leading to collapse of the animal. ~~Ineffectively stunned~~ <u>Conscious</u> animals, on the other hand, will fail to collapse or will attempt to regain posture after collapse. <u>As it is possible for animals to collapse during the killing process but still be conscious, other indicators should be used concurrently to determine efficacy of the method.</u> Rationale: It is possible for animals to collapse from weakness following bleeding or lethal injection and not yet be unconscious. A second indicator should always be used to determine efficacy of the method.	Did not agree

b) Tonic-clonic seizures

Effective electrical and in some cases captive bolt methods ~~stunning often~~ result in the presence of tonic-clonic seizures. Tonic seizures can be recognised by an arched back and rigidly flexed legs under

the body and will last for several seconds. It is followed by clonic seizures lasting for seconds and manifested as leg kicking or paddling. The absence of tonic-clonic seizures may be indicative of consciousness [Van der Wal, 1971].

7.6.8._10_ ICFAW	Category: Addition Proposed amended text: Effective <u>electrical and in some cases captive bolt methods stunning often</u> result in the presence of tonic-clonic seizures. Tonic seizures can be recognised by an arched back and rigidly flexed legs under the body and will last for several seconds. It is followed by clonic seizures lasting for seconds and manifested as leg kicking or paddling. The absence of tonic-clonic seizures may be indicative of consciousness [Van der Wal, 1971]. <u>However, electrically paralyzed poultry may show tonic seizures while conscious.</u> Rationale: For poultry, it is important not to interpret electrical paralysis as a state of unconsciousness. Supporting evidence: Shields, S. J., & Raj, A. B. M. (2010). A critical review of electrical water-bath stun systems for poultry slaughter and recent developments in alternative technologies. Journal of Applied Animal Welfare Science, 13(4), 281-299. https://pubmed.ncbi.nlm.nih.gov/20865613; Link to pdf	Did not agree
7.6.8._11_ CANADA	Category : addition Proposed amended text <u>Effective Certain electrical, gas and in some cases captive bolt methods stunning often</u> result in the presence of tonic-clonic seizures. Tonic seizures can be recognised by an arched back and rigidly flexed legs under the body and will last for several seconds. It is followed by clonic seizures lasting for seconds and manifested as leg kicking or paddling <u>and wing flapping in birds after captive bolt stunning</u>. The absence of tonic-clonic seizures may be indicative of consciousness [Van der Wal, 1971]. Rationale: 1st change: The tonic clonic phase is often masked when electrical stunning causes cardiac arrest (only observed with head only or two step electrical stunning). 2nd change : Gas stunning can also cause tonic-clonic seizures initially especially in pigs 3rd change: To ensure internal consistency within the Terrestrial Code, specifically Article.7.5.31 2. Animal-based and other measures: <i>Penetrative and non-penetrative captive bolt:</i> Severe convulsions (wing flapping and leg kicking i.e. uncontrolled muscular movements) occur immediately after the mechanical <u>stunning</u> intervention. This is due to the loss of control of the brain over the spinal cord. Since mechanical <u>stunning</u> is applied to individual <u>animals</u>, its efficacy can be assessed immediately after the stun.	Did not agree
7.6.8._12_ CANADA	Category : Deletion Proposed amended text	Agreed

	a) Righting reflex [Atkinson et al, 2013; Terlouw et al, 2016] The righting reflex refers to any reflex that tends to bring the body into its normal upright position. Ineffectively ~~For example effectively stunned killed~~ animals and those recovering consciousness will ~~not attempt to raise their heads or shake their heads after stunning~~, which is referred to as righting reflex. Rationale: It is suggested that Righting reflex be moved to point 2 as an indicator of consciousness but that is not sensitive enough to indicate unconsciousness. The presence of righting reflex confirms consciousness but the absence of a righting reflex does not confirm that an animal is unconscious and progressing towards death. An animal could be conscious and not necessarily exhibit a righting reflex. See Table 1 on pg 148 of: Consciousness, unconsciousness and death in the context of slaughter. 2016. Part II. Evaluation methods Claudia Terlouw, Cécile Bourguet, Véronique Deiss Consciousness, unconsciousness and death in the context of slaughter. Part II. Evaluation methods - PubMed	

c) [Absence of rhythmic breathing](#) [Atkinson et al, 2013; Kamenik et al, 2019, Vecerek et al, 2020]

Effective **stunning killing** will result in onset of apnoea (absence of breathing). Ineffectively **stunned killed** animals and those recovering consciousness will start to breathe in a pattern commonly referred to as rhythmic breathing, which may begin as gagging and lead to respiratory cycles of **inspiration inhalation** and **expiration exhalation**. Breathing can be recognised from the regular flank, abdominal, and/or mouth and nostril movements. Recovery of breathing, if not visible through these movements, can be checked by holding a small mirror in front of the nostrils or mouth to look for the appearance of condensation due to **expiration exhalation** of moist air. **Rhythmic breathing is not to be confused with agonal breaths.**

7.6.8._13_USA	Category: Addition. Proposed amended text: Effective stunning killing will result in immediate onset of apnoea (absence of breathing). Ineffectively stunned killed animals and those recovering consciousness will start to breathe in a pattern commonly referred to as rhythmic breathing, which may begin as gagging and lead to respiratory cycles of inspiration inhalation and expiration exhalation. Breathing can be recognised from the regular flank, abdominal, and/or mouth and nostril movements. Recovery of breathing, if not visible through these movements, can be checked by holding a small mirror in front of the nostrils or mouth to look for the appearance of condensation due to expiration exhalation of moist air. Rhythmic breathing is not to be confused with agonal breaths. Rationale: Recommend adding “abdominal” to reflect an avian species characteristic of breathing. With birds, movement of the abdomen indicates continued breathing.	Agree to add ‘abdominal’ to reflect avian species characteristic of breathing.
7.6.8._14_UK	Category: Addition.	Did not agree. Too much detail

	Proposed amended text (or precise suggested deletion): Rhythmic breathing [Atkinson et al, 2013; Kamenik et al, 2019, Vecerek et al, 2020] Effective stunning killing will result in immediate onset of apnoea (absence of breathing). Ineffectively stunned killed animals and those recovering consciousness will start to breathe in a pattern commonly referred to as rhythmic breathing, which may begin as gagging and lead to respiratory cycles of inspiration inhalation and expiration exhalation. Breathing can be recognised from the regular flank ~~and/or~~ mouth and nostril movements. Recovery of breathing, if not visible through these movements, can be checked by holding a small mirror in front of the nostrils or mouth to look for the appearance of condensation due to expiration exhalation of moist air. Rhythmic breathing is not to be confused with agonal breaths (a random gasping (not rhythmic, without coordinated movements of the thorax suggesting inspiration) which may occur some time after stunning and pithing/bleeding, especially in pigs). Rationale: Add at the end of the paragraph a clarification of what 'agonal breaths' are to ensure consistency of interpretation Agonal breathing can be alarming to the uninitiated but is indicative of a dying brainstem rather than an animal recovering and it should not be confused with normal rhythmic breathing. Supporting evidence: https://www.hsa.org.uk/downloads/on-farm-killing-of-new-born-livestock-november-2020.pdf	
7.6.8._15_ ICFAW	Category: Deletion and editorial Proposed amended text: Effective stunning killing will result in immediate onset of apnoea (absence of breathing). ~~Ineffectively~~ Animals who remain alive stunned killed animals and those recovering consciousness will start to breathe in a pattern commonly referred to as rhythmic breathing, which may begin as gagging and lead to respiratory cycles of inspiration inhalation and expiration exhalation Rationale: With controlled atmosphere killing methods, the loss of rhythmic breathing may be gradual. "Ineffectively killed" seems oddly stated and the additional edit is proposed to improve the wording.	Agree only with the first proposal
7.6.8._16_ CANADA	Comment Category: addition Proposed amended text: ~~When the killing method is effectively implemented—Effective~~ stunning killing ~~it~~ will result in immediate onset of apnoea (absence of breathing). ~~Animals that have not been effectively killed~~ ~~Ineffectively~~ stunned killed animals and those recovering consciousness will start to breathe in a pattern commonly referred to as rhythmic breathing, which may begin as gagging and lead to respiratory cycles of inspiration inhalation and expiration exhalation. Breathing can be recognised from the regular flank, ~~abdominal~~ ~~and/or~~ mouth and nostril movements. Recovery of breathing, if not visible through these movements, can be checked by holding a small mirror in front of the nostrils or mouth to look for the appearance of condensation due to expiration exhalation of moist air. Rhythmic breathing is not to be confused with agonal breaths. When rhythmic breathing is mistaken for agonal breathing (defined below), this can pose a risk to animal welfare because it leads to the false	Did not agree, as the proposal did not add additional information.

	assumption that rhythmic breathing is absent and that the animal is unconscious, even though it may not be. Rationale: “stunning” has been replaced with “killing” in this Article however the wording is often referring to the effects of stunning, not killing. Animals are either killed or not, therefore we proposed alternative wording for clarity. Canada suggests that “abdominal” needs to be added as abdominal movements can signify return to respiration pattern as the diaphragm contracts. Adding abdominal will also capture the situation in birds. Additional text has been added to explain why different measures of assessment should not be confused with one another. i.e. what negative consequences to animal welfare may occur. Absence of rhythmic breathing, corneal reflex and palpebral reflex indicates dysfunction of the brain stem - so unconsciousness and progression to death - and not necessarily that the animals is killed - since they can be regained. The indicators in this section demonstrate that the killing method is working as intended and that it induces immediate unconsciousness . These indicators are different than those in section 3 which are intended to identify death in animals. See Terlouw 2016: Consciousness, unconsciousness and death in the context of slaughter. Part II. Evaluation methods - ScienceDirect	

d) Corneal reflex:

The corneal reflex is elicited by touching or tapping the cornea. ~~Ineffectively stunned~~ **Conscious** animals and those recovering consciousness will blink in response to the stimulus. Effectively ~~stunned killed and stuck (bled)~~ animals show the absence of the corneal reflex during any key stage. On the other hand, ~~ineffectively or poorly stunned animals and those recovering consciousness prior to sticking or during bleeding are expected to show the presence of the corneal reflex at any key stage. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid.~~

7.6.8._17_ CANADA	Category : addition Proposed amended text The corneal reflex is elicited by touching or tapping the cornea. ~~Ineffectively stunned~~ Conscious animals and those recovering consciousness will blink in response to the stimulus. When the killing method is effectively implemented, Effectively stunned killed and stuck (bled) animals will not show the ~~absence of the~~ corneal reflex during any key stage. On the other hand, ~~ineffectively or poorly stunned animals and those recovering consciousness prior to sticking or during bleeding are expected to show the presence of the corneal reflex at any key stage. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid.~~ Rationale: editorial	Did not agree

e) Palpebral reflex

The palpebral reflex is elicited by touching or tapping a finger on the inner/outer eye canthus or eyelashes. Correctly stunned animals will not show a palpebral reflex. Ineffectively stunned Conscious animals and those recovering consciousness will blink in response to the stimulus at any key stage. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid. Effectively killed animals will not show a palpebral reflex.

7.6.8._18_ CANADA	Category: change Proposed amended text The palpebral reflex is elicited by touching or tapping a finger on the inner/outer eye canthus or eyelashes. <u>Correctly stunned animals will not show a palpebral reflex. Ineffectively stunned Conscious animals and those recovering consciousness will blink in response to the stimulus at any key stage. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid. Effectively killed</u> <u>When the killing method is effectively implemented</u> <u>animals will not show a palpebral reflex.</u> Rationale: editorial	Did not agree

f) Eye movement

Eye movements and the position of the eyeball can be recognised from close examination of eyes after stunning. Conscious animals and those recovering consciousness will show eye movements. Correctly stunned Effectively killed animals will show fixed eyes, and this can be recognised from wide open and glassy eyes with clearly visible iris/cornea in the middle. Eyeballs may be obscured in some animals owing to rotation into the eye socket following effective stunning. Ineffectively stunned Conscious animals and those recovering consciousness will show eye movements [EFSA AHAW Panel, 2013; Kamenik et al, 2019]

7.6.8._19_ CANADA	Category: change Proposed amended text Eye movements and the position of the eyeball can be recognised from close examination of eyes after stunning. <u>Conscious animals and those recovering consciousness will show eye movements. Correctly stunned</u> <u>When the killing method is effectively implemented Effectively killed</u> animals will show fixed eyes, and this can be recognised from wide open and glassy eyes with clearly visible iris/cornea in the middle. <u>Eyeballs may be obscured in some animals owing to rotation into the eye socket following effective stunning. Ineffectively stunned Conscious animals and those recovering consciousness will show eye movements [EFSA AHAW Panel, 2013; Kamenik et al, 2019]</u> Rationale: editorial	Did not agree
7.6.8._20_ EU	The EU suggests adding an additional point 'Rapid eye movement or nystagmus'. g) <u>'Rapid eye movement or nystagmus'</u> Justification: Verhoeven et al., 2015 includes nystagmus as animal-based indicator used to assess unconsciousness after stunning. Nystagmus, involuntary rapid horizontal eye flickering, is caused by damage to the vestibular, labyrinthine or central nervous system and	Did not agree

	was more present in cattle that had a shallow depth of concussion following captive bolt stunning. When observed it has been associated with a greater chance of rhythmic breathing. Its presence adds strength to the conclusion that the depth of concussion has been shallow (Gregory et al., 2007). The study by Bourquet et al. (2011), supported the study by Gregory et al. (2007), which indicated that when nystagmus was observed, there was a one in three chance that the quality of the stun was insufficient when using captive bolt.	

2. The following animal-based measures can be used^d as indicators of consciousness but their absence does not necessarily indicate unconsciousness. Therefore, they can be use in addition to the previously mentioned animal-based measures:

7.6.8._21_ USA	Proposed amended text: 2. The following animal-based measures can be used ^d as indicators of consciousness <u>but their absence does not necessarily are not sensible to</u> indicate unconsciousness. Therefore, they can be use in addition to the previously mentioned animal-based measures: Rationale: Edited for clarity.	Agreed
7.6.8._22_ ICFAW	Category: Editorial Proposed amended text: The following animal-based measures can be used ^d as indicators of consciousness but <u>are not sensible to their absence does not</u> indicate unconsciousness. Therefore, they can be used in addition to the previously mentioned animal-based measures: Rationale: "Sensible" is not the right word.	Agreed
7.6.8._23_ CANADA	Category: change Proposed amended text 2. The following animal-based measures can be used as indicators of consciousness but are not <u>sensible sensitive</u> to indicate unconsciousness. Therefore, they can be use in addition to the previously mentioned animal-based measures: Rationale: editorial	Already covered with the previous change

a) Response to painful stimuli

Poor stunning can be recognised from the response to painful stimulus. The absence of response to a painful stimulus indicates unconsciousness following stunning. [Terlow et al, 2016; Komenik et al, 2018]

a) b) Spontaneous blinking

Conscious animals may show spontaneous blinking and therefore this sign can be used to recognise ineffective stunning killing or recovery of consciousness. . Spontaneous blinking can be used as an indicator at all key stages of monitoring. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid. [Gregory et al, 2007; Terlouw et al, 2016, Kamenik et al, 2018]

b) Righting reflex [Atkinson et al, 2013; Terlow et al, 2016]

The righting reflex refers to any reflex that tends to bring the body into its normal upright position. Ineffectively For example effectively stunned-killed animals and those recovering consciousness will not attempt to raise their heads or shake their heads after stunning, which is referred to as righting reflex.

7.6.8._24_ ICFAW	Category: Editorial Proposed amended text: Conscious animals may show spontaneous blinking and therefore this sign can be used to recognise ineffective stunning-killing or recovery of consciousness after stunning. However, <u>the absence of spontaneous blinking does not necessarily indicate the animal is unconscious</u>~~not all the conscious animals may show spontaneous blinking.~~ Rationale: Suggestion to improve the wording for clarity.	Agree, but with another wording

b)-e) Vocalisation

Vocalisation is expected only in conscious animals and can be used as an indicator in all key stages of monitoring. However, not all conscious animals will vocalise, and hence the absence of vocalisation does not always mean that the animal is unconscious. [Atkinson et al, 2013; Kamenik et al., 2018]

7.6.8._25_ USA	Proposed amended text: c) <u>Wing flapping</u> <u>Wing flapping can indicate consciousness in poultry. However, the absence of wing flapping may not necessarily indicate unconsciousness.</u> d) <u>Head shaking</u> <u>Head shaking can indicate consciousness in poultry. However, the absence of head shaking does not necessarily indicate unconsciousness.</u> e) <u>Spontaneous swallowing</u> <u>Spontaneous swallowing can indicate consciousness in poultry. However, the absence of swallowing does not necessarily indicate unconsciousness.</u> Rationale: Recommend adding indicators of consciousness specific to poultry. Supporting reference: EFSA Panel on Animal Health and Welfare (AHAW). (2013). Scientific Opinion on monitoring procedures at slaughterhouses for poultry. EFSA Journal, 11(12), 3521..	Did not agree. Unnecessary detailed
7.6.8._26_ ICFAW	Category: Editorial Proposed amended text: Vocalisation is expected only in conscious animals and can be used as an indicator in all key stages of monitoring. However, <u>the absence of vocalization does not necessarily indicate the animal</u> ~~not all conscious animals will vocalise, and hence the absence of vocalisation does not always mean that the animal~~ is unconscious. Rationale: Suggestion to improve the wording for clarity.	Did not agree
7.6.8._27_ CANADA	Category : addition Proposed amended text: addition):	Agree to be moved to point 2.

	c)Righting reflex The righting reflex refers to any reflex that tends to bring the body into its normal upright position. ~~Ineffectively~~ For example, ~~effectively stunned~~ ~~stunned~~ ~~killed~~ animals and those recovering consciousness ~~will~~ conscious animals may <u>not</u> attempt to raise their heads or shake their heads after stunning, which is referred to as righting reflex. Rationale: It is suggested that Righting reflex be moved to point 2 as an indicator of consciousness but that is not sensitive enough to indicate unconsciousness. The presence of righting reflex confirms consciousness but the absence of a righting reflex does not confirm that an animal is unconscious and progressing towards death. An animal could be conscious and not necessarily exhibit a righting reflex. See Table 1 on pg 148 of: Consciousness, unconsciousness and death in the context of slaughter. 2016. Part II. Evaluation methods Claudia Terlouw, Cécile Bourguet, Véronique Deiss Consciousness, unconsciousness and death in the context of slaughter. Part II. Evaluation methods - PubMed	

3. A combination of the following animal-based measures can be used to confirm death before carcass disposal:

7.6.8._28_ CANADA	Comment Category: change Proposed amended text: ~~The~~A combination of the following animal-based measures can be used to confirm death as the confirmation of death before carcass disposal: Rationale: With the exception of absence of heartbeat each of the other 2 indicators is not sufficient on its own to confirm death.	Agreed

a) Muscle tone

Immediately after killing, dead animals will lose muscle tone, which can be recognized from the completely relaxed head, legs, floppy ears or drooping wings [relaxed tongue](#) and relaxed jaws.

7.6.8._29_ USA	Proposed amended text: a) <u>Muscle tone</u> Immediately after killing, dead animals will lose muscle tone, which can be recognized from the completely relaxed head, legs, floppy ears, and/or wings, relaxed tongue and relaxed jaws. However, muscle tone on its own can be present in deeply unconscious animals. Rationale: Language added to: 1. Include indicators of death specific to poultry (i.e. "head" and "and/or wings") and 2. clarify that muscle	Agree in part. Not the last addition

	tone on its own does not confirm death and can be present in deeply unconscious animals...	
7.6.8._30_ ICFAW	Category: Addition Proposed amended text: Immediately after killing, dead animals will lose muscle tone, which can be recognized from the completely relaxed <u>body, head</u>, legs, <u>and/or drooping wings</u>, floppy ears, <u>relaxed tongue</u> and relaxed jaws. <u>A recently dead animal will have a limp carcass.</u> Rationale: Add indicators specific to poultry, such as drooping wings, relaxed body and head. This is especially important after electrical killing methods to distinguish between death and electrical paralysis. Supporting evidence: EFSA Panel on Animal Health and Welfare (AHAW). (2013). Scientific Opinion on monitoring procedures at slaughterhouses for poultry. <i>EFSA Journal</i>, 11(12), 3521. https://www.efsa.europa.eu/en/efsajournal/pub/3521 Shields, S. J., & Raj, A. B. M. (2010). A critical review of electrical water-bath stun systems for poultry slaughter and recent developments in alternative technologies. <i>Journal of Applied Animal Welfare Science</i>, 13(4), 281-299. https://pubmed.ncbi.nlm.nih.gov/20865613/; Link to pdf	Agree in part

b) Heartbeat

Onset of death leads to permanent loss of heartbeat, which can be ascertained physically by using a stethoscope or by heart or arterial palpation, where possible. [Vogel et al., 2011]

7.6.8._31_NEW ZEALAND	Category: Change Proposed amended text: 3. The following animal-based measures can be used as the confirmation of death before carcass disposal: <u>b) Heartbeat</u> ~~Onset of death leads to permanent loss of heartbeat, which can be ascertained physically by using a stethoscope or by <u>heart or arterial</u> palpation, where possible. [Vogel et al., 2011]~~ <u>b) Absence of rhythmic breathing</u> <u>Continued absence of rhythmic breathing is a sign of death. Agonal gasping should not be confused with rhythmic breathing.</u> <u>d) Absence of other reflexes</u> <u>Absence of palpebral or corneal reflex can be used alongside the animal-based measures above, to confirm death before carcass disposal.</u> Rationale: Heartbeat: Following some methods of killing (e.g., mechanical, head-only electrical stunning and bleeding) the heart will continue to beat for several minutes, until it runs out of glucose and oxygen to function.	Taken into account in the next comment

	The presence of a heartbeat should not be used as an indicator of life or recovery following these methods. The presence of a heartbeat when using electrical stun-kill methods (such as head to back stunning) is a useful indicator of a failed stun. Using the heartbeat as an indicator of death not only slows a depopulation operation, but is also unnecessary, as death is in the head not the heart. Signs of cortical brain death should be used instead of presence of a heartbeat. We suggest that either, specifics are needed in the proposed wording on 'Heartbeat', or it should be removed. Rhythmic breathing and other reflexes: Article 7.6.8 regarding animal-based measures used to monitor consciousness and death is useful. A number of these measures note that they are a sign of effective kill but are not covered in this section (Article 7.6.8. point 3) on confirmation of death. The Humane Slaughter Association link below has a good graphic for signs of death in a depopulation setting. Note: heartbeat not mentioned. These two sections could either be consolidated or the relevant animal-based measures duplicated in both sections. Supporting evidence: Humane Slaughter Association Consciousness, unconsciousness and death in the context of slaughter, Terlouw et al, 2016	
7.6.8._32_ AUSTRALIA	Category: Change Proposed amended text: Onset of death leads to permanent loss of heartbeat, which can be ascertained physically by using a stethoscope <u>to auscultate the absence or presence of a heartbeat</u>, or by <u>heart or arterial palpation of the cardiac apex beat. Arterial palpitation may be used in combination with other measures</u> where possible <u>but should not be used alone to confirm permanent loss of a heartbeat</u>. [Vogel et al., 2011] Rationale: Palpation for an arterial pulse on its own is not a reliable indicator to confirm the permanent loss of a heartbeat. It would be considered even less reliable in circumstances where the means of killing would result in poor blood pressure, such as bleeding methods. The current wording implies that it is an acceptable measure to confirm loss of permanent heartbeat, equivalent with cardiac auscultation or apex beat palpation. The practice of arterial pulse palpation is a specific skill that may not be practicable by all personnel involved in confirming death and is more likely to be affected by fatigue than other assessment criteria. The wording should be amended to highlight that it should not be used alone to confirm permanent loss of a heartbeat. Supporting evidence, if relevant: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. Schaumburg, IL, USA. Available at	Agree in part

	https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	

c) Dilated pupils

Fixed and dilated pupils (mydriasis) are an indication of death.

7.6.8._33_ USA	Proposed amended text: a) <u>Dilated pupils</u> Dilated pupils (mydriasis) are an indication of death. <u>However, dilated pupils on their own can be present in deeply unconscious animals.</u> Rationale: Language added to clarify that dilated pupils on their own do not confirm death and can be present in deeply unconscious animals.	Did not agree
7.6.8._34_ NORWAY	Category: Change Proposed amended text: Dilated pupils (mydriasis) are an indication of death <u>but this reflex is not present in all cases</u> Alternative <u>Fixed and d</u>ilated pupils (mydriasis) are an indication of death Rationale: In a few cases dilated pupils will not be present, as some drugs for example anticholinergics such as atropine can prevent pupillary reactivity. The reaction in the pupils is furthermore dependent on a functioning retina. The reflex may therefore be less suitable after the start of bleeding as the blood loss can reduce the functioning of the retina. Several guidelines often combine dilated pupils with fixed eyes as when both these signs are present, they are an indication of brain death. Supporting evidence: Animal care and use: Chapter on Euthanasia https://research.uci.edu/animal-care-and-use/policies-and-guidance/euthanasia-of-researchanimals/#:~:text=A%20constriction%20(narrowing)%20of%20the,otherwise%20affect%20this%20neurological%20response. Claudia Terlouw, Cécile Bourguet, Véronique Deiss. Consciousness, unconsciousness and death in the context of slaughter. Part II. Evaluation methods. Meat Science, 2016, 118, pp. 147-156., p. 5 number 2.2. Kumar P, Clark M et al. Clinical Medicine, 2005, 6th Edition.	Did not agree
7.6.8._35_ CANADA	Comment Category: addition Proposed amended text: <u>Fixed and d</u>ilated pupils (mydriasis) are an indication of death. Rationale:	Agreed

	Canada suggests that pupils can be dilated due to many factors that are transient. The correct term for the description of pupils at death is "fixed and dilated".	
7.6.8._36_EU	The EU suggests adding an additional point 'absence of breathing'. c) <u>'Absence of breathing'</u> Justification: According to EFSA, irreversible absence of breathing is a sign of death (EFSA opinions on welfare during killing for purposes other than slaughter, e.g. Welfare of pigs during killing for purposes other than slaughter p. 29 https://doi.org/10.2903/j.efsa.2020.6195)	Did not agree
7.6.8._37_ ICFAW	Category: Addition Proposed amended text: f) <u>Head shaking</u> <u>Head shaking can indicate consciousness, particularly for poultry.</u> g) <u>Spontaneous swallowing</u> <u>The deglutition reflex (swallowing) can be an indicator of consciousness.</u> Rationale: Head shaking and spontaneous swallowing are also indicators for poultry, which could indicate consciousness in other types of animals as well. Supporting evidence: EFSA Panel on Animal Health and Welfare (AHAW) (2013) Scientific Opinion on monitoring procedures at slaughterhouses for poultry. <i>EFSA Journal</i>, 11(12), 3521. https://www.efsa.europa.eu/en/efsajournal/pub/3521	Did not agree. Unnecessary addition

Article 7.6.9.

Handling of animals

Handling is the process of preparation of the animals for killing, and may include moving them to the killing point. Handling and moving can be stressful to animals, especially when they are isolated out of their primary home area or from their group. [Gavinelli et al. ,2014].

1. Animal welfare concerns

Exposure to novel circumstances (e.g. noise, lighting, flooring, smell) may cause fear and reluctance to move. Inappropriate handling (e.g. inappropriate use of electric goads, kicking, hitting with a stick), catching, herding and restraining animals will cause *distress*, fear and *pain*.

7.6.9._1_ USA	Proposed amended text: Exposure to novel environments (e.g. noise, lighting, unaccustomed human activity, flooring, smell) may cause panic, fear and reluctance to move, or turning back. Poorly designed facilities and inappropriate handling (e.g. inappropriate use of electrical goads, kicking, hitting with a stick, catching the animals or herding them too quickly) will cause <i>distress</i>, fear and <i>pain</i>.	Agreed

	Rationale: Added language (i.e. “unaccustomed human activity,” “panic,” and “catching the animals or herding them too quickly”) provides further clarity about novel environments and inappropriate handling, particularly in relation to poultry.	
7.6.9._2_ UK	Category: Change. Proposed amended text (or precise suggested deletion): Exposure to novel environments (e.g. noise, lighting, flooring, smell) may cause fear and reluctance to move, or turning back. Poorly designed facilities and inappropriate handling (e.g. inappropriate use of ~~electrical~~ <u>electric</u> goads, kicking, hitting with a stick) will cause <i>distress</i>, fear and <i>pain</i>. Rationale: Grammar improvement Supporting evidence: not relevant.	Agreed
7.6.9._3_ ICAFAW	Category: Addition Proposed amended text: Exposure to novel environments <u>and situations</u> (e.g. noise, lighting, flooring, smell, <u>unfamiliar activity by people</u>) may cause fear, <u>panic reactions</u>, and reluctance to move, or turning back. Poorly designed facilities and inappropriate handling (e.g. <u>inappropriate</u> use of electrical goads, kicking, hitting with a stick), <u>herding or catching</u> will cause <i>distress</i>, fear and <i>pain</i> <u>and could injure the animals</u>. Rationale: One of the primary reasons that animals are being killed other than for slaughter is in response to avian influenza. This proposed additional language is provided to include animal welfare concerns associated with animal handling methods that would be appropriate for poultry.	Part of the comment taken into consideration in the previous one
7.6.9._4_ AUSTRALIA	Category: Addition Proposed amended text: Handling is the process of preparation of the animals for killing, and may include moving them to the killing point. Handling, <u>and moving, and restraint</u> can be stressful to animals, especially when they are isolated out of their primary home area or from their group. [Gavinelli et al. ,2014]. 1. <u>Animal welfare concerns</u> Exposure to novel environments (e.g. noise, lighting, flooring, smell) may cause fear and reluctance to move, or turning back. Poorly designed facilities and inappropriate handling (e.g. <u>inappropriate</u> use of electrical goads, kicking, hitting with a stick) <u>or restraint</u> will cause <i>distress</i>, fear and <i>pain</i>. Rationale: Inappropriate restraint can also can distress, fear, and pain to animals.	Agree to modify with the proposal of Animal welfare concerns

2. Animal-based and other measures:

7.6.9._5_	Category: Addition	Did not agree

AUSTRALIA	Proposed amended text: Animal-based and other measures <u>that may be indicative of poor animal welfare:</u> Rationale: Suggested change to provide context for the list of measures in this point	

- a) animals slipping, falling and piling up;

7.6.9._6_ ICFAW	Category: Addition Proposed amended text: a) animals slipping, <u>and/or</u> falling ~~and~~ b) <u>animals</u> piling up <u>or on top of one another;</u> Rationale: If herding poultry into smaller areas of the house for gassing or foaming, frightened animals moved too quickly may panic and pile on top of each other.	Did not agree

- b) animals turning around or moving backwards, attempting to escape or reluctant to move;
- c) animals vocalising;
- d) animals that collide with facility structures;
- e) animals with broken or otherwise injured limbs;
- f) animals that are unable to move by themselves due to reasons other than broken or injured limbs;
- g) use of force by personnel;
- h) inappropriate use of driving aids.

7.6.9._7_ UK	Category: Change. Proposed amended text (or precise suggested deletion): inappropriate use of ~~electrical~~ <u>electric</u> goads. Rationale: Grammar improvement Supporting evidence: not relevant.	Changed to 'driving aids'
7.6.9._8_ JAPAN	Category: Addition Proposed amended text: h) <u>inappropriate handling by personnel such as inappropriate use of electrical goads.</u> Rationale: "Inappropriate use of electrical goads" is an example of inappropriate handling by personnel, which is stated in paragraph 1, and other ways of inappropriate handling should also be considered.	Did not agree. Use of force by personnel is also inappropriate handling. Adding 'inappropriate handling' make the text more complex and has no added value

7.6.9._9_ AUSTRALIA	Category: Addition Proposed amended text: 2. <u>Animal-based and other measures:</u> a) animals slipping, falling and piling up; b) animals turning around or moving backwards, attempting to escape or reluctant to move; c) <u>animals showing abnormal behaviours such as aggression, stereotypic behaviours.</u> e d) animals vocalising; d e) animals that collide with facility structures; e f) animals with broken or otherwise injured limbs; f g) animals that are unable to move by themselves due to reasons other than broken or injured limbs; g h) use of force by personnel; h i) inappropriate use of electrical goads. Rationale: Animals in fear, distress or pain may show a variety of behaviours with handling. For captive wild animals, whilst individual expression varies by taxon, the underlying pattern is a deviation from normal species-typical behaviour. Aggression, stereotypic behaviour and avoidance are signs of compromised welfare in captive wildlife. Supporting evidence, if relevant Mellor, DJ., Hunt S., Gusset, M (2015). "Guidelines for the Welfare Assessment of Captive Wild Animals. Guidelines for the Welfare Assessment of Captive Wild Animals. "World Association of Zoos and Aquariums (WAZA) https://www.waza.org/wp-content/uploads/2019/03/WAZA-Animal-Welfare-Strategy-2015_Portrait.pdf Australian Animal Welfare Standards and Guidelines. Exhibited Animals – General NSW Department of Primary Industries. Edition 1. Published July 2019. https://animalwelfarestandards.net.au/wp-content/uploads/2023/08/Australian-Animal-Welfare-Standards-and-Guidelines-for-Exhibited-animals-General-.pdf	Did not agree, it is covered under letter b)
7.6.9._10_ AUSTRALIA	Category: Addition Proposed amended text: h) inappropriate use of electrical goads <u>or other similar devices designed to inflict pain or discomfort on an animal.</u> Rationale: Electrical goads are not the only device that may be used to increase animal compliance during handling through creation of pain or discomfort that the animal wishes to escape. The forceful use of non-electrified devices including (but not limited to) prods, sticks, batons or other similar items can lead to the same detrimental impacts on welfare as electrical goads. As such, the scope of point h) should be expanded as noted above.	Agree and considered on comment 7.6.9_8.
7.6.9._11_ EU	To be consistent with Chapter 7.5, the EU suggests adding 'indicative of distress' at point c).	Did not agree

	'c) animals vocalising <u>indicative of distress</u> '	
7.6.9._12_ COLOMBIA	ES Categoría: Adición Texto modificado propuesto: En artículo 7.6.9 Medidas basadas en el animal y otras medidas h) Aumento en la defecación y micción: i) Disminución del apetito. EN h) Increased defecation and urination: i) Decreased appetite.	Did not agree. Unnecessary details. Defecation and urination occur regularly when animals are being handled, even when just going throw the yards. Appetite is impossible to be evaluated in these circumstances and animals will not be fed.

3. Recommendations

7.6.9._13_ JAPAN	Category: General Rationale: Given that this chapter will cover killing for a variety of reasons including natural or man-made human-made disasters and killing may be carried out in a variety of locations, the meaning of "facilities" is not clear. For example, a natural disaster destroys barns or shelters, there would be no facility at the location.	No proposal of modification

The Design of the facilities should promote the natural movements of animals, and, as far as possible, minimise human animal interaction.

7.6.9._14_ UK	Category: editorial. Proposed amended text (or precise suggested deletion): The design of the facilities should promote the natural movements of animals, and, as far as possible, minimise human interaction. Rationale: Grammar improvement Supporting evidence: not relevant.	Agreed
7.6.9._15_ ICFAW	Category: Addition Proposed amended text: For animals moved to a designated site for killing, d-Design of the facilities should promote the natural movements of animals, and, as far as possible, minimise human interaction. Rationale: As currently written, the recommendations seem to apply only to cattle, sheep, pigs and other mammals that would be moved to another facility for killing. The scope of this section should be widened to apply to poultry and animals killed in their home pens, cages, barns or other enclosures.	Did not agree
7.6.9._16_ COLOMBIA	ES Categoría: Adición	Agreed

	Texto modificado propuesto: En artículo 7.6.9 Recomendaciones El diseño de las instalaciones deberá promover los movimientos naturales de los animales y, siempre que sea posible, minimizar la interacción humano - animal. EN Proposed amended text: Design of the facilities should promote the natural movements of animals, and, as far as possible, minimise human-animal interaction.	
7.6.9._17_ AUSTRALIA	Category: Addition Proposed amended text: Design of the facilities should be appropriate for the species of concern, promote the natural movements of animals, and, as far as possible, minimise human interaction. Rationale: Additional wording to align with TAHC wording for consistency. Supporting evidence, if relevant WOAH Terrestrial Animal Health Code Chapter 7.1.5, Point 3	Did not agree. Too specific.

Floor should be clean, dry and not slippery.

Raceways should be well lit so that animals can see where they are going.

The design of raceways should minimise distractions that may cause animals to stop, baulk or turn back(e.g. shadows, changes in flooring, moving objects, loud or sudden noises).

7.6.9._18_ USA	Proposed amended text: The design of raceways should minimise distractions that may cause animals to stop, baulk or turn back(e.g. shadows, changes in flooring, moving objects, loud or sudden noises, noxious smells). Rationale: Recommend adding “noxious smells” to provide full consideration of senses that lead to distraction	Did not agree. Unnecessary detail.
7.6.9._19_ UK	Category: editorial. Proposed amended text (or precise suggested deletion): The design of raceways should minimise distractions that may cause animals to stop, baulk or turn back (e.g. shadows, changes in flooring, moving objects, loud or sudden noises). Rationale: typo. Supporting evidence: not relevant.	Did not agree. Unnecessary detail.
7.6.9._20_ CANADA	Category (addition, deletion, change, editorial, general): Editorial Proposed amended text (or precise suggested deletion):	Did not agree. Unnecessary detail.

	The design of raceways/alleys should minimise distractions that may cause animals to stop, baulk or turn back (e.g. shadows, changes in flooring, moving objects, loud or sudden noises). Rationale: Canada suggests adding the word “alleys” to clarify the sentence is speaking to handling systems, not a race track for example.	

Animals that are injured, sick or unable to rise require immediate action and, when necessary, emergency *killing* should be performed without moving them and without delay. Animals should not be dragged, nor should they be lifted or handled in a way that might cause further *pain* and suffering or exacerbate injuries.

Personnel should be calm and patient, assisting animals to move using a soft voice and slow movements.

7.6.9._21_ COLOMBIA	ES (To check Spanish version) Categoría: Adición Texto modificado propuesto: En artículo 7.6.9 El personal deberá permanecer tranquilo y ser paciente, y deberá ayudar a los animales a moverse utilizando una voz suave y movimientos lentos. No deberá gritar, patear ni utilizar medios que puedan causar distrés, miedo o dolor a los animales. Los operarios cuidadores no recurrirán, en ninguna circunstancia, a procedimientos violentos ~~para desplazar durante el manejo a-de~~ los animales. El personal debe estar capacitado o tener experiencia en manejo y bienestar animal. (...) EN Personnel should be trained or have experience in animal handling and welfare..	Did not agree

Animals should be moved in groups as this decreases fear and makes use of their natural tendency to follow other animals.

7.6.9._22_ AUSTRALIA	Category: Change Proposed amended text: Animals should be moved in groups or alone, whichever is appropriate for the species, as this decreases fear and makes use of their natural species specific tendency ~~ies to follow other animals.~~ Rationale: Not all animals prefer to be in groups- e.g. solitary wild animal species in captivity would be better handled and moved separately from other animals of the same species, to reduce stress, fear and poor welfare outcomes.	Did not agree

Handling aids such as panels or flags should be used in a manner to encourage and direct movement of the animals without causing *distress*, fear or *pain*.

Electric goads should not be used, [except in extremely rare circumstances where the safety of human handlers or other animals is at risk and there is no other option](#) ~~routinely, but only when other measures~~

~~have been ineffective,~~ the animal has no injury or other condition and there is room for the animal to move forward.

7.6.9._23_ USA	Proposed amended text: Electric goads should not be used routinely, but only when other measures have been ineffective, the animal has no injury or other condition <u>that makes moving uncomfortable, and</u> there is room for the animal to move forward, <u>and prompting the animal to move is necessary for the safety of other animals or human handlers.</u> Rationale: Language added to better clarify when electric goads may be used. Electric prods increase agitation, which can make killing methods more difficult and dangerous to apply and may result in ineffective stuns (Grandin 2020; Baier & Willson 2020). They can often be eliminated with skilled handling that takes into consideration the natural behavior of the species or observation and correction of environmental factors (Grandin 2020, Baier & Wilson 2020). Supporting references: Baier, F. & Willson, D. (2020). Basics of Captive Bolt Stunning of Cattle and Other Animals. In T. Grandin & M. Cockram (Eds.), The Slaughter or Farmed Animals. CAB International. P. 145-158. Grandin, T. (2020). Behavioural Principles of Stockmanship and Abattoir Facility Design. In T. Grandin & M. Cockram (Eds.), The Slaughter or Farmed Animals. CAB International. P. 90-110.	Taking into account as per comment 7.6.9_26
7.6.9._24_ NORWAY	Category: Change and Addition Proposed amended text: Electric goads should not be used routinely <u>to move animals, but Electric goads may only be used</u> when other measures have been ineffective, the animal has no injury or other condition <u>that is impeding mobility</u> and there is room for the animal to move forward <u>without obstruction (e.g. obstacles or other animals).</u> Rationale: To align text with chapter 7.5. article 7.5.13.	Taking into account as per comment 7.6.9_26
7.6.9._25_ Australia	Category: Addition Proposed amended text: Electric goads <u>or other similar devices designed to inflict pain or discomfort on an animal to encourage it to move</u> should not be used routinely, but only when other measures have been ineffective, the animal has no injury or other condition and there is room for the animal to move forward. Rationale: Electrical goads are not the only device that may be used to increase animal compliance during handling through creation of pain or discomfort that the animal wishes to escape. The forceful use of non-electrified devices including (but not limited to) prods, sticks, batons or other similar items can lead to the same detrimental impacts on welfare as electrical goads. As such, the scope should be expanded as noted above.	Taking into account as per comment 7.6.9_26
7.6.9._26_ CANADA	Comment Category: addition	Agreed

	Proposed amended text: Electric goads should not be used ~~routinely~~, except in extremely rare circumstances where the safety of human handlers or other animals is at risk and there is no other option ~~but only when other measures have been ineffective~~, the animal has no injury or other condition and there is room for the animal to move forward. Rationale: Canada suggests that the word “routinely” is subjective and could lead to various interpretations of the intent. More clarity is required.	

Only low-voltage goads should be applied to the hindquarters of adult pigs and large ruminants, and never to sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly. Such instruments should not be used on equids, camelids, ratites, sheep and goats, pregnant animals or on calves or piglets. Shocks should not be used repeatedly if the animal fails to respond and should not last longer than one second.

7.6.9._27_UK	Category: change. Proposed amended text (or precise suggested deletion): ~~Only low-voltage goads~~ Electric goads using low voltage should be used. They should only be applied to the hindquarters of adult pigs and large ruminants, and never to sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly. Such instruments should not be used on equids, camelids, ratites, sheep and goats, pregnant animals or on calves or piglets. Shocks should not be used repeatedly if the animal fails to respond and should not last longer than one second. Rationale: Consistency with language across the chapter where electric goad is used alongside clarification that electric goads should use low voltage. Supporting evidence: not relevant.	Did not agree. The new wording seems to require that electric goads are used.
7.6.9._28_NORWAY	Category: Addition Proposed amended text: Only low-voltage goads should be applied to the hindquarters of adult pigs and large ruminants, and never to sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly. Such instruments should not be used on equids, camelids, ratites, sheep and goats, pregnant animals or on calves or piglets. Shocks should not be used repeatedly if the animal fails to respond. The animal should not be subjected to more than maximum two short shocks and should each not lasting no longer than one second. At least 10 seconds should pass before prodding is repeated. Rationale: Even though the text is similar to that in chapter 7.5, it would be preferable to provide some guidance on how many times the goad may be used on the same animal. Supporting evidence: Norwegian Scientific Committee for Food and Environment, VKM Report 2017:31 A review on the use of electric devices to modify animal behaviour and the impact on animal welfare. A review on the use of electric devices to modify animal behaviour	Did not agree. Unnecessary details

7.6.9._29_ AUSTRALIA	Category: Change Proposed amended text <u>Only</u>The use of goads should be limited to low-voltage goads ~~should be~~ applied to the hindquarters of adult pigs and large ruminants, and never to sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly. Such instruments should not be used on equids, camelids, ratites, sheep and goats, pregnant animals or on calves or piglets. Shocks should not be used repeatedly if the animal fails to respond and should not last longer than one second. Rationale: Suggested change for clarity, and to align with meaning outlined in Chapter 7.5. Current wording could be misinterpreted as saying low voltage goads are restricted to use on hindquarters of pigs and cattle, but other voltage goads could therefore be used for other situations (e.g. on other regions of the body, or on other species of animal).	Did not agree. Already considered in the proposed changes
7.6.9._30_ AUSTRALIA	Category: Change Proposed amended text: Handling aids such as panels or flags should be used in a manner to encourage and direct movement of the animals without causing <i>distress</i>, fear or <i>pain</i>. <u>Handling aids should never be used on sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly.</u> Electric goads should not be used routinely, but only when other measures have been ineffective, the animal has no injury or other condition and there is room for the animal to move forward. Only low-voltage goads should be applied to the hindquarters of adult pigs and large ruminants, ~~and never to sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly.~~ Such instruments should not be used on equids, camelids, ratites, sheep and goats, pregnant animals or on calves or piglets. Shocks should not be used repeatedly if the animal fails to respond and should not last longer than one second. Rationale: The principle of avoiding the use of goads to sensitive areas applies to all animals, not just adult pigs and large ruminants. This should be included as a separate point.	Did not agree. Already considered

The manual lifting of animals should be avoided; if it is necessary, animals should not be grasped or lifted in a manner which causes *pain* or suffering and physical damage (e.g. bruising, fractures, dislocations).

7.6.9._31_ USA	Proposed amended text: The manual lifting of <u>large</u> animals should be avoided; if it is necessary, animals should not be grasped or lifted in a manner which causes <u>distress, fear or pain</u> ~~or suffering and~~ physical damage (e.g. bruising, fractures, dislocations). Rationale: Recommend: 1. adding "large" to clarify which animals to avoid manually lifting. Poultry, pigs and neonatal animals could be safely lifted and carried; 2. Editing to "distress, fear or pain" for consistency throughout the document.	Did not agree. Distress and fear are unavoidable when animals are grasped lifted, even in a correct manner

7.6.9._32_ ICFAW	Category: Addition and deletion Proposed amended text: The manual lifting of ~~animals~~ <u>most mammals and large birds</u> should be avoided; if it is necessary, animals should not be grasped or lifted in a manner which causes pain or suffering and physical damage (e.g. bruising, fractures, dislocations). Rationale: Small poultry are commonly caught or lifted and carried prior to killing. A small pig, kid or lamb may be lifted safely.	Did not agree

Animals should not be forced to move at a speed greater than their normal walking pace to minimise injury through slipping or falling.

7.6.9._33_ ICFAW	Category: Addition Proposed Amended Text: <u>Use of sedatives, anxiolytics, and/or analgesics should be considered in any situation where it may be feasible and is likely to reduce intensity or duration of the negative affective states experienced by the animals prior to loss of consciousness.</u> Rationale: Use of sedatives prior to administration of the killing method is discussed below in the section on lethal injection as a means of minimizing stress. However, given that this chapter discusses animals who will not enter the food supply, use of medications to mitigate animals' pain, distress, and other negative experiences should be considered even when other methods are used. Use of anxiolytics and sedatives has become a norm in companion animal clinical veterinary practice for the purpose of minimizing animal fear and anxiety and improving human safety (Erickson et al 2021; Papageorgiou et al 2024; Stollar et al 2022). Research suggests that some of the medications used in dogs and cats have a similar effect on other species (Hampton et al 2021, Costa et al 2024, Todd et al 2012). Supporting Evidence: Costa, R. S., Winslow, C. M., Veltri, C. A., Lozoya, M., & Norris, J. W. (2024). Pharmacokinetic profile and physiological effects of oral and compounded intravenous gabapentin in goats. <i>Veterinary anaesthesia and analgesia</i>, 51(5), 539–547. https://doi.org/10.1016/j.vaa.2024.06.006 Link to pdf Erickson, A., Harbin, K., MacPherson, J., Rundle, K., & Overall, K. L. (2021). A review of pre-appointment medications to reduce fear and anxiety in dogs and cats at veterinary visits. <i>The Canadian Veterinary Journal = La Revue Veterinaire Canadienne</i>, 62(9), 952–960. https://pmc.ncbi.nlm.nih.gov/articles/PMC8360309/ Hampton, C. E., Queiroz-Williams, P., Oubre, M. J., Martin, A., Gisclair, A. T., & Pypendop, B. H. (2021). Pharmacokinetics of oral and compounded intravenous gabapentin in Duroc swine (<i>Sus Scrofa</i>). <i>Journal of Veterinary Pharmacology and Therapeutics</i>, 44(5), 776–782. https://doi.org/10.1111/jvp.12977 Link to pdf Papageorgiou, V., Ververidis, C., Mylonakis, M. E., Savvas, I., & Kazakos, G. (2024). Orally administered gabapentin and alprazolam	Did not agree. Unnecessary details

	induce comparable levels of anxiolysis and sedation in cats. <i>Journal of the American Veterinary Medical Association</i>, 262(7), 904–908. https://doi.org/10.2460/javma.23.11.0660 Stollar, O. O., Moore, G. E., Mukhopadhyay, A., Gwin, W., & Ogata, N. (2022). Effects of a single dose of orally administered gabapentin in dogs during a veterinary visit: A double-blinded, placebo-controlled study. <i>Journal of the American Veterinary Medical Association</i>, 260(9), 1031–1040. https://doi.org/10.2460/javma.21.03.0167 Todd, R. D., McDavid, S. M., Brindley, R. L., Jewell, M. L., & Currie, K. P. (2012). Gabapentin inhibits catecholamine release from adrenal chromaffin cells. <i>Anesthesiology</i>, 116(5), 1013–1024. https://doi.org/10.1097/ALN.0b013e31825153ea	

Article 7.6.10.

Killing Methods

7.6.10._1_ AU	African Union supports the text in the Article 7.6.10. Killing Methods as suggested. Rationale: The text is clear and the methods are globally available and in use.	Noted

The main purpose of this part of the chapter is to ensure that where killing methods are in use that they are undertaken in a manner that consider animal welfare.

7.6.10._2_ JAPAN	Category: Change Proposed amended text: The following killing methods are ~~globally~~ <u>probably</u> available and in use. The main purpose of this part of the chapter is to ensure that where killing methods are in use that they are undertaken in a manner that optimises animal welfare. Rationale: Not all the killing methods are available globally; for example, the use of firearms is prohibited in some countries.	Sentence deleted

7.6.10._3_ ICFAW	Category: General and deletion Proposed amended text: ~~The following killing methods are globally available and in use.~~ The main purpose of this part of the chapter is to ensure that where killing methods are in use that they are undertaken in a manner that optimises animal welfare. Rationale: ICFAW opposes the approach to this section. The mass killing of animals for disease control or other emergencies can result in suffering on an unimaginable scale. Stronger guidance is needed regarding which methods are acceptable, and which are not. Listing every available method is not a useful approach because by the logic of the first two sentences live burial, live burning, drowning, starvation, suffocation in a plastic bag, grinding in a woodchipper, car exhaust, hitting animals over the head repeatedly with a hard object, and pithing without stunning could be included since they are all “globally available and in use” (e.g., Schreijer-Pierik 2019; McNeil 2006). These methods are clearly unacceptable because they result in prolonged and intense suffering, yet they persist. They are not included here, and we agree that they shouldn't be listed. However, ventilation shutdown, which takes hours to kill the animals slowly by hyperthermia (longer to kill than drowning or live burial, for instance) is included in the list. Ventilation shutdown causes extreme suffering. It no more belongs in the WOAHA chapter than other clearly unacceptable methods. We are concerned that one country of high economic status may be pushing for the inclusion of this clearly inhumane and unacceptable method rather than planning and preparing to use higher welfare methods. Supporting evidence: Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2023). The rise of heatstroke as a method of depopulating pigs and poultry: Implications for the US veterinary profession. <i>Animals</i>, 13(1), 140. https://www.mdpi.com/2076-2615/13/1/140?trk=public_post_comment-text McKeegan, DEF. 2018. Mass depopulation. In: <i>Advances in Poultry Welfare</i> (Mench Ed.). Woodhead Publishing, Kidlington, United Kingdom. Link here Reyes-Illg, G. and Heath, C. (2022) Use of ventilation shutdown in the USA. <i>Veterinary Record</i>, 191(7):308-309. doi: 10.1002/vetr.2316. Link here Loeb, J. and Gray, A. (2022) Calls for ban on ventilation shutdown in USA. <i>Veterinary Record</i> 191(3):97. doi: 10.1002/vetr.2085. Link here Bolotnikova, M. (2022) They're cooking them alive': calls to ban 'cruel' killing methods on US farms. <i>The Guardian</i>, March 8. Link to pdf Schreijer-Pierik, A. (2019). An inhumane and dangerous practice. <i>The Parliament</i>. https://www.theparliamentmagazine.eu/news/article/an-inhumane-and-dangerous-practice McNeil, D.G. (2006). In war on bird flu, U.N. looks to recruit killer army. <i>New York Times</i>.	Sentence deleted

	https://www.nytimes.com/2006/01/29/world/in-war-on-bird-flu-un-looks-to-recruit-killer-army.html Link to pdf	
7.6.10._4_ ICFAW	Category: Addition Proposed amended text: The main purpose of this part of the chapter is to ensure that where killing methods are in use that they are undertaken in a manner that optimises animal welfare, <u>reducing pain, fear, suffering and stress and guaranteeing the complete and rapid killing of the animals during the process. Death should be monitored and confirmed after applying the killing method and before disposal of the carcasses.</u> Rationale: During the killing process, handling and stressful situations can occur (Grandin, 2010; Cockram, 2020); however, all the methods that are described must guarantee a procedure with minimal stress, pain and suffering for the animal and ensure a safe and rapid loss of consciousness and killing (Gregory, 2004). Also, death should always be monitored and confirmed after applying the killing method and before disposal of the carcasses (EFSA, 2024) Supporting evidence: Cockram, M. Welfare issues at slaughter. In: Grandin, T., & Cockram, M. (Eds.). (2020). <i>The Slaughter of Farmed Animals: Practical Ways of Enhancing Animal Welfare</i>. CABI. Link to pdf EFSA (2024). Welfare of sheep and goats during killing for purposes other than slaughter. https://doi.org/10.2903/j.efsa.2024.8835 Grandin, T. (2010) Improving Animal Welfare: A Practical Approach. eISBN : 978-1-78924-523-3 Gregory, N.G. (2004). Physiology and Behaviour of Animal Suffering. https://doi.org/10.1002/9780470752494.ch3	Did not agree
7.6.10._5_ CANADA	Category: General Proposed amended text: ~~The following killing methods are globally available and in use.~~ The main purpose of this part of the chapter is to ensure that where killing methods are in use that they are undertaken in a manner that optimises animal welfare. Rationale: Canada suggests that the first sentence of this paragraph is unnecessary as it suggests that any killing method which is globally available and in use could be included within the chapter. Several very inhumane methods are (rightly) not listed in the chapter, yet they are “globally available and in use”, such as live burial, drowning, and burning animals alive. The second sentence correctly and more accurately identifies the purpose of the chapter.	Sentence deleted

For each killing method the description of the killing method and its use in animal species, animal welfare concerns, identification of animal-based and other welfare measures, recommendations for effective use to optimise welfare, and any species-specific recommendations are presented in Articles 7.6.11. to 7.6.32.

7.6.10._6_ USA	Proposed amended text: For each killing method, the description of the killing method and its use in <u>each</u> animal species, animal welfare concerns, identification of animal-based and other welfare measures,	Did not agree

	recommendations for effective use to optimise welfare, and any species-specific recommendations are presented in Articles 7.6.11. to 7.6.32. Rationale: Edited for clarity.	

Standard operating procedures should be in place that define key operating parameters and follow the manufacturer's recommendations for stunning and killing.

7.6.10._7_USA	Proposed amended text: Standard operating procedures should be in place that define key operating parameters and follow the manufacturer's recommendations for ~~stunning or~~ killing. Rationale: Because this chapter is focused on killing and not slaughter, recommend removing the word "stunning."	Did not agree

For the purposes of this chapter:

A primary killing method is intended to cause death as a standalone procedure. While it should be sufficient on its own, a backup or alternative method may be required if the primary method fails to result in rapid death.

A secondary killing method is used as a final step of a two-stage process. It is applied after the animal has already been made unconscious by an initial method. The secondary method is considered a terminal procedure. While it should be sufficient on its own to cause rapid death of an animal, a backup or alternative method may be required if the method fails to result in rapid death.

7.6.10._8_USA	Proposed amended text: The killing methods covered are divided into two broad categories. Manual, <u>which involve</u> individual killing methods which involve a human operator or operators ~~manually~~ performing a killing procedure on individual animals (Articles 7.6.11. to 7.6.22.); and automated ~~large scale killing methods~~, which involve automated procedures for large scale killing of many animals either sequentially (e.g. water baths) or simultaneously (e.g. atmospheric modification) (Articles 7.6.23. to 7.6.32). Rationale: Edited for gender neutrality.	Did not agree
7.6.10._9_ CANADA	Comment Category: Addition Proposed amended text: The killing methods covered are divided into two broad categories. Manual, individual killing methods which involve a human operator or operators manually performing a killing procedure on individual animals (Articles 7.6.11. to 7.6.22.); <u>(it should be noted that individual killing is often a secondary method for a failed primary method)</u> and automated large scale killing methods which involve automated procedures for large scale killing of many animals either sequentially (e.g. water baths) or simultaneously (e.g. atmospheric modification) (Articles 7.6.23. to 7.6.32). Rationale:	Did not agree

	Canada suggests the additional wording for clarity that it is often the case that both methods can occur in a single killing to ascertain a humane death.	
7.6.10._10_ AUSTRALIA	Category: General Proposed amended text: <u>For the purposes of this chapter:</u> <u>Primary killing method is a method intended to cause death as a standalone procedure. While it should be sufficient on its own, a backup or alternative method may be required if the primary method fails to result in rapid death.</u> <u>Secondary killing method is a method used as a final step of a two-stage process. It is applied after the animal has already been made unconscious by an initial method. The secondary method is considered a terminal procedure. While it should be sufficient on its own to cause rapid death of an animal, a backup or alternative method may be required if the method fails to result in rapid death.</u> Rationale: To improve clarity and consistency it is recommended that the term 'secondary killing method' or similar be defined in this article. It is also recommended that WOAHP review the entire chapter to ensure consistency. For example - pithing is defined as a '<i>secondary method of killing animals which have been stunned by a penetrating captive bolt, without immediate death</i>'. However, in article 7.6.14, it is referred to more generally as a secondary intervention – '<i>a secondary intervention such as pithing, bleeding or lethal injection</i>'. While bleeding is considered a secondary intervention in article 7.6.14, in article 7.6.15 it is not defined as a secondary intervention or method. The article does state that '<i>bleeding may be painful if that animal has not been rendered unconscious prior to procedure</i>'.	Agreed

Article 7.6.11.

Firearms

7.6.11._1_ JAPAN	Category: General Rationale: Operator safety should be included in this article as other articles such as Article 7.6.12 and 7.6.14 state it.	Agreed with the rationale and added in the second paragraph

Firearms that fire free projectiles such as a shotgun, rifle, or handgun can provide a quick and effective method for killing when used properly. They require minimal or no restraint of the animals and can be used to kill from a distance by properly trained and competent marksperson.

7.6.11._2_ USA	Proposed amended text: Firearms that fire free projectiles such as a shotgun, rifle, or handgun can provide a quick and effective method for killing when used properly. They require minimal or no restraint and can be	Agreed

	used to kill from a distance by properly trained and competent ~~markspersonmarksmen or markswomen~~. Rationale: Edited for gender neutrality.	
7.6.11._3_ JAPAN	Category: Change Proposed amended text: Firearms that fire free projectiles such as a shotgun, rifle, or handgun can provide a quick and effective method for killing when used properly. They require minimal or no restraint and can be used to kill from a distance by properly trained and competent ~~marksmen or markswomen~~ <u>shooter</u>. Rationale: Gender equality should be considered, but the descriptions should be consistent.	Already changed as per previous comment
7.6.11._4_ COLOMBIA	ES Categoría: Adición Texto modificado propuesto: En artículo 7.6.11 Armas de fuego Las armas de fuego con proyectiles libres, como la escopeta, el rifle o la pistola, pueden proporcionar un método rápido y eficaz de matanza utilizados correctamente. Requieren una sujeción mínima o nula <u>de los animales</u> y pueden ser utilizadas para matar a distancia por tiradores debidamente entrenados y competentes. EN Firearms that fire free projectiles such as a shotgun, rifle, or handgun can provide a quick and effective method for killing when used properly. They require minimal or no restraint <u>of the animals</u> and can be used to kill from a distance by properly trained and competent marksmen or markswomen.	Agreed
7.6.11._5_ AUSTRALIA	Category: Change Proposed amended text: <u>When performed correctly this method is a one-stage procedure causing immediate loss of consciousness and death.</u> Firearms that fire free projectiles such as a shotgun, rifle, or handgun can provide a quick and effective method for killing when used properly. They require minimal or no restraint and can be used to kill from a distance by properly trained and competent ~~marksmen or markswomen~~ <u>licensed firearm user</u>. <u>If used at a long range, they A firearm can be used from long range and</u> may be aimed to penetrate the skull ~~or soft tissue at the top of the neck of the animals (high neck shot) and~~ to cause irreversible concussion and death. ~~and should only be used by properly trained and competent marksmen. The firearm may also be aimed to penetrate the thoracic cavity and heart causing respiratory and heart failure and death. When used at short range, they should be aimed to penetrate the skull and cause irreversible concussion and death, similar to use of a penetrating captive bolt. Heart and lung shots should only be considered when the accuracy required for a brain shot cannot be achieved.~~ <u>Killing by firearm should only be performed by properly trained and competent licensed firearm user.</u>	Did not agree. Unnecessary details

	Rationale: Edited for clarity. Additional information should also be included regarding the use of firearms for killing at short ranges. Cardiac and thoracic cavity shots cause severe tissue trauma and haemorrhage, leading to unnecessary pain and suffering for the animal. Time to unconsciousness can range from seconds to minutes (possibly longer). It also has a higher chance of non-lethal wounding. These types of shots would not be considered appropriate in the context of animal welfare where controlled conditions allow access to head shots that have higher reliability of causing immediate loss of brain activity and sensibility. The AUSVETPLAN Operating Manual: Destruction of Animals advises that heart or lung shots should only be considered where the accuracy required for a brain shot cannot be achieved. For example, when aerial shooting or shooting over long distances, or where there are human safety, animal disease or diagnostic considerations. Licensed firearm user is a gender neutral term and consistent with the rest of the paragraph. Removal of high neck shot – While a high neck shot will achieve incapacitation of the animal it is unlikely to result in a rapid progression to insensibility and therefore should not be suggested as a humane method of killing. Supporting evidence, if relevant: Animal Health Australia (2015). Operational manual: Destruction of animals (Version 3.2). Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3, Agriculture Ministers' Forum, Canberra, ACT. Blackmore DK, Daly CC, Cook CJ. Electroencephalographic studies on the nape shooting of sheep. N Z Vet J. 1995;43(4):160-163. doi:10.1080/00480169.1995.35879	

A firearm can be used from long range and may be aimed to penetrate the skull or soft tissue at the top of the neck of the animals (high neck shot) resulting in immediate death. . The firearm may also be aimed to penetrate the thoracic cavity and heart causing respiratory and heart failure and death. Firearms should only be used by properly trained and competent marksperson.

7.6.11._6_USA	Proposed amended text: <u>It is easier to perform a head shot in the correct anatomic location resulting in near simultaneous loss of consciousness and death when at close range.</u> A firearm can be used from long range and may be aimed to penetrate the skull or soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible ~~concussion~~ <u>loss of consciousness and death and</u> should only be used by properly trained and competent ~~marksperson~~<u>marksmen</u>. The firearm may also <u>a center mass shot, which aims to be aimed</u> to penetrate the thoracic cavity and heart causing respiratory and heart failure and death. Rationale: Edited for clarity and procedural recommendations. Supporting reference:	Did not agree

	American Veterinary Medical Association. (2019). AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	
7.6.11._7_UK	Category: addition. Proposed amended text (or precise suggested deletion): A firearm can be used from long range and may be aimed to penetrate the skull or soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible concussion and death and should only be used by properly trained and competent marksmen. The firearm may also be aimed to penetrate the thoracic cavity and heart causing respiratory and heart failure and death. <u>If the range and conditions allow, a head shot should always be the priority.</u> Rationale: A head shot is more humane than a chest/high neck shot as it has a lower risk to cause non-lethal wounding or a slow reach of unconsciousness. Supporting evidence: Industry best practice.	Did not agree
7.6.11._8_JAPAN	Category: Change Proposed amended text: A firearm can be used from long range and may be aimed to penetrate the skull or soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible concussion and death and should only be used by properly trained and competent ~~marksmen~~ <u>shooter</u>. The firearm may also be aimed to penetrate the thoracic cavity and heart causing respiratory and heart failure and death. Rationale: Gender equality should be considered, but the descriptions should be consistent.	Already modified to 'marksperson'
7.6.11._9_ICFAW	Category: Change. Proposed amended text: A firearm ~~can be used from long range and may should~~ be aimed to penetrate the skull ~~or and~~ soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible concussion and death and should only be used by properly trained and competent marksmen. Rationale: Use of free bullets on animals from a long range is often ineffective and can nonfatally wound the animals. For example, aerial shooting of feral horses from a helicopter has shown to be only variably successful. For equines, at least, there should be a maximum distance of 2 meters (Gibson et al., 2015). Even skilled shooters may wound animals instead of killing them (Fox et al., 2005). To produce unconsciousness and death, the bullet must penetrate the skull and sufficiently damage brain tissue. The original sentence suggests that firing a bullet into the soft tissues of the neck is sufficient; it must be revised for clarity. Neck shots should be discouraged (Urquhart et al, 2003). Supporting evidence: Fox N, Blay N, Greenwood A, Wise D, Potapov E. Wounding rates in shooting foxes (<i>Vulpes vulpes</i>). <i>Animal Welfare</i>. 2005;14(2):93-102. https://doi.org/10.1017/S0959313005000000	Did not agree

	https://www.researchgate.net/publication/289724920_Wounding_Rates_in_Shooting_Foxes_Vulpes_vulpes Gibson, T. J., Bedford, E. M., Chancellor, N. M., & Limon, G. (2015). Pathophysiology of free-bullet slaughter of horses and ponies. <i>Meat science</i>, 108, 120-124. https://doi.org/10.1016/j.meatsci.2015.06.007 Hampton, J. O., Edwards, G. P., Cowled, B. D., Forsyth, D. M., Hyndman, T. H., Perry, A. L., ... & Collins, T. (2017). Assessment of animal welfare for helicopter shooting of feral horses. <i>Wildlife Research</i>, 44(2), 97-105. https://doi.org/10.1071/WR16173 Link to pdf <u>Urquhart, K.A. and McKendrick, I.J. (2003). Survey of permanent wound tracts in the carcasses of culled wild red deer in Scotland. <i>Veterinary Record</i>, 152: 497-501. https://doi.org/10.1136/vr.152.16.497; https://www.wrrb.ca/sites/default/files/Urquhart%202003.pdf</u>	
7.6.11._10_EU	To employ inclusive language towards non-binary gender, the EU proposes to replace 'marksmen' or 'markswomen' by 'person' in the 2nd and 3rd sentences. 'They require minimal or no restraint and can be used to kill from a distance by a properly trained and competent <u>person</u>.' 'A firearm can be used from long range and may be aimed to penetrate the skull or soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible concussion and death and should only be used by a properly trained and competent <u>person</u>.'	Already considered
7.6.11._11_AU	Category of comments: Editorial The African Union commends the Commission for the text of the Article. Proposed amended text: Firearms Suggest to replace the term 'marksman, marksmen, markswoman, markswomen' with the terms '<u>marksperson (singular), markspersons (plural) or 'precision shooter(s)'</u> Suggest to retain the term 'marksmanship' as it is a technical term. Rationale: Removes the gender controversy in the text. The term 'marksmanship' can be retained in the text as it is a standard technical term (presumably) devoid of gender connotations.	Already considered
7.6.11._12_ICFAW	Category: Addition Proposed amended text: ...soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible concussion and death and should only be used by properly trained and competent marksmen <u>or markswomen</u>. Rationale: Keep the consistence with the previous sentence by including the word "markswomen".	Already covered

1. Animal Welfare Concerns

This method has the potential for non-lethal wounding of the target animal and lethal or non-lethal wounding of non-target animals. This may occur because of inappropriate cartridge, calibre or type of bullet or incorrect shooting position.

7.6.11._13_ USA	Proposed amended text: This method has the potential for non-lethal wounding of the target animal and lethal or non-lethal wounding of non-target animals. This may occur because of inappropriate cartridge, calibre or type of bullet ~~or~~ incorrect shooting position <u>or distance</u>. Rationale: Recommend the additional welfare concern of “distance.” Supporting reference: American Veterinary Medical Association. (2019). AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	Did not agree
7.6.11._14_ UK	Category: addition. Proposed amended text (or precise suggested deletion): This method has the potential for non-lethal wounding of the target animal and lethal or non-lethal wounding of non-target animals. This may occur because of inappropriate cartridge, calibre or type of bullet, <u>the use of poorly maintained firearms</u> or incorrect shooting position. Rationale: Poor maintenance can lead to ineffective shots despite having the correct cartridge, calibre or bullet types. Supporting evidence: not relevant.	Did not agree to include it here. A mention to maintenance was included in Point 3. Recommendations.
7.6.11._15_ Australia	Category: Addition Proposed amended text: <u>A one-stage killing procedure risks distress, fear, and pain if the animal has not been immediately or rapidly rendered unconscious in the procedure.</u> This method has the potential for non-lethal wounding of the target animal and lethal or non-lethal wounding of non-target animals. This may occur because of inappropriate cartridge, calibre or type of bullet, ~~or~~ incorrect shooting position <u>or inadequate restraint/control of target and non-target animals</u>. <u>In the case of ineffective killing, the method should be repeated, or animals should be killed using a backup system such as (specify backup method).</u> Rationale: Inadequate control of the target animal or non-target animals (e.g. that may wander close to or into the line of the shot) may result in similar issues. As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method.	Did not agree

2. Animal-based and other measures

Animal-based measures of an effective shot include [HSA, 2016b]:

- a) immediate collapse

- b) apnoea
- c) carcass appearance (tonic or relaxed)
- d)

7.6.11._16_ UK	Category: addition. Proposed amended text (or precise suggested deletion): a) Delayed unconsciousness. Rationale: Some shots may be lethal but not cause unconsciousness straight away. This must be acknowledged as an animal welfare concern. Supporting evidence: not relevant.	Did not agree. In the introduction it is mentioned that the method should result in immediate death.
7.6.11._17_ UK	Category: clarification. Proposed amended text (or precise suggested deletion): a) duration of convulsions Rationale: It is not clear what is meant by ' <i>duration of convulsions</i> '. Does this refer to conscious or unconscious convulsions? What would be the duration to monitor in each case? Clarification is required for this indicator. Supporting evidence: not relevant.	Agreed

- e) absence of eye movement
- f) fixed and dilated pupils

7.6.11._18_ CANADA	Comment Category: change Proposed amended text: glazed expression fixed and dilated pupils Rationale: Canada suggests replacing "glazed expression" with fixed and dilated pupils. A "glazed expression" is subjective and this needs to be a specific and reproducible indicator.	Agreed

- g) absence of corneal reflex

7.6.11._19_ UK	Category: addition. Proposed amended text (or precise suggested deletion): a) percentage of missed shots Rationale: the percentage of missed shots that only injure the animal and those that are not direct to the head and, therefore, not immediate can also serve as a measure of effectiveness. This measure can be added to captive bolt methods too across the chapter.	Agreed. But considered to be included as 'other measures'.

	Supporting evidence: not relevant.	

Other measures:

a) [percentage of missed shots](#)

3. Recommendations

The method is suitable for all species covered by this chapter.

Firearms and ammunition should be selected based on the species and the distance to shoot the animals. The correct cartridge, calibre and type of bullet for the different species age and size should be used. Firearms should be properly maintained.

7.6.11._20_UK	Category: addition. Proposed amended text (or precise suggested deletion): Firearms and ammunition should be selected based on the species and the distance to shoot the animals. The correct cartridge, calibre and type of bullet for the different species age and size should be used. Firearms should be properly maintained. Rationale: Equipment maintenance is crucial to ensure effective stun or kill. Supporting evidence: not relevant.	Did not agree. Already considered elsewhere.
7.6.11._21_ AUSTRALIA	Category: Addition Proposed amended text: Firearms and ammunition should be selected based on the species and the distance to shoot the animals, and expert advice should be sought where possible, and/or if in doubt, erring towards a more powerful charge. The correct cartridge, calibre and type of bullet for the different species age and size should be used. Rationale: Incorrect selection of firearms and ammunition can negatively impact animal welfare (as well as pose significant risks to people and other animals) and expert advice should be sought to ensure this is adequately addressed.	Did not agree. Unnecessary detail
7.6.11._22_UK	Category: clarification. Proposed amended text (or precise suggested deletion): Firearms are suitable for killing agitated animals in open spaces. Rational: The sentence above is misleading. Some animals can move fast when agitated – this would increase the risk of injury due to a miss shot. Please clarify what the sentence means to convey or delete all together. Shooting with firearms should always be done with the intention of killing, rather than injuring an animal to avoid causing unnecessary pain, suffering or distress. Supporting evidence: not relevant.	Did not agree

Firearms should not be used if trying to preserve brain tissue for diagnosis of diseases or when leakage of body fluids may present a biosecurity risk.

7.6.11._23_ COLOMBIA	ES (Only Spanish version) Categoría: Adición Texto modificado propuesto: En artículo 7.6.11 Recomendaciones Las armas de fuego no deberán utilizarse en los casos en que se deba para conservar tejido cerebral para el diagnóstico de enfermedades o cuando la fuga de fluidos corporales pueda suponer un riesgo para la <i>bioseguridad</i> . Justificación: Dar mayor claridad al texto. Evidencia documentada, si corresponde: N/A	Agree, but worded differently

Training is essential for ensuring effective killing with firearms. This training should include approaches that ensure skilled marksmanship; an understanding of safety principles, animal anatomy, animal behaviour; animal handling; use of appropriate combinations of firearms and bullets for the intended purpose; and appropriate judgment under field conditions.

7.6.11._24_ UK	Category: addition. Proposed amended text (or precise suggested deletion): Training is essential for ensuring effective killing with firearms. This training must include approaches that ensure skilled marksmanship; an understanding of safety principles, firearm maintenance , animal anatomy, animal behaviour; animal handling; use of appropriate combinations of firearms and bullets for the intended purpose; and appropriate judgment under field conditions. Rational: Equipment maintenance is crucial to ensure effective stun or kill therefore, it is essential to include this skills as part of training. Supporting evidence: not relevant.	Did not agree. Already considered elsewhere.
7.6.11._25_ JAPAN	Category: Change Proposed amended text: Training is essential for ensuring effective killing with firearms. This training ~~must~~ should include approaches that ensure skilled marksmanship; an understanding of safety principles, animal anatomy, animal behaviour; animal handling; use of appropriate combinations of firearms and bullets for the intended purpose; and appropriate judgment under field conditions. Rationale: WOAH standards are recommendations for member countries and “should” should be used in this regard.	Agreed
7.6.11._26_ AUSTRALIA	Category: Addition Proposed amended text: Training is essential for ensuring effective killing with firearms. This training must include approaches that ensure skilled marksmanship; an understanding of safety principles, animal anatomy, animal behaviour; animal handling; use of appropriate	Did not agree

	combinations of firearms and bullets for the intended purpose; and appropriate judgment under field conditions. To enable maximum impact and accuracy, the range should be as short as circumstances permit. Rationale: Minimising distance as appropriate to the circumstances may help avoid missing the target animal, wounding of other animals and risks to people, and maximise the impact.	

At short range, the marksperson should ensure that the animal is not moving and in the correct position to enable accurate targeting and the range should be as short as possible (5–50 cm for a shotgun) but the barrel should not be in contact with the head or other part of the animals.

7.6.11._27_ AUSTRALIA	Category: Change Proposed amended text: At short range, the marksman or markswoman licensed firearm user should ensure that the animal is not moving and in the correct position to enable accurate targeting and the range should be as short as possible (5–50 cm for a shotgun) but the barrel should not be in contact with the head or other part of the animals. Rationale: Gender-neutral and consistent with term used earlier in text.	Did not agree. Unnecessary detail
7.6.11._28_ EU	To employ inclusive language towards non-binary gender, the EU suggests amending the sentence as follows: ‘At short range, ~~the marksman or markswoman~~ <u>it</u> should <u>be ensured</u> that the animal [...].’	Agreed

Animals that are not killed by the initial shot, should be re-shot or killed by a backup method immediately.

7.6.11._29_ USA	Proposed amended text: Animals that are not killed by the initial shot, should be re-shot or killed by a backup method as quickly as possible. Rationale: Recommend adding “as quickly as possible” to clarify best practice for humane killing. Supporting reference: American Veterinary Medical Association. (2019). AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	Did not agree. Unnecessary change
7.6.11._30_ UK	Category: addition. Proposed amended text (or precise suggested deletion): Animals that are not killed by the initial shot, should be re-shot or killed by a backup method, as soon as possible.	Did not agree. Unnecessary change

	Rational: Prompt killing should take place to minimise unnecessary pain, suffering and distress. Supporting evidence: not relevant.	
7.6.11._31_ SWITZERLAND	Switzerland supports the mentioning of a backup method, this underlines the necessity of planning ahead for the case of failure. In practise, it will be difficult to find other means than a firearm as a backup method which is suitable for an animal which cannot be restrained and is even more agitated by the first shot, without putting in danger the personnel.	Noted
7.6.11._32_ AUSTRALIA	Category: Addition Proposed amended text: The method is suitable for <u>many but not all species covered by this chapter. Some species may only be suited for killing by firearm by certain techniques (thoracic vs cranial), or as a last resort if more suitable alternatives are not available.</u> <u>Sedation of the animals prior to killing may allow more consistent outcomes, and may be feasible for smaller groups of animals. Use of tranquilliser darts followed by a secondary method of killing performed at closer range may also reduce the welfare risk to the target animal, as well as the risk to people and other animals in the area.</u> Rationale: The chapter scope has been revised to include all mammals and birds. Not all methods are suitable for all species – e.g. long range use or aiming to penetrate the skull of small mammals (e.g. farmed mink) or birds may not be feasible, or may not offer the same level of welfare as other methods and should only be used as a last resort. Sedation prior to killing, particularly with flighty animals or animals that may otherwise move around, may assist with ensuring an accurate and effective shot.	Did not agree. Suitability of the method have been move to the first part of each article.

4. Species-specific recommendations

None identified

7.6.11._33_ AUSTRALIA	Category: General Proposed amended text: 4. <u>Species-specific recommendations</u> ~~None identified~~ <u>Use of a firearm for killing should consider differences in brain position and skull conformation between species. In addition, aged animals have harder skulls, and the sex of the animal can impact the choice of firearm.</u> Rationale: As a general comment, we recommend that practical advice (e.g. exact details on positioning and directing shots) accompanied by diagrams relevant to the different species should be included - particularly as the scope of the chapter has expanded to include all mammals and birds. For example, shooting of horned animals	Did not agree

	at close range with the aim of penetrating the skull will require different aiming/placement than for non-horned animals of the same species. Supporting evidence, if relevant Further examples can be found in literature including: AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/_ Australian Animal Welfare Standards and Guidelines and industry codes of practice, available at https://animalwelfarestandards.net.au/ AVMA Guidelines for the Depopulation of Animals: 2019 Edition EFSA Journal articles on killing for purposes other than slaughter for horses, poultry, sheep and goats, cattle, pigs and other species – available at https://www.efsa.europa.eu/en/search?s=&f%5B0%5D=topic%3A363 Humane Slaughter Association (UK) guidelines including humane killing of livestock using firearms, emergency slaughter, and on-farm killing for disease control purposes, available at https://www.hsa.org.uk/publications/online-guides	

Article 7.6.12.

7.6.12._1_ AUSTRALIA	Category: General Comment: As with article 7.6.11, we recommend that practical advice (such as diagrams indicating best positioning and aiming of captive bolt devices) be included, particularly as the scope of the chapter has expanded to include all mammals and birds. Supporting evidence, if relevant Further examples can be found in literature including: AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/_ Australian Animal Welfare Standards and Guidelines and industry codes of practice, available at https://animalwelfarestandards.net.au/ EFSA Journal articles on killing for purposes other than slaughter for horses, poultry, sheep and goats, cattle, pigs and other species – available at https://www.efsa.europa.eu/en/search?s=&f%5B0%5D=topic%3A363 Humane Slaughter Association (UK) guidelines including humane killing of livestock using firearms, emergency slaughter, and on-farm killing for disease control purposes, available at https://www.hsa.org.uk/publications/online-guides	Did not agree

	AVMA Humane Slaughter Guidelines 2024, available at https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf	

Penetrating captive bolt

7.6.12._2_UK	Category: addition. Proposed amended text (or precise suggested deletion): Penetrating captive bolt followed by a secondary killing method. Rational: Consistency with language in 7.6.14 Supporting evidence: not relevant..	Did not agree. Not always is required

The aim of this method is to produce a state of unconsciousness and cause severe damage to the brain by the impact and penetration of a captive bolt using a mechanical device. The captive bolt should be positioned on the skull to penetrate the cortex and mid-brain of the animal. The force of impact and the physical damage caused by the passage of the bolt should result in immediate unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death; however, a secondary intervention such as pithing, bleeding or lethal injection may be required and should be performed as soon as possible.

7.6.12._3_UK	Category: deletion. Proposed amended text (or precise suggested deletion) : The aim of this method is to produce a state of unconsciousness and cause severe damage to the brain by the impact and penetration of a captive bolt using a mechanical device. The captive bolt should be positioned on the skull to penetrate the cortex and mid-brain of the animal. The force of impact and the physical damage caused by the passage of the bolt should result in immediate unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death; however, a secondary intervention such as pithing or bleeding ~~or lethal injection~~ should be performed as soon as possible after the shot to ensure the death of the animal. Lethal injection is not commonly used as a secondary method following the use of penetrating captive bolt. It requires veterinary supervision and a different set of skills and competencies. If desired this should be listed as a separate killing method, rather than a follow up secondary intervention. Supporting evidence: not relevant.	Did not agree
7.6.12._4_ ICFAW	Category: Change Proposed amended text: The captive bolt should be positioned on the skull with appropriate angle adjusted to target the brainstem ~~to penetrate the cortex and mid-brain~~ of the animal. Rationale: The brainstem, incorporating the midbrain, pons and medulla, along with the thalamus, are the main areas responsible for maintenance of consciousness and respiratory activity so destroying these areas leads to irrecoverable unconsciousness.	Did not agree. Unnecessary detail

	Supporting evidence: Fletcher KA, Padalino B, Felici M, Bigi D, Limon-Vega G, Grist A, Gibson TJ. Assessment of ante mortem welfare indicators and the pathophysiology of captive-bolt trauma in equids at slaughter. <i>Anim Welf</i>. 2025 Jan 3;33:e65. https://doi:10.1017/awf.2024.70. Gilliam J, Shearer J, Bahr R, et al. (2016). Evaluation of brainstem disruption following penetrating captive-bolt shot in isolated cattle heads: comparison of traditional and alternative shot-placement landmarks. <i>Animal Welfare</i>. 2016;25(3):347-353. https://doi:10.7120/09627286.25.3.347 Gibson, TJ, Whitehead, C, Taylor, R, Sykes, O, Chancellor, NM and Limon, G (2015) Pathophysiology of penetrating captive bolt stunning in alpacas (<i>Vicugna pacos</i>). <i>Meat Science</i> 100: 227–231. https://doi.org/10.1016/J.MEATSCI.2014.10.022 Gibson TJ, Ridler AL, Limon G, Lamb C, Williams A, Gregory NG. Pathophysiology of penetrating captive bolt stunning in horned and polled sheep and factors Determining Incomplete Concussion. <i>Veterinary Sciences</i>. 2025; 12(1):53. https://doi.org/10.3390/vetsci12010053 Schottelkotte, KM and Crone, SA (2022) Forebrain control of breathing: Anatomy and potential functions <i>Frontiers in Neurology</i> 13: 1041887 https://doi.org/10.3389/fneur.2022.1041887	
7.6.12._5_ AUSTRALIA	Category: Addition Proposed amended text: <u>This method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits, and certain captive wild animals.</u> The aim of this method is to produce a state of unconsciousness and cause severe damage to the brain by the impact and penetration of a captive bolt using a mechanical device. <u>To be effective, captive bolt devices must be positioned correctly and held firmly against the skull, with the animal adequately restrained.</u> The captive bolt should be positioned on the skull to penetrate the cortex and mid-brain of the animal. The force of impact and the physical damage caused by the passage of the bolt should result in immediate unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death; however, a secondary ~~killing method intervention~~ such as pithing, bleeding or lethal injection should be performed as soon as possible, <u>and without delay</u>, after the shot to ensure the death of the animal. <u>Animals that are not rendered unconscious by the initial shot, should be immediately re-shot or killed by the secondary killing method or other backup method.</u> Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Given the importance of appropriate placement of the captive bolt for effective stunning and to maximise animal welfare outcomes, we recommend highlighting the requirements of both appropriate positioning and adequate restraint of the animal. Intervention has been replaced with “killing method” for clarity and consistency with description as intervention used elsewhere for non-terminal methods	Agreed, only the first part

	"And without delay" added to emphasise requirement to undertake terminal procedure post- stun immediately As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method. Supporting evidence, if relevant AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/	

A penetrating captive bolt is fired from a device powered by either compressed air or a blank cartridge, designed to fire a retractable metal bolt into the animal's cranium. The bolt should be recessed into the body of the pistol to get the proper velocity required to penetrate the skull of the animal.

7.6.12._6_ ICFAW	Category: Editorial Proposed amended text: A penetrating captive bolt is fired from a ~~gun~~ <u>device</u> powered by either compressed air or a blank cartridge, designed to fire a retractable metal bolt into the animal's cranium. Rationale: The word "gun" has legal implications in some countries, so here and throughout it might be better to use the word "device" instead.	Agreed

1. Animal welfare concerns

An incorrect shooting position or incorrect captive bolt parameters (not hitting the skull with sufficient force) may leave the animal conscious, leading to serious wounds and consequently distress, fear and pain.

7.6.12._7_ USA	Proposed amended text: An incorrect shooting position or incorrect captive bolt parameters (not hitting the skull with sufficient force) ~~will mis-stun the animal may, leaving the animal~~ conscious, ~~and~~ leading to serious wounds and consequently distress, fear and pain. Rationale: Edited for clarity and better readability.	Agreed
7.6.12._8_ UK	Category: change. Proposed amended text (or precise suggested deletion): An incorrect shooting position or incorrect captive bolt parameters (not hitting the skull with sufficient force) will mis-stun the animal, ~~leaving it conscious leading to a failure in loss of consciousness~~ and leading to serious wounds and consequently distress, fear and pain. Rational: More accurate as the consciousness may not be complete, but all failures at loss of consciousness are a welfare issue, even if not fully conscious. Supporting evidence: not relevant.	Agreed
7.6.12._9_ COLOMBIA	ES Categoría: Adición	Agreed

	Texto modificado propuesto: En Artículo 7.6.12. Preocupaciones de bienestar animal <u>Una inmovilización inadecuada del animal</u>, una posición de tiro incorrecta o unos parámetros de perno cautivo incorrectos (no golpear el cráneo con suficiente fuerza) aturdirán mal al animal, dejándolo consciente y provocándole heridas graves y, en consecuencia, distrés, miedo y dolor. (...) Justificación: la correcta sujeción del animal o contar con la infraestructura adecuada como apretaderos, para garantizar la inmovilización, es un punto clave para que el empleo de la técnica sea exitoso EN <u>Improper restraint of the animal</u>, an incorrect shooting position or incorrect captive bolt parameters (not hitting the skull with sufficient force) will mis-stun the animal, leaving it conscious and leading to serious wounds and consequently distress, fear and pain. Rationale: Correct restraint of the animal or having the appropriate infrastructure such as clamps to ensure immobilization is a key point for the successful use of the technique.	

Regaining of consciousness before death due to delay in applying the secondary intervention.

7.6.12._10_ AUSTRALIA	Category: Addition Proposed amended text: <u>Animal welfare concerns</u> An incorrect shooting position or incorrect captive bolt parameters (not hitting the skull with sufficient force) will mis-stun the animal, leaving it conscious and leading to serious wounds and consequently distress, fear and pain. <u>Restraint of the animal is required.</u> Regaining of consciousness before death due to delay in applying the secondary ~~intervention~~ <u>killing method</u>. Rationale: Restraint of the animal for penetrative captive bolt is required which can impact animal welfare. 'killing method' used rather than intervention as above. Supporting evidence, if relevant AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/	Did not agree. Already considered at the general part of the text.

2. Animal-based and other measures

Animal-based measures of an effective shot include:

- a) immediate collapse

- b) apnoea
- c) tonic seizures
- d) absence of eye movement
- e) absence of corneal reflex
- f) absence of palpebral reflex
- g) absence of righting reflex
- h) loss of muscle tone

7.6.12._11_ AUSTRALIA	Category Addition Proposed amended text: 2. <u>Animal-based and other measures</u> Animal-based measures of an effective shot include: a) immediate collapse b) apnoea/ <u>no rhythmic breathing</u> c) <u>tonic seizures initial tonic reaction then clonic activity</u> d) absence of eye movement e) absence of corneal reflex f) absence of palpebral reflex g) absence of righting reflex h) <u>jaw and tongue are loose</u> Rationale: Additional animal-based methods listed for completeness Supporting evidence, if relevant ESCAS ANIMAL WELFARE STANDARDS available at https://www.agriculture.gov.au/biosecurity-trade/export/controlled-goods/live-animals/livestock/exporters/escas#animal-welfare	Did not agree. But added 'loss of muscle tone'

3. Recommendations

The method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits and captive wild animals.

For cartridge powered and compressed air guns, the bolt velocity, cartridge power load and the length of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer.

7.6.12._12_ USA	Proposed amended text: For cartridge powered and compressed air guns, the bolt velocity and the length of the bolt should be appropriate to the species <u>and age of animal and type of animal</u>, in accordance with the recommendations of the manufacturer. Rationale:	Did not agree. type can be more important than age.

	Recommend editing to “and age of animal” for a more precise description of the appropriate length of bolt to use.	
7.6.12._13_ ICFAW	Category: Addition Proposed amended text: For cartridge powered and compressed air guns, the bolt velocity, cartridge power load and the length of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer. Rationale: The word “gun” has legal implications in some countries, so here and throughout it might be better to use the word “device” instead.	Agreed
7.6.12._14_ AUSTRALIA	Category: Change Proposed amended text: <u>Recommendations</u> For cartridge powered and compressed air guns, it <u>is important to ensure that the correct type of captive bolt, bolt length and propulsive power is matched to the species and type of animal being destroyed the bolt velocity and the length of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer. Operators should ensure that they follow manufacturer's instructions and that they match the correct stunning devices and cartridges (where applicable) with the specific species, type and age of animals being treated.</u> Rationale: Edited to include more detail on characteristics of captive bolt to be utilised and more detail on expectations of operators decision-making processes.	Did not agree. Unnecessary details.

Captive bolt devices should be frequently cleaned and maintained in good working condition. Regular check-up (e.g. daily during ongoing use) of the bolt velocity is recommended for effective stunning, operator safety, and improved animal welfare.

7.6.12._15_ UK	Category: deletion. Proposed amended text (or precise suggested deletion) : Captive bolt ~~guns~~ should be frequently cleaned and maintained in good working condition. Regular check-up of the bolt velocity is recommended for effective stunning, operator safety, and improved animal welfare. Rational: Consistency with wording used across the chapters where this piece of equipment is generally referred as ‘captive bolt’. Review full chapter for consistency in language. ‘captive bolt stunner’ would be preferred to ‘captive bolt gun’ Supporting evidence: not relevant.	Agreed
7.6.12._16_ AUSTRALIA	Category Addition Proposed amended text: Captive bolt guns should be frequently cleaned and maintained in good working condition. Regular check-up (e.g. daily during ongoing use) of the bolt velocity is recommended for effective stunning, operator safety, and improved animal welfare.	Agreed

	Rationale: Given the importance of captive bolt gun velocity in effective stunning, "daily" has been added to the velocity check to add a specific time frame around the regular checks. Supporting evidence, if relevant AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/	

More than one device may be necessary to avoid overheating with repeated use, and a back-up gun should be available in the event of an ineffective shot.

7.6.12._17_UK	Category: change. Proposed amended text (or precise suggested deletion) : More than one ~~gun~~ <u>captive bolt</u> may be necessary to avoid overheating with repeated use, and a back-up gun should be available in the event of an ineffective shot. Rational: Consistency with wording across the chapter. Supporting evidence: not relevant.	Did not agree. Already change it with 'devices'
7.6.12._18_ CANADA	Comment Category: change Proposed amended text: More than one gun <u>may be is</u> necessary to avoid overheating with repeated use, and a back-up gun <u>should must</u> be available in the event of an ineffective shot. Rationale: Canada suggests that a more definitive requirement is needed to ensure that a secondary killing tool is immediately accessible/useable if needed.	Agreed

Animals should be restrained and the operator should ensure that the head of the animal is accessible. The method is difficult to apply in agitated animals.

7.6.12._19_ COLOMBIA	ES Categoría: Adición Texto modificado propuesto: En Artículo 7.6.12. Los animales deberán estar sujetos <u>o inmovilizados correctamente</u> y el operario deberá asegurarse de que la cabeza del animal sea accesible. El método es difícil de aplicar en animales agitados. Justificación: la correcta sujeción del animal o contar con la infraestructura adecuada como apretaderos, para garantizar la inmovilización, es un punto clave para que el empleo de la técnica sea exitoso. EN Animals should be restrained <u>or correctly immobilised</u> and the operator should ensure that the head of the animal is accessible. The method is difficult to apply in agitated animals.	Did not agree.

	Rationale: A proper restraint of the animal or having the appropriate infrastructure such as clamps to ensure immobilization is key to the successful use of the technique. Evidencia documentada, si corresponde: N/A	

Proper positioning of the captive bolt equipment is required as incorrect positioning causes inefficient stunning leading to pain and distress in animals.

Animal-based measures should be monitored continuously after application until *death* to ensure the absence of brain stem reflexes.

7.6.12._20_ JAPAN	Category: Change Proposed amended text: From the perspective of a Animal-based measures, animal should be monitored continuously after application until <i>death</i> to ensure the absence of brain stem reflexes. Rationale: Animal-based indicators are the point of focus, and the object of monitoring is “animals”.	Did not agree

Suitable training and experience of operators in the application of captive bolt pistol, ergonomics and workload conditions should be considered for reducing fatigue in operators.

Penetrating captive bolt should not be used if preservation of brain tissue for diagnosis of diseases or when leakage of body fluids may present a biosecurity risk.

The secondary intervention should be performed immediately after the shot to ensure the death of the animal.

7.6.12._21_ AUSTRALIA	Category: Editorial Proposed amended text: The secondary ~~intervention~~ killing method should be performed as soon as possible and without delay after the shot to ensure the death of the animal Rationale: Edited for clarity and consistency	Agreed
7.6.12._22_ USA	Proposed amended text: The method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits and <i>captive wild animals</i> similar in physiology . Rationale: Recommend adding “similar in physiology” because there are numerous captive wild animals, some of which this method of killing may not be appropriate for.	Did no agree
7.6.12._23_ AUSTRALIA	Category: Deletion Proposed amended text:	Agreed

	~~The method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits and captive wild animals.~~ Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	
7.6.12._24_EU	The EU suggests adding the following paragraph: <u>'In the case of poultry, captive bolt properly applied is enough to kill the animal. To this end, in the case of broilers, turkeys, ducks and geese a minimum of 6 mm bolt diameter driven at an air pressure of 827 kPa to a penetration depth of 10 mm should be used. Death should be confirmed after shooting with the captive bolt gun to eliminate the risk of birds surviving due to human error or equipment failure, and, if animals are not dead, a back-up killing method should be applied.'</u> Justification: Killing for purposes other than slaughter: poultry. https://doi.org/10.2903/j.efsa.2019.5850. EFSA Journal 2019;17(11):5850 Pg 30, "scientific evidence has demonstrated that if captive bolt is properly applied in poultry, stunning is already enough to kill the animal (Raj and O'Callaghan, 2001; Erasmus et al., 2010a,b; Gibson et al., 2018). It has been suggested that the appropriate specifications for captive bolt stunning of broilers are a minimum of 6 mm bolt diameter driven at an air pressure of 827 kPa to a penetration depth of 10 mm (Raj and O'Callaghan, 2001). Other authors concluded that the use of captive bolts in turkeys, ducks and geese is effective in inducing death, when properly applied involving similar parameters as in broilers (Erasmus et al., 2010a,b; Sparrey et al., 2014; Gibson et al., 2018). In any case, death should be confirmed after shooting with the captive bolt gun to eliminate the risk of birds surviving due to human error or equipment failure, and, if animals are not dead, a back-up killing method should be applied."	Did not agree. Unnecessary details

4. Species-specific recommendations

The size of the skulls and the thickness of the skull bones should be taken into account when selecting parameters such as bolt diameter, bolt length and cartridge power in penetrative captive bolt. It is essential to follow the manufacturer's recommendations for the most appropriate cartridges for different animals. If there is doubt, a more powerful charge should be used.

7.6.12._25_USA	Proposed amended text: The size of the skulls and the thickness of the skull bones should be taken into account when selecting parameters such as bolt diameter, bolt length and cartridge power in penetrative captive bolt <u>stunning</u>. Rationale: Similar to an earlier comment, recommend removing "stunning," to keep the focus of this chapter on killing and not slaughter.	Agreed
7.6.12._26_AUSTRALIA	Category: Addition Proposed amended text:	Agreed

	The size of the skulls and the thickness of the skull bones should be taken into account when selecting parameters such as bolt diameter, bolt length and cartridge power in penetrative captive bolt stunning. It is essential to follow the manufacturer's recommendations for the most appropriate cartridges for different animals. If there is doubt, a more powerful charge should be used. Rationale: Additional information to ensure correct penetrative bolt is used for each animal and to recommend manufacturer information. Supporting evidence, if relevant: AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/	

Heavily horned animals should be stunned with penetrative captive bolt in the occipital position using a heavy-duty captive bolt gun directed forward at the nose.

7.6.12._27_UK	Category: change. Proposed amended text (or precise suggested deletion) : ~~Heavily horned animals~~ Horned sheep/goats and buffalo should be stunned with penetrative captive bolt in the occipital position using a heavy-duty contact-fired captive bolt gun directed forward at the nose. Rational: Using the term 'heavily horned' for all species may lead to misinterpretation. In the UK it is not permitted to stun bovine animals in the occipital position. Supporting evidence: Welfare of animals at the time of killing - The Welfare of Animals at the Time of Killing (England) Regulations 2015.	Agreed to add hornless sheep and goats
7.6.12._28_UK	Category: deletion. Proposed amended text (or precise suggested deletion) : Heavily horned animals should be stunned with penetrative captive bolt in the occipital position using a heavy-duty ~~contact-fired~~ captive bolt gun directed forward at the nose. Rational: The Humane Slaughter Association does not recommend contact-fired devices for this purpose. Research carried out with the RVC and ADAS concluded that a single-action, trigger-activated device which can be positioned appropriately before discharging, should be used. This work was in respect of water buffalo, but personal experience has shown it applies to sheep and goats also. In the UK stunning of bovines in the occipital position is prohibited by WATOK. Supporting evidence: Meat Science 2009 Jan;81(1):178-82.	Agreed
7.6.12._29_ CHILE	ES Categoría: Cambio Texto modificado propuesto: ~~Los animales con grandes cuernos~~ rumiantes deberán ser aturdidos con un perno cautivo penetrante ~~en posición occipital~~	Did not agree. Unnecessary details

	~~utilizando una pistola de alta resistencia dirigida a la nariz, potencia/velocidad, posicionado en el centro de la frente, en el punto de cruce de dos líneas imaginarias dibujadas entre cada ojo y la base del cuerno opuesto (o en su defecto unos centímetros arriba de la oreja si no hay cuerno). La boca de la pistola se debería sujetar en ángulo recto con el cráneo. Utilizar cartuchos del calibre adecuado para la especie y categoría.~~ Justificación: La ubicación adecuada es en la frente, en la zona donde el cráneo es más delgado y el cerebro se encuentra más cerca del cráneo, permitiendo un daño cerebral más extenso. El cerebro está más alejado de la ubicación occipital, por lo que el perno puede no penetrar adecuadamente el cráneo, ni causar daño cerebral suficiente para lograr la inconsciencia y/o muerte. EN Proposed amended text: ~~Heavily horned animals Ruminants~~ should be stunned with penetrative captive bolt ~~in the occipital position~~ using a heavy-duty ~~contact-fired captive bolt gun directed forward at the nose, with higher power/velocity, positioned in the center of the forehead, at the intersection of two imaginary lines drawn between each eye and the base of the opposite horn (or, failing that, a few centimeters above the ear if there is no horn). The muzzle of the pistol should be held at a right angle to the skull. Use cartridges of the appropriate caliber for the species and category.~~ Rationale: The proper placement is in the forehead, where the skull is thinnest and the brain is closest to the skull, allowing for more extensive brain damage. The brain is farther from the occipital position, so the bolt may not penetrate the skull adequately or cause enough brain damage to cause unconsciousness and/or death. Evidencia documentada/ Supporting evidence: American Veterinary Medical Association. (2020). AVMA guidelines for the euthanasia of animals: 2020 edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	

In new world camelids and hornless sheep and goats, the device should be placed at the crown position (highest point on the head) aiming downward to the base of the jaw [AVMA, 2020].

7.6.12._30_UK	Category: clarification. Proposed amended text (or precise suggested deletion) : In new world camelids the device should be placed at the crown position (highest point on the head) aiming downward to the base of the jaw [AVMA, 2020]. This position also applies to hornless sheep and goats. Rational: The correct position for hornless sheep and goats is also at the top of the head. Supporting evidence: Humane slaughter association guidance for Sheep - Humane Slaughter Association and Goats - Humane Slaughter Association	Already considered

7.6.12._31_ AUSTRALIA	Category: Change Proposed amended text: In new world camelids the device should be placed <u>at the midline on the crown of the head</u> ~~the crown position~~ (highest point on the head) aiming downward to the base of the jaw <u>[AVMA, 2020]</u> . Rationale: Update to reflect 2024 AVMA guideline for camelid captive bolt stunning Supporting evidence, if relevant AVMA Humane Slaughter Guidelines 2024, available at https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf	Did not agree

In turkeys the placement of the device should be directly on the midline of the skull and at the highest/widest point of the head with the captive bolt aimed directly down toward the brain.

In chickens (and poultry with comb development) the placement should be directly behind the comb and on the midline of the skull with the captive bolt aimed directly down.

In ratites a device with a short penetrating bolt and the smallest charge appropriate for poultry or rabbits should be applied to the top of the head at the midpoint of an imaginary line between the outer “ear” openings.

Article 7.6.13.

Pithing

Pithing is not a standalone killing method, it is a secondary method of *killing* animals whereby a penetrating captive bolt has been applied, without immediate *death*.

7.6.13._1_ USA	Proposed amended text: Pithing is not a standalone killing ~~or stunning~~ method, it's a secondary method of <i>killing</i> animals ~~which have~~ <u>where</u> ~~been stunned~~ by a penetrating captive bolt <u>has been applied</u> , without immediate <i>death</i> . Rationale: Edited to remove “stunning” and, as previous comments, keep this chapter's focus on killing, not slaughter.	Agreed with a different wording
7.6.13._2_ AU	Category of comments: Addition and deletion Proposed amended text: Pithing Pithing is not a standalone killing or stunning method. ~~It's~~ <u>It is</u> a secondary method of <i>killing</i> animals which have been stunned by a penetrating captive bolt, without immediate <i>death</i> . Pithing physically disrupts the central nervous system by the insertion of a flexible rod. The rod can be inserted caudally through the brain stem and spinal cord following stunning by penetrative captive bolt or cranially through the spinal cord and brain stem following decapitation. Pithing can be used as a <u>primary secondary</u> killing method for animals which have been stunned by a	Already considered

	penetrating captive bolt, without immediate death ~~or as a secondary method~~ to ensure rapid death. 1. Animal welfare concerns Proposed amended text: Since pithing is not a ~~standalone~~ killing method, but rather an adjunct method, it doesn't have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing or stunning. Rationale: The text is clearer when pithing is consistently referred to as a secondary intervention as outlined in Article 7.6.12.	

Pithing physically disrupts the central nervous system by the insertion of a flexible rod. The rod can be inserted caudally through the brain stem and spinal cord following the application of a penetrative captive bolt or cranially through the spinal cord and brain stem following decapitation..

7.6.13._3_USA	Proposed amended text: Pithing physically disrupts the central nervous system by the insertion of a flexible rod. The rod can be inserted caudally through the brain stem and spinal cord following ~~stunning by application of~~ a penetrative captive bolt or cranially through the spinal cord and brain stem following decapitation. ~~Pithing can be used as a primary killing method for animals which have been stunned by a penetrating captive bolt, without immediate death or as a secondary method to ensure rapid death.~~ Rationale: Edited to 1. remove 'stunning' as previous comments note and 2. to avoid repetition	Agreed
7.6.13._4_UK	Category: change. Proposed amended text (or precise suggested deletion) : Pithing physically disrupts the central nervous system by the insertion of a flexible rod. The rod can be inserted ~~caudally~~ ~~cranially~~ through the brain stem and spinal cord following stunning by penetrative captive bolt or ~~cranially~~ ~~caudally~~ through the spinal cord and brain stem following decapitation. Pithing can be used as a primary killing method for animals which have been stunned by a penetrating captive bolt, without immediate death or as a secondary method to ensure rapid death. Rational: Caudal insertion is used following decapitation, whilst cranial insertion is used following penetrative captive bolt. Supporting evidence: not relevant.	Did not agree
7.6.13._5_COLOMBIA	ES (To check Spanish version) Categoría: Editorial Texto modificado propuesto: En Artículo 7.6.13: Descabello El descabello ~~no es en sí un método de matanza o aturdimiento, sino un método secundario de matar animales que han sido aturdidos por un perno cautivo penetrante, sin muerte inmediata.~~ un El descabello ~~puede utilizarse como~~ método de matanza ~~primario~~ ~~complementario~~	Did not agree

	para animales que han sido aturdidos por un perno cautivo penetrante, sin muerte inmediata o como método secundario para asegurar una muerte rápida. El descabello altera físicamente el sistema nervioso central mediante la inserción de una varilla flexible. La varilla puede insertarse caudalmente a través del tronco encefálico y la médula espinal tras el aturdimiento por perno cautivo penetrante o cranealmente a través de la médula espinal y el tronco encefálico tras la decapitación. ~~El descabello puede utilizarse como método de matanza primario para animales que han sido aturdidos por un perno cautivo penetrante, sin muerte inmediata o como método secundario para asegurar una muerte rápida.~~ Justificación: Se ajusta texto para evitar duplicados y facilitar comprensión y concordancia con texto siguiente en la sección de Recomendaciones, donde dice que no es un método de matanza sino algo complementario. EN Pithing is ~~not a standalone killing or stunning method, it's a secondary method of a complementary~~ killing animals ~~for animals~~ which have been stunned by a penetrating captive bolt, without immediate <i>death</i>. Pithing physically disrupts the central nervous system by the insertion of a flexible rod. The rod can be inserted caudally through the brain stem and spinal cord following stunning by penetrative captive bolt or cranially through the spinal cord and brain stem following decapitation. ~~Pithing can be used as a primary killing method for animals which have been stunned by a penetrating captive bolt, without immediate death or as a secondary method to ensure rapid death.~~ Rationale: The text has been adjusted to avoid duplicates and facilitate understanding and consistency with the following text in the Recommendations section, which states that it is not a slaughter method but rather a complementary method. Evidencia documentada, si corresponde: N/A	
7.6.13._6_ CANADA	Comment Category: change Proposed amended text: ...Pithing can be used as a <u>primary adjunct</u> killing method for animals which have been stunned by a penetrating captive bolt, without immediate death or as a secondary method to ensure rapid death. Rationale: Canada suggests that the use of the word "primary" may result in confusion and potential inhumane use since below in 7.6.13.1 it states that pithing is not a killing method but an adjunct method following effective stunning. In addition, the first paragraph indicates it is not a standalone method.	Did not agree. Already change it as a 'secondary method'
7.6.13._7_ AUSTRALIA	Category: Change Proposed amended text: Pithing	Already considered in the previous changes

	Pithing is not a <u>primary method of killing, standalone killing or stunning method</u>. <u>Pithing it's is a secondary, method of killing method killing for animals which have been rendered unconscious by stunning with a penetrating captive bolt, have been stunned by a penetrating captive bolt, without immediate death.</u> Pithing <u>physically disrupts manually destroys the brain tissue in and around the brainstem to ensure death.</u> <u>the central nervous system by the insertion of a A flexible rod. The rod can be inserted through the hole made in the animal's skull by a projectile (for example, by a penetrating captive bolt) and directing the rod caudally through the brain stem and spinal cord, following stunning by penetrative captive bolt or Alternatively, the rod can be directed cranially through the spinal cord and brain stem following decapitation. The brain and spinal cord is macerated by moving the rod up and down several times.</u> <u>Pithing can be used as a primary killing method for animals which have been stunned by a penetrating captive bolt, without immediate death or as a secondary method to ensure rapid death.</u> Rationale: Wording changes recommended for consistent terminology and language within the WOAHP Chapter. The statement "pithing can be used as a primary killing method for animals which have been stunned..." may cause confusion for readers and may be misinterpreted. As pithing is a secondary killing method or terminal procedure that should only ever be performed on unconscious/stunned animals, this wording/messaging should be kept consistent throughout the article/chapter. Supporting evidence, if relevant <i>Secondary killing method referenced from:</i> - Gibson, T. J., Mason, C.W., Spence, J.Y., Barker, H. and Gregory, N.G., 2015. Factors Affecting Penetrating Captive Bolt Gun Performance. <i>Journal of Applied Animal Welfare Science</i>, 18, pp. 222-238 - AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf. Accessed 12 May 2025 - Hewitt, L. and Small, A., 2021. An independent animal welfare assessment of mass destruction methods for pigs on-farm. <u>An independent animal welfare assessment of mass destruction methods for pigs on-farm</u>. Accessed 12 May 2025. <i>Pithing technique referenced from:</i> - Shearer, J.K, 2018, Euthanasia of Cattle: Practical Considerations and Applications. <i>Animals</i>, 8 (57), pp. 1-17. <i>Decapitation is mentioned in:</i> - EFSA Panel on Animal Health and Welfare (AHAW), 2019. Killing for purposes other than slaughter: poultry. https://www.efsa.europa.eu/en/efsajournal/pub/5850. Accessed 12 May 2025	

	WOAH Killing of reptiles for their skins, meat and other products. chapitre_aw_reptiles.pdf . Accessed 12 May.	

1. Animal welfare concerns

Since pithing is not a primary killing method, but rather a secondary method, it doesn't have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing.

Animals should be checked for unconsciousness before pithing takes place.

7.6.13._8_ USA	Proposed amended text: Since pithing is not a primary killing method, ~~but rather an adjunct method~~, it doesn't have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing or stunning. Rationale: Replaced "but rather an adjunct method" with "primary" to improve readability.	Agreed
7.6.13._9_ UK	Category: addition. Proposed amended text (or precise suggested deletion) : Since pithing is not a killing method, but rather an adjunct method, it doesn't have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing or stunning. Animals must be checked for unconsciousness before pithing takes place. Rational: It is important that operators ensure animals are unconscious before the rod is inserted into the penetrative captive bolt hole, to prevent any unnecessary pain, suffering and distress. If the animal has not been properly stunned and is conscious, this will cause pain, fear and distress. Supporting evidence: not relevant.	Agreed
7.6.13._10_ ICFAW	Category: Editorial Proposed amended text: Since pithing ~~must only be performed in unconscious, previously stunned animals, is not a killing method, but rather an adjunct method~~, it doesn't have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing or stunning. Rationale: As written, this sentence is logically incompatible with the preceding paragraphs, which state that pithing can be used as a primary or secondary killing method in animals who have already been stunned. It must be revised to avoid ambiguity or misinterpretation.	Did not agree. Already considered in the last paragraph of this point
7.6.13._11_ CANADA	Comment Category: addition Proposed amended text: Since pithing is not a killing method, but rather an adjunct method, following confirmation of unconsciousness from effective stunning,	Did not agree. Already considered in the last paragraph of this point

	it doesn't have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing or stunning. Rationale: Canada suggests that this is required to ensure there is no ambiguity.	
7.6.13._12_ AUSTRALIA	Category: Change Proposed amended text: Since pithing is not a primary method of killing, but rather a secondary, terminal technique adjunct method, it doesn't have any welfare concerns of its own when applied to an insensible animal. However, it shares the welfare concerns of the primary method of killing or stunning. Rationale: Wording changes recommended for consistent terminology and language throughout article and chapter for follow up procedures to ensure effective killing post stunning. The lack of welfare concern as a result of pithing is only when the animal is already insensible from effective stunning	Did not agree. Already considered in the last paragraph of this point

2. Animal-based and other measures

- a. absence of breathing
- b. absence of corneal or palpebral reflex
- c. fixed and dilated pupils
- d. absence of muscle tone
- e. absence of heartbeat

Heartbeat may continue for several minutes after effective pithing

7.6.13._13_ AUSTRALIA	Category: Change Proposed amended text: ~~Absence of brain stem reflexes and other muscle movements (following initial violent muscle contractions) can be used to confirm successful pithing.~~ <u>Successful pithing can be confirmed by:</u> • <u>Sustained absence of breathing</u> • <u>Sustained absence of response to corneal or palpebral stimuli</u> • <u>Dilated pupils</u> • <u>Relaxed body – lack of righting reflex, body movement and muscle tone, brain stem reflexes and other muscle movements (following noting that the initial violent muscle contractions) movements of the animal's head and legs can be violent. can be used to confirm successful pithing.</u> <u>Heartbeat may continue for several minutes after effective pithing, and therefore, other indicators such as dilated pupils and absence</u>	Did not agree

	of breathing may be used to assess the outcome immediately after pithing. Rationale: Wording changes recommended for consistent terminology and language within the WOAHP Chapter. Supporting evidence, if relevant: Reference for confirmation of death and reference to heartbeat monitoring: EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of cattle during killing for purposes other than slaughter. EFSA Journal - 2020 - - Welfare of cattle during killing for purposes other than slaughter.pdf. Accessed 12 May 2025.	

3. Recommendations

Pithing is a secondary method that can be used in conjunction with penetrative captive bolt application or decapitation to ensure that the animal does not regain consciousness before it dies.

Pithing should not be used if trying to preserve brain tissue for diagnosis of diseases or when leakage of body fluids may present a biosecurity risk.

7.6.13._14_ USA	Proposed amended text: Pithing is ~~an adjunct~~ secondary method that can be used in conjunction with penetrative captive bolt ~~application~~ stunning or decapitation to ensure that an animal is dead (in the case of penetrative captive bolt ~~application~~ stunning) or that an animal is no longer conscious (in the case of decapitation). Rationale: Replaced “an adjunct” with “a secondary” to improve readability and removed ‘stunning’ as previous comments note.	Agreed
7.6.13._15_ CANADA	Category (addition, deletion, change, editorial, general): Deletion Proposed amended text (or precise suggested deletion): Pithing is an adjunct method that can be used in conjunction with penetrative captive bolt stunning ~~or decapitation~~ to ensure that an animal is dead (in the case of penetrative captive bolt stunning) or that an animal is no longer conscious ~~(in the case of decapitation).~~ Rationale: Canada suggests removing any references to decapitation. Would pithing be necessary if the animal is decapitated/dead?	Did not agree
7.6.13._16_ AUSTRALIA	Category: Change Proposed amended text: 3. Recommendations Pithing is ~~an adjunct~~ secondary, terminal killing technique method that can be used in conjunction with penetrative captive bolt stunning ~~firearm use or decapitation~~ to ensure that an animal is dead ~~(in the case of penetrative captive bolt stunning) or that an animal is no longer conscious (in the case of decapitation).~~	Agreed, with some changes in the wording

	Pithing should not be used if trying to preserve brain tissue for diagnosis of diseases or when leakage of body fluids may present a biosecurity risk. Some pithing rods have a sponge to absorb body fluids and use barbs to remain inside the skull thereby preventing removal or slippage of the rod following insertion. The pithing process can be dangerous as it may stimulate violent involuntary movements of the animal's legs and head. Rationale: Wording adjustment to maintain consistency across the article/chapter and emphasise that pithing is a secondary intervention. Pithing should only ever be performed on unconscious/stunned animals. The last part of the sentence should be deleted as it indicates that it is appropriate to perform pithing on a conscious animal and is misleading to readers. As with firearms or use of penetrative captive bolts, pithing damages the brain/neural tissue and may cause contamination of the surrounding area. Supporting evidence, if relevant: Animal Health Australia (2015). Operational manual: Destruction of animals (Version 3.2). Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3, Agriculture Ministers' Forum, Canberra, ACT. <i>References for rod use:</i> Appelt, M. and Sperry, J., 2007. Stunning and killing cattle humanely and reliably in emergency situations — A comparison between a stunning-only and a stunning and pithing protocol. <i>Canadian Veterinary Journal</i>, 48, pp. 529-534. EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of cattle during killing for purposes other than slaughter. EFSA Journal - 2020 - -Welfare of cattle during killing for purposes other than slaughter.pdf. Accessed 12 May 2025 EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of sheep and goats during killing for purposes other than slaughter. EFSA Journal - 2024 - - Welfare of sheep and goats during killing for purposes other than slaughter.pdf. Accessed 12 May 2025.	

4. Species-specific recommendations

The pithing rod selected should be of a suitable size to be able to fit within the spinal canal of the animal.

7.6.13._17_ JAPAN	Category: Change Proposed amended text: The pithing rod selected ~~must~~should be of a suitable size to be able to fit within the spinal canal of the animal. Rationale: WOAH standards are recommendations for member countries and "should" should be used in this regard.	Agreed
7.6.13._18_	Category: Addition	<u>Did not agree</u>

AUSTRALIA	Proposed amended text: <u>Stunning should be followed as quickly as possible (without any delay) by destruction of the brain and upper spinal cord by pithing to prevent recovery of consciousness.</u> The pithing rod selected must be of a suitable size to be able to fit within the spinal canal of the animal. Rationale: Wording changes recommended for consistent terminology and language within the WOAHP Chapter. Supporting evidence, if relevant: <i>Reference for confirmation of death:</i> EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of cattle during killing for purposes other than slaughter. <u>EFSA Journal - 2020 - Welfare of cattle during killing for purposes other than slaughter.pdf</u>. Accessed 12 May 2025 <u>EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of sheep and goats during killing for purposes other than slaughter. EFSA Journal - 2024 - Welfare of sheep and goats during killing for purposes other than slaughter.pdf</u>. Accessed 12 May 2025.	
7.6.13._19_EU	To improve clarity, the EU suggests adding 'as such' after 'killing method' at point 1: 'Since pithing is not a killing method <u>as such</u>, but rather an adjunct method'	Did not agree

Article 7.6.14.

Non-penetrating captive bolt

7.6.14._1_AU	Category of comments: General African Union supports the text in Article 7.6.14. Non-penetrating captive bolt followed by a secondary killing method Rationale: Clarity	Noted. The title was modified to just indicated the use of the non-penetrating captive bolt as a killing method
7.6.14._2_ AUSTRALIA	Category: General Comment: We recommend that additional guidance be provided in this section, regarding the appropriate positioning of non-penetrating captive bolt devices for other species. Rationale: Additional guidance will help ensure animal welfare outcomes are met.	Noted

Non-penetrating captive bolt have a 'mushroom headed bolt' which impacts the skull but does not enter the brain. It administers a blow to the animal's skull of sufficient force to render the animal immediately unconscious. The device should be placed on the front of the skull to deliver a percussive blow which produces instantaneous unconsciousness. Physical damage to the brain caused by the bolt may result in death; however, a secondary intervention such as bleeding or lethal injection may be required and should be performed as soon as possible.

7.6.14._3_	Category: Addition	Did not agree

ICFAW	Proposed amended text: The gun should be placed on the front of the skull <u>or as required for the species and size of the animal</u> to deliver a percussive blow which produces instantaneous unconsciousness. Rationale: As written, this sentence is inconsistent with the species-specific recommendations in Article 7.6.14.4 below.	
7.6.14._4_ CANADA	Comment category: Addition Proposal/Comment: ... The gun should be placed on the front of the skull <u>(in poultry the position should be behind the comb)</u> to deliver a percussive blow which produces instantaneous unconsciousness.... Rationale: Canada suggests that bolt positioning used for poultry is behind the comb, not front of the skull. The current wording is inaccurate and should be consistent with later description.	Did not agree
7.6.14._5_ AUSTRALIA	Category: Change Proposed amended text: Non-penetrating captive bolt ~~followed by a secondary killing method~~ <u>This method is suitable for turkeys, chickens, ratites, rabbits, lambs, and goat kids (approximately up to 4.5 kg) and piglets (approximately up to 10.9 kg).</u> Non-penetrating captive bolt <u>devices</u> have a 'mushroom headed bolt' which impacts the skull but does not enter the brain. It administers a blow to the animal's skull of sufficient force to render the animal immediately unconscious. The gun should be placed on the front of the skull to deliver a percussive blow which produces instantaneous unconsciousness. A secondary <u>intervention-killing method</u> such as bleeding, cervical dislocation or lethal injection <u>should must</u> be performed without delay after the shot to ensure the death of the animal. Rationale: Deletion in heading for consistency with other articles on stunning methods. As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Given the importance of this step and the welfare issues that arise should the animal regain consciousness, we recommend this is described as 'must'. Other changes made for consistency in language use throughout the chapter	Agree, but with out mentioned any specific weight

1. Animal welfare concerns

An incorrect impact position or incorrect captive bolt parameters (not hitting the skull with sufficient force) will fail to induce unconsciousness leading to serious injuries and consequently distress, fear and pain.

7.6.14._6_	Category: Editorial	Agreed

ICFAW	Proposed amended text: A secondary intervention such as bleeding, cervical dislocation or lethal injection should be performed without delay after the ~~shot~~ <u>impact</u> to ensure the death of the animal. 2. <u>Animal welfare concerns</u> An incorrect <u>shooting impact</u> position or incorrect captive bolt parameters (not hitting the skull with sufficient force) will mis-stun the animal, leaving it conscious and leading to serious wounds and consequently distress, fear and pain. Rationale: The word "impact" is more accurate and technically correct.	
7.6.14._7_ COLOMBIA	ES Categoría: Adición Texto modificado propuesto: En Artículo 7.6.14. Preocupaciones de bienestar animal <u>La inmovilización inadecuada del animal</u>, una posición de tiro incorrecta o unos parámetros de perno cautivo incorrectos (no golpear el cráneo con suficiente fuerza) aturdirán mal al animal, dejándolo consciente y provocándole heridas graves y, en consecuencia, estrés, miedo y dolor. Justificación: la correcta sujeción del animal o contar con la infraestructura adecuada como apretaderos, para garantizar la inmovilización, es un punto clave para que el empleo de la técnica sea exitoso. Evidencia documentada, si corresponde: N/A	Did not agree

Regaining of consciousness before death due to delay in applying the secondary intervention.

7.6.14._8_ AUSTRALIA	Category: Editorial Proposed amended text: Regaining of consciousness before death due to delay in applying the secondary ~~intervention-killing method~~. Rationale: Consistency in language use throughout the chapter	Agreed

3. Animal-based and other measures

Animal-based measures of an effective shot include:

- a) immediate collapse
- b) apnoea
- c) tonic seizures
- d) absence of eye movement
- e) absence of corneal reflex

f) absence of palpebral reflex

g) absence of righting reflex

4. Recommendations

This method is suitable for turkeys, chickens, ratites, rabbits, lambs, calves, goat kids and piglets.

For cartridge powered and compressed air devices, the velocity and diameter of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer.

7.6.13._9_UK	Category: change. Proposed amended text (or precise suggested deletion) : For cartridge powered and compressed air ~~guns~~ <u>device</u> , the velocity and diameter of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer. Rational: Replace 'gun' for 'device' or 'equipment' across the full chapter (and chapter 7.5). There is a widespread preference to avoid using the term 'gun' for stunning equipment or devices. Supporting evidence: not relevant.	Agreed

Non-penetrating captive bolt devices should be frequently cleaned and maintained in good working condition. Regular check-up of the bolt velocity is necessary for effective stunning, operator safety, and improved animal welfare.

7.6.14._10_ CANADA	Comment Category: change Proposed amended text: Non-penetrating captive bolt guns should be frequently cleaned and maintained in good working condition. Regular check-up of the bolt velocity is <u>recommended necessary</u> for effective stunning, operator safety, and improved animal welfare. Rationale: Canada suggests "necessary" is needed here to impose the need for this action to ensure proper operation.	Agreed

More than one device may be necessary to avoid overheating.

A back-up device of a different kind should be available in the event of an ineffective impact.

Animals should be adequately restrained and the operator should ensure that the head of the animal is accessible.

7.6.14._11_ COLOMBIA	ES Categoría: Adición Texto modificado propuesto: En Artículo 7.6.14. Los animales deberán estar sujetos <u>o inmovilizados correctamente</u> y el operario deberá asegurarse de que la cabeza del animal sea accesible. El método es difícil de aplicar en animales agitados Justificación: la correcta sujeción del animal o contar con la infraestructura adecuada como apretaderos, para garantizar la	Agreed

	inmovilización, es un punto clave para que el empleo de la técnica sea exitoso. Evidencia documentada, si corresponde: N/A	
7.6.14._12_ AUSTRALIA	Category: Deletion Proposed amended text: Animals should be restrained and the operator should ensure that the head of the animal is accessible. ~~The method is difficult to apply in agitated animals.~~ Rationale: The text 'The method is difficult to apply in agitated animals' in this article and in Article 7.6.12 should be moved to a more suitable section (e.g. Animal welfare concerns) unless it is accompanied by a recommendation around its use/avoidance with agitated animals.	Agreed

Proper positioning of the non-penetrating captive bolt equipment is required as incorrect positioning of the captive bolt causes inefficient stunning leading to pain and distress in animals.

Animal-based measures should be monitored continuously after application until death to ensure the absence of brain stem reflexes.

Suitable training and experience of operators in the application of non-penetrating captive bolt pistol and ergonomics and workload conditions should be considered for reducing fatigue in operators.

The secondary **killing method intervention** should be performed immediately after the shot to ensure the death of the animal.

7.6.14._13_ AUSTRALIA	Category: Change Proposed amended text: The secondary intervention ~~should~~must be performed without delay after the shot to ensure the death of the animal. Rationale: Given the importance of this step we recommend this is described as 'must'	Agreed
7.6.14._14_ UK	Category: addition. Proposed amended text (or precise suggested deletion) : This methods is suitable for turkeys, chickens, ratites, rabbits, lambs (~~less than 10Kg~~) and goats kids (approximately up to 4.5 kg) and piglets (approximately up to 10.9 kg). Rational: Legislation in the UK and the EU only permits the use of non-penetrative captive bolt in ruminants under 10 Kg. Supporting evidence: Slaughter poultry, livestock and rabbits for home consumption - GOV.UK EU Regulation 1099/2009 Council Regulation (EC) No 1099/2009 of 24 September 2009 on the protection of animals at the time of killingText with EEA relevance	Did not agree
7.6.14._15_ CHINESE TAIPEI	Category: Addition and Editorial Proposed amended text:	Did not agree

	This method is suitable for turkeys, chickens, ratites, rabbits, lambs (less than 6kg) and goats kids (approximately up to 4 kg) and piglets (approximately up to 10 kg). Rationale: To ensure effective stun/kill and prevent animal suffering due to insufficient energy impact from non-penetrative captive bolt devices. Animals exceeding these weight limits may not receive sufficient trauma to cause immediate unconsciousness and death. Although some studies (e.g., Grist et al., 2017, 2018a) have demonstrated successful application of non-penetrating captive bolt devices on piglets weighing up to 10.9 kg, the Humane Slaughter Association (HSA) recommends restricting their use to piglets under 10 kg, lambs under 4 kg, and goat kids under 4 kg. These recommendations are based on ensuring that the device can consistently deliver sufficient kinetic energy — at least 27.7 J for piglets, 107 J for lambs, and 27.8 J for goat kids — to produce immediate brain trauma and irreversible loss of consciousness, thus safeguarding animal welfare. Supporting evidence: Humane Slaughter Association (n.d.) <i>On-farm humane killing of neonate pigs, goats and sheep</i>. Technical Guidance. University of Bristol. Grist, A., Knowles, T. G. and Wotton, S. B. (2018) 'Humane euthanasia of neonates II: field study of the effectiveness of the Zephyr EXL non-penetrating captive-bolt system for euthanasia of newborn piglets', <i>Animal Welfare</i>, 27(4), pp. 319-326. doi: 10.7120/09627286.27.4.319. Grist, A., Murrell, J. C., McKinstry, J. L., Knowles, T. G. and Wotton, S. B. (2017) 'Humane euthanasia of neonates I: validation of the effectiveness of the Zephyr EXL non-penetrating captive-bolt euthanasia system on neonate piglets up to 10.9 kg live-weight', <i>Animal Welfare</i>, 26, pp. 111-120. doi: 10.7120/09627286.26.1.111.	
7.6.14._16_ CANADA	Category: clarification Proposed amended text This methods is suitable for turkeys, chickens, ratites, rabbits, lambs and goats kids (approximately up to 4.5 kg) and piglets (approximately up to 10.9 kg). Rationale: Chapter 7.5. indicates that non-penetrative captive bolt should not be used in animals with thick skulls (e.g. bison, water buffalo). There should be consistency between recommendations between these two chapters. Where this guidance is much more specific perhaps it should be included in chapter 7.5.	Noted
7.6.14._17_ AUSTRALIA	Category: Deletion Proposed amended text: ~~This methods is suitable for turkeys, chickens, ratites, rabbits, lambs and goats kids (approximately up to 4.5 kg) and piglets (approximately up to 10.9 kg).~~ Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Agreed

7.6.14._18_EU	The EU suggests amending the above paragraph as follows: 'This methods is suitable for turkeys, chickens, ratites, rabbits, lambs and goats kids (approximately up to 4.5-10 kg) and piglets (approximately up to 10.9 kg).' <u>Justification:</u> EFSA opinion on Welfare of sheep and goats at slaughter concludes that the use of non-penetrative captive bolt guns for stunning sheep and goats should be restricted to animals of less than 10 kg live weight.	Did not agreed. This paragraph was amended and moved to the start of the article.

5. Species-specific recommendations

In turkeys the placement of the device should be directly on the midline of the skull and at the highest/widest point of the head with the captive bolt aimed directly down toward the brain.

In chickens (and poultry with comb development) the placement should be directly behind the comb and on the midline of the skull with the captive bolt aimed directly down.

In ratites a device with the charge appropriate for poultry or rabbits should be applied to the top of the head at the midpoint of an imaginary line between the outer "ear" openings.

7.6.14._19_UK	Category: deletion. Proposed amended text (or precise suggested deletion) : In ratites a device with the smallest charge appropriate for poultry or rabbits should be applied to the top of the head at the midpoint of an imaginary line between the outer "ear" openings. Rational: It is unclear why for this species there is a recommendation to select the smallest charge appropriate? This could lead to confusion to use the smaller charge available, however requirements may vary with ratites where a larger charge should be used – best to keep it simple and simply state that the appropriate charge shall be used or delete for consistency with other species. Supporting evidence: not applicable.	Agreed

In rabbits the device should be placed in the centre of the forehead, with the barrel in front of the ears and behind the eyes..

7.6.14._20_UK	Category: editorial and deletion. Proposed amended text (or precise suggested deletion) : In rabbits the device should be placed in the centre of the forehead, with the barrel in front of the ears and behind the eyes. ~~The device should be discharged twice in rapid succession at the pressure recommended for the age and size of the rabbit.~~ Rational: • Typo. Replace 'center' with 'centre'. • Stunning device should work effectively with one shot. There is no need to deliver two shots in rapid succession. Additionally this 'two consecutive shots technique' can only	Agreed

	be achieved by certain devices that are not cartridge operated. Supporting evidence: not applicable.	

In lambs and goat kids the preferred shooting position is with the muzzle of the non-penetrating captive bolt on the midline behind the poll (e.g., between the ears) with the chin tucked into the neck.

7.6.14._21_UK	Category: editorial. Proposed amended text (or precise suggested deletion) : In lambs and goats kids up to approximately 4.5 kg the preferred shooting position is with the muzzle of the non-penetrating captive bolt on the midline behind the poll (e.g., between the ears) with the chin tucked into the neck. Rational: Typo. Supporting evidence: not applicable.	This sentence was deleted
7.6.14._22_CHINESE TAIPEI	Category: Addition and Editorial Proposed amended text: In lambs and goats kids up to approximately 6kg and 4 kg, respectively, the preferred shooting position is with the muzzle of the non-penetrating captive bolt on the midline behind the poll (e.g., between the ears) with the chin tucked into the neck. In piglets, non-penetrative captive bolt provides immediate and irreversible loss of consciousness and brain death in piglets up to 10 kg with a single application on the frontal–parietal position [Grist et al., 2017, 2018a]. Rationale: To ensure effective stun/kill and prevent animal suffering due to insufficient energy impact from non-penetrative captive bolt devices. Animals exceeding these weight limits may not receive sufficient trauma to cause immediate unconsciousness and death. Although some studies (e.g., Grist et al., 2017, 2018a) have demonstrated successful application of non-penetrating captive bolt devices on piglets weighing up to 10.9 kg, the Humane Slaughter Association (HSA) recommends restricting their use to piglets under 10 kg, lambs under 4 kg, and goat kids under 4 kg. These recommendations are based on ensuring that the device can consistently deliver sufficient kinetic energy — at least 27.7 J for piglets, 107 J for lambs, and 27.8 J for goat kids — to produce immediate brain trauma and irreversible loss of consciousness, thus safeguarding animal welfare. Supporting evidence: Humane Slaughter Association (n.d.) <i>On-farm humane killing of neonate pigs, goats and sheep</i>. Technical Guidance. University of Bristol. Grist, A., Knowles, T. G. and Wotton, S. B. (2018) 'Humane euthanasia of neonates II: field study of the effectiveness of the Zephyr EXL non-penetrating captive-bolt system for euthanasia of newborn piglets', <i>Animal Welfare</i>, 27(4), pp. 319-326. doi: 10.7120/09627286.27.4.319. Grist, A., Murrell, J. C., McKinstry, J. L., Knowles, T. G. and Wotton, S. B. (2017) 'Humane euthanasia of neonates I: validation of the	Did not agree

	effectiveness of the Zephyr EXL non-penetrating captive-bolt euthanasia system on neonate piglets up to 10.9 kg live-weight', <i>Animal Welfare</i> , 26, pp. 111-120. doi: 10.7120/09627286.26.1.111.	

In piglets, a non-penetrative captive bolt provides immediate and irreversible loss of consciousness and brain death with a single application on the frontal–parietal position [Grist et al., 2017, 2018a].

Article 7.6.15.

Bleeding

Bleeding is a method of *killing* animals through the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to cerebral ischaemia and *death*. Due to welfare and biosecurity concerns it is not a preferred method where other options are available.

7.6.15._1_UK	Category: change. Proposed amended text (or precise suggested deletion) : ~~Bleeding is a method of killing animals through the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to cerebral ischaemia and death.~~ <u>Bleeding is not a standalone killing or stunning method, it's a secondary method of killing animals which have been stunned, without immediate death.</u> Rational: Language consistency Consider using similar wording to that in pithing section for consistency (alternatively modify the pithing text in line with this one). Supporting evidence: not applicable.	Did not agree
7.6.15._2_ ICFAW	Category: Addition Proposed amended text: Bleeding is a method of killing animals through the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to cerebral ischaemia and death. <u>Double carotid artery severance is essential to ensure a rapid drop in blood pressure and faster unconsciousness, minimizing suffering.</u> Rationale: The double carotid cut needs to be emphasized because it results in faster cerebral hypoxia, which leads to quicker death. While we believe this method must not be used in conscious animals, it is also the case that conscious animals killed by this method would lose consciousness more quickly if both carotid arteries are severed. Supporting evidence: Gregory, N.G & Wotton, S.B. (1984). Time to loss of brain responsiveness following exsanguination in calves. <i>Research in Veterinary Science</i>, 37 141-143. https://doi.org/10.1016/s0034-5288(18)31895-2 Link to pdf Steps- Abate humanitário de bovinos / Charli Beatriz Ludtke ... [et al.]. – Rio de Janeiro : WSPA, 2012. Programa STEPS – Abate Humanitário de Bovinos — Ministério da Agricultura e Pecuária	Did not agree
7.6.15._3_	Category: Addition	Agreed only with the first comment

AUSTRALIA	Proposed amended text: <u>This method is suitable for all animals covered by this chapter.</u> Bleeding is a method of <i>killing</i> animals through the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to cerebral ischaemia and <i>death</i>. <u>Bleeding is a terminal procedure causing death but is not acceptable as a primary method of non slaughter killing and should be performed only after a primary intervention and once an animal has lost consciousness.</u> Rationale: Added for clarity about use of bleeding as a secondary killing method only in non slaughter killing given the trauma, pain and distress this procedure has the potential to cause. As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	

1. Animal welfare concerns

The process of *bleeding* requires significant tissue trauma and this will be painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. Consciousness may persist for periods of up to 20 or 60 seconds or much longer in some instances (depending on species) following blood vessel transection [Johnson et al. 2015]. Animals may experience fear, pain and *distress* during this period.

7.6.15._4_UK	Category: replacement/addition Proposed amended text (or precise suggested deletion) : The process of <i>bleeding</i> ~~requires~~ <u>inflicts</u> significant tissue trauma and this ~~may will~~ be painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. Consciousness may persist for periods of up to 20 or 60 seconds (depending on species) following blood vessel transection [Johnson et al. 2015]. Animals may experience fear, pain and <i>distress</i> during this period. <u>In cattle and calves special care needs to be paid to prevent carotid ballooning as their circulatory system can maintain sustained blood flow to the brain via the circle of willis.</u> Rational: - Based on physiology it is known that large wounds usually elicit major pain. - EFSA Welfare aspects of animal stunning and killing methods - Scientific Report of the Scientific Panel for Animal Health and Welfare on a request from the Commission related to welfare aspects of animal stunning and killing methods, 2004, page 21. - It is important that guidance acknowledges species specific differences as per other sections. Basic ruminant anatomy – carotid ballooning can occur in all ruminants however science has demonstrated impacts during slaughter only in adult cattle and calves. Supporting evidence: Basic ruminant anatomy. <u>Prevalence of ballooning of the severed carotid arteries at slaughter in cattle, calves and sheep - PubMed</u>	Did not agree

7.6.15._5_ ICFAW	Category: Change Proposed amended text: The process of bleeding requires significant tissue trauma and this may be painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. <u>This pain will be worse if the knife is dull or not effective with a single cut.</u> Consciousness may persist for periods of up to 20 or ~~60~~ <u>96</u> seconds (depending on species <u>and operator skill</u>) following blood vessel transection [Johnson et al. 2015]. Animals may experience fear, pain and distress during this period. Rationale: Documented cases of donkey slaughter have shown that the time to loss of consciousness can be longer than one minute. The pain of the procedure is likely related to the sharpness of the knife. Supporting evidence: Fletcher, K., Limon, G., Agongo, E., Akunzule, A., Essel, G., Padalino, B., ... & Gibson, T. J. (2024). Assessment of Donkey (<i>Equus asinus</i>) Welfare at Slaughter in Ghana. <i>Animals</i>, 14(24), 3673. https://pmc.ncbi.nlm.nih.gov/articles/PMC39765577 Kumar, P., Abubakar, A. A., Imlan, J. C., Ahmed, M. A., Goh, Y. M., Kaka, U., ... & Sazili, A. Q. (2023). Importance of knife sharpness during slaughter: Shariah and kosher perspective and scientific validation. <i>Animals</i>, 13(11), 1751. https://www.mdpi.com/2076-2615/13/11/1751/pdf	Did not agree
7.6.15._6_ CANADA	Comment Category: addition Proposed amended text: The process of <i>bleeding</i> requires significant tissue trauma and this ~~may be is~~ painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. ~~Consciousness may persist for periods of up to 20 or 60 seconds (depending on species)~~ following blood vessel transection [Johnson et al. 2015]. ~~Animals may experience fear, pain and distress during this period.~~ <u>Loss of consciousness due to bleeding is not immediate and there is a period during which the animals experience fear, pain and distress.</u> Rationale: Canada suggests the references in the section are clear that bleeding without prior effective is painful. Canada notes that the time frame for consciousness has a range based on species. For example, in cattle the duration is much longer, commonly up to 85 seconds with occasional instances of much longer durations of awareness. Canada suggests wording consistent with Chapter 7.5. Supporting evidence: CB Johnsona, DJ Mellora, PH Hemsworthb & AD Fisherb. Scientific comment on the welfare of domesticated ruminants slaughtered without stunning .Published online: 11 Dec 2014. https://praxisi.org/storage/app/media/24%20-%20Johnson%202015.pdf	Did not agree
7.6.15._7_ AUSTRALIA	Category: Change Proposed amended text:	Did not agree

	The process of <i>bleeding</i> requires significant tissue trauma and this <u>may is likely to</u> be painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. Consciousness may persist for periods of up to 20 or 60 seconds (depending on species) following blood vessel transection [Johnson et al. 2015]. Animals may experience fear, pain and <i>distress</i> during this period. Rationale: “Likely” is more appropriate as it reflects the weight of the evidence. Supporting evidence, if relevant: TJ Gibson, CB Johnson, JC Murrell, CM Hulls, SL Mitchinson, KJ Stafford, AC Johnstone and DJ Mellor (2009). Electroencephalographic responses of calves to slaughter by ventral neck incision without prior stunning. New Zealand Veterinary Journal 57 77-83.	
7.6.15._8_ AUSTRALIA	Category: Addition Proposed amended text: The process of <i>bleeding</i> requires significant tissue trauma and this may be painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. Consciousness may persist for periods of up to 20 or 60 seconds (depending on species) following blood vessel transection [Johnson et al. 2015]. Animals may experience fear, <u>anxiety associated with extreme hypovolaemia</u>, pain and <i>distress</i> during this period. <u>In the case of ineffective killing the method should be repeated or animals should be killed using a secondary killing method such as (specify backup method).</u> Rationale: Additional information regarding animal welfare concerns when bleeding used as a primary method of humane killing As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method	Did not agree
7.6.15._9_ EU	The EU suggests amending the first sentence as follows: ~~‘The process of <i>bleeding</i> requires significant tissue trauma and this may be painful if causes pain~~ <u>has</u> if the animal <u>was</u> not ~~been~~ rendered unconscious prior to the procedure.’ Justification: Pain caused by bleeding without prior stunning is rather a certainty than an eventuality. Gibson et al. 2009 assigns to this procedure a ‘strong potential [...] to be painful in conscious animals’ and EFSA (2025) considers ‘sticking and bleeding of conscious horses’ to be ‘unacceptable from the welfare perspective’ [https://doi.org/10.2903/j.efsa.2025.9178, p. 34].	Did not agree

2. Animal-based and other measures

Animal-based and other measures that indicate loss of consciousness include all the following:

- absence of muscle tone;
- absence of corneal or palpebral reflex;

- c) absence of rhythmic breathing.

Unconsciousness should be reassessed until death is confirmed. In addition, cessation of bleeding after a continuous and rapid blood flow can be used as an indicator of death.

3. Recommendations

This method can be applied in all species covered by this chapter.

Bleeding should only be used as a last resort in animals that are not already unconscious or can be rendered unconscious prior to severance of the blood vessels.

7.6.15._10_UK	Category: addition. Proposed amended text (or precise suggested deletion) : Bleeding should only be used as a last resort in animals that are not already unconscious or can be rendered unconscious prior to severance of the blood vessels. <u>The killing of animals by bleeding without the use of pre-stunning is not considered a humane method of killing.</u> Rational: As highlighted within the text – this procedure is painful. Recommend pre-stunning. The suggested sentence established the context as to why this is recommended as a last resort. Supporting evidence: not applicable.	Did not agree
7.6.15._11_ ICFAW	Category: Deletion and addition. Proposed amended text: Bleeding should only be used ~~as a last resort~~ in animals that ~~are not already unconscious or can be~~ <u>are</u> rendered unconscious prior to severance of the blood vessels. <u>The knife should be sharp enough to kill the animal with a single cut.</u> Rationale: During the process of exsanguination or bleeding, the incision activates nociceptors present in the skin, muscle, and other tissues, causing pain. Also in cattle, the presence of vertebral arteries could keep the blood supply to the brain, even with severing of both carotid arteries. In the same way that pithing is not a standalone killing method, bleeding should likewise not be considered such a method. Guidance on the sharpness of the knife should be provided. Supporting evidence: Gregory, N.G. (2004). Physiology and Behaviour of Animal Suffering. https://doi.org/10.1002/9780470752494.ch3 Kumar, P., Abubakar, A. A., Imlan, J. C., Ahmed, M. A., Goh, Y. M., Kaka, U., ... & Sazili, A. Q. (2023). Importance of knife sharpness during slaughter: Shariah and kosher perspective and scientific validation. <i>Animals</i>, 13(11), 1751. https://www.mdpi.com/2076-2615/13/11/1751/pdf Mellor, D.J., et al. (2009). Affective states and the assessment of laboratory-induced animal welfare impacts. 445449_Mellor121.pdf National Animal Welfare Advisory Committee. (2025, March 31). Code of Welfare Evaluation Report: Sheep and Beef Cattle. https://www.mpi.govt.nz/dmsdocument/69039-Code-of-Welfare-Evaluation-Report-Sheep-and-Beef-Cattle. P. 49	Did not agree
7.6.15._12_	ES (Only Spanish versión)	Agreed

CHILE	Categoría: Editorial Texto modificado propuesto: El sangrado sólo deberá utilizarse como último recurso en animales que no estén ~~ya~~ inconscientes o que puedan ser dejados inconscientes antes de seccionar los vasos sanguíneos. Justificación: Mejor redacción	
7.6.15._13_ CANADA	Comment Category: change, deletion Proposed amended text: Bleeding should only be used as a last resort <u>for exceptional and constrained circumstances with no risk of zoonotic disease transmission</u> in animals that are not already unconscious or ~~cannot~~ be rendered unconscious prior to severance of the blood vessels. a) <u>Training is essential for ensuring effective killing with bleeding (e.g. anatomic landmarks, knife sharpening techniques).</u> b) <u>Bleeding should not be used when leakage of body fluids may present a biosecurity risk</u> c) <u>the interval between stunning and bleeding should be short enough to ensure that the animal will not recover consciousness before it dies;</u> d) <u>both carotid arteries or the blood vessels from which they arise should be severed (bleeding with a cut of the brachiocephalic trunk should be preferred in unconscious bovines.</u> e) <u>continuous and rapid blood flow should be assured after bleeding;</u> f) <u>death should be assured before carcass disposal;</u> g) <u>bleeding knives should be sharpened for each animal as necessary to fulfil recommendations d) and e).</u> Rationale: Canada suggests that the terminology of 'method of last resort' needs some qualification and thus have suggested exceptional and constrained circumstances, however for the use of bleeding we would also suggest that it only be used when there is no risk of zoonotic disease transmission. When bleeding is used for disease control purposes, we would be concerned about the release of large volumes of a biohazardous material and therefore should only occur when there is no zoonotic disease risk. Canada suggests additional recommendations based on adopted text in Chapter 7.5. which would also be relevant when using this method for disease control purposes.	Did not agree. Proposal already considered in this and other articles.
7.6.15._14_ AUSTRALIA	Category: Change Proposed amended text: Bleeding ~~should only be used as a last resort in animals that are not already unconscious or can be~~ <u>is not recommended except where animals are</u> rendered unconscious prior to severance of the blood vessels. <u>Bleeding should not be used as a primary kill method, or on an animal that has not been successfully rendered unconscious.</u> <u>Care must be taken to ensure that significant blood vessels in the neck or chest are cut cleanly and lead to rapid blood loss, as slow</u>	Did not agree

	<u>blood loss may lead to a slow loss of consciousness and prolonged suffering.</u> <u>For 'neck cuts', both the jugular veins and carotid arteries should be cut.</u> <u>For a 'thoracic stick', the vessels at the top of the heart should be severed.</u> <u>Bleeding should be avoided when leakage of body fluids may present a biosecurity risk.</u> Rationale: Bleeding a conscious animal would not be considered a method that prioritises animal welfare, and an alternative killing method used to render the animal unconscious before using bleeding as a secondary method. Scientific evidence shows that exsanguination causes significant pain to animals if they are conscious (Gibson et al, 2009a, 2009b; EFSA, 2004; Gregory et al 2006, 2008, 2009, 2020, Johnson et al 2015). Further guidance should also be provided on appropriate cutting techniques to ensure rapid bleeding and loss of consciousness. Supporting evidence, if relevant: Australian Veterinary Association (AVA) 2024. <i>Humane slaughter of animals</i>. Available at: https://www.ava.com.au/policy-advocacy/policies/euthanasia/humane-slaughter-of-animals. Food and Agriculture Organisation of the United Nations (FAO, 2001). Guidelines for humane handling, transport and slaughter of livestock: https://www.fao.org/3/x6909e/x6909e.pdf. Gibson T, Johnson C, Murrell J, Chambers J, Stafford J, Mellor D (2009a). Components of electroencephalographic responses to slaughter in halothane-anaesthetised calves: Effects of cutting neck tissues compared with major blood vessels. <i>New Zealand Veterinary Journal</i>. 57:2: p. 84-89. Gibson T, Johnson C, Murrell J, Hulls C, Mitchinson S, Stafford K, et al (2009b) Electroencephalographic responses of halothane-anaesthetised calves to slaughter by ventral-neck incision without prior stunning. <i>New Zealand Veterinary Journal</i>. (57:2): p. 77-83. Gregory N, Fielding H, von Wenzlawowicz M, von Holleben K (2020). Time to collapse following slaughter without stunning in cattle. <i>Meat Sci</i>. 85(1): p. 66-69 Gregory N, Shaw F, Whitford J, Patterson-Kane J (2006). Prevalence of ballooning of the severed carotid arteries at slaughter in cattle, calves and sheep. <i>Meat Sci</i>. 74(4): p. 655-657 Gregory N, von Wenzlawowicz M, Alam R, Anil H, Yeşildere T, Silva-Fletcher A (2008). False aneurysms in carotid arteries of cattle and water buffalo during shechita and halal slaughter. <i>Meat Science</i>. 79(2): p. 285-288 Gregory N, von Wenzlawowicz M, von Holleben K (2009). Blood in the respiratory tract during slaughter with and without stunning in cattle. <i>Meat Science</i>. 82(1): p. 13-16. AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition	

	Gregory NG, Schuster P, Mirabito L, Kolesar R, McManus T. Arrested blood flow during false aneurysm formation in the carotid arteries of cattle slaughtered with and without stunning. Meat Sci. 2012;90(2):368–372. doi:10.1016/j.meatsci.2011.07.024 AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/	
7.6.15._15_AU	Category of comments: Deletion and addition Proposed amended text: Bleeding 3. Recommendations Bleeding should ~~only be used as a last resort~~ not ordinarily be used in animals that are ~~not already unconscious; or can be rendered unconscious prior to severance of the blood vessels.~~ Rationale: The recommendation has been simplified for clarity.	Did not agree already covered

4. Species-specific recommendations

None identified

7.6.15._16_ CANADA	Category: addition Proposed amended text ~~None identified~~ <u>Bovines are at risk of prolonged bleed out times and regaining consciousness as the bilateral vertebral arteries are not cut during a neck cut. The vertebral arteries will continue to provide blood to the brain. Furthermore, any occlusion of the cut major arteries will slow exsanguination. Therefore, bleeding with a cut of the brachiocephalic trunk should be preferred in unconscious bovines.</u> Rationale: Chapter 7.5. provides species specific recommendations which would also be applicable to killing for disease control purposes. Canada suggests additional recommendations based on adopted text in Chapter 7.5. which would also be relevant when using this method for disease control purposes.	Did not agree
7.6.15._17_ AUSTRALIA	Category: Addition Proposed amended text: <u>Cattle may require a thoracic stick following a neck cut, as they may not effectively exsanguinate following only a neck cut (AVMA 2024, AUSVETPLAN 2015).</u> <u>Pigs require a thoracic stick, severing the common brachiocephalic trunk, with a relatively long sticking wound recommended to maximise welfare.</u> ~~None identified~~ Rationale: Changes to provide additional technical guidance for cattle and pigs.	Did not agree

	We recommend further guidance is included in addition to the amendments already suggested (e.g. on appropriate techniques for cutting for other species). Supporting evidence, if relevant AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/ AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition Anil MH, Whittington PE, McKinsty JL. The effect of the sticking method on the welfare of slaughter pigs. Meat Sci. 2000 Jul;55(3):315-9. doi: 10.1016/s0309-1740(99)00159-x. PMID: 22061289. EFSA Panel on Animal Health and Welfare (AHAW), 2013. Scientific Opinion on monitoring procedures at slaughterhouses for pigs. <i>EFSA Journal</i>, 11(12), p.3523. EFSA Panel on Animal Health and Welfare (AHAW), Nielsen, S.S., Alvarez, J., Bicoût, D.J., Calistri, P., Depner, K., Drewe, J.A., Garin-Bastuji, B., Gonzales Rojas, J.L., Gortázar Schmidt, C. and Michel, V., 2020. Welfare of pigs at slaughter. <i>Efsa Journal</i>, 18(6), p.e06148. Gregory NG, von Wenzlawowicz M, Alam RM, Anil HM, Yeşildere T, Silva-Fletcher A. False aneurysms in carotid arteries of cattle and water buffalo during shechita and halal slaughter. Meat Sci. 2 Gregory NG, Schuster P, Mirabito L, Kolesar R, McManus T. Arrested blood flow during false aneurysm formation in the carotid arteries of cattle slaughtered with and without stunning. Meat Sci. 2012;90(2):368–372. doi:10.1016/j.meatsci.2011.07.024	

Article 7.6.16.

Lethal injection

Lethal injection is a procedure that involves injecting one or more drugs into an animal to cause death.

7.6.16._1_UK	Category: addition. Proposed amended text (or precise suggested deletion) : Lethal injection is a procedure that involves a vet or trained personnel under the direct supervision of a vet injecting one or more drugs into an animal to cause rapid death. Rational: Lethal injection administers controlled drugs that can be fatal to humans and a source of addiction. It is important to recognise this and emphasize the importance of veterinarians to ensure traceability and control of these drugs. Supporting evidence: not applicable.	Did not agree
7.6.16._2_AUSTRALIA	Category: Addition Proposed amended text: This method is suitable for all animals covered by this chapter. Lethal injection is a procedure that involves injecting one or more drugs into an animal to cause rapid death. When performed	Agreed, but with a different wording and specifying also the main species

	correctly this method causes rapid loss of consciousness and death. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article	where the method is suitable to be used

The animal is injected intravenously with a lethal dose of anaesthetic drugs and may also receive an initial injection of a sedative. In practice, barbiturates in combination with other drugs are commonly used. They induce a smooth transition from consciousness to unconsciousness and death by causing depression of the central nervous system and respiratory centres in the brain leading to cardiac arrest (Shearer, 2018).

The preferred route of administration is intravenous (HSA 18; AVMA, 2020), but in some cases it may be given via other routes according to the manufacturers' instructions (e.g. intramuscularly, intracardially, intraperitoneally).

7.6.16._3_ USA	Proposed amended text: The preferred route of administration is intravenous (HSA 18; AVMA, 2020), but in some cases it may be given via other routes (e.g. intramuscularly, intracardially, or intraperitoneally). Rationale: Edited for clarity	Agreed
7.6.16._4_ ICFAW	Category: Addition Proposed amended text: The preferred route of administration is intravenous (HSA 18; AVMA, 2020), but in some cases it may be given intramuscularly, intracardially or intraperitoneally. Drugs that cause tissue damage or necrosis with extravasation or subcutaneous administration must not be administered by intramuscular route and should only be administered by intraperitoneal or intraorgan routes in unconscious animals. Due to the potential for pain, use of intracardiac or other intraorgan routes must only be used in unconscious animals. Rationale: The current wording of this section must be revised for clarity, as it could currently be interpreted as suggesting that drugs like pentobarbital can be administered intramuscularly or intraorgan in conscious animals. Veterinary drug references note that common injectable euthanasia agents, such as pentobarbital-containing agents, cause tissue damage when not administered intravenously (Plumb 2022). Injections into the heart, liver, kidney or other organs must be performed only in unconscious animals (Plumb 2020). While the intraperitoneal route for pentobarbital has historically been used in some small rodents, there is increasing concern about the pain caused by the alkaline pH of this drug when administered by this route. (Plumb 2022; Plumb 2020; Laferriere & Pang 2020). Supporting evidence: Pang, D., & Laferriere, C. (2020). Review of Intraperitoneal Injection of Sodium Pentobarbital as a Method of Euthanasia in Laboratory Rodents. Journal of the American Association for Laboratory Animal Science: JAALAS, 59(3), 346. https://pubmed.ncbi.nlm.nih.gov/32156325	Did not agree

	Plumb, D.C. (2022). Drug Monograph: Pentobarbital. https://app.plumbs.com/drug/nJNTzjiRpiPROD?source=search&searchQuery=pentobar Link Plumb, D.C. (2020). Drug Monograph: Euthanasia Agents with Pentobarbital. http://app.plumbs.com/drug/cpicfuyBjoPROD?source=search&searchQuery=Euthanasia+Agent Link	

1. Animal welfare concerns

If routes of administration are inappropriate, consciousness may not be lost rapidly before death, causing pain, fear and distress.

If doses of administration are inadequate (sub-lethal), consciousness may not be lost rapidly and the animal may not die causing pain, fear and distress.

7.6.16._5_AU	Category of comments: Deletion and addition Proposed amended text: Lethal injection 1. Animal welfare concerns African Union suggests to replace 'not correct' by 'inadequate' If doses of administration are ~~not correct~~ inadequate (sub-lethal), consciousness may not be lost rapidly ~~and the animal may not die before death,~~ causing fear.	Agreed

Some combinations of drug type and route of administration may be painful and should only be used in unconscious animals.

During rapid injection, some drugs may cause pain, irritation and paralysis, which can cause the suppression of respiration while the animal is still conscious [EFSA, 2004].

7.6.16._6_AUSTRALIA	Category: Addition Proposed amended text: During rapid injection, some drugs may cause pain, irritation and paralysis, which can cause the suppression of respiration while the animal is still conscious [(EFSA, 2004)]. <u>Some drugs may cause a period of excitation before suppression of activity occurs (AVMA 2013). During this period of excitation animals may move or kick unexpectedly, and so with larger animals, care should be taken for both the safety of the animal and of other animals or people nearby.</u> <u>In the case of Ineffective killing, the method should be repeated, or animals should be killed using a secondary killing method such as (specify backup method).</u> Rationale: Animals undergoing a period of excitement may kick out, posing a risk to others (people and animals). As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method Supporting evidence, if relevant	Did not agree

	Underwood, W. and Anthony, R., 2020. AVMA guidelines for the euthanasia of animals: 2020 edition. <i>Retrieved on March, 2013</i> (30), pp.2020-1	

Intracardiac administration can be extremely painful if penetration of the heart is not successful on the first attempt (EFSA, 2004).

Lethal injection requires restraint, which can cause distress.

7.6.16._7_UK	Category: change. Proposed amended text (or precise suggested deletion) : <u>Non-intravenous (e.g. intracardiac) administration can be extremely painful if penetration of the heart is not successful on the first attempt (EFSA, 2004). Lethal injection requires restraint, which can cause distress.</u> Rational: Extreme pain can also be caused before dead is reached even when the heart is penetrated. Additionally, there are other non-intravenous routes such as intra-peritoneal and intra-renal which also cause pain. Supporting evidence: not applicable.	Agreed

Personnel lacking appropriate training and skills, or personnel suffering fatigue, or fractious animals unable to be properly restrained, may cause ineffective administration and be detrimental to animal welfare (Søren et al., 2020).

7.6.16._8_EU	The EU suggests adding 'distress' after 'fear' in the first sentence: 'If routes of administration are inappropriate, consciousness may not be lost rapidly before death, causing pain, <u>and fear and distress.</u>' <u>Justification:</u> Pain and fear will lead to distress.	Did not agree

2. Animal-based and other measures

Each animal should be examined carefully to confirm loss of consciousness and death:

- a) Loss of posture
- b) absence of rhythmic breathing
- c) absence of heart beat
- d) absence of corneal or palpebral reflex
- e) fixed and dilated pupils

7.6.16._9_ICFAW	Category: Addition Proposed amended text: Absence of brain stem reflexes <u>and dilated pupils.</u> Rationale: Pupil sizes is one of the indicators of state of death Supporting evidence: EFSA, 2024. Welfare of sheep and goats during killing for purposes other than slaughter. https://doi.org/10.2903/j.efsa.2024.8835	Agreed

3. Recommendations

This method can be applied in all species covered by this chapter.

The animal may be sedated before the lethal injection to minimise stress, if required.

7.6.16._10_ USA	Proposed amended text: ~~The animal should be sedated before the lethal injection to minimize stress, if required.~~ <u>A smooth transition to unconsciousness should be provided for the animal to minimize stress, if necessary via provision of a sedative, anxiolytic, or anesthetic prior to administration of the lethal injection.</u> Rationale: RATIONALE: Recommend revised language to clarify why and when a sedative should be used during lethal injection killing. Supporting reference: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	Did not agree
7.6.16._11_ ICFAW	Category: Change Proposed amended text: ~~The animal should be sedated before the lethal injection to minimize stress, if required.~~ <u>A calm injection process and smooth transition to unconsciousness should be provided for the animal, if necessary via provision of a sedative, anxiolytic, or anaesthetic prior to administration of the lethal injection.</u> Rationale: As originally written, this sentence is ambiguous, as it is not clear when a sedative would be "required." The purpose of administering a sedative prior to lethal injection is to ensure that neither administration of the lethal injection nor the animal's experience of loss of consciousness cause fear, pain, or other forms of distress (AVMA 2020). Supporting Evidence: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	Did not agree

Personnel performing this method should be trained and knowledgeable in anaesthetic techniques.

7.6.16._12_ AUSTRALIA	Category: Addition Proposed amended text: Personnel performing this method should be trained and knowledgeable in anaesthetic techniques <u>Heightened awareness for personnel safety is imperative when using injectable euthanasia agents because needle-stick injuries involving these drugs have been shown to result in adverse effects.</u> <u>Ensure sufficient quantities of the drug, including extra above the estimated requirement, are available before commencing the process.</u>	Did not agree. Unnecessary details

	<u>An additional killing method may be required if the volume administered is inadequate to induce death and additional supplies of the drug are not immediately available.</u> Rationale: Consideration to personal safety should be clearer. The required doses of barbiturates (or other drugs) to induce death may vary significantly from animal to animal. It is important to ensure adequate supplies beforehand, particularly for large animals which may require very large volumes. Supporting evidence, if relevant AVMA Guidelines on Euthanasia 2020	

Personnel should be trained to use appropriate handling and restraining techniques.

7.6.16._13_ USA	Proposed amended text: Personnel should be trained to use appropriate <u>presentation handling</u> of the animal and skilled intravenous administration to avoid extravasation of the drug and to use the correct dose according to the species and the animal live weight. Rationale: Edited for clarity.	Agreed. Text already modified
7.6.16._14_ COLOMBIA	ES (To check Spanish version) Categoría: Adición / cambio Texto modificado propuesto: En Artículo 7.6.16 – ítem 3: Recomendaciones El personal deberá estar formado para <u>garantizar la utilización adecuada del fármaco, es decir, elegir correctamente la utilizar una presentación y dosis pertinente adecuada según la especie y peso del animal y aplicar realizar una administración intravenosa correcta de manera que se evite una extravasación del fármaco y se utilice la dosis correcta según la especie y el peso vivo del animal.</u> El personal deberá estar formado para utilizar <u>las técnicas de sujeción</u>, contención <u>o inmovilización</u> adecuada en caso de que sea necesario. Justificación: Mejorar redacción para dar mayor claridad al texto. EN Proposed amended text: Personnel should be trained to <u>ensure the proper use of the drug, that is, choose the right one-use appropriate presentation and relevant dose for the specie and weight</u> of the animal and <u>perform a correct skilled</u> intravenous administration to avoid extravasation of the drug <u>and to use the correct dose according to the species and the animal live weight.</u> Personnel should be trained to use appropriate restraint <u>or immobilisation techniques</u> in case it is necessary. Rationale:	Agreed. Text already modified

	Improve the wording to make the text clearer. Evidencia documentada, si corresponde: N/A	
7.6.16._15_ USA	Proposed amended text: The intracardiac route may be used in previously anesthetized ~~or very~~ small animals only. Rationale: Because of the pain caused by an intracardiac injection, animals must be rendered unconscious prior to this method being used (AVMA 2020). The size of an animal does not have a direct bearing on their ability to feel pain, thus exempting “very small” animals would be inappropriate Supporting reference: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	Sentence deleted
7.6.16._16_ ICFAW	Category: Change Proposed amended text: The intracardiac route ~~may~~ <u>must only</u> be used in previously anesthetized ~~or very~~ small animals only. Rationale: Because of the pain caused by an intracardiac injection, animals must be rendered unconscious prior to this method being used (AVMA 2020). Because the size of an animal does not have a direct bearing on their ability to feel pain, exempting “very small” animals is inappropriate. Supporting Evidence: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	Sentence deleted
7.6.16._17_ CANADA	Comment Category: deletion Proposed amended text: The intracardiac route may be used in previously anesthetized ~~or very~~ <u>small</u> animals only. Rationale: Canada suggests that as written, a reader might think that an intracardiac injection is acceptable in an unanesthetized animal because the animal is “small”. This interpretation would be incorrect and further it is open to subjective interpretation of the meaning of “small”.	Sentence deleted
7.6.16._18_ AUSTRALIA	Category: Deletion Proposed amended text: The intracardiac route may be used in previously anesthetized ~~or very~~ <u>small</u> animals only. Rationale:	Sentence deleted

	Intracardiac administration has a high risk of pain and distress if the injection is misplaced Supporting evidence, if relevant: American Veterinary Medical Association (AVMA), 2020. <i>AVMA Guidelines for the Euthanasia of Animals: 2020 Edition</i>. [pdf] Schaumburg, IL: AVMA. Available at: https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf [Accessed 20 May 2025]. Close, B., Banister, K., Baumans, V., Bernoth, E.M., Bromage, N., Bunyan, J., Erhardt, W., Flecknell, P., Gregory, N., Hackbarth, H. and Morton, D., 1996. <i>Recommendations for euthanasia of experimental animals: Part 1</i>. <i>Laboratory Animals</i>, 30(4), pp.293–316.	

Animals should be examined for signs of consciousness or life and a backup killing method applied as a corrective measure [AVMA, 2020].

7.6.16._19_ USA	Proposed amended text: Examine individual animals for signs of consciousness or life and apply a secondary killing method as a corrective measure, by <u>ensuring the route of administration is correct and then giving an additional lethal injection; if the animal is conscious, a sedative or anesthetic can be administered, if necessary, prior to the lethal injection</u> of an anaesthetic drug if they are conscious or a lethal substance to kill them in case they are still alive but unconscious [AVMA, 2020]. Rationale: Edited for clarity.	Did not agree. However, the paragraph was modified to improve readability.
7.6.16._20_ ICFAW	Category: Change Proposed amended text: Examine individual animals for signs of consciousness or life and apply a secondary killing method as a corrective measure, <u>by ensuring the lethal injection has been given by the correct route and then giving an additional lethal injection. If the animal is still conscious, a sedative or anesthetic may be provided if necessary prior to the lethal injection</u> by giving a lethal injection of an anaesthetic drug if they are conscious or a lethal substance to kill them in case they are still alive but unconscious [AVMA, 2020]. Rationale: The original sentence did not make sense. If an animal is still conscious after receiving a lethal injection, it is a sign that either the drug dose was incorrect or the medication was not administered as intended, for example, due to a problem with the intravenous catheter that is causing the drug to go perivascularly.	Did not agree. However, the paragraph was modified to improve readability.
7.6.16._21_ CANADA	Comment Category: addition and deletion Proposed amended text: Examine individual animals <u>that have been injected</u> for signs of consciousness or life <u>and if either are detected</u>, apply a secondary killing method as a corrective measure, by giving a <u>second</u> lethal injection <u>of an anaesthetic drug if they are conscious or a lethal substance to kill them in case they are still alive but unconscious</u> [AVMA, 2020]. Rationale:	Did not agree. However, the paragraph was modified to improve readability.

	Canada suggests that the section as written is wordy and confusing. Text correction is suggested for succinctness and clarity.	

The carcass of an animal that has been killed by lethal injection has to be disposed of properly and cannot be used for or where there may be a risk of human or animal consumption because of harmfulness of the used drugs.

7.6.16._22_ USA	Proposed amended text: The carcass of an animal that has been killed by lethal injection has to be disposed of properly and cannot be used for or where there may be a risk of human or animal consumption <u>and environmental contamination</u> because of harmfulness <u>and lack of degradation</u> of the used drugs. Rationale: Edited for clarity.	Did not agree. However, the paragraph was modified to improve readability.

This method is suitable for killing small numbers of dogs, cats, cattle, sheep, goats, pigs, equids, poultry, captive wildlife, but it can be used in all species.

4. Species-specific recommendations

None

7.6.16._23_ USA	Proposed amended text: ~~In some species like cattle, r~~Restraint may be necessary prior to injection, ~~if possible,~~ to allow effective administration. Rationale: Recommend deletions, as restraint is usually necessary for injection. Supporting reference: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	Text already deleted
7.6.16._24_ CANADA	Comment Category: change Proposed amended text: ~~In some species like cattle, restraint may be necessary prior to injection, if possible, to allow effective administration. Restraint is needed in all cases for intravenous administration unless the animal is severely debilitated~~ Rationale: Canada suggests that the phrase as was proposed is incorrect and requires correction.	Text already deleted
7.6.16._25_ AUSTRALIA	Category: Change Proposed amended text: The method is suitable for killing individual or small numbers of dogs, cats, cattle, sheep, goats, pigs, equids and poultry, but it can be used in all species.	Text already deleted and moved to the first part of the article

	In ~~some most~~ species ~~like cattle~~, restraint ~~may will~~ be necessary prior to injection, if possible, to allow effective administration. Rationale: It is unlikely that lethal injection (particularly intravenous and intracardiac, but also intraperitoneal and intramuscular) would be feasible without some degree of physical or chemical restraint being applied beforehand	

Article 7.6.17.

Cervical dislocation

Manual or mechanical cervical dislocation comprises stretching and dislocating the neck, resulting in trauma to the spinal cord and *death* from cerebral anoxia due to cessation of breathing or blood supply to the brain [AVMA, 2020].

7.6.17._1_ CHILE	ES (To check Spanish version) Texto modificado propuesto (o supresión sugerida): La dislocación cervical manual o ~~mecánica~~ consiste en estirar y torcer el cuello, lo que provoca la separación de la médula espinal del cerebro y la muerte por anoxia cerebral debido al cese de la respiración o del suministro de sangre al cerebro [AVMA, 2020]. ~~La dislocación cervical mecánica es preferible a la manual por ser más fiable y menos propensa a fallos.~~ Justificación: Esta frase es inconsistente con la evidencia científica. EN Manual ~~or mechanical~~ cervical dislocation comprises stretching and twisting the neck, resulting in the separation of spinal cord from the brain and <i>death</i> from cerebral anoxia due to cessation of breathing or blood supply to the brain [AVMA, 2020]. [...] ~~Mechanical cervical dislocation is preferred to manual as is more reliable and less prone to failure.~~ Rationale: This sentence is inconsistent with scientific evidence Evidencia documentada/Supporting reference:: (por ejemplo, referencias científicas, informes nacionales o internacionales, experiencias referidas al tema). Bandara, Rathnayaka M.A.S., Stephanie Torrey, Patricia V. Turner, Alex zur Linden, Anna Bolinder, Karen Schwean-Lardner & Tina M. Widowski. (2019) Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. <i>Animals</i> 9, 407. www.sciencedirect.com/science/article/pii/S0032579124000282 Baker-Cook B, Torrey S, Widowski TM, Turner PV, Knezacek T, Nicholds J, & Schwean-Lardner S. (2021) The efficacy of three on-farm euthanasia methods for broiler chickens throughout the production cycle. <i>British Poultry Science</i> 62:5, 638-649. www.sciencedirect.com/science/article/pii/S0032579123000627	Did not agree

	Hernandez E, James F, Torrey S, Widowski T, Schwean-Lardner K, Monteith G and Turner PV. (2019) Evaluation of brain death in laying hens during on-farm killing by cervical dislocation methods or pentobarbital sodium injection. <i>Frontiers in Veterinary Science</i> 6:297. Frontiers Evaluation of Brain Death in Laying Hens During On-Farm Killing by Cervical Dislocation Methods or Pentobarbital Sodium Injection Jacobs L., Bourassa DV, Harris CE, Buhr JR. (2019) Euthanasia: Manual versus mechanical cervical dislocation for broilers, <i>Animals</i>, 9, 47. Euthanasia: Manual versus Mechanical Cervical Dislocation for Broilers Jacobs L., Bourassa DV, Boyal RS, Harris CE, Bartenfeld Josselson LN, Campbell A, Anderson G, Buhr RJ. (2021) Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys. <i>Poultry Science</i> 100:100812. Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys - ScienceDirect Rathnayaka M.A.S. Bandara, Stephanie Torrey, Patricia V. Turner, Alex zur Linden, Anna Bolinder, Karen Schwean-Lardner and Tina M. Widowski. (2019). Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. <i>Animals</i> 9, 407. Efficacy of a Novel Mechanical Cervical Dislocation Device in Comparison to Manual Cervical Dislocation in Layer Chickens – PubMed Woolcott CR, Torrey S, Turner PV, Chalmers H, Levison LJ, Schwean-Lardner K and Widowski TM. (2018) Assessing a method of mechanical cervical dislocation as a humane option for on-farm killing using anesthetized poults and young turkeys. <i>Frontiers in Veterinary Science</i>, 5 doi.org/10.3389/fvets.2018.00275. https://pubmed.ncbi.nlm.nih.gov/30464939/ Martin, J. E., McKeegan, D. E. F., Sparrey, J, Sandilands, V. (2017). Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers. <i>British Poultry Science</i>, 58(3), 216–223. Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers: British Poultry Science: Vol 58 , No 3 - Get Access	
7.6.17._2_ CANADA	Comment category: Addition Proposal/Comment: Manual or mechanical cervical dislocation comprises stretching and twisting dislocating the neck, resulting in the separation of spinal cord from the brain and <i>death</i> from cerebral anoxia due to cessation of breathing or blood supply to the brain [AVMA, 2020]. Rationale: Canada suggests that “twisting” be removed in describing dislocation, potentially “manipulating” or “dislocation” is a better term especially in standards that would lead to inappropriate euthanasia and animal welfare concerns. Stretching the cervical neck may not result in the severance and percussive effect of the spinal cord on the cerebellum resulting in immediate unconsciousness.	Agreed
7.6.17._3_ AUSTRALIA	Category: Addition Proposed amended text: This method is suitable for small birds, poultry, mice, rats, and rabbits as a secondary killing method and subject to the limitations outlined in the species specific recommendations. Manual or	Agree only the first part

	mechanical cervical dislocation comprises stretching and twisting the neck, resulting in the separation of spinal cord from the brain and death from cerebral anoxia due to cessation of breathing or blood supply to the brain [AVMA, 2020]. <u>This method is only recommended for killing following stunning because animals may not immediately lose consciousness and therefore may experience considerable distress and pain.</u> Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Guidance on use of this method made in view of its limitations.	

1. Animal welfare concerns

Cervical dislocation even with separation of the spinal cord may fail to produce immediate loss of consciousness and in this case animals may die due to asphyxiation [Gregory and Wotton, 1990; Martin et al 2020].

7.6.17._4_ USA	Proposed amended text: <u>When improperly performed, C</u>cervical dislocation even with separation of the spinal cord fails to produce immediate loss of consciousness and in this case animals may die due to asphyxiation [~~Gregory and Wotton, 1990~~ <u>Martin et al 2020</u>]. Rationale: Edited to reflect updated findings that, when properly performed, manual cervical dislocation was found to result in immediate loss of consciousness in chickens and turkeys and was superior to mechanical cervical dislocation in terms of resulting in dislocation at C0-C1 (Martin 2020). Supporting reference: Martin, J.E., Sandilands, V., Brocklehurst, S., Sparrey, J., Baker, L., Sandercock, D.A., & McKeegan, D.E.F. (2020) 2020 Manual cervical dislocation in poultry: is it a welfare concern?British Poultry Abstracts, 16:1, 1-34, DOI:10.1080/17466202.2020.1917210	Did not agree
7.6.17._5_ ICFAW	Category: Change Proposed amended text: Cervical dislocation even with separation of the spinal cord <u>may</u> fails to produce immediate loss of consciousness, <u>especially if improperly performed. Mechanical cervical dislocation is less effective than well performed manual cervical dislocation and in this case animals may die due to cause death by</u> asphyxiation [Gregory and Wotton, 1990; <u>Martin et al, 2018; Martin et al, 2020</u>]. Rationale: The reference cited in the original sentence (Gregory & Wotton 1990) is quite dated. The study has been criticized by researchers who noted that this study “did not correctly reflect the performance and efficacy of well-performed manual cervical dislocation” (Martin et al 2018). When properly performed, manual cervical dislocation was found to result in immediate loss of consciousness in chickens and turkeys and was superior to mechanical cervical dislocation in terms of resulting in dislocation at C0-C1 (Martin 2020).	Agree in part

	The cited source finds that the birds die due asphyxiation only when the neck is crushed by mechanical cervical dislocation (not manual). Supporting Evidence: Martin, J. E., Sandilands, V., Sparrey, J., Baker, L., & McKeegan, D. E. F. (2018). On farm evaluation of a novel mechanical cervical dislocation device for poultry. <i>Animals : an open access journal from MDPI</i>, 8(1), 10. https://doi.org/10.3390/ani8010010 Martin, J.E., Sandilands, V., Brocklehurst, S., Sparrey, J., Baker, L., Sandercock, D.A., & McKeegan, D.E.F. (2020) 2020 Manual cervical dislocation in poultry: is it a welfare concern? <i>British Poultry Abstracts</i>, 16:1, 1-34, DOI: 10.1080/17466202.2020.1917210 https://www.tandfonline.com/doi/epdf/10.1080/17466202.2020.1917210?needAccess=true Hernandez E, James F, Torrey S, Widowski T, Schwean-Lardner K, Monteith G & Turner PV (2019) Evaluation of brain death in laying hens during on-farm killing by cervical dislocation methods or pentobarbital sodium injection. <i>Frontiers in Veterinary Science</i> 6:297. doi: 10.3389/fvets.2019.00297 https://pmc.ncbi.nlm.nih.gov/articles/PMC31552284/	
7.6.17._6_ CANADA	Comment Category: change Proposed amended text: <u>There is high level of variability in the application of cervical dislocation. If improperly applied, cervical</u> dislocation even with separation of the spinal cord <u>can</u> fail to produce immediate loss of consciousness and in this case animals may die due to asphyxiation [Gregory and Wotton, 1990 Martin et al, 2018]. Rationale: Canada suggests that the conclusion by Gregory and Wotton was challenged in Martin et al, 2018 (https://mdpi-res.com/animals/animals-08-00010/article_deploy/animals-08-00010.pdf?version=1515568294) and an update to other reference which suggests that “the results of earlier studies did not correctly reflect the performance and efficacy of well-performed manual cervical dislocation”	Did not agree
7.6.17._7_ USA	Proposed amended text: For heavy rats, ~~and~~ rabbits, <u>and large poultry</u>, the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult Rationale: Edited for clarity	Already considered
7.6.17._8_ AUSTRALIA	Category: Addition Proposed amended text: For heavy rats and rabbits, the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult. <u>Manual restraint and inversion is often required, which may cause stress in conscious animals.</u> <u>In the case of ineffective killing, animals should be killed using a backup system such as (insert backup method).</u>	Did not agree

	Rationale: The manual handling required for this method may cause stress, which supports that animals should be unconscious prior to this method being used. As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method.	

2. Animal-based and other measures

Animal-based measures of an effective application of cervical dislocation are signs of death.

- a) absence of breathing
- b) absence of corneal and palpebral reflex
- c) fixed and dilated pupils
- d) absence of heart beat
- e) loss of muscle tone

7.6.17._9_ USA	Proposed amended text: Animal-based measures of an effective application of cervical dislocation are cessation of respiration, loss of corneal reflex, and signs of death. Rationale: Edited for consistency throughout the chapter.	Did not agree
7.6.17._10_ UK	Category: change. Proposed amended text (or precise suggested deletion) : Animal-based measures of an effective application of cervical dislocation <u>and palpation of the gap between vertebrae</u> are signs of death. Rational: In addition to other common signs of death, such as absence of breathing, blink reflex, for cervical dislocation palpation of the gap between vertebrae is an additional animal based measure. Supporting evidence: not applicable.	Did not agree
7.6.17._11_ NORWAY	Category: Change and Addition Proposed amended text: Animal-based measures of an effective application of cervical dislocation are signs of death, <u>cf. this chapter's article 7.6.8. number 3.</u> Rationale: To ease use of the chapter.	Did not agree
7.6.17._12_ AUSTRALIA	Category: Addition Proposed amended text: Animal-based measures of an effective application of cervical dislocation are signs of death, <u>including immediate collapse and loss of muscle tone, apnoea, absence of eye movement, absence of corneal reflex, absence of palpebral reflex, lack of heartbeat and breathing.</u> Rationale:	Already considered

	Suggest additional information is provided about relevant signs of deaths	

3. Recommendations

The method is suitable for small birds, poultry, mice, rats and rabbits [Walsh, 2017].

Preferably used in unconscious animals.

7.6.17._13_ USA	Proposed amended text: <u>Individuals who perform this method should be appropriately trained and proficient in the species to be utilized in.</u> Rationale: Recommend added language to emphasize the importance of training using this killing technique.	Already considered previously, on the responsibilities, training and competencies article
7.6.17._14_ JAPAN	Category: Deletion Proposed amended text: ~~Only to be used in unconscious animals.~~ Rationale: Cervical dislocation is commonly used for small birds and mice that are not unconscious, and may have to be used in emergency situations such as disasters.	Agreed
7.6.17._15_ ICFAW	Category: Addition Proposed amended text: <u>If this method is performed in larger-bodied species or by someone who has not demonstrated technical competency, it should only to be used in unconscious animals.</u> Rationale: When performed correctly on an appropriately sized animal by a competent operator, this method does not necessarily require that the animal be unconscious (AVMA 2020; Martin et al 2020). Keeping the current language might discourage use of this method in favor of other methods that are more harmful to animal welfare. Supporting Evidence: American Veterinary Medical Association. (2020). AVMA Guidelines for the Euthanasia of Animals: 2020 Edition. https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf Martin, J.E., Sandilands, V., Brocklehurst, S., Sparrey, J., Baker, L., Sandercock, D.A., & McKeegan, D.E.F. (2020) 2020 Manual cervical dislocation in poultry: is it a welfare concern? <i>British Poultry Abstracts</i> , 16:1, 1-34, DOI: 10.1080/17466202.2020.191721 https://www.tandfonline.com/doi/epdf/10.1080/17466202.2020.1917210?needAccess=true	Already considered
7.6.17._16_ BRAZIL	Category: change Proposed amended text: 3. <u>Recommendations</u> ~~Only~~ <u>Preferably</u> to be used in unconscious animals.	Text already deleted

	Rationale: As it is a recommendation, the term 'Only' should not be used, because it is restrictive and implies an absolute prohibition, which could not be possible depending on practical conditions. Supporting evidence: N/A	

Consistent results when performing manual cervical dislocation requires strength and skill so team members should be rested regularly to avoid fatigue and ensure consistently reliable results.

7.6.17._17_ USA	Proposed amended text: ~~Mechanical cervical dislocation is preferred to manual as is more reliable and less prone to failure.~~ Rationale: Recommend deletion, as mechanical devices require specific training and maintenance to operate correctly. When not properly maintained or used with poor training there will be failures. Furthermore, when proficient operators perform manual cervical dislocation, they typically achieve results closer to the "gold standard" (separating skull from vertebral column at C0-C1 with severance of both carotid arteries) compared with use of mechanical cervical dislocation. Supporting references : Baker-Cook B, Torrey S, Widowski TM, Turner PV, Knezacek T, Nicholds J, & Schwean-Lardner S. The efficacy of three on-farm euthanasia methods for broiler chickens throughout the production cycle. British Poultry Science 2021; 62:5, 638-649. www.sciencedirect.com/science/article/pii/S0032579123000627 Bandara, Rathnayaka M.A.S. ; Stephanie Torrey; Patricia V. Turner; Alex zur Linden; Anna Bolinder; Karen Schwean-Lardner and Tina M. Widowski. Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. Animals 2019; 9, 407. www.sciencedirect.com/science/article/pii/S0032579124000282 Erasmus MA, Lawlis P, Duncan IJH and Widowski TM. 2010. Using time insensibility and estimated time of death to evaluate a nonpenetrating captive bolt, cervical dislocation, and blunt trauma for on-farm killing of turkeys. Poultry Science 89: 1345-1354. www.sciencedirect.com/science/article/pii/S0032579119362728 Hernandez E, James F, Torrey S, Widowski T, Schwean-Lardner K, Monteith G and Turner PV. Evaluation of brain death in laying hens during on-farm killing by cervical dislocation methods or pentobarbital sodium injection. Front. Vet. Sci. 2019; 6:297. Frontiers Evaluation of Brain Death in Laying Hens During On-Farm Killing by Cervical Dislocation Methods or Pentobarbital Sodium Injection Jacobs L., Bourassa DV, Harris CE, Buhr JR. (2019) Euthanasia: Manual versus mechanical cervical dislocation for broilers, Animals, 9, 47. Euthanasia: Manual versus Mechanical Cervical Dislocation for Broilers Jacobs L., Bourassa DV, Boyal RS, Harris CE, Bartenfeld Josselson LN, Campbell A, Anderson G, Buhr RJ. (2021) Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys. Poultry Science 100:100812. Animal welfare assessment of	Agreed

	on-farm euthanasia methods for individual, heavy turkeys - ScienceDirect Martin, J. E., McKeegan, D. E. F., Sparrey, J, Sandilands, V. (2017). Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers. British Poultry Science, 58(3), 216–223. Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers: British Poultry Science: Vol 58 , No 3 - Get Access Mason, C., Spence, J., Bilbe, L., Hughes, T., & Kirkwood, J. (2009). Methods for dispatching backyard poultry. Veterinary Record, 164(7), 220–220. Rathnayaka M.A.S. Bandara, Stephanie Torrey, Patricia V. Turner, Alex zur Linden, Anna Bolinder, Karen Schwean-Lardner and Tina M. Widowski. 2019. Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. Animals 9, 407. Efficacy of a Novel Mechanical Cervical Dislocation Device in Comparison to Manual Cervical Dislocation in Layer Chickens - PubMed Sparrey, J., Sandercock, D. A., Sparks, N. H. C., & Sandilands, V. (2014). Current and novel methods for killing poultry individually on-farm. World's Poultry Science Journal, 70(04), 737–758. www.tandfonline.com/doi/abs/10.1017/S0043933914000816 Woolcott CR, Torrey S, Turner PV, Chalmers H, Levison LJ, Schwean-Lardner K and Widowski TM. Assessing a method of mechanical cervical dislocation as a humane option for on-farm killing using anesthetized poult and young turkeys. Frontiers in Veterinary Science 2018; 5 doi.org/10.3389/fvets.2018.00275. https://pubmed.ncbi.nlm.nih.gov/30464939/	
7.6.17._18_ NEW ZEALAND	Category: Change Proposed amended text: Mechanical cervical dislocation is preferred to manual as is more reliable and less prone to failure. However, in poultry manual cervical dislocation when carried out by a well-trained operator should be used in preference to mechanical cervical dislocation. Rationale: In poultry, mechanical cervical dislocation has been shown to be less effective than well carried out manual dislocation. It results in longer time to unconsciousness and is more likely to result in return of rhythmic breathing and other signs of recovery. Supporting evidence: Bourassa, D. V., Harris, C. E., & Buhr, R. J. (2019). Euthanasia: manual versus mechanical cervical dislocation for broilers. Animals, 9(2), 47. Hernandez, E., James, F., Torrey, S., Widowski, T., Schwean-Lardner, K., Monteith, G., & Turner, P. V. (2019). Evaluation of brain death in laying hens during on-farm killing by cervical dislocation methods or pentobarbital sodium injection. Frontiers in Veterinary Science, 6, 297. Woolcott Caitlin R. , Torrey Stephanie , Turner Patricia V. , Chalmers Heather , Levison Lena J. , Schwean-Lardner Karen , Widowski Tina M (2018). Assessing a Method of Mechanical Cervical Dislocation as a Humane Option for On-Farm Killing Using Anesthetized Poult and Young Turkeys. Frontiers in Veterinary Science, 5.	Sentence already deleted

7.6.17._19_ ICFAW	Category: Deletion Proposed amended text: ~~Mechanical cervical dislocation is preferred to manual as is more reliable and less prone to failure.~~ Rationale: The sentence is not consistent with the scientific literature. Many studies have tested mechanical cervical dislocation devices (using long lever arms to increase the force on the neck) and found that they are less reliable and the time to death is prolonged compared to manual cervical dislocation. Supporting evidence: Baker-Cook B, Torrey S, Widowski TM, Turner PV, Knezacek T, Nicholds J, & Schwan-Lardner S. The efficacy of three on-farm euthanasia methods for broiler chickens throughout the production cycle. British Poultry Science 2021; 62:5, 638-649. www.sciencedirect.com/science/article/pii/S0032579123000627 Bandara, Rathnayaka M.A.S. ; Stephanie Torrey; Patricia V. Turner; Alex zur Linden; Anna Bolinder; Karen Schwan-Lardner and Tina M. Widowski. Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. Animals 2019; 9, 407. www.sciencedirect.com/science/article/pii/S0032579124000282 Erasmus MA, Lawlis P, Duncan IJH and Widowski TM. 2010. Using time insensibility and estimated time of death to evaluate a nonpenetrating captive bolt, cervical dislocation, and blunt trauma for on-farm killing of turkeys. Poultry Science 89: 1345-1354. www.sciencedirect.com/science/article/pii/S0032579119362728 Gregory, N.G. & Wotton, S.B. (1990) Comparison of neck dislocation and percussion of the head on visual evoked responses in the chicken's brain. Veterinary Record 126: 570-572. Link to pdf Hernandez E, James F, Torrey S, Widowski T, Schwan-Lardner K, Monteith G and Turner PV. Evaluation of brain death in laying hens during on-farm killing by cervical dislocation methods or pentobarbital sodium injection. Front. Vet. Sci. 2019; 6:297. Frontiers Evaluation of Brain Death in Laying Hens During On-Farm Killing by Cervical Dislocation Methods or Pentobarbital Sodium Injection Jacobs L., Bourassa DV, Harris CE, Buhr JR. (2019) Euthanasia: Manual versus mechanical cervical dislocation for broilers, Animals, 9, 47. Euthanasia: Manual versus Mechanical Cervical Dislocation for Broilers Jacobs L., Bourassa DV, Boyal RS, Harris CE, Bartenfeld Josselson LN, Campbell A, Anderson G, Buhr RJ. (2021) Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys. Poultry Science 100:100812. Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys - ScienceDirect Martin, J. E., McKeegan, D. E. F., Sparrey, J, Sandilands, V. (2017). Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers. British Poultry Science, 58(3), 216–223. Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers: British Poultry Science: Vol 58 , No 3 - Get Access Link to pdf	Agreed

	Mason, C., Spence, J., Bilbe, L., Hughes, T., & Kirkwood, J. (2009). Methods for dispatching backyard poultry. Veterinary Record, 164(7), 220–220. https://pubmed.ncbi.nlm.nih.gov/19218598 Link to pdf Rathnayaka M.A.S. Bandara, Stephanie Torrey, Patricia V. Turner, Alex zur Linden, Anna Bolinder, Karen Schwean-Lardner and Tina M. Widowski. 2019. Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. Animals 9, 407. Efficacy of a Novel Mechanical Cervical Dislocation Device in Comparison to Manual Cervical Dislocation in Layer Chickens - PubMed Sparrey, J., Sandercock, D. A., Sparks, N. H. C., & Sandilands, V. (2014). Current and novel methods for killing poultry individually on-farm. World's Poultry Science Journal, 70(04), 737–758. www.tandfonline.com/doi/abs/10.1017/S0043933914000816 Link to pdf Woolcott CR, Torrey S, Turner PV, Chalmers H, Levison LJ, Schwean-Lardner K and Widowski TM. Assessing a method of mechanical cervical dislocation as a humane option for on-farm killing using anesthetized poult and young turkeys. Frontiers in Veterinary Science 2018; 5 doi.org/10.3389/fvets.2018.00275. https://pubmed.ncbi.nlm.nih.gov/30464939/	
7.6.17._20_ CANADA	Category: Deletion Proposed amended text: ~~Mechanical cervical dislocation is preferred to manual as is more reliable and less prone to failure.~~ Rationale: Many studies show that manual cervical dislocation, while not instantaneous, results in a more rapid death and is more consistent. Supporting evidence: Bandara, Rathnayaka M.A.S.; Stephanie Torrey; Patricia V. Turner; Alex zur Linden; Anna Bolinder; Karen Schwean-Lardner and Tina M. Widowski. (2019) Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. Animals, 9, 407. www.sciencedirect.com/science/article/pii/S0032579124000282 Hernandez E, James F, Torrey S, Widowski T, Schwean-Lardner K, Monteith G and Turner PV. (2019) Evaluation of brain death in laying hens during on-farm killing by cervical dislocation methods or pentobarbital sodium injection. Frontiers in Veterinary Science 6:297. Frontiers Evaluation of Brain Death in Laying Hens During On-Farm Killing by Cervical Dislocation Methods or Pentobarbital Sodium Injection Jacobs L., Bourassa DV, Harris CE, Buhr JR. (2019) Euthanasia: Manual versus mechanical cervical dislocation for broilers, Animals, 9, 47. Euthanasia: Manual versus Mechanical Cervical Dislocation for Broilers Jacobs L., Bourassa DV, Boyal RS, Harris CE, Bartenfeld Josselson LN, Campbell A, Anderson G, Buhr RJ. (2021) Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys. Poultry Science 100:100812. Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys - ScienceDirect Martin, J. E., McKeegan, D. E. F., Sparrey, J, Sandilands, V. (2017). Evaluation of the potential killing performance of novel percussive and	Agreed

	cervical dislocation tools in chicken cadavers. British Poultry Science, 58(3), 216–223. Evaluation of the potential killing performance of novel percussive and cervical dislocation tools in chicken cadavers: British Poultry Science: Vol 58 , No 3 - Get Access Martin JE, Sandilands V, Sparrey J, Baker L and McKeegan DEF, 2018. On Farm Evaluation of a Novel Mechanical Cervical Dislocation Device for Poultry. Animals, 8, 10. https://mdpi-res.com/animals/animals-08-00010/article_deploy/animals-08-00010.pdf?version=1515568294 Rathnayaka M.A.S. Bandara, Stephanie Torrey, Patricia V. Turner, Alex zur Linden, Anna Bolinder, Karen Schwean-Lardner and Tina M. Widowski. (2019) Efficacy of a novel mechanical cervical dislocation device in comparison to manual cervical dislocation in layer chickens. Animals 9, 407. Efficacy of a Novel Mechanical Cervical Dislocation Device in Comparison to Manual Cervical Dislocation in Layer Chickens - PubMed Woolcott CR, Torrey S, Turner PV, Chalmers H, Levison LJ, Schwean-Lardner K and Widowski TM. (2018) Assessing a method of mechanical cervical dislocation as a humane option for on-farm killing using anesthetized poult and young turkeys. Frontiers in Veterinary Science, 5 doi.org/10.3389/fvets.2018.00275. https://pubmed.ncbi.nlm.nih.gov/30464939/	
7.6.17._21_ AUSTRALIA	Category: Addition Proposed amended text: Mechanical cervical dislocation ~~is~~ may be preferred to manual ~~as-in situations where it~~ is more reliable and less prone to failure, however some mechanical aids may cause inadvertent crushing. Only devices shown to repeatedly and reliably cause dislocation and severing of the spinal cord, rather than crushing, should be used. Rationale: Some mechanical aids have a higher risk of crushing rather than dislocating, and these should not be used. Supporting evidence, if relevant Jacobs, L., Bourassa, D.V., Harris, C.E. and Buhr, R.J., 2019. Euthanasia: manual versus mechanical cervical dislocation for broilers. Animals, 9(2), p.47. Jacobs, L., Bourassa, D.V., Boyal, R.S., Harris, C.E., Josselson, L.N.B., Campbell, A., Anderson, G. and Buhr, R.J., 2021. Animal welfare assessment of on-farm euthanasia methods for individual, heavy turkeys. Poultry Science, 100(3), p.100812. Woolcott CR, Torrey S, Turner PV, Chalmers H, Levison LJ, Schwean-Lardner K & Widowski TM (2018). Assessing a Method of Mechanical Cervical Dislocation as a Humane Option for On-Farm Killing Using Anesthetized Poults and Young Turkeys. Front. Vet. Sci. 5:275.	Sentence already deleted

Cervical dislocation should not involve crushing of vertebrae and spinal cord.

7.6.17._22_ USA	Proposed amended text: Cervical dislocation should not involve crushing of vertebrae and spinal cord ~~should not be used~~. Rationale: Edited for better readability.	Agreed

7.6.17._23_ ICFAW	Category: Change Proposed amended text: Cervical dislocation <u>should result in separation of the skull from the vertebral column at C0-C1 and sever both carotid arteries without damaging the exterior of the bird; it must not involve</u> ~~by~~ crushing of vertebrae and spinal cord ~~should not be used~~ . Rationale: It is preferable to describe what is recommended (Martin et al 2018) rather than only stating what should be avoided. Supporting Evidence: Martin, J. E., Sandilands, V., Sparrey, J., Baker, L., & McKeegan, D. E. F. (2018). On farm evaluation of a novel mechanical cervical dislocation device for poultry. <i>Animals : an open access journal from MDPI</i> , 8(1), 10. https://doi.org/10.3390/ani8010010	Did not agree

Animals should be monitored continuously until death.

7.6.17._24_ CANADA	Category: editorial Proposed amended text Animals should be monitored continuously <u>until death</u> to ensure <u>the</u> absence of brain stem reflexes. Rationale: editorial for clarity	Did not agree

The method is suitable for small birds, poultry, mice, rats and rabbits.

4. Species-specific recommendations

For heavy rats and rabbits, the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult.

Manual cervical dislocation is applicable in birds weighing up to 3 kg. and in rats up to 200 g

Mechanical cervical dislocation is applicable in birds weighing up to 5 kg.

7.6.17._25_ EU and COLOMBIA	The EU suggests deleting: “None identified” <u>Justification:</u> There are already two species-specific recommendations and keeping “none identified” is not needed anymore.	Agreed
7.6.17._26_ AUSTRALIA	Category: Addition Proposed amended text: Manual cervical dislocation is applicable in birds weighing up to 3 kg- and in rats up to 200 g Mechanical cervical dislocation is applicable in birds weighing up to 5 kg. ~~None identified~~ <u>Cervical dislocation is applicable in immature rabbits weighing up to 1 kg.</u>	Did not agree

	Rationale: The application specifics of cervical dislocation in rabbits should be provided as for the other species listed to ensure appropriate use of the method. "None identified" appears to have been accidentally included and requires deletion, as there are species-specific recommendations listed. Supporting evidence, if relevant: Campagnol, M. 2022, <i>Anaesthesia, analgesia, and killing</i>, in Dal Negro, G. & Sabbioni, S. (eds.), <i>Practical Handbook on the 3Rs in the Context of the Directive 2010/63/EU</i>, Academic Press, pp. 241–258. DOI: https://doi.org/10.1016/B978-0-12-821180-9.00011-8.	

Article 7.6.18.

Decapitation

Decapitation using a guillotine or knife results in death by cerebral ischaemia. Due to welfare and biosecurity concerns it is not a preferred method where other options are available.

7.6.18._1_ AUSTRALIA	Category: Addition Proposed amended text: This method is suitable as a secondary killing method for all animals covered by this chapter. Decapitation using a guillotine or knife results in death by cerebral ischemia. This method is only recommended for killing following stunning because animals may not immediately lose consciousness, and it may be painful in conscious animals. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Guidance on the use of this method is suggested in view of its limitations.	Did not agree

1. Animal welfare concerns

The process of decapitation requires significant tissue trauma and this may be painful if the animal has not been rendered unconscious prior to the procedure [Kongara et al. 2014]. There is evidence that decapitation may not itself cause immediate loss of consciousness, which [Bates 2010] may persist in decapitated animals for as long as 30 seconds [Mikeska and Klemm 1975].

2. Animal-based and other measures

Successful decapitation completely separates the head from the rest of the body and can be confirmed by visual inspection.

3. Recommendations

Decapitation should only be used as a last resort in animals that are not already unconscious or can be rendered unconscious prior to decapitation.

Equipment used for decapitation should be of sufficient construction and sharpness to complete the procedure quickly and without undue force.

7.6.18._2_ USA	Proposed amended text: <u>Equipment should be inspected and tested regularly to ensure effectiveness.</u> <u>Individuals should receive appropriate training on the species they are utilizing this method on.</u> <u>Appropriate restraint should be utilized to decrease pain and distress.</u> Rationale: Recommend expanding recommendations with the additional language to ensure good animal welfare with this method. Supporting reference : American Veterinary Medical Association. (2019). AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	Did not agree
7.6.18._3_ UK	Category: addition. Proposed amended text (or precise suggested deletion) : Decapitation should only be used as a last resort in animals that are not already unconscious or can be rendered unconscious prior to decapitation. <u>The killing of animals by decapitation without the use of pre-stunning is not considered a humane method of killing.</u> Rational: As highlighted within the text – this procedure is painful. Recommend pre-stunning. The suggested sentence established the context as to why this is recommended as a last resort. Supporting evidence: not applicable..	Did not agree
7.6.18._4_ ICFAW	Category: Deletion Proposed amended text: Decapitation should only be used ~~as a last resort~~ in animals that ~~are not already unconscious or can be~~ <u>have been</u> rendered unconscious prior to decapitation. Rationale: Decapitation does not result in immediate loss of consciousness and the process is painful due to the cutting of numerous tissue layers (EFSA 2019). For this reason, it should only be performed in unconscious animals (EFSA 2019). Supporting Evidence: EFSA Panel on Animal Health and Welfare. (2019). Killing for purposes other than slaughter: poultry. EFSA Journal. European Food Safety Authority, 17(11), e05850. https://doi.org/10.2903/j.efsa.2019.5850	Did not agree
7.6.18._5_ CANADA	Comment Category: change Proposed amended text: Decapitation should only be used ~~as a last resort in animals that are not already unconscious or can be~~ <u>in animals that have been</u> rendered unconscious prior to decapitation. Rationale:	Did not agree

	Canada suggests that this method causes pain and implies that should not be used in a conscious animal. Wording needs to be clear that decapitation in a fully conscious animals is not acceptable.	
7.6.18._6_ AUSTRALIA	Category: Change Proposed amended text: Decapitation should only be used ~~as a last resort~~ in animals ~~that are not already unconscious or can be~~ rendered unconscious prior to decapitation. <u>Decapitation should not be used as a primary kill method, or on an animal that has not been successfully rendered unconscious. Decapitation should not be used when leakage of body fluids may present a biosecurity risk.</u> <u>In the case of ineffective killing, animals should be killed using a secondary killing method such as (insert backup method).</u> Rationale: Decapitation of a conscious animal would not be considered a method that prioritises animal welfare for all species due to factors such as consciousness after decapitation and difficulty in achieving severance of the head from the neck in one cut (e.g. large animals with thick necks such as cattle, pigs, sheep, etc). An alternative killing method should be sought if the animal cannot be rendered unconscious prior to decapitation. The AVMA only refers to decapitation as a killing method for rodents and rabbits in research setting where preservation of body tissue is required. In Australia, decapitation is currently not permitted as primary killing method without stunning. It is only permitted as terminal procedure in unconscious animals. Neurophysiological studies have shown that post-decapitation brain activity is not indicative of immediate unconsciousness and varies greatly between species. Decapitation can result in contamination of the surrounding area and should be avoided if these fluids pose a biosecurity risk. As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method Supporting evidence, if relevant: American Veterinary Medical Association (AVMA) 2020, <i>AVMA Guidelines for the Euthanasia of Animals: 2020 Edition</i>. Available at: https://www.avma.org/sites/default/files/2020-01/AVMA-Euthanasia-Guidelines-2020.pdf Hewitt, L. 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, pp. 1–46	Did not agree

4. Species-specific recommendations

None identified

7.6.18._7_ AUSTRALIA	Category: Change Proposed amended text:	Agreed

	3. <u>Recommendations</u> <u>Equipment used for decapitation should be of sufficient construction and sharpness to complete the procedure quickly and without undue force.</u> 4. <u>Species-specific recommendations</u> <u>Equipment used for decapitation should be of sufficient construction and sharpness to complete the procedure quickly and without undue force.</u> <u>None identified</u> Rationale: This information appears to be better suited for inclusion in the section 3 above, as it is not species specific	

Article 7.6.19.

Electrical — two-stage application

A two-stage application of low frequency electric current (50 Hz) is an application of current to the head by scissor-type tongs that spans the brain, immediately followed by an application of the tongs across the chest in a position that spans the heart or another secondary intervention

7.6.19._1_ NEW ZEALAND	Category: Change Proposed amended text: A two-stage application of low frequency electric current (50 Hz) comprises firstly an application of current to the head by scissor-type tongs <u>or similar devices</u> that spans the brain, immediately followed by an application of <u>the tongs across the chest in a position that spans the heart, electricity via tongs, electrode plate, or similar device, that results in electricity passing through the heart e.g., chest electrode, back electrode, or foot electrode.</u> Rationale: The text is too restrictive on the devices that can be used for electrical two stage application. Other devices are also effective and acceptable such as hand and backset, head-to-foot stunning, and hand piler devices. Supporting evidence: <u>Humane slaughter association</u> <u>EFSA Journal 2021 Welfare of sheep and goats at slaughter</u> <u>EFSA, 2004 ; Welfare Aspects of animal stunning and killing methods.</u> <u>Mechanical, Electrical and Anaesthetic Stunning Methods for Livestock, Temple Grandin, 1980</u>	Did not agree
7.6.19._2_ AUSTRALIA	Category: Addition Proposed amended text: <u>This method is suitable for calves, sheep and goats, and pigs.</u> A two-stage application of low frequency electric current (50 Hz) comprises firstly an application of current to the head by scissor-type tongs that spans the brain, immediately followed by an application of the tongs across the chest in a position that spans	Agree

	the heart. When performed correctly this method causes immediate loss of consciousness and death. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	

The application of sufficient electric current to the head will induce 'tonic-clonic' seizures and unconsciousness. Once the animal is unconscious, the second stage will induce ventricular fibrillation (cardiac arrest) resulting in death.

7.6.19._3_ UK	Category: change. Proposed amended text (or precise suggested deletion) : The application of sufficient electric current to the head will induce ~~'tonic-clonic'~~ tonic epilepsy and unconsciousness. Once the animal is unconscious, the second stage will induce ventricular fibrillation (cardiac arrest) resulting in death. Rational: The clonic phase does not take place after application of the second stage causing dead. Supporting evidence: not applicable.	Did not agree

1. Animal welfare concerns

The main hazards preventing effective electrical stunning and killing are: incorrect electrode placement, poor contact, , electrical arcing, , inadequate exposure time,inappropriate electrical parameters (low voltage/current or high frequency) and high contact resistance caused by wool, hair, a dirty or corroded electrode or dirt on the animal surface.

7.6.19._4_ ICFAW	Category: Addition Proposed amended text: The main hazards preventing effective electrical stunning and killing are: incorrect electrode placement, poor contact, a dirty or corroded electrode, electrical arcing, high contact resistance caused by wool, hair or dirt on the animal surface, too short exposure time and inappropriate electrical parameters (low voltage/current or high frequency). Rationale: Wool can also increase electrical resistance.	Agreed
7.6.19._5_ EU	The EU suggests adding 'wool' in the first paragraph: '[...] high contact resistance caused by hair, wool or dirt on the animal surface [...] Justification: For consistency with point 3 where 'wool' is also mentioned.	Agreed

The second stage should only be applied to unconscious animals to prevent pain.

7.6.19._6_ ICFAW	Category: Deletion Proposed amended text:	Agreed

	The second stage should only be applied to unconscious animals to prevent unacceptable levels of pain. Rationale: As written, the sentence suggests there may be an acceptable level of pain with two stage electrical stunning.	
7.6.19._7_ EU	The EU suggests amending the sentence as follows: ‘The second stage should only be applied to unconscious animals to prevent unacceptable levels of pain.’ <u>Justification:</u> The current wording unnecessarily raises the question what the ‘acceptable level of pain’ might be.	Agreed

2. Animal-based and other measures

Before the application of the second stage, unconsciousness should be assessed with the following animal-based measures:

- a) immediate collapse;
- b) tonic-clonic seizures;
- c) apnoea;
- d) absence of corneal or palpebral reflex.

7.6.19._8_ UK	Category: deletion. Proposed amended text (or precise suggested deletion) : <u>Animal-based and other measures</u> Before the application of the second stage, unconsciousness should be assessed with the following animal-based measures: immediately collapse, tonic-clonic seizures; apnoea; absence of corneal or palpebral reflex. Rational: The clonic phase does not take place after application of the second stage causing dead. Supporting evidence: not applicable.	Did not agree

After the application of the second stage, death should be assessed with the following animal-based measures:

- a) absence of muscle tone;
- b) apnoea;
- c) absence of corneal reflex
- d) fixed and dilated pupils and
- e) absence of heartbeat.

3. Recommendations

This method is suitable for cattle, sheep, goats and pigs.

This method is suitable for chickens, turkeys, ducks, geese and rabbits when followed by a suitable secondary intervention.

Two team members are recommended, the first to apply the electrodes and the second to manipulate the position of the animal to allow the second application to be made.

Animals should be contained, at a minimum free-standing in a pen.

The tongs should be of the correct design and size for the animal;

A stunning current should be applied in a position that spans the brain for long enough to induce unconsciousness; immediately following the application to the head. After ensuring that the animal is unconscious, the electrodes should be transferred to a position that spans the heart and the electrodes applied for long enough to induce cardiac arrest.

7.6.19._9_ UK	Category: change. Proposed amended text (or precise suggested deletion) : A stunning current should be applied in a position that spans the brain for a minimum of ~~3~~ <u>8</u> seconds; immediately following the application to the head and after ensuring that the animal is unconscious, the electrodes should be transferred to a position that spans the heart and the electrodes applied for a minimum of ~~3~~ <u>8</u>seconds. Rational: Experience gained during the FMD epidemic of 2001 in the UK showed a minimum of eight seconds was required in grower pigs and longer in breeding stock. The physical sign used to determine sufficient duration was when the hind legs fully extended, plus two seconds. Supporting evidence: HSA internal communication with reference to MAFF (former Defra) training package: Getting it right...first time, every time, produced by Countrywise Communication with technical advice from the HAS.	Did not agree

Electrodes should be applied firmly for the intended duration of time with pressure not released until the stun is complete.

7.6.19._10_ ICFAW	Category: Addition Proposed amended text: <u>Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.</u> Rationale: Add a recommendation that constant current stunning is preferred for two-stage electrical stunning, just as it is for head only electrical stunning followed by a secondary method.	Did not agree

Animals should be monitored continuously after stunning to ensure the absence of brain stem reflexes until death.

7.6.19._11_ CANADA	Category: editorial Proposed amended text Animals should be monitored continuously after stunning ~~until death~~ to ensure the absence of brain stem reflexes <u>until death</u>. Rationale: editorial for clarity	Agreed

Electrodes should be in good condition and cleaned regularly during and after use, to enable optimum electrical contact to be maintained.

The wool or hair should be entirely dry; if wet the electricity may flow (shunt) through the wet wool or hair rather than contacting the skin and passing through the brain or body.

Wetting the electrodes with water (especially salted water) can increase electrical contact.

7.6.19._12_ UK	Category: deletion. Proposed amended text (or precise suggested deletion) : The wool or hair should be entirely dry; if wet the electricity may flow (shunt) through the wet wool or hair rather than contacting the skin and passing through the brain or body. <u>Wetting the bare skin (not wool or hair) application area with water (especially salted water) can increase electrical contact. Wetting of animals should be avoided to prevent electrical arcing where the current passes around the surface of the skin instead of the brain tissue.</u> Rational: In a practical situation is almost impossible to wet livestock's skin without wetting wool or hair. Additionally with modern apparatus discharging voltages in excess of 250V, wetting any part of the head or body can cause arcing, where the current passes around the surface of the skin and not through the brain tissue. The best way of reducing contact resistance is to keep the electrodes sharp and clean (wire brush) them at regular intervals: these will depend on the cleanliness of the animals, but at least after every 20. Wetting of animals should be avoided. Supporting evidence: HSA internal communication.	Did not agree

Ineffective application of the first stage of the method should be followed by a backup method or the repetition of the first stage.

7.6.19._13_ EU and NORWAY	The EU suggests including the following sentence: <u>'Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.'</u> <u>Justification:</u> To be consistent with article 7.6.21., as this sentence applies to all electrical methods. The same alteration should be made in articles 7.6.20. and 7.6.22.	Did not agree
7.6.19._14_ AUSTRALIA	Category: Addition Proposed amended text: Two team members are recommended, the first to apply the electrodes and the second to manipulate the position of the animal to allow the second application to be made. <u>Work health and safety considerations need to be addressed when working with electrical devices that are developed to kill animals.</u> Animals should be restrained, at a minimum free-standing in a pen. The tongs should be of the correct design and size for the animal.	Did not agree.

	A stunning current should be applied in a position that spans the brain for a minimum of 3 seconds <u>or longer as recommended for the specific species</u>; immediately following the application to the head and after ensuring that the animal is unconscious, <u>and no more than 15 seconds later</u>, the electrodes should be transferred to a position that spans the heart and the electrodes applied for a minimum of 3 seconds. Electrodes should be applied firmly for the intended duration of time with pressure not released until the stun is complete. Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes. <u>Equipment for stunning should be regularly maintained and calibrated.</u> Electrodes should be in good condition and cleaned regularly during and after use, to enable optimum electrical contact to be maintained. The wool or hair should be entirely dry; if wet the electricity may flow (shunt) through the wet wool or hair rather than contacting the skin and passing through the brain or body. Wetting the bare skin (not wool or hair) application area with water (especially salted water) can increase electrical contact. Ineffective application of the first stage of the method should be followed by ~~a backup method or the~~ repetition of the first stage <u>or secondary killing method such as (specify backup method).</u> ~~The method is suitable for calves, sheep and goats, and pigs.~~ Rationale: Short duration of stunning may not result in an effective stun and longer periods may be required. In addition, consciousness may return in as little as 15-20 seconds, therefore the second application should occur before that time, allowing enough time for the second application to occur and for unconsciousness onset from that secondary procedure, before return to consciousness associated with the first stun. Head-only electrocution should not be used if a secondary method cannot be applied within 15 seconds of initial stunning of the pig. All equipment involved should be subject to regular maintenance and calibration, to ensure effective stunning. As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method. Deletion of listed species suitable for as previously recommended to move to the front of the chapter. Supporting evidence, if relevant – AVMA Humane slaughter guidelines 2024, avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf. AVMA Guidelines for the Depopulation of Animals: 2019 Edition - https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf. Berg, C., Nordensten, C., Hultgren, J. and Algers, B., 2012. The effect of stun duration and level of applied current on stun and meat quality of electrically stunned lambs under commercial conditions. <i>Animal Welfare</i>, 21(S2), pp.131-138.	

	Blackmore, D.K. and Newhook, J.C., 1982. Electroencephalographic studies of stunning and slaughter of sheep and calves—Part 3: The duration of insensibility induced by electrical stunning in sheep and calves. <i>Meat Science</i> , 7(1), pp.19-28. doi:10.1016/0309-1740(82)90094-8.	

4. Species-specific recommendations

7.6.19._15_ JAPAN	Category: General Rationale: The definition on “pigs” and “sows and boars” should be included. In addition, the current chapter contains the minimum voltages for electrical stunning. Japan seeks to understand the rationale behind the deletion of the parameters on voltages.	Did not agree

Effective electrical parameters should be determined based on scientific data on the welfare outcomes for different types of animals in accordance with point 5 of Article 7.1.4..

For electrical stunning of the head, minimum parameters are recommended for the following species:

7.6.19._16_ USA	Proposed amended text: For electrical stunning of the head, minimum parameters are recommended for the following species. Animals with high electrical impedance will require greater electrical intensity. Rationale: Recommend adding language to avoid misinterpretation of the quoted values, which can result in under-stunning. It is important to emphasize these are minimum values, which may need to be increased, depending on the resistance of the animal.	Did not agree

- 1.25 A for cattle,

7.6.19._17_ EU	The EU proposes to replace ‘bovines’ by ‘calves’ in the first point: ‘- 1.5 A for ~~bovines~~ <u>calves</u> ,’ Justification: To be consistent with the recommended categories of animals.	Did not agree
7.6.19._18_ UK	Category: change. Proposed amended text (or precise suggested deletion) : - ~~1.5 A for bovines,~~ - <u>1.28 A for adult cattle and 1.24 for calves</u> Rational: Legal requirement in the UK and EU. Supporting evidence: Council Regulation (EC) No 1099/2009 of 24 September 2009 on the protection of animals at the time of killingText with EEA relevance.	Did not agree

- 1.3 A for pigs,

- 1.8 A for sows and boars,
- 1.0 A for small ruminants.

7.6.19._19_ AUSTRALIA	Category: Change Proposed amended text: For electrical stunning of the head, minimum parameters are recommended for the following species: - 1.5 A for bovines-calves, - 1.3 A for pigs, - 1.8 A for sows and boars, - ~~1.251.0~~ A for small-ruminants-sheep and goats. Rationale: Higher stunning parameters may be recommended. Keep terminology consistent. Supporting evidence, if relevant – Berg, C., Nordensten, C., Hultgren, J. and Algiers, B., 2012. The effect of stun duration and level of applied current on stun and meat quality of electrically stunned lambs under commercial conditions. <i>Animal Welfare</i>, 21(S2), pp.131-138. AVMA Humane slaughter guidelines 2024, avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf. AVMA Guidelines for the Depopulation of Animals: 2019 Edition - https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf.	agree

Good placement of the tongs can be difficult on animals with horns and on sheep with woolly heads. Using electrodes with pins or with wet pins for woolly animals would help to overcome the problem. Alternatively, the wool may be removed from the area where the electrodes will be positioned on the animal.

7.6.19._20_ ICFAW	Category: Addition Proposed amended text: The amplitude may need to be increased, depending on the electrical resistance of the animal. Rationale: While the list of amperages rightly are minimums, it causes some confusion because readers easily miss the word “minimum” and boars and sows, in particular, may be under stunned. Adding this sentence will help emphasize that the amperages are minimum values and may need adjustment upwards. Supporting Evidence: Gerritzen, M. A., Marahrens, M., Kongsted, H., & Bracke, M. B. (2017). Review of pig welfare in slaughterhouses at stunning and bleeding. <i>EU Reference Center for Animal Welfare : Pigs</i>. https://edepot.wur.nl/546026	Did not agree

Head to body electrical killing

Head-to-body electrical killing (electrocution) comprises the single application of sufficient electrical current to the head and body, to simultaneously stun the animal and fibrillate the heart resulting in cardiac arrest and death.

7.6.20._1_ AUSTRALIA	Category: Addition Proposed amended text: This method is suitable for sheep and goats, and pigs. Head-to-body electrical killing (electrocution) comprises the single application of sufficient electrical current to the head and back, to simultaneously stun the animal and fibrillate the heart, resulting in cardiac arrest and death. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Other edits for clarity Supporting evidence, if relevant: AUSVETPLAN – Operational Manual - Destruction of animals v3.2 2015, available at https://animalhealthaustralia.com.au/ausvetplan/ AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition	Agree and moved to the first part of the article
7.6.20._2_ AUSTRALIA	Category: Addition Proposed amended text: Provided sufficient current is applied in a position that spans both the brain and heart at the same time, the animal will not recover consciousness. The approach must be used with amperage settings that have been scientifically verified to induce a seizure. Rationale: Addition to ensure correct settings used for this method. Reference: AVMA (American Veterinary Medical Association) (2020). AVMA guidelines for the euthanasia of animals, 2020 edition. AMVA, Schaumburg, Illinois. Available online: https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	Did not agree

1. Animal welfare concerns

The main hazards preventing effective electrical killing are: incorrect electrode placement, poor contact, dirty or corroded electrode, electrical arcing, high contact resistance caused by hair or dirt on the animal surface, too short exposure time and inappropriate electrical parameters (low voltage/current or high frequency).

7.6.20._3_ AUSTRALIA	Category: Addition Proposed amended text:	Did not agree

	The main hazards preventing effective electrical killing are: incorrect electrode placement, poor contact, dirty or corroded electrode, electrical arcing, high contact resistance caused by hair or dirt on the animal surface, too short exposure time and inappropriate electrical parameters (low voltage/current or high frequency). <u>Dehydrated animals that have been off water for are poor conductors of electricity and electrical stunning failures are a significant risk.</u> <u>When performed correctly this method is a one-stage procedure causing immediate loss of consciousness and death. A one-stage killing procedure risks distress, fear, and pain if the animal has not been immediately or rapidly rendered unconscious in the procedure. Ineffective application of the method should be followed by repetition of the method or (specify backup method).</u> Rationale: Addition to include further appropriate animal welfare risks of this method. As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method. Supporting evidence, if relevant AVMA (American Veterinary Medical Association) (2020). AVMA guidelines for the euthanasia of animals, 2020 edition. AMVA, Schaumburg, Illinois. Available online: https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf	

2. Animal-based and other measures

After application death should be assessed with the following animal-based measures:

- a) tonic-clonic seizures
- b) absence of muscle tone
- c) apnoea
- d) absence of corneal reflex
- e) fixed and dilated pupils;
- f) absence of heartbeat

3. Recommendations

This method is suitable for cattle, sheep, goats and pigs.

Animals should be contained to avoid movement that can lead to interrupted contact with the electrodes.

The device should be of the correct design and size for the animal.

A current should be applied in a position that spans the brain and the heart for long enough to induce unconsciousness and cardiac arrest.

Animals should be monitored continuously until death is confirmed.

7.6.20._4_ CANADA	Category: editorial Proposed amended text	Agreed, but using a different wording

	Animals should be monitored continuously after stunning ~~until death~~ to ensure the absence of brain stem reflexes ~~until death~~. Rationale: editorial for clarity	

Electrodes should be in good condition and cleaned regularly during and after use, to enable optimum electrical contact to be maintained.

The wool or hair should be entirely dry; if they are wet, the electricity may flow (shunt) through the wet wool or hair rather than through the brain or body.

Wetting the electrodes with water (especially salted water) can increase electrical contact..

7.6.20._5_ UK	Category: Deletion/addition Proposed amended text (or precise suggested deletion) : ~~Wetting the bare skin application area with water (especially salted water) can also increase electrical contact. Wetting of animals should be avoided to prevent electrical arcing where the current passes around the surface of the skin instead of the brain tissue'~~ Rational: In a practical situation is almost impossible to wet livestock's skin without wetting wool or hair. Additionally with modern apparatus discharging voltages in excess of 250V, wetting any part of the head or body can cause arcing, where the current passes around the surface of the skin and not through the brain tissue. The best way of reducing contact resistance is to keep the electrodes sharp and clean (wire brush) them at regular intervals: these will depend on the cleanliness of the animals, but at least after every 20. Wetting of animals should be avoided. Supporting evidence: HSA internal communication.	Did not agree

Ineffective application of the method should be follow by a backup method or the repetition of the first stage.

7.6.20._6_ UK	Category: Deletion Proposed amended text (or precise suggested deletion) : Ineffective application of the ~~first stage~~ of the method should be follow by a backup method or the repetition of the first stage Rational: This method is a single stage application Supporting evidence:	Agreed
7.6.20._7_ COLOMBIA	ES Categoría: Supresión Texto modificado propuesto: En Artículo 7.6.20 – ítem 3 Recomendaciones En caso de <u>una</u> aplicación ineficaz ~~de~~ la primera vez ~~etapa del método~~, se deberá aplicar un método de apoyo o de la repetición de la <u>aplicación primera etapa</u>. Justificación: En la matanza con electricidad en cabeza y cuerpo (electrocución) se hace la aplicación de un único ciclo de corriente al mismo tiempo en cabeza y cuerpo, no debería referirse etapas.	Agreed

	EN Ineffective application ~~in of~~ the first ~~time stage of the method a support~~ should be follow by a backup method or the repetition of the first stage. Rationale: In the case of killing with electricity to the head and body (electrocution), a single cycle of current is applied simultaneously to the head and body; no stages should be mentioned. Evidencia documentada, si corresponde: N/A	
7.6.20._8_EU	The EU suggests including the following sentence: <u>'Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.'</u> <u>Justification:</u> To be consistent with article 7.6.21., as this sentence applies to all electrical methods.	Did not agree

4. Species-specific recommendations

Effective electrical parameters should be determined based on scientific evidence for different types of animals.

For head to body electrical killing, minimum parameters are recommended for the following species:

7.6.20._9_ ICFAW	Category: Addition Proposed amended text: For head-to-body stunning, minimum parameters <u>to be used with 50 Hz</u> are recommended for the following species: Rationale: The frequency must also be specified to induce unconsciousness effectively. This will also make the section more consistent with the rest of the chapter, as the frequency value is given in other articles. Supporting Evidence: EFSA (2024). Welfare of sheep and goat during killing for purposes other than slaughter. EFSA Journal 10.2903/j.efsa.2024.8835 www.efsa.europa.eu/en/efsajournal/pub/8835	Did not agree

- 1.3 A for pigs,
- 1.8 A for sows and boars,
- 1.0 A for sheep and goats.

7.6.20._10_ ICFAW	Category: Addition Proposed amended text: <u>The amplitude may need to be increased, depending on the electrical resistance of the animal.</u> Rationale:	Did not agree

	As above, adding this sentence will help emphasize that the amperages are minimum values and may need adjustment upwards. Supporting Evidence: Gerritzen, M. A., Marahrens, M., Kongsted, H., & Bracke, M. B. (2017). Review of pig welfare in slaughterhouses at stunning and bleeding. <i>EU Reference Center for Animal Welfare: Pigs</i>. https://edepot.wur.nl/546026	
7.6.21. 7.6.22. 7.6.23. 7.6.24. 7.6.25. 7.6.27. 7.6.28. _11_AU	Category of comments: General African Union supports the text in Article 7.6.21. Head only electrical stunning followed by a secondary killing method. African Union supports the text in Article 7.6.22. Water bath killing. African Union supports the text in Article 7.6.23. Maceration. African Union supports the text in Article 7.6.24. Addition of anaesthetics to feed or water. African Union supports the text in Article 7.6.25. General principles of modified atmosphere killing. African Union supports the text in Article 7.6.27. Gas introduced into a container. African Union supports the text in Article 7.6.28. Gas introduced into the barn or whole house gassing. Rationale: Clear, referenced.	Noted

Article 7.6.21.

7.6.21._1_ AUSTRALIA	Category: General Comment: We recommend that additional information be included in this article and other similar articles, regarding correct restraint, positioning of animals and stunner contacts, and handling of animals for electrical stunning.	Article deleted

Head only electrical stunning followed by a secondary killing method

Comprises the single application of sufficient electrical current to the head of the animal in a position that spans the brain, causing unconsciousness; this needs to be followed by a killing method such as cervical dislocation or bleeding.

7.6.21._2_ AUSTRALIA	Category: Addition Proposed amended text: Head only electrical stunning ~~followed by a secondary killing method~~ <u>This method is suitable for chickens, turkeys, ducks, geese, and rabbits.</u>	Article deleted

	Comprises the single application of sufficient electrical current to the head of the animal in a position that spans the brain, causing temporary unconsciousness; this needs to be followed by a killing method such as cervical dislocation or bleeding. Electrical stunning is reversible and must be followed by a killing method without delay. Rationale: Deletion in heading for consistency with other articles on stunning methods. As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Animals can recover after electrical stunning and therefore a secondary killing method is required before the animals regain consciousness. References indicate that the secondary killing method needs to occur within 10-15 seconds following the end of the electrical stun to prevent return to consciousness. Supporting evidence, if relevant Hewitt, L. and Small, A., 2021. An independent animal welfare assessment of mass destruction methods for poultry on-farm. An independent animal welfare assessment of mass destruction methods for poultry on-farm. Accessed 16 May 2025. Countreiras-Jodar, A., Michel, V., Vinco, L.J., Varvaro-Porter, A. and Velarde, A., 2025. Relevant Indicators of Consciousness After Head-Only Electrical Stunning in Rabbits, Stunning Efficiency, and Risk Factors in Commercial Conditions. <i>Animals</i>, 15(4), pp. 1-28. EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of cattle during killing for purposes other than slaughter. EFSA Journal - 2020 - Welfare of cattle during killing for purposes other than slaughter.pdf. Accessed 16 May 2025. EFSA Panel on Animal Health and Welfare (AHAW), 2020. Welfare of sheep and goats during killing for purposes other than slaughter. EFSA Journal - 2024 - Welfare of sheep and goats during killing for purposes other than slaughter.pdf. Accessed 12 May 2025. Humane Slaughter Association (HSA) 2021, Practical slaughter of poultry, Wheathampstead, Herts, UK. Available at: https://www.hsa.org.uk/downloads/publications/practicalslaughterofpoultrydownload-cm-updated.pdf Hewitt, L 2023, An independent animal welfare assessment of mass destruction methods for poultry on-farm, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0. Available at https://www.agriculture.gov.au/biosecurity-trade/policy/emergency/maintaining-good-animal-welfare-outcomes	

1- Animal welfare concerns

~~The main hazards preventing effective electrical stunning are: inappropriate handling, inversion when applicable, incorrect electrode placement, poor contact, dirty or corroded electrode, electrical arcing, high contact resistance caused by hair or feathers or dirt on the animal surface and inappropriate electrical parameters (low voltage/current or high frequency).~~

7.6.21._3_ AUSTRALIA	Category: Addition Proposed amended text: The main hazards preventing effective electrical stunning are: inappropriate handling, inversion when applicable, incorrect electrode placement, poor contact, dirty or corroded electrode, electrical arcing, high contact resistance caused by hair or feathers or dirt on the animal surface and inappropriate electrical parameters (low voltage/current or high frequency). In the case of ineffective stunning or recovery, animals should be re-stunned using a backup system or be killed immediately by (specify backup method). Rationale: As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method	Article deleted

~~An additional hazard could occur when second intervention doesn't kill the animal.~~

2- ~~Animal based and other measures~~

~~Multiple indicators should be used to determine whether a stun is effective and the animal is unconscious.~~

7.6.21._4_ EU	The EU suggests deleting the above sentence. ~~'Multiple indicators should be used to determine whether a stun is effective, and the animal is unconscious.'~~ Justification: The above sentence applies to all methods, and it is already covered by Article 7.6.8.	Article deleted

~~Animal based measures of an effective stun are: tonic-clonic seizures; apnoea; absence of corneal or palpebral reflex.~~

~~Animal based measures of an ineffective stun or recovery of consciousness or for ineffective killing are: vocalisation; spontaneous blinking; righting reflex; presence of corneal or palpebral reflex; rhythmic breathing.~~

7.6.21._5_ AUSTRALIA	Category: Addition Proposed amended text: Animal-based measures of an ineffective stun or recovery of consciousness or for ineffective killing are: vocalisation; spontaneous blinking; righting reflex; presence of corneal or palpebral reflex; rhythmic breathing and head shaking or wing flapping in poultry. Rationale: Poultry-based animal welfare measures are required for Head only electrical stunning followed by a secondary killing method Supporting evidence, if relevant Hewitt, L. and Small, A., 2021. <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>. Accessed 16 May 2025.	Article deleted

3. Recommendations

Animals should be stunned as soon as they are restrained.

In the case of ineffective stunning or recovery, animals should be re-stunned using a backup system or be killed immediately. Ineffective stunning or return to consciousness should be systematically recorded and the cause of the failure identified and rectified.

Stunning equipment should be used, cleaned, maintained and stored following the manufacturer's recommendations.

7.6.21._6_ AUSTRALIA	Category: Addition Proposed amended text: Stunning equipment should be used, cleaned, maintained and stored following the manufacturer's recommendations. The equipment should be of the correct design and size for the animal. Rationale: Stunning equipment that is not appropriate for the species, class and / or size of the animal may contribute to the animal regaining consciousness before killing. For example, Contreras-Jodar et al (2025) noted that electrical tongs which were designed for heavier rabbits (with larger heads) did not sufficiently press on the heads of smaller rabbits leading to impaired electrical contact Supporting evidence, if relevant Contreras-Jodar, A., Michel, V., Vinco, L.J., Varvaró-Porter, A. and Velarde, A., 2025. Relevant Indicators of Consciousness After Head-Only Electrical Stunning in Rabbits, Stunning Efficiency, and Risk Factors in Commercial Conditions. <i>Animals</i> , 15(4), p.587.	Article deleted

Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.

Regular calibration of the equipment according to the manufacturer's procedure is recommended.

For the killing methods to be use after stun refer to Articles 7.6.X and 7.6.X.

7.6.21._7_ SWITZERLAND	"For the killing methods to be used after stun refer to Articles 7.6.X and 7.6.X." We do not understand which articles this sentence refers to.	Article deleted
7.6.21._8_ NEW ZEALAND	Category: Editorial Proposed amended text: For the killing methods to be use after stun refer to Articles 7.6.X and 7.6.X Rationale: For 'killing methods to use after stun' it is not clear which Articles to refer to. Supporting evidence: N/A	Article deleted

~~This method is suitable for chickens, turkeys, ducks, geese and rabbits.~~

7.6.21._9_ CANADA	Category: addition Proposed amended text This method is suitable for chickens, turkeys, ducks, geese, pigs, small ruminants and rabbits. Rationale: Chapter 7.5. indicates that this method would also be suitable for pigs and small ruminants. It is unclear as to why it would not be recommended for disease control purposes	Article deleted
7.6.21._10_ AUSTRALIA	Category: Deletion Proposed amended text: ~~This method is suitable for chickens, turkeys, ducks, geese, and rabbits.~~ Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Article deleted

4. ~~Species specific recommendations~~

~~For head-only stunning, minimum parameters are recommended for the following species:~~

7.6.21._11_ USA	Proposed amended text: For head-only stunning, minimum parameters for 50 Hz frequency are recommended for the following species: Rationale: Recommend addition of “for 50 Hz frequency to be consistent with other chapter sections, and to clarify the frequency with which these amplitudes will be effective. Higher frequencies will require greater amplitudes. Supporting references: EFSA (2024). Welfare of sheep and goat during killing for purposes other than slaughter. EFSA Journal 10.2903/j.efsa.2024.8835 www.efsa.europa.eu/en/efsajournal/pub/8835 Shields, S. J., & Raj, A. B. M. (2010). A critical review of electrical water-bath stun systems for poultry slaughter and recent developments in alternative technologies. Journal of Applied Animal Welfare Science, 13(4), 281-299. https://www.tandfonline.com/doi/abs/10.1080/10888705.2010.507119	Article deleted

- ~~240 mA for hens and broiler chicken,~~
- ~~400 mA for turkeys,~~
- ~~600 mA for geese and ducks,~~

- 400 mA for rabbits.

7.6.21._12_ AUSTRALIA	Category: Addition Proposed amended text: For head-only stunning, minimum parameters are recommended for the following species: • 240 mA for hens and broiler chicken, • 400 mA for turkeys, • 600 mA for geese and ducks, • 400 mA for rabbits. <u>For poultry, the secondary method should be applied within 10 seconds of head-only stunning.</u> Rationale: Electrical stunning results in reversible loss of consciousness only. Supporting evidence, if relevant EFSA Panel on Animal Health and Welfare (AHAW), 2019. Killing for purposes other than slaughter: poultry. EFSA Journal - 2019 - - Killing for purposes other than slaughter poultry.pdf. Accessed 16 May 2025. Hewitt, L. and Small, A., 2021. An independent animal welfare assessment of mass destruction methods for poultry on-farm. An independent animal welfare assessment of mass destruction methods for poultry on-farm. Accessed 16 May 2025.	Article deleted

Article 7.6. **212**.

Water-bath killing

7.6.22._1_ AUSTRALIA	Category: General Comment: No species specific recommendations are yet provided and the current suggested in the recommendations also does not provide any species-specific guidance. However, Humane Slaughter Association provides detailed advice on this topic including specific recommendations, which are likely to be relevant here. Supporting evidence, if relevant : <u>https://www.hsa.org.uk/downloads/hsagn7waterbathpoultryapril2016pdfoptimiser.pdf</u>	Noted
7.6.22._2_ UK	Category: Addition Proposed amended text (or precise suggested deletion) : <u>Review use of water-bath, water bath or waterbath across the full section and replace all with 'water-bath'</u> Rational: All three formats are used. Best to use the same one for consistency across the chapter. Water-bath is the format used in chapter 7.5	Noted

	Supporting evidence:	

Electrocution leading to death can be achieved by drawing inverted and shackled poultry through an electrified water-bath. Electrical contact is made between the water and earthed shackle and, when sufficient current with a 50 Hz AC waveform is applied, poultry will be simultaneously stunned and killed.

7.6.22._3_ USA	Proposed amended text: Electrocution leading to death can be achieved by drawing inverted and shackled poultry through an electrified water bath. Electrical contact is made between the water and earthed shackle and, when sufficient current <u>is applied with a</u> (50 Hz AC) <u>waveform</u> is applied, poultry will be simultaneously stunned and killed. Rationale: Edited for clarity.	Agreed
7.6.22._4_ UK	Category: Addition. Proposed amended text (or precise suggested deletion) : Electrocution leading to death can be achieved by drawing inverted and shackled poultry through an electrified water bath. Electrical contact is made between the water and earthed shackle and, when sufficient current (50 Hz AC) is applied, poultry will be simultaneously stunned and killed. <u>'In multiple bird water-baths with constant voltage it is important to ensure that the number of birds in the waterbath is proportional to the intensity in the waterbath to ensure all birds receive sufficient current to produce their simultaneous death'</u> Rational: The number of birds in a waterbath needs to be accounted for. As per Ohm's Law applied to electrical stunning of poultry in waterbaths, the current flowing through each individual bird depends upon the overall voltage supplied and the particular resistance of each bird. Supporting evidence: Ohms Law. Microsoft Word - TN10 Electrical Waterbaths	Did not agree
7.6.22._5_ ICFAW	Category: Addition and deletion Proposed amended text: Electrocution leading to death can be achieved by drawing inverted and shackled poultry through an electrified water bath. Electrical contact is made between the water and earthed shackle and, when sufficient current <u>is applied using the recommended frequency and wave form</u> (50 Hz; AC) <u>is applied</u>, poultry will be simultaneously stunned and killed. Rationale: Clarify the information contained in the parentheses.	Did not agree
7.6.22._6_ AUSTRALIA	Category: Change Proposed amended text: <u>This method is suitable for poultry.</u> Electrocution leading to death can be achieved by drawing inverted and shackled poultry through an electrified water bath. Electrical contact is made between the water and earthed shackle and, when sufficient current ~~(50 Hz AC)~~ is applied, poultry will be simultaneously stunned and killed.	Did not agree

	Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. This appears to confuse current and frequency. Also, the required frequency is mentioned later in this article, so is not needed here.	

1. Animal welfare concerns

In electrical water-bath killing, inverting and shackling conscious poultry by the legs can cause pain and fear.

7.6.22._7_ ICFAW	Category: Addition Proposed amended text: In electrical water-bath killing, inverting and shackling conscious poultry by the legs can cause pain, <u>stress</u> and fear. Rationale: Inversion and shackling of poultry causes an acute stress response, as measured by corticosterone. Supporting Evidence: Bedanova, I., Voslarova, E., Chloupek, P., et al. (2007). Stress in broilers resulting from shackling. Poultry Science, 86, 1065-1069. https://www.researchgate.net/publication/6337037_Stress_in_Broilers_Resulting_from_Shackling Debut, M., Berri, C., Arnould, C., Guemené, D., et al. (2005). Behavioural and physiological responses of three chicken breeds to pre-slaughter shackling and acute heat stress. British Poultry Science, 46, 527–535. https://www.tandfonline.com/doi/10.1080/00071660500303032?url_ver=Z39.88-2003&rft_id=ori:rid:crossref.org&rft_dat=cr_pub%20%20pubmed Link to pdf Kannan, G., Heath, J. L., Wabeck, C. J., & Mench, J. A. (1997). Shackling of broilers: Effects on stress responses and breast meat quality. British Poultry Science, 38, 323–332. https://pubmed.ncbi.nlm.nih.gov/9347138/ Link to pdf Kannan, G., & Mench, J. A. (1996). Influence of different handling methods and crating periods on plasma corticosterone concentrations in broilers. British Poultry Science, 37, 21–31. https://pubmed.ncbi.nlm.nih.gov/8833524/ Link to pdf	Agreed, but change it with distress

Hazards that increase the likelihood of animals experiencing pre-stun shocks are: poor handling at shackling, inappropriate line speed, physical contact between birds, incorrect angle of entry ramp, entry ramp wetted by charged water, incorrect water-bath height, and shallow immersion.

Hazards that may prevent effective electrical killing are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency) or too short exposure time.

7.6.22._8_ UK	Category: Deletion/Addition Proposed amended text (or precise suggested deletion) :	Did not agree

	Hazards that may prevent effective electrical killing are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, earthing pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency) or too short exposure time. Rational: Language point - It's assumed the term grounding here refers to the electrical principle of earth, of which failure can impact current flow and therefore stun and welfare Supporting evidence: not relevant.	
7.6.22._9_ CANADA	Comment Category: addition Proposed amended text: Hazards that may prevent effective electrical killing are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency) or too short exposure time as occurs in excessively fast line speeds. Rationale: Too short exposure time is typically linked to excessively fast line speeds and setting an appropriate line speed for the capacity of the slaughterhouse is the appropriate mitigation. Supporting Evidence https://efsa.onlinelibrary.wiley.com/doi/full/10.2903/j.efsa.2019.5849 Slaughter of animals: poultry EFSA Panel on Animal Health and Welfare 2019	Did not agree
7.6.22._10_ AUSTRALIA	Category: Addition Proposed amended text: Hazards that may prevent effective electrical killing are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency) or too short exposure time. When performed correctly this method is a one-stage procedure causing immediate loss of consciousness and death. A one-stage killing procedure risks distress, fear, and pain if the animal has not been immediately or rapidly rendered unconscious in the procedure. Ineffective application of the method (ineffective stunning or killing) should be followed by (specify backup method). Rationale: As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method.	Did not agree

Factors affecting individual bird resistance include the resistance between the shackle and the leg (leg/shackle interface), shackling on top of a severed foot, shackling by one leg, poor shackle position, incorrect shackle size, dry shackles, scale on the shackle surface, and keratinised skin on the legs (e.g. older birds).

Where insufficient electrical killing parameters are used, conscious animals are at risk of being electro-immobilised or paralysed causing pain and suffering.

2. Animal-based and other measures

Multiple indicators should be used to determine whether killing is effective.

Animal-based measures of an effective electrocution are:

- a) loss of muscle tone;
- b) absence of breathing;
- c) absence of corneal or palpebral reflex;
- d) absence of righting reflex
- e) absence of heart beat

7.6.22._11_ NORWAY	Category: Deletion Proposed deletion: Animal-based measures of an effective electrocution are: absence of muscle tone; apnoea; and absence of corneal or palpebral reflex; ~~absence of vocalisation and absence of righting reflex.~~ Rationale: Animals that are merely immobilized but fully conscious are not able to move, and they will not show a righting reflex or be able to vocalise. As this measure is unreliable it should not be included in the animal-based measures. Supporting evidence: EFSA opinions Killing for purposes other than slaughter: poultry, p. 54: <i>“Despite some exceptions, such as electro-immobilisation or other provoked paralysis, an animal can be presumed to be unconscious when it loses its natural standing position, is not awake and does not show signs of positive or negative emotions such as fear or excitement.”</i>	Agreed
7.6.22._12_ ICFAW	Category: Change Proposed amended text: ~~Animal-based measures of an effective electrocution are: absence of muscle tone; apnoea; and absence of corneal or palpebral reflex; absence of vocalisation and absence of righting reflex.~~ <u>Animal-based measures of an ineffective stun include vocalizations, righting reflex, and rhythmic breathing.</u> Rationale: Absent of EEG recordings, it is not possible to distinguish effective electrocution from electrically paralyzed birds passed through an electrical water bath. Rather, it is better to look for signs of ineffective killing. Supporting Evidence: Shields, S. J., & Raj, A. B. M. (2010). A critical review of electrical water-bath stun systems for poultry slaughter and recent developments in alternative technologies. Journal of Applied Animal Welfare Science, 13(4), 281-299. https://pubmed.ncbi.nlm.nih.gov/20865613 Link to pdf	Did not agree

7.6.22._13_EU	The EU suggests the following revision and adding a new sentence: 'Animal-based measures of an effective electrocution are: absence of muscle tone; apnoea; and absence of corneal or palpebral reflex; ~~absence of vocalisation and absence of righting reflex.~~ <u>'Animal-based measures of an ineffective electrocution are: presence of corneal or palpebral reflex; spontaneous blinking; presence of vocalisation; presence of righting reflex, and rhythmic breathing.'</u> Justification: Absence of vocalisation or righting reflex does not mean that the electrocution has been effective, as these animal-based measures are not always present. Animals could be conscious and do not show them. Presence of vocalisations and righting reflex are, on the contrary, signs of a non-effective electrocution.	Did not agree

3. Recommendations

Poultry should be shackled by both legs. Shackles should match the species and size of the birds to guarantee a good contact.

Pre-stun shocks should be prevented and can be reduced by having a smooth shackle line and entry to the water-bath and by adjusting the water level of the bath to minimise overflow. Proper water-bath design, including a non-conductive entrance, will also help eliminate pre-stun shocks. Measures to calm the birds or to reduce the frequency of wing flapping can be put in place such as: breast rubs, low lighting, smooth transition into the water-bath and gentle shackling such that this does not trigger wing flapping.

In multiple bird water-baths with constant voltage it is important to ensure that the number of birds in the water-bath is proportional to the intensity in the water-bath to ensure all birds receive sufficient current to kill them.

Birds that are visibly injured including with leg abnormalities, or runts that may miss the water-bath, should not be shackled and instead should be killed by an alternative appropriate method.

7.6.22._14_ AUSTRALIA	Category: Addition Proposed amended text: Pre-stun shocks should be prevented and can be reduced by having a smooth shackle line and entry to the water-bath and by adjusting the water level of the bath to minimise overflow. Proper waterbath design, including a non-conductive entrance, will also help eliminate pre-stun shocks. Measures to calm the birds or to reduce the frequency of wing flapping can be put in place such as: breast rubs, low lighting, smooth transition into the waterbath and gentle shackling such that this does not trigger wing flapping. <u>Birds that are visibly injured including with leg abnormalities, or runts that may miss the waterbath, should not be shackled and instead should be killed by an alternative appropriate method.</u> Rationale: Birds that have injuries may experience more pain from shackling, and birds with injuries or small birds (runts) may not properly reach	Agreed

	the waterbath or receive sufficient electrical current, and should be killed using a different method. Supporting evidence, if relevant EFSA Panel on Animal Health and Welfare (AHAW), Nielsen, S.S., Alvarez, J., Bicot, D.J., Calistri, P., Depner, K., Drewe, J.A., Garin-Bastuji, B., Gonzales Rojas, J.L., Gortázar Schmidt, C. and Miranda Chueca, M.Á., 2019. Killing for purposes other than slaughter: poultry. <i>EFSA Journal</i>, 17(11), p.e05850.	

Poultry should be submerged into the water up to the base of the wings.

7.6.22._15_ NEW ZEALAND	Category: Change Proposed amended text: <u>The head of each bird</u> should be submerged into the water <u>up to the base of the wings.</u> Rationale: i) Consistency between Terrestrial Code chapters. The suggested change aligns the text with the requirement laid out in Article 7.5.30 point 3 (see Annex 23). ii) The focus of the text should be on submersion of the head. A focus on submersion to the base of the wings is not good practice. This is because submerging poultry up to the base of the wings presents the risk that the current will bypass the head and brain of birds, resulting in birds that are not rendered unconscious. An additional concern is where the wings of birds touch the water prior to the head, resulting in pre-stun shocks, which can result in birds lifting their heads and not being stunned. Furthermore, we understand that contact between the body and the electrified water may result in death and as a consequence a non-Halal product. Supporting evidence: Pre-stun stocks at the entrance to a water bath. Humane Slaughter Association.	Did not agree. Already clear in the current text.
7.6.22._16_ CANADA	Comment Category: change Proposed amended text: ~~Poultry should be submerged into the water up to the base of the wings.~~ <u>The height of the water-bath stunner should be adjusted as needed so that all birds' heads are completely immersed in the water.</u> Rationale: To ensure alignment with Article 7.5.30. point 3 paragraph one as the recommendations for immersion in the waterbath should not be different between disease control or slaughter. In addition, the water bath should also be adjusted throughout the day as needed to ensure the even smallest birds are submerged up to their shoulders.	Did not agree

A low frequency (50 Hz) current with a minimum of 400 mA per bird should be applied for a minimum of 3 seconds [EFSA, 2019].

7.6.22._17_ ICFAW	Category: Addition Proposed amended text: <u>Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.</u> Rationale: Add a recommendation that constant current stunning is preferred for electrical water-bath stunning, just as it is for head only electrical stunning followed by a secondary method.	Did not agree
7.6.22._18_ AUSTRALIA	Category: Addition Proposed amended text: A low frequency (50 Hz) <u>sine wave AC</u> current with a minimum of 400 mA per bird should be applied for a minimum of <u>34</u> seconds [EFSA, 2019]. <u>Line speeds should not be so fast as to cause animals to struggle. The total current should be calculated taking into account the number of birds that will be in the waterbath at any one time.</u> Rationale: Both EFSA 2019 document on poultry slaughter and killing for non slaughter purposes, recommend at least 4 seconds duration of exposure, and use of a sine wave AC current. Fast line speeds may cause animals to swing around, increasing wing flapping. Additional clarity is recommended about the total current that will be required. Supporting evidence, if relevant EFSA Panel on Animal Health and Welfare (AHAW), Nielsen, S.S., Alvarez, J., Bicut, D.J., Calistri, P., Depner, K., Drewe, J.A., Garin-Bastuji, B., Gonzales Rojas, J.L., Gortázar Schmidt, C. and Miranda Chueca, M.Á., 2019. Slaughter of animals: poultry. <i>EFSA Journal</i>, 17(11), p.e05849. EFSA Panel on Animal Health and Welfare (AHAW), Nielsen, S.S., Alvarez, J., Bicut, D.J., Calistri, P., Depner, K., Drewe, J.A., Garin-Bastuji, B., Gonzales Rojas, J.L., Gortázar Schmidt, C. and Miranda Chueca, M.Á., 2019. Killing for purposes other than slaughter: poultry. <i>EFSA Journal</i>, 17(11), p.e05850.	Did not agree
7.6.22._19_EU	The EU suggests including the following sentence: <u>'Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.'</u> Justification: To be consistent with article 7.6.21., as this sentence applies to all electrical methods.	Did not agree

Death should be confirmed before disposal.

7.6.22._20_ AUSTRALIA	Category: Addition Proposed amended text:	Did not agree

	Death should be confirmed before disposal. The effectiveness of stunning and killing should be monitored and equipment checked and adjusted as needed. Rationale: A number of factors may impact the effectiveness of this method of killing, and close monitoring is recommended to ensure adjustments can be made.	

In the case of ineffective killing, animals should be killed immediately using a backup system.

4. Species-specific recommendations

None identified

7.6.22._21_ UK	Category: Addition Proposed amended text Use of neck extender on entry ramp for ducks, to ensure head enters the water' Rational:Ducks can hold their necks up from the water, preventing the desire stun Supporting evidence: not relevant.	Did not agree
7.6.22._22_ UK	Category: Addition Proposed amended text It should be noted that electrical waterbath systems have been found not to provide a reliable stun, even in the best run operations Rational: Electricity does not reliably causes stunning to every bird in the waterbath. Certain parameters do not cause unconsciousness at all. As a result birds are subject to considerable pain, distress and fear Supporting evidence: EFSA Scientific Opinion on electrical requirements for poultry waterbath stunning equipment: http://www.efsa.europa.eu/sites/default/files/scientific_output/files/main_documents/3745.pdf Humane Slaughter Association Guidance Notes on the Electrical Waterbath Stunning of Poultry: GNhand.qxd	Did not agree

Article 7.6.23.

Maceration

Maceration, utilising a mechanical apparatus with rotating blades or projections, causes immediate fragmentation and death.

7.6.23._1_ AUSTRALIA	Category: Change Proposed amended text: This method is suitable for day-old birds and for embryonated eggs. Maceration, utilising a mechanical apparatus with rotating blades or projections, causes immediate fragmentation and death ~~in day-old birds and for embryonated eggs.~~ Rationale:	Agreed and move it to the first part of the article.

	As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	

1. Animal welfare concerns

Pain, suffocation and distress due to a slow rotation of blades or rollers, overloading and rollers set too wide.

7.6.23._2_ CANADA	Comment Category: addition Proposed amended text: Pain, fear , suffocation and distress due to a slow rotation of blades or rollers, overloading and rollers set too wide. Rationale: Canada suggests adding fear, as it too would be a response. Supporting Evidence EFSA https://pmc.ncbi.nlm.nih.gov/articles/PMC7008794/table/efs25850-tbl-0019/	Agreed

2. Animal-based and other measures

a) immediate fragmentation

7.6.23._3_ UK	Category: Addition Proposed amended text 1. Animal welfare concerns no identifiable body parts in macerated waste' Pain, suffocation and distress due to a slow rotation of blades or rollers, overloading and rollers set too wide. Rational: Post-macerated waste should contain no identifiable body parts – this may lead to consideration for removal of the part 'absence of signs of life' as it would not be possible to assess this without identifiable body parts. Supporting evidence: HSA internal communication	Did not agree

3. Recommendations

This method is suitable for day-old birds and for embryonated eggs.

The capacity of the apparatus (power and sharpness) should be sufficient to ensure that all day-old birds are killed instantaneously, even if they are handled in a large number. The rate of introducing the birds should not allow the equipment to jam. Only purpose built equipment should be used. Equipment should be well maintained and tested prior to killing animals.

7.6.23._4_ USA	Proposed amended text: The capacity of the apparatus (power and sharpness) should be sufficient to ensure that all day-old -birds are killed instantaneously, even if they are handled in a large number. The	Agreed

	rate of introducing the birds should not allow the equipment to jam. Only purpose built equipment should be used, <u>well-maintained and tested daily prior to killing live animals.</u> Rationale: Recommend adding language to emphasize the importance of properly functioning equipment to uphold good animal welfare practices..	
7.6.23._5_UK	Category: Deletion/addition Proposed amended text The capacity of the apparatus (power and sharpness) should be sufficient to ensure that all day-old - ~~birds are~~ <u>birds are</u> killed instantaneously, even if they are handled in a large number. The rate of introducing the birds should not allow the equipment to jam. Only ~~purpose-built~~ <u>purpose-built</u> equipment should be used. Rational: Typos Supporting evidence: not relevant.	Did not agree

The gap between rollers should ensure day-old birds' are crushed instantaneously leading to death [HSA, 2005].

7.6.23._6_UK	Category: Deletion/Addition Proposed amended text The gap between rollers must ensure ~~day-old-birds~~ <u>day-old birds'</u> heads are crushed instantaneously leading to death. Rational: Grammatical adjustment adding the apostrophe to reflect the possessive case as the sentence refers to the head of the birds. Supporting evidence: not relevant.	Agree
7.6.23._7_ JAPAN	Category: Change Proposed amended text: The gap between rollers ~~must-should~~ ensure day-old-birds heads are crushed instantaneously leading to death [HSA, 2005]. Rationale: WOAH standards are recommendations for member countries and "should" should be used in this regard.	Agreed

Mechanical killing of day-old-birds should result in slurry, rather than recognisable body parts such as internal organs, legs, wings and heads, to ensure day-old-birds that were truly macerated [HSA, 2005].

It is important to ensure that the speed of the equipment is appropriate for the batch size and that day-old-birds are dead when they come out of the machine.

7.6.23._8_ ICFAW	Category: Addition Proposed amended text: It is important to ensure that the speed of the equipment is appropriate for the batch size and that <u>the equipment be continuously checked to ensure every</u> day-old-birds ~~are~~ is dead when they come out of the machine. <u>If any bird is found to be alive,</u>	Did not agree

	<u>they must be immediately euthanized by an alternate method and the equipment must be stopped immediately and not used again until the problem is corrected.</u> Rationale: Because of the potential for extreme suffering of a large number of animals if a machinery problem is allowed to persist, the language in this section must be stronger. Continuous checking to ensure machinery is killing chicks instantaneously is necessary (Humane Slaughter Association 2023) Supporting Evidence: Humane Slaughter Association. (2023). Code of Practice for the Killing of Chicks in Hatcheries. https://www.hsa.org.uk/downloads/code-of-practice-for-the-killing-of-chicks-in-hatcheries-jan-2023.pdf	
7.6.23._9_ CANADA	Comment Category: addition Proposed amended text: It is important to ensure that the speed of the equipment is appropriate for the batch size and that day-old-birds are dead when they come out of the machine. <u>If any bird is found alive, the unit must not be used again until the issue is resolved.</u> Rationale: Canada suggests that to prevent inhumane killing due to malfunctioning equipment, the above sentence be added. https://www.hsa.org.uk/downloads/code-of-practice-for-the-killing-of-chicks-in-hatcheries-jan-2023.pdf	Did not agree

Avoid adding more than one layer of day-old-birds at one time or in quick succession, avoid introduction of a batch into the macerator before previous day-old-birds are dead.

7.6.23._10_ ICFAW	Category: Addition Proposed amended text: <u>This method is suitable for day old poultry and embryonated eggs only.</u> Rationale: To be consistent with other sections, clearly state which animals may be killed using this method. It is important to indicate the type of animals for which it is intended. as it has the potential to be misused on larger birds.	Agreed but it was moved to first part of the article.

4. Species-specific recommendations

Not identified

Article 7.6.24.

Addition of anaesthetics to feed or water

7.6.24._1_ EU	The EU suggests deleting the entire Article 7.6.24. <u>Justification:</u> There are concerns that poor palatability may potentially reduce voluntary consumption of the agent by poultry (Raj, 2008). The	Article deleted

	bitter taste of many drugs prevents the intake of a single lethal dose and attempts to encourage animals to ingest the drug in sufficient quantity would require withdrawal of food and water for considerable periods prior to the cull, generating welfare concerns (McKeegan, 2018). Additionally, sick animals tend to eat and drink less. Consequently, not all animals, particularly those being sick, will ingest a lethal dose and therefore this method will not achieve a 100% effectiveness.	
7.6.24._2_ NORWAY	Category: Deletion Proposed deletion: The article should be deleted. Rationale: Sick animals tend to eat and drink less. Consequently, not all animals, particularly those that are sick, will ingest a lethal dose and therefore this method will not be 100% effective. Supporting evidence: There are concerns that poor palatability may potentially reduce voluntary consumption of the agent by poultry (Raj, 2008). The bitter taste of many drugs prevents the intake of a single lethal dose and attempts to encourage animals to ingest the drug in sufficient quantity would require withdrawal of food and water for considerable periods prior to the cull, generating welfare concerns (McKeegan, 2018).	Article deleted

~~An anaesthetic agent which can be mixed with poultry feed or water may be used to kill poultry in houses. Commonly used general anaesthetic agents are not intended or approved for oral use. Poultry which are only anaesthetised need to be killed by another method such as cervical dislocation.~~

7.6.24._3_ UK	Category: Addition Proposed amended text An anaesthetic agent which can be mixed by a vet or trained personnel under the direct supervision of a vet with poultry feed or water may be used to kill poultry in houses. Commonly used general anaesthetic agents are not intended or approved for oral use. Poultry which are only anaesthetised need to be killed by another method such as cervical dislocation. Rational: Anaesthetic agents are controlled drugs that can be fatal to humans and a source of addiction. It is important to recognise this and emphasize the importance of veterinarians to ensure traceability and control of these drugs. Supporting evidence: not relevant.	Article deleted
7.6.24._4_ AUSTRALIA	Category: Change Proposed amended text: An anaesthetic agent which can be mixed with poultry feed or water may be used to kill poultry in houses. When performed correctly this method causes rapid loss of consciousness. Anaesthesia needs to be followed by immediate killing using another method such as cervical dislocation. Commonly used	Article deleted

	general anaesthetic agents are not intended or approved for oral use. ~~Poultry which are only anaesthetised need to be killed by another method such as cervical dislocation.~~ Rationale: As noted in general comments, we recommend inclusion of advice regarding an appropriate secondary killing method.	

1. Animal welfare concerns

Ingestion of an insufficient quantity of the drug or inappropriate drug not leading to unconsciousness. Failing to implement a secondary killing method before consciousness regained. Exposure of non-targeted animal or birds is a risk[<https://www.hsa.org.uk>]

7.6.24._5_ UK	Category: Deletion Proposed amended text ~~Ingestion of an insufficient quantity of the drug or inappropriate drug not leading to unconsciousness.~~ Ingestion of an insufficient quantity of the drug or inappropriate drug not leading to unconsciousness. Rational: Typo Supporting evidence: not relevant.	Article deleted
7.6.24._6_ AUSTRALIA	Category: Addition Proposed amended text: Ingestion of an insufficient quantity of the drug or inappropriate drug not leading to unconsciousness. Failing to implement a secondary killing method before consciousness regained. Exposure of non-targeted animal or birds is a risk[https://www.hsa.org.uk] Risks to other animals which may scavenge carcasses and experience secondary intoxication. Rationale: Secondary intoxication is a risk to scavenging animals that may ingest the carcasses	Article deleted

2. Animal-based and other measures

Absence of signs of life including breathing, body movement, righting reflex.

7.6.24._7_ AUSTRALIA	Category: Addition Proposed amended text: <u>2. Animal-based and other measures</u> Multiple indicators should be used to confirm unconsciousness and death: Signs of unconsciousness include: lack of body movement and righting reflex, absence of corneal or palpebral reflex. Additional signs that indicate the absence of signs of life, including lack of breathing, heartbeat, or brain stem reflexes body movement, righting reflex.	Article deleted

	Rationale: Anaesthetics may cause only unconsciousness without death, therefore it is important to differentiate the two to ensure a secondary killing process can be applied if necessary.	

3. Recommendations

To ensure that these anaesthetics have been effectively removed from the feeding or drinking water system and that no residue is left behind that could harm the next flock, a very careful cleaning procedure is necessary. Sufficient quantities of anaesthetic need to be ingested rapidly for effective response. Intake of sufficient quantities is facilitated if the birds are fasted or water is withheld. Should be followed by immediate killing if birds are anaesthetised only.

7.6.24._8_ ICFAW	Category: Addition Proposed Amended Text: Intake of sufficient quantities is facilitated if the <u>drug is compounded to improve palatability and/or</u> birds are fasted or water is withheld; <u>however, withholding food or water for longer than a brief period must be avoided to prevent negative impacts on animal welfare.</u> <u>This method must not be used in clinically sick birds with a depressed appetite due to the high risk of failure.</u> Rationale: Addition of anaesthetics to the feed or water has potential to be a high welfare method and keeping it in the WOAHS guidelines would encourage further investigation. However, the potential animal welfare risks, and recommendations to avoid them, must be presented. Supporting evidence: Gardhouse, S., Beaufreire, H., Hawkins, M. G., Sanchez-Migallon Guzman, D., Jajou, S., & Paul Murphy, J. (2023). Evaluation of oral transmucosal administration of pentobarbital for euthanasia of conscious wild birds. <i>Journal of applied animal welfare science</i> : JAAWS, 26(1), 4–14. https://doi.org/10.1080/10888705.2021.1911655 Link to pdf	Article deleted

This method is suitable for confined poultry.

7.6.24._9_ UK	Category: Deletion/Addition Proposed amended text <u>This method is suitable for confined poultry. This method should only be used as a last resort.</u> Rational: Should be more evidence to support/guide the use of medicinal products in feed or water. The UK Animal Welfare Committee has raised concerns about the effectiveness of ingested medicines for culling poultry and recommended that this should not be allowed until further research into effective products/methods had been undertaken	Article deleted

	Supporting evidence: Advice on emergency culling for the depopulation of poultry affected by high pathogenic avian influenza (HPAI) - GOV.UK	
7.6.24._10_ AUSTRALIA	Category: Change Proposed amended text: To ensure that these anaesthetics have been effectively removed from the feeding or drinking water system and that no residue is left behind that could harm the next flock, a very careful cleaning procedure is necessary. Sufficient quantities of anaesthetic need to be ingested rapidly for effective response. Intake of sufficient quantities is facilitated if the birds are fasted or water is withheld. ~~Should Birds must be examined to confirm death, and be followed by immediate killing by a secondary method if birds they~~ are anaesthetised only. ~~This method is suitable for confined poultry.~~ Carcasses should be disposed of in a manner that ensures they do not pose a risk to animals which may scavenge upon them. Rationale: As anaesthetics may cause only unconsciousness without death, it is important to identify animals that remain alive and apply a secondary killing process. Secondary intoxication is a risk to scavenging animals that may ingest the carcasses As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Article deleted

4. Species-specific recommendations

None identified

Article 7.6.23.

General principles of modified atmosphere killing

Modified atmosphere killing is performed by exposing animals to CO₂, inert gases or their mixtures, or reducing oxygen availability through low pressure.

7.6.25._1_ Australia	Category: Addition Proposed amended text: Modified atmosphere killing is performed by exposing animals to CO₂, inert gases or their mixtures, or reducing oxygen availability through low pressure. Rationale: Suggested change to reflect the method of action of low atmospheric pressure.	Agreed

This can be performed either by placing the animals in a prefilled gas container, gas being introduced into the animal house, placing animals in a container and introducing a gas mixture or in the case of low atmosphere pressure killing removing air from the container.

7.6.25._2_ USA	Proposed amended text: This can be performed either by placing the animals in a prefilled gas container, by placing transport modules or crates containing animals in a container and introducing a gas mixture, <u>such as by loading animals onto a specially designed trailer</u>, or by the gas being introduced into a poultry house. Rationale: Recommend addition of examples, both newer and more familiar techniques. Supporting reference: The Canadian Prairie Agricultural Machinery Institute (PAMI) designed and built a Disease Response Trailer that can kill whole batches of young pigs using nitrogen gas generated on site. It is a newer humane and viable future alternative.	Did not agree
7.6.25._3_UK	Category: Deletion/Addition Proposed amended text This can be performed either by placing the animals in a <u>prefilled pre-filled</u> gas container, by placing transport modules or crates containing animals in a container and introducing a gas mixture, or by the gas being introduced into a poultry house. Rational: Whilst both forms are gramatically correct we believe the hyphen format is more aligned with other terms used in the chapter such as gas-filled Supporting evidence: not relevant.	Did not agree
7.6.25._4_ ICFAW	Category: addition Proposed amended text: This can be performed either by placing the animals in a prefilled gas container, by placing <u>animals or</u> transport modules or crates containing animals in a container <u>or trailer</u> and introducing a gas mixture, or by the gas being introduced into a poultry house. Rationale: Nitrogen gas can be generated on site and has been used in Canada to kill piglets in a modified semitrailer. These self-contained systems can kill 700 piglets at one time. The gas is introduced into the chamber after the piglets have been herded onto the truck. It is a promising solution for nitrogen-based methods with high welfare potential and should be included here. This edit would also be consistent with Article 7.6.27 stating that animals may be walked into a container. Supporting evidence: Bergen, G. (2023) Design, operation and lessons learned of a nitrogen gas-based swine depopulation system. American Veterinary Medical Association Humane Endings Symposium. Link Hill, J. (2025). A better means to a Humane Ending? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4. Powerpoint presentation available at:	Did not agree

	https://www.vafaw.org/ files/ugd/231617_f76db69528b0489facb1a880a25fb4fb.pdf	
7.6.25._5_ ICFAW	Category: Addition Proposed amended text: <u>They type of gas used has animal welfare implications. The mechanism of death for carbon dioxide killing is hypercapnic hypoxia. However, nitrogen and argon are inert gasses, which are tasteless and odourless. Breathable air is 78% nitrogen. In a sufficiently low oxygen atmosphere, breathing nitrogen or other inert gases is not a painful, aversive experience and causes minimal respiratory distress prior to loss of consciousness, although convulsions may occur. The mechanism of death is anoxia.</u> Rationale: The animal welfare implications of different gas types should be explained. Not all gases used for killing have the same physiological effects and death ensues by different mechanisms. Article 7.6.3 above states that "Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness should not cause avoidable distress, fear and pain." Therefore, it is important to provide guidance on which gases cause the least distress, fear and pain. Supporting evidence: Becerril-Herrera, M.; Alonso-Spilsbury, M.; Lemus-Flores, C.; Guerrero-Legarreta, I.; Olmos-Hernández, A.; Ramírez-Necoechea, R. & Mota-Rojas, D. (2009) CO2 stunning may compromise swine welfare compared with electrical stunning. <i>Meat Science</i>, 81, 233–237. Link to pdf Gent, T. C., Gebhardt-Henrich, S., Schild, S. L. A., Rahman, A. A., & Toscano, M. J. (2020). Evaluation of poultry stunning with low atmospheric pressure, carbon dioxide or nitrogen using a single aversion testing paradigm. <i>Animals</i>, 10(8), 1308. https://www.mdpi.com/2076-2615/10/8/1308 Kells, N.; Beausoleil, N.; Johnson, C. & Sutherland, M. (2018) Evaluation of different gases and gas combinations for on-farm euthanasia of pre-weaned pigs. <i>Animals</i>, 8, 40. https://www.mdpi.com/2076-2615/8/3/40 McKeegan, D.E.F., McIntyre J., Demmers, T.G.M., Wathes, C.M., & Jones, R.B. (2006) Behavioural responses of broiler chickens during acute exposure to gaseous stimulation. <i>Applied Animal Behaviour Science</i> 99, 271–286. Link to pdf Raj AM & Gregory NG. (1995) Welfare implications of gas stunning of pigs 1. Determination of aversion to the initial inhalation of carbon dioxide or argon. <i>Animal Welfare</i> 4, 273-280. Link to pdf Raj, A. & Gregory, N. (1996) Welfare implications of the gas stunning of pigs 2. Stress of induction of anaesthesia. <i>Animal Welfare</i>, 5, 71-78. Link to pdf Sandilands, V., Raj, A.B.M, Baker, L. & Sparks, N.H.C. (2011) Aversion of chickens to various lethal gas mixtures. <i>Animal Welfare</i>, 20, 253-262. Link to pdf	Did not agree. Unnecessary details
7.6.25._6_ AUSTRALIA	Category: Addition Proposed amended text:	Did not agree. Unnecessary details

	This can be performed either by placing the animals in a prefilled gas container, by placing transport modules or crates containing animals in a container and introducing a gas mixture, or by the gas being introduced into a poultry house. The use of specific gases affects the welfare outcomes associated with modified atmosphere killing. Some gases may be irritant and aversive to animals, particularly at high concentrations (e.g. CO₂). This can be reduced by gradually increasing the concentration, although this must be balanced against the overall increased time until unconsciousness. Modified atmosphere killing includes a prolonged period of consciousness after commencement of the method, during which the animals experience any aversive effects associated with the gas used. Less aversive gases or techniques (e.g. through gradual increases in concentrations for poultry) should be used if possible. Rationale: Gases may cause adverse effects on animals. For example, CO₂ may irritate mucous membranes, particularly at higher concentrations (over 40%) as well as causing hypercapnia as a result of CO₂ build up in the bloodstream. EFSA and AVMA both recommend that concentrations be gradually increased for poultry. Supporting evidence, if relevant EFSA Panel on Animal Health and Welfare (AHAW), Nielsen, S.S., Alvarez, J., Bicout, D.J., Calistri, P., Depner, K., Drewe, J.A., Garin-Bastuji, B., Gonzales Rojas, J.L., Gortázar Schmidt, C. and Miranda Chueca, M.Á., 2019. Killing for purposes other than slaughter: poultry. <i>EFSA Journal</i>, 17(11), p.e05850.	

Foam can be used as an adjunct to modified atmosphere killing methods. .

7.6.25._7_ USA	Proposed amended text: Modified atmosphere killing can also be administered by using high-expansion gas-filled foam, ~~medium or low density water-based foam~~ or through low atmosphere pressure stunning (LAPS). Rationale: Edited for clarity and accuracy: medium and low density (medium-expansion capacity) water-based foams do not achieve a modified atmosphere. Unlike high-expansion gas-filled foams, water-based foams kill by occlusion of the airways, not by modifying breathable air. Gas-filled foam only causes a modified atmosphere if it has a sufficiently high expansion ratio (greater than 300:1) and sufficiently large bubble size. When the bubbles burst using high-expansion foams, it creates a modified atmosphere. Water-based, medium-expansion foams do not work the same way. Supporting references : EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA Journal</i>. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855. Lindahl, C., Sindhøj, E., Brattlund Hellgren, R., Berg, C., & Wallenbeck, A. (2020). Responses of pigs to stunning with nitrogen	Agreed but worded in a different form

	filled high-expansion foam. Animals, 10(12), 2210. https://www.mdpi.com/2076-2615/10/12/2210 McKeegan, D. E. F., Reimert, H. G. M., Hindle, V. A., Boulcott, P., Sparrey, J. M., Wathes, C. M., ... & Gerritzen, M. A. (2013). Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. Poultry Science, 92(5), 1145-1154. https://www.sciencedirect.com/science/article/pii/S0032579119387000	
7.6.25._8_UK	Category: Deletion Proposed amended text Modified atmosphere killing can also be administered by using gas-filled foam, ~~medium or low density water based foam~~ or through low atmosphere pressure (LAPS). Rational: The mechanism of action for low and medium expansion foam is different. Here the foam bubbles penetrate the airway causing death by asphyxiation. Supporting evidence: AWC opinion on high expansion nitrogen foam for culling poultry - GOV.UK; FAWC opinion on the welfare of animals killed on-farm - GOV.UK	Agreed but worded in a different form
7.6.25._9_UK	Category: Deletion Proposed amended text Modified atmosphere killing can also be administered by using gas-filled foam, medium or low density water based foam or through low atmosphere pressure (~~LAPS~~). Rational: The mechanism of action for low atmospheric pressure is different. Here there is a change in pressure within the environment rather than a change by exposure to different gas mixtures. Low atmospheric pressure has been found to be inhumane in pigs by causing eardrum rupture and questions about its humaneness in poultry remain, where it has been reported that there is no data available to rule out the possibility of colic-like pain occurring in conscious poultry due to gas expansion. Supporting evidence: Developing an alternative method to the use of high concentration CO2 for the commercial stunning of pigs - MH0154 Low atmospheric pressure system for stunning broiler chickens (page 29)	Agreed
7.6.25._10_ SOUTH AFRICA	Category: Deletion Proposed amended text: Modified atmosphere killing can also be administered by ~~using gas-filled foam, medium or low density water based foam or through~~ low atmosphere pressure (LAPS). Rationale: Modified atmospheres alter the composition of breathable air, leading to animal death through hypoxia (oxygen deprivation) or the accumulation of lethal gases like carbon dioxide. In contrast, water-based medium- or low-density foam does not modify the atmosphere but instead causes death by physically blocking the airway. It should not be included in Article 7.6.25.	Agreed but worded in a different form

	Supporting evidence: McKeegan, D. (2018). Mass Depopulation. In J.A. Mench (Ed.), <i>Advances in Poultry Welfare</i> (pp. 351–372). Woodhead Publishing. ISBN 978-0-08-100915-4. McKeegan, D.E.F., H.G.M. Reimert, V.A. Hindle, P. Boulcott, J.M. Sparrey, C.M. Wathes, T.G.M. Demmers and M.A. Gerritzen. (2013) Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. <i>Poultry Science</i> 5(1):1145-1154. https://pubmed.ncbi.nlm.nih.gov/23571322 Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary record</i>, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722	
7.6.25._11_ ICFAW	Category: Editorial Proposed amended text: Modified atmosphere killing can also be administered by using <u>high-expansion</u> gas-filled foam, ~~medium or low density water based foam~~ or through low atmosphere pressure (LAPS). Rationale: As described in detail below, the mechanism of killing for the method described here as “medium or low density water based foam” involves physical obstruction of the airway, not modification of the ambient atmosphere. This has significant animal welfare implications, requiring clarity and understanding. In addition, “gas-filled foam” only qualifies as a modified atmosphere killing method if the foam has a sufficiently high expansion ratio (typically > 300:1) and sufficiently large bubble size. If low- or medium-expansion foams are filled with gas, their mechanism of killing remains as airway occlusion. Supporting evidence: Animal Welfare Committee. (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: https://www.gov.uk/government/publications/awc-opinion-on-high-expansion-nitrogen-foam-for-culling-poultry/awc-opinion-on-the-use-of-high-expansion-nitrogen-foam-for-culling-poultry EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA Journal</i>. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.a.2024.8855. McKeegan, D. (2018). Mass Depopulation. In J.A. Mench (Ed.), <i>Advances in Poultry Welfare</i> (pp. 351–372). Woodhead Publishing. ISBN 978-0-08-100915-4. Link to pdf Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary record</i>, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722 Link to pdf	Agreed but worded in a different form
7.6.25._12_ CHILE	ES (To check Spanish version to add LAPS) Categoría (adición, supresión): Texto modificado propuesto (o supresión sugerida):	Agreed the first part but worded in a different form. Did not agree with

	La atmósfera modificada también puede administrarse utilizando espuma con gas, ~~espuma a base de agua de densidad media~~ o ~~mediante~~ baja presión atmosférica (LAPS). Justificación: Eliminar la opción de espuma a base de agua de esta sección. Las atmósferas modificadas cambian la composición del aire respirable, matando a los animales por hipoxia (falta de oxígeno) o por la acumulación de gases letales (como el dióxido de carbono). La espuma a base de agua de densidad media/baja no crea una atmósfera modificada, sino que mata a los animales mediante la oclusión mecánica de las vías respiratorias. No debería incluirse en el Artículo 7.6.25. Mediante y LAPS, se solicita se añadan por consistencia con la versión en inglés establece: <i>Modified atmosphere killing can also be administered by using gas-filled foam, medium or low density water based foam or through low atmosphere pressure (LAPS).</i> EN Proposed amended text: Modified atmosphere killing can also be administered by using gas-filled foam; ~~medium or low density water based foam~~ or through low atmosphere pressure (LAPS). Rationale: Remove the water-based foam option from this section. Modified atmospheres change the composition of breathable air, killing animals through hypoxia (lack of oxygen) or the accumulation of lethal gases (such as carbon dioxide). Medium/low-density water-based foam does not create a modified atmosphere; rather, it kills animals by mechanically occluding the airways. It should not be included in Section 7.6.25. Evidencia documentada/Supporting evidence: EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. EFSA Journal. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.a.2024.8855 McKeegan, D. (2018). Mass Depopulation. In J.A. Mench (Ed.), <i>Advances in Poultry Welfare</i> (pp. 351–372). Woodhead Publishing. ISBN 978-0-08-100915-4. McKeegan, D.E.F., H.G.M. Reimert, V.A. Hindle, P. Boulcott, J.M. Sparrey, C.M. Wathes, T.G.M. Demmers and M.A. Gerritzen. (2013) Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. <i>Poultry Science</i> 5(1):1145-1154. https://pubmed.ncbi.nlm.nih.gov/23571322 Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary record</i>, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722	the proposed addition.
7.6.25_13_ CANADA	Category: Addition Proposed amended text: Modified atmosphere killing can also be administered by using ~~gas filled foam, medium or low density water based foam or~~	Agreed with the first part but worded in a different form Did

	through low atmosphere pressure (LAPS). However, LAPS is not considered a humane alternative to carbon dioxide for pigs. Rationale: Canada suggests that the latest scientific evidence suggests LAPS is not a humane alternative to CO2 due to potential ear pain and prolonged time needed for loss of consciousness in pigs. Medium and low-density foams kill by mechanical suffocation; they are not modified atmosphere methods. Only high expansion ratio foams should be included in this section. Supporting evidence, if relevant: McKeegan, D.E.F., H.G.M. Reimert, V.A. Hindle, P. Boulcott, J.M. Sparrey, C.M. Wathes, T.G.M. Demmers and M.A. Gerritzen. (2013) Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. Poultry Science 5(1):1145-1154. https://pubmed.ncbi.nlm.nih.gov/23571322 McKeegan, D. (2018). Mass Depopulation. In J.A. Mench (Ed.), <i>Advances in Poultry Welfare</i> (pp. 351–372). Woodhead Publishing. ISBN 978-0-08-100915-4. Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. The Veterinary record, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722 Martin, J.E., Baxter, E.M., Clarkson, J.M., Farish, M., Clutton, R.E., Greenhalgh, S.N., Gregson, R. and McKeegan, D.E., 2022. Characterizing candidate decompression rates for hypobaric hypoxic stunning of pigs. Part 1: Reflexive behavior and physiological responses. <i>Frontiers in Veterinary Science</i>, 9, p.1027878. https://doi.org/10.3389/fvets.2022.1027878 Baxter, E.M., McKeegan, D.E., Farish, M., Thomson, J.R., Clutton, R.E., Greenhalgh, S.N., Gregson, R. and Martin, J.E., 2022. Characterizing candidate decompression rates for hypobaric hypoxic stunning of pigs. Part 2: Pathological consequences. <i>Frontiers in Veterinary Science</i>, 9, p.1027883. https://doi.org/10.3389/fvets.2022.1027883 Martin et al., LAPS, a humane alternative to carbon dioxide? https://www.researchgate.net/profile/Jessica-Martin/publication/348166943_Low_atmospheric_pressure_stunning_in_poultry_and_pigs_-_does_LAPS_offer_a_solution_to_an_emotive_subject/links/63b33b68a03100368a498460/Low-atmospheric-pressure-stunning-in-poultry-and-pigs-does-LAPS-offer-a-solution-to-an-emotive-subject.pdf	not agree with the addition
7.6.25._14_ AUSTRALIA	Category: Deletion Proposed amended text: Modified atmosphere killing can also be administered by high expansion nitrogen foam ~~using gas filled foam, medium or low density water based foam or through~~ low atmosphere pressure (LAPS). Rationale: Modified atmosphere killing means the composition of breathable air is altered and death results due to lack of oxygen (hypoxia) or the build-up of lethal gases such as carbon dioxide. The use of water-based, medium/low-density foam does not create a modified atmosphere—instead, the animals are killed by mechanical	Agreed but worded in a different form

	occlusion of the airway, so these options do not belong in Article 7.6.25. Similarly, high expansion nitrogen foam should be included. Supporting evidence: Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. The Veterinary record, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722 McKeegan, D.E.F., H.G.M. Reimert, V.A. Hindle, P. Boulcott, J.M. Sparrey, C.M. Wathes, T.G.M. Demmers and M.A. Gerritzen. (2013) Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. Poultry Science 5(1):1145-1154. https://pubmed.ncbi.nlm.nih.gov/23571322 McKeegan, D. (2018). Mass Depopulation. In J.A. Mench (Ed.), <i>Advances in Poultry Welfare</i> (pp. 351–372). Woodhead Publishing. ISBN 978-0-08-100915-4.	
7.6.25._15_ EU	To be coherent with deletion of article 7.6.29. the EU suggests deleting 'medium or low-density water-based foam'. 'Modified atmosphere killing can also be administered by using gas-filled foam, ~~medium or low-density water-based foam~~ or through low atmosphere pressure (LAPS).' Justification: According to EFSA, suffocation is highly painful and should not be used on welfare grounds. Therefore, it is not appropriate to include medium or low-density water-based foam in a chapter named animal welfare at the time of killing.	Agreed but worded in a different form

Article 7.6.24.

Prefilled gas container

In this method, animals are manually caught in small batches and placed into a container with a controlled atmosphere. Containers can be specially designed or modified, waste bins, skips or bags.

7.6.26._1_ UK	Category: Deletion/Addition Proposed amended text In this method, animals are manually caught in small batches and ~~dropped~~ <u>placed or moved</u> into the container connected to gas cylinders. Rational: Dropping animals can cause unnecessary pain, suffering and distress. Animals should be moved from one place to another taking in regard their welfare. Supporting evidence: not relevant.	Agreed
7.6.26._2_ ICFAW	Category: Editorial Proposed amended text: In this method, animals are manually caught in small batches and ~~dropped~~ <u>gently placed</u> into the container connected to gas cylinders. Rationale: Choose wording more consistent with animal welfare handling principles.	Refer to comment 7.6.26_1_UK

7.6.26._3_ AUSTRALIA	Category: Addition Proposed amended text: <u>This method is suitable for poultry and mink.</u> This method is the exposure of batches of animals to high concentrations of gas in pre-filled containers which can also be waste bins, skips or bags. <u>This method is a suitable form of modified atmosphere killing because animals are expected to rapidly lose consciousness prior to dying.</u> In this method, animals are manually caught in small batches and ~~dropped~~ <u>lowered, either directly or in transport units with good airflow,</u> into the container connected to gas cylinders. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Further details on the mechanism of action are added for clarity and to assist decision makers. Suggest using more appropriate language than 'dropping' which could be interpreted literally. In addition, it is possible transport units containing animals could be lowered into gas-filled containers, which could help in reducing (although not entirely avoiding) the stress of handling in some circumstances.	Agreed with some additions of other species and include in the first part of the article
7.6.26._4_ EU	The EU suggest replacing 'dropped' by 'loaded', 'put' or similar. 'In this method, animals are manually caught in small batches and ~~dropped~~ <u>loaded</u> into the container connected to gas cylinders.' Justification: Animals should be handled in such a way as not to cause them pain or suffering. Dropping animals into a container is considered an inappropriate handling.	Refer to comment 7.6.26_1_UK

The time to onset of death is related to the concentration of the gas and the duration of the exposure, i.e. lower concentration requires longer exposure [Raj and Gregory, 1990a,b].

When animals are exposed to the gas individually or in small groups in a container, the equipment used should be designed, constructed, and maintained in such a way as to avoid injury to the animals and allow them to be observed.

2. Animal welfare concerns

Manual catching and handling of animals cause fear, *pain* due to injuries and *distress*, especially when birds are carried in an inverted position.

7.6.26._5_ USA	Proposed amended text: Manual catching and handling of animals cause distress <u>and broken bones</u>, especially when birds are carried in an inverted position. Rationale: Recommend adding "and broken bones" as another negative animal welfare concern.	Did not agree
7.6.26._6_ UK	Category: addition. Proposed amended text Manual catching and handling of animals cause distress, especially when birds are carried in an inverted position, <u>care must be taken when placing birds into containers, bags</u>	Did not agree

	or bins to avoid smothering and prevent unnecessary pain, suffering or distress. Rational: Placing many birds in the same enclosure, particularly bags and containers without a solid base, can lead to birds being put on top of each other. This will cause pain, suffering and distress on birds at the bottom of the bag or container. Supporting evidence: not relevant.	

If there is no immediate loss of consciousness, inhalation of high concentrations of gas can be painful(in the case of carbon dioxide) and cause respiratory distress.

7.6.26._7_ USA	Proposed amended text: <u>With gas stunning.</u> ~~If~~ there is no immediate loss of consciousness. Inhalation of high concentrations of <u>biologically active</u> gas <u>(such as carbon dioxide)</u> while conscious is painful and <u>may</u> causes <u>fear and</u> respiratory distress. Rationale: Edited for clarity. Carbon dioxide can cause these animal welfare concerns, however other inert gasses, such as nitrogen, which makes up 78% of breathable air, are not painful to inhale. Supporting references: Kells, N., Beausoleil, N., Johnson, C. & Sutherland, M. (2018) Evaluation of different gases and gas combinations for on-farm euthanasia of pre-weaned pigs. <i>Animals</i> 8, 40. https://www.researchgate.net/publication/323831198_Evaluation_of_Different_Gases_and_Gas_Combinations_for_On-Farm_Euthanasia_of_Pre-Weaned_Pigs EFSA Panel on Animal Health and Welfare (AHAW), Nielsen SS, Alvarez J, et al. Welfare of pigs at slaughter. <i>EFSA J.</i> 2020;18(6):e06148. Published 2020 Jun 17. doi:10.2903/j.efsa.2020.6148 McEwen, B. J. (2018). Strangulation, suffocation, and asphyxia. In <i>Veterinary Forensic Pathology, Volume 1</i> (pp. 129–148). Springer International Publishing. McKeegan, D. E. F., & Martin, J. (2020). Improving welfare in poultry slaughter. In <i>Understanding the behaviour and improving the welfare of chickens</i>. Burleigh Dodds Science Publishing. https://www.research.ed.ac.uk/en/publications/improving-welfare-in-poultry-slaughter Steiner, A. R., Flammer, S. A., Beausoleil, N. J., Berg, C., Bettschart-Wolfensberger, R., Pinillos, R. G., Golledge, H. D. W., Marahrens, M., Meyer, R., Schnitzer, T., Toscano, M. J., Turner, P. V., Weary, D. M., & Gent, T. C. (2019). Humanely Ending the Life of Animals: Research Priorities to Identify Alternatives to Carbon Dioxide. <i>Animals : an open access journal from MDPI</i>, 9(11), 911. https://doi.org/10.3390/ani9110911	Did not agree
7.6.26._8_ ICFAW	Category: Addition Proposed amended text:	Did not agree but considered some amendments to

	If <u>When gas is used to kill animals</u>, there is no immediate loss of consciousness. Inhalation of high concentrations of <u>carbon dioxide</u> gas while conscious is painful and causes respiratory distress. Rationale: Only some gases cause pain and respiratory distress. Inert gasses do not have the same animal welfare implications as carbon dioxide. Supporting evidence: Becerril-Herrera, M.; Alonso-Spilsbury, M.; Lemus-Flores, C.; Guerrero-Legarreta, I.; Olmos-Hernández, A.; Ramírez-Necoechea, R. & Mota-Rojas, D. CO2 stunning may compromise swine welfare compared with electrical stunning. Meat Sci. 2009, 81, 233–237. Link to pdf Gent, T. C., Gebhardt-Henrich, S., Schild, S. L. A., Rahman, A. A., & Toscano, M. J. (2020). Evaluation of poultry stunning with low atmospheric pressure, carbon dioxide or nitrogen using a single aversion testing paradigm. <i>Animals</i>, 10(8), 1308. https://www.mdpi.com/2076-2615/10/8/1308 Kells, N.; Beausoleil, N.; Johnson, C. & Sutherland, M. Evaluation of different gases and gas combinations for on-farm euthanasia of pre-weaned pigs. <i>Animals</i> 2018, 8, 40. Link to access McKeegan, D.E.F., McIntyre J., Demmers, T.G.M., Wathes, C.M., & Jones, R.B. (2006) Behavioural responses of broiler chickens during acute exposure to gaseous stimulation. <i>Applied Animal Behaviour Science</i> 99, 271–286. Link to access Raj AM & Gregory NG. 1995. Welfare implications of gas stunning of pigs 1. Determination of aversion to the initial inhalation of carbon dioxide or argon. <i>Animal Welfare</i> 4, 273-280. Link to pdf Raj, A. & Gregory, N. Welfare implications of the gas stunning of pigs 2. Stress of induction of anaesthesia. <i>Anim. Welf.</i> 1996, 5, 71–78. Link to pdf Sandilands, V., Raj, A.B.M, Baker, L. and Sparks, N.H.C. (2011) Aversion of chickens to various lethal gas mixtures. <i>Animal Welfare</i>, 20:253-262. Link to pdf	improve readability
7.6.26._9_ CHILE	ES Categoría (adición, supersión): Texto modificado propuesto: ~~No existe la pérdida inmediata de conciencia. La inhalación de altas concentraciones de gas mientras están conscientes es dolorosa y causa dificultad respiratoria.~~ <u>Si no hay pérdida inmediata de la consciencia, el método debe ser no aversivo. La inhalación de altas concentraciones de ciertos tipos de gases estando consciente es dolorosa y causa dificultad respiratoria. Los gases inertes (argón y nitrógeno) no son aversivos, pero aquellos que estimulan los quimiorreceptores, como el dióxido de carbono, pueden causar dolor, miedo y angustia.</u> Justificación: Hay un error tipográfico aquí y se necesita información adicional para distinguir entre las implicaciones de bienestar de los diferentes tipos de gases. EN	Refer to comment 7.6.26._8_ICFAW

	Proposed amended text: If there is no immediate loss of consciousness, <u>the method must be non-aversive. Inhaling high concentrations of certain types of gases while conscious is painful and causes respiratory distress. Inert gases (argon and nitrogen) are not aversive, but those that stimulate chemoreceptors, such as carbon dioxide, can cause pain, fear, and distress. Inhalation of high concentrations of gas while conscious is painful and causes respiratory distress.</u> Rationale: There is a typo here and additional information is needed to distinguish between the welfare implications of different types of gases. Evidencia documentada/ Supporting evidence: Sandilands, V., Raj, A.B.M, Baker, L. and Sparks, N.H.C. (2011) Aversion of chickens to various lethal gas mixtures. <i>Animal Welfare</i>, 20:253-262. www.cambridge.org/core/journals/animal-welfare/article/aversion-of-chickens-to-various-lethal-gas-mixtures/E5B17AADB372FCC24678721FD78F43FC Raj, A.B.M., Sandilands, V., & Sparks, N.H.C. (2006) Review of gaseous methods of killing poultry on-farm for disease control purposes <i>Veterinary Record</i>, 159, 229-235. https://bvajournals.onlinelibrary.wiley.com/doi/abs/10.1136/vr.159.8.229 Raj, A. B. M., & Gregory, N. G. (1995). Welfare implications of the gas stunning of pigs 1. Determination of aversion to the initial inhalation of carbon dioxide or argon. <i>Animal welfare</i>, 4(4), 273-280. https://www.cambridge.org/core/journals/animal-welfare/article/welfare-implications-of-the-gas-stunning-of-pigs-1-determination-of-aversion-to-the-initial-inhalation-of-carbon-dioxide-or-argon/70E6679FAA1C833A71BEDDB0E75F6EDF Raj, A.; Gregory, N. (1996) Welfare implications of the gas stunning of pigs 2. Stress of induction of anaesthesia. <i>Animal Welfare</i>, 5, 71–78. www.cambridge.org/core/journals/animal-welfare/article/abs/welfare-implications-of-the-gas-stunning-of-pigs-2-stress-of-induction-of-anaesthesia/92D432AF98904278664BF3AC6864DC89	
7.6.26._10_ CANADA	Category: Addition and edit Proposed amended text: If there is no immediate loss of consciousness, <u>the method should not cause pain and suffering. Inhalation of high concentrations of some gases, such as carbon dioxide, while conscious is painful and causes respiratory distress. Conversely, inert gases are non-aversive.</u> Rationale: Canada suggests that the sentence is incomplete as written and it should also distinguish between carbon dioxide and inert gases. Supporting evidence: Raj, A.; Gregory, N. (1996) Welfare implications of the gas stunning of pigs 2. Stress of induction of anaesthesia. <i>Animal Welfare</i> 5, 71–78. www.cambridge.org/core/journals/animal-welfare/article/abs/welfare-implications-of-the-gas-stunning-of-pigs-2-stress-of-induction-of-anaesthesia/92D432AF98904278664BF3AC6864DC89	Refer to comment 7.6.26._8_ICFAW

	2-stress-of-induction-of-anaesthesia/92D432AF98904278664BF3AC6864DC89 Sandilands, V., Raj, A.B.M, Baker, L. and Sparks, N.H.C. (2011) Aversion of chickens to various lethal gas mixtures. <i>Animal Welfare</i>, 20:253-262. www.cambridge.org/core/journals/animal-welfare/article/aversion-of-chickens-to-various-lethal-gas-mixtures/E5B17AADB372FCC24678721FD78F43FC	
7.6.26_11_ AUSTRALIA	Category: Editorial and Addition Proposed amended text: If there is no immediate loss of consciousness, ~~the~~ inhalation of high concentrations of <u>certain types of gases such as carbon dioxide</u> while conscious is painful and causes respiratory distress. <u>Inert gases such as argon and nitrogen cause no observable distress.</u> Rationale: The first two sentences should be combined. Additional information helps to make the distinction between the welfare implications of different types of gasses when animals are exposed to them for the purpose of killing. Supporting evidence: Raj, A. B. M., & Gregory, N. G. (1995). Welfare implications of the gas stunning of pigs 1. Determination of aversion to the initial inhalation of carbon dioxide or argon. <i>Animal welfare</i>, 4(4), 273-280. https://www.cambridge.org/core/journals/animal-welfare/article/welfare-implications-of-the-gas-stunning-of-pigs-1-determination-of-aversion-to-the-initial-inhalation-of-carbon-dioxide-or-argon/70E6679FAA1C833A71BEDDB0E75F6EDF Raj, A.; Gregory, N. (1996) Welfare implications of the gas stunning of pigs 2. Stress of induction of anaesthesia. <i>Animal Welfare</i>, 5, 71–78. www.cambridge.org/core/journals/animal-welfare/article/abs/welfare-implications-of-the-gas-stunning-of-pigs-2-stress-of-induction-of-anaesthesia/92D432AF98904278664BF3AC6864DC89 Raj, A.B.M., Sandilands, V., & Sparks, N.H.C. (2006) Review of gaseous methods of killing poultry on-farm for disease control purposes <i>Veterinary Record</i>, 159, 229-235. https://bvajournals.onlinelibrary.wiley.com/doi/abs/10.1136/vr.159.8.229 Sandilands, V., Raj, A.B.M, Baker, L. and Sparks, N.H.C. (2011) Aversion of chickens to various lethal gas mixtures. <i>Animal Welfare</i>, 20:253-262. www.cambridge.org/core/journals/animal-welfare/article/aversion-of-chickens-to-various-lethal-gas-mixtures/E5B17AADB372FCC24678721FD78F43FC	7.6.26_8_ ICFAW
7.6.26_12_ EU	The EU suggests deleting “If” at the beginning of the following sentence. Additionally, it is suggested to amend the second sentence as follows: “~~If~~ there is no immediate loss of consciousness. <u>Depending on the gas mixture</u>, inhalation of ~~high concentrations of~~ gas while conscious ~~is~~ <u>may be</u> painful and causes respiratory distress.” <u>Justification:</u>	Refer to comment 7.6.26_8_ ICFAW

	When using gas stunning methods, the loss of consciousness is never immediate as there is a period of induction. Additionally, not all gasses are painful to inhale; a proof of it is the low rate of escape attempts when using certain inert gases. According to EFSA, carbon dioxide is known to cause aversion, pain and respiratory distress. However, studies have shown that inert gases are less aversive. Additionally, it has been reported that anoxia induced with inert gas mixtures is non-aversive to poultry (EFSA, 2004) and induction of unconsciousness with anoxia (e.g., by inert gases) is not aversive and recovery from anoxia induced unconsciousness is not painful to pig (EFSA, 2020). EFSA 2020: 'Welfare of pigs during killing for purposes other than slaughter' https://doi.org/10.2903/j.efsa.2020.6195 EFSA 2004 : https://doi.org/10.2903/j.efsa.2004.45	

The time and distance animals are carried depends on the location of the gas containers on the premises and on the type and size of the housings.

Overloading may lead to compression and suffocation caused by more animals being dropped into the container without a sufficient interval between two consequent batches of animals. In addition, each batch of animals placed into the container will displace equal volume of gas into the atmosphere, which will result in fluctuating concentrations of gas.

7.6.26._13_ EU	The EU suggest replacing 'dropped' by 'loaded', 'put' or similar. 'Overloading may lead to compression and suffocation caused by more animals being ~~dropped~~ loaded into the container without a sufficient interval between two consequent batches of animals.' <u>Justification:</u> Animals should be handled in such a way as not to cause them pain or suffering. Dropping animals into a container is considered an inappropriate handling.	Agreed but use the term 'placed'

Direct exposure to cold gas causes hypothermia.

7.6.26._14_ UK	Category: Deletion/Addition Proposed amended text ~~Injection of cold gas directly to the animals causes hypothermia.~~ ~~Exposure of the animals to cold gas in prefilled containers may cause hypothermia'~~ Rational: This section relates to pre-filled containers therefore the gas should already be in the container before birds are placed inside. Hypothermia will be caused depending on the gas temperature at the time of contact with the birds as well as time of exposure. Supporting evidence: not relevant.	Agreed but with modifications
7.6.26._15_ EU	The EU proposes to add '<u>and can be painful</u>' after the word 'hypothermia': 'Injection of cold gas directly to the animals causes hypothermia <u>and can be painful</u>.'	Agreed but with modifications

	Justification: Conscious birds can suffer from extreme cold stress that may result in freezing (Gerritzen et al., 2006). In extreme situations, such as direct contact with cold or liquid gases, birds can experience welfare consequence of acute hypothermia, as reported in humans (Hirvonen, 1976). The effective temperature perceived by an animal is the combination of the temperature, the humidity and the ventilation or speed of wind. Inhalation of dry gases will cause irritation to the tissues and therefore gas mixtures should be humidified at or before injection into the gas system. EFSA 2019: https://www.efsa.europa.eu/en/efsajournal/pub/5850.	

Verifying *death* while the animals are in the *container* is difficult.

3. Animal-based and other measures

Animal-based measures are difficult to assess due to container design and the presence of gas.

7.6.26._16_ USA	Proposed amended text: Animal-based measures ~~may be~~ difficult to assess due to container design ~~and the presence of gas~~. Rationale: Edited for clarity. A system design may create difficulties for observing animals, however the gases used are transparent and would not.	Did not agree
7.6.26._17_ ICFAW	Category: Deletion Proposed amended text: ~~Animal-based measures are difficult to assess due to container design and the presence of gas.~~ Rationale: In the description of the method above, it states, "When animals are exposed to the gas individually or in small groups in a container, the equipment used should be designed, constructed, and maintained in such a way as... allow [the animals] to be observed." Since the gas itself is transparent, it should be possible to observe the animals if the system is properly designed, constructed, and maintained. Therefore, this sentence should be deleted.	Did not agree

Animal-based measures of an effective kill are:

- a) ;
- b) absence of breathing
- c)
- d) absence of muscle tone.
- e) absence of heart beat

7.6.26._18_ AUSTRALIA	Category: Change Proposed amended text: ~~Animal based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.~~	Did not agree

	Signs of unconsciousness include: lack of body movement and righting reflex, absence of corneal or palpebral reflex Additional signs that indicate the absence of life include lack of breathing, heartbeat, or brain stem reflexes. Rationale: Some of the signs described as for an effective kill may only indicate unconsciousness. More detail is warranted for this important step.	

4. Recommendations

This method is suitable for poultry, pigs, small ruminants and fur animals.

Containers should allow the required gas concentration to be maintained.

7.6.26._19_ UK	Category: Addition Proposed amended text <i>Containers</i> should allow the required gas concentration and residual oxygen concentration to be maintained and accurately measured. Rational: Residual oxygen concentration is the important factor welfare when killing with inert gases. Supporting evidence: not relevant.	Did not agree

Each batch of animals placed in the containers (one layer) should be allowed sufficient time to die before adding the next batch of animals [Webster and Collett, 2012].

7.6.26._20_ AUSTRALIA	Category: Addition and change Proposed amended text: Each batch of birds dropped lowered in the containers (one layer) should be allowed sufficient time to die before adding the next batch of birds [Webster and Collett, 2012]. Animals may remain in the gas until death is confirmed, or may be removed once unconscious and killed by a secondary killing method. Rationale: In some circumstances it may be preferable to use a secondary technique to kill the animals once they are unconscious. Suggest using more appropriate language than 'dropping' which could be interpreted literally.	Agreed but us the term 'placed'

Containers should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.

7.6.26._21_ AUSTRALIA	Category: Addition Proposed amended text: <i>Containers</i> should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.	Did not agree

	<u>Containers should also be chosen that will not allow animals to escape (e.g. having sufficiently high sides of an appropriate material and design).</u> Rationale: even in the absence of adverse effects from the gases, some animals may try and climb out of containers if they are not adequately designed to prevent this, resulting in potential injuries and stress from recapture.	

Skilled catching teams are necessary.

7.6.26._22_ USA	Proposed amended text: This method is suitable for poultry, ~~and~~ <u>mink and neonatal goats</u>. Rationale: Recommend Code Commission verify with experts whether this method is suitable for mink and consider if suitable for neonatal goats. Possible references: Withrock 2015 Withrock IC. The use of carbon dioxide (CO2) as an alternative euthanasia method for goat kids. Accessed January 10, 2024. www.search.proquest.com/docview/1733971790/abstract/C0605E819B-D543A6PQ/1. Turner, P.V. (2024). Management of Farmed Mink. Merck Veterinary Manual. https://www.merckvetmanual.com/exotic-and-laboratory-animals/mink/management-of-farmed-mink Pedersen, V., Jeppesen, L. L., & Jeppesen, N. (2004). Effects of group housing systems on behaviour and production performance in farmed juvenile mink (<i>Mustela vison</i>). Applied Animal Behaviour Science, 88(1), 89–100. https://doi.org/10.1016/j.applanim.2004.03.003 Cooper, J., Mason, G., & Raj, M. (1998). Determination of the aversion of farmed mink (<i>Mustela vison</i>) to carbon dioxide. Veterinary Record, 143(13), 359–361. https://doi.org/10.1136/vr.143.13.359 Axelsson, H. M. K., Hansen, S. W., Loberg, J., & Lidfors, L. (2017). Effects of group size on behaviour, growth and occurrence of bite marks in farmed mink. Applied Animal Behaviour Science, 194, 112–119. https://doi.org/10.1016/j.applanim.2017.05.008	Agreed but with modifications and moved to the first part of the article
7.6.26._23_ ICFAW	Category: Deletion Proposed amended text: This method is suitable for poultry ~~and mink~~. Rationale: This method is unsuitable for mink unless they are deeply anesthetized prior to being placed into the containers. It is also likely to (1) be ineffective, i.e., the mink will survive, and (2) cause severe pain, fear, distress, and respiratory distress, as described below. Carbon dioxide (CO2) at high concentrations is highly aversive to mink, as with other species (Cooper et al 1998). However, due to physiological adaptations for remaining underwater, mink survive prolonged exposure to high concentrations of carbon dioxide, e.g., 70% carbon dioxide for at least 15 minutes (Enggaard Hansen et al 1991). Thus, at concentrations of carbon dioxide high enough to kill	Did not agree, as included fur animals, like minks but considering the type of gas

	mink (80-100%), the animals are likely to experience significant welfare compromise prior to loss of consciousness (AVMA 2024; Cooper et al 1998). Further, a prefilled container of the type described here ("waste bins, skips or bags") is unlikely to maintain high enough concentrations of carbon dioxide to kill most mink. Finally, adult mink are typically housed individually or in pairs due to the potential for biting and aggression (Turner, P.V. 2024; Axelsson et al 2017; Pedersen et al 2004); if group-housing is utilized, the mink are placed with their group as young juveniles (Axelsson et al 2017). Thus, dropping numerous unfamiliar minks into a container is likely to result in severe fighting until all animals are unconscious. Preferred methods for killing mink include sedation followed by intravenous injections of barbiturate-based euthanasia solution or exposure to purified, compressed carbon monoxide in cylinders with appropriate pressure-reducing regulators and flow meters (AVMA 2024). Supporting Evidence: American Veterinary Medical Association. (2024). AVMA Guidelines for the Humane Slaughter of Animals: 2024 Edition. https://www.avma.org/sites/default/files/2024-09/Humane-Slaughter-Guidelines-2024.pdf Axelsson, H. M. K., Hansen, S. W., Loberg, J., & Lidfors, L. (2017). Effects of group size on behaviour, growth and occurrence of bite marks in farmed mink. <i>Applied Animal Behaviour Science</i>, 194, 112–119. https://doi.org/10.1016/j.applanim.2017.05.008 Link to pdf Cooper, J., Mason, G., & Raj, M. (1998). Determination of the aversion of farmed mink (<i>Mustela vison</i>) to carbon dioxide. <i>Veterinary Record</i>, 143(13), 359–361. https://doi.org/10.1136/vr.143.13.359 Link to pdf	
7.6.26._24_ AUSTRALIA	Category: Deletion Proposed amended text: ~~This method is suitable for poultry and mink.~~ Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Agreed

5. Species-specific recommendations

CO2 is not effective for mink.

7.6.26._25_ NEW ZEALAND	Category: Editorial Proposed amended text: None identified. Rationale: Spelling correction. Supporting evidence: N/A	Deleted

Gas introduced into a container

7.6.27._1_ USA	Proposed amended text: Gas introduced into a container or trailer Rationale: None	Did not agree

In this method, the crates or modules holding animals are loaded into a container. Small groups may also be walked into the container. Once the animals are in the container, a chosen gas, i.e. carbon dioxide, argon, nitrogen or mixtures of these gases, are administered to displace the atmospheric air in the container to create a lethal anoxic or hypercapnic situation (EFSA, 2019).

7.6.27._2_ USA	Proposed amended text: In this method, the crates or modules holding birds or pigs are loaded into a container. ~~Small g~~ Groups of pigs or turkeys may also be walked into the container or a specially designed nitrogen-gassing trailer . Once the animals are in the container, a chosen gas, i.e. carbon dioxide, argon, nitrogen or mixtures of these gases, are administered to displace the atmospheric air in the container to create a lethal anoxic or hypercapnic situation (EFSA, 2019). Rationale: Recommend adding language to reflect recent updates and research surrounding improved higher humane depopulation methods. There are currently two nitrogen-gassing trailers available in Canada, one through Manitoba Pork and one through Ontario Pork. These systems rapidly create an environment of less than 2% oxygen once the animals have been walked into the trailer (Hill 2025; Bergen 2023). Supporting references: Bergen, G. (2023). Design, operation and lessons learned of a nitrogen gas-based swine depopulation system. Presented at AVMA Humane Endings Symposium, Jan 26-29, 2023. Chicago, IL. Hill, J. (2025). A BETTER MEANS TO A HUMANE ENDING? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4 Supporting references: Bergen, G. (2023). Design, operation and lessons learned of a nitrogen gas-based swine depopulation system. Presented at AVMA Humane Endings Symposium, Jan 26-29, 2023. Chicago, IL. Hill, J. (2025). A BETTER MEANS TO A HUMANE ENDING? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4	Did not agree
7.6.27._3_ ICFAW	Category: Addition Proposed amended text: Gas introduced into a container or trailer In this method, the crates or modules holding birds or pigs are loaded into a container. ~~Small g~~ Groups of pigs or turkeys may also be walked into the container or a specially designed nitrogen gassing	Did not agree

	trailer. Once the animals are in the container, a chosen gas, i.e. carbon dioxide, argon, nitrogen or mixtures of these gases, are administered to displace the atmospheric air in the container to create a lethal anoxic or hypercapnic situation (EFSA, 2019). Rationale: There are currently two nitrogen gassing trailers available in Canada, one through Manitoba Pork and one through Ontario Pork. These systems rapidly create an environment of less than 2% oxygen once the animals have been walked into the trailer (Hill 2025; Bergen 2023). Supporting Evidence: Bergen, G. (2023). Design, operation and lessons learned of a nitrogen gas-based swine depopulation system. Presented at AVMA Humane Endings Symposium, Jan 26-29, 2023. Chicago, IL. Link Hill, J. (2025). A BETTER MEANS TO A HUMANE ENDING? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4	

1. Animal welfare concerns

7.6.27._4_ CANADA	Category: Editorial Proposed amended text: In this method, the crates or modules holding birds or pigs are loaded into a container. Small groups of pigs may also be walked into the container. Once the animals are in the container, a chosen gas, i.e. carbon dioxide, argon, nitrogen or mixtures of these gases, are administered to displace the atmospheric air in the container to create a lethal anoxic or hypercapnic situation (EFSA, 2019). Animal welfare concerns 1. Animal welfare concerns Manual catching and handling of birds causes distress, especially when birds are carried in an inverted position. [...] Rationale: formatting	Agreed

Manual catching and handling of animals causes distress.

7.6.27._5_ USA	Proposed amended text: Manual catching and handling of birds causes distress and broken bones, especially when birds are carried in an inverted position. Rationale: Recommend adding "and broken bones" as another negative animal welfare concern.	Did not agree

There is no immediate loss of consciousness. Exposure to concentrations of CO2 required for killing is reported to be aversive and painful to inhale. (EFSA, 2019; 2020).

7.6.27._6_	Comment Category: change	Did not agree. The sentence is

CANADA	Proposed amended text: There is no immediate loss of consciousness. Exposure to high concentrations of CO2 required for killing of birds and pigs (e.g. ~~40%~~ 15% or more) is reported to be aversive and painful to inhale and therefore these animals show escape attempts (EFSA, 2019; 2020). Rationale: Canada suggests there are several papers that describe distress as low as 15% (e.g. Humanely Ending the Life of Animals: Research Priorities to Identify Alternatives to Carbon Dioxide) Supporting evidence : Animals 2019 https://open.library.ubc.ca/soa/cIRcle/collections/faculty_researchandpublications/52383/items/1.0385826	proposed to be deleted

The lower the CO2 concentration or higher the residual oxygen in inert gases the longer the time to induce death.

Exceeding the capacity of the equipment in terms of number of animals that can be loaded into the container with available floor space leading to overcrowding and animals climbing onto each other which results in injuries.

The time and distance animals are carried depend on the location of the gas containers on the premises and on the type and size of the housings.

Injection of cold gas directly into container causes hypothermia and can be painful.

7.6.27._7_EU	The EU proposes to add '<u>and can be painful</u>' after the word 'hypothermia': 'Injection of cold gas directly to the animals causes hypothermia <u>and can be painful</u>.' <u>Justification:</u> Conscious birds can suffer from extreme cold stress that may result in freezing (Gerritzen et al., 2006). In extreme situations, such as direct contact with cold or liquid gases, birds can experience welfare consequence of acute hypothermia, as reported in humans (Hirvonen, 1976). The effective temperature perceived by an animal is the combination of the temperature, the humidity and the ventilation or speed of wind. Inhalation of dry gases will cause irritation to the tissues and therefore gas mixtures should be humidified at or before injection into the gas system. EFSA 2019: https://www.efsa.europa.eu/en/efsajournal/pub/5850.	Agreed

Verifying *death* while the animals are in the *container* is difficult.

2. Animal-based and other measures

Animal-based measures of an effective kill are:

- a) absence of breathing
- b) absence of muscle tone.

- c) absence of heart beat
- d) fixed and dilated pupils
- e) .

7.6.27._8_ AUSTRALIA	Category: Change Proposed amended text: ~~Animal-based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.~~ <u>Signs of unconsciousness include: lack of body movement and righting reflex, absence of corneal or palpebral reflex</u> <u>Additional signs that indicate the absence of life include lack of breathing, heartbeat, or brain stem reflexes.</u> Rationale: Some of the signs described as for an effective kill may only indicate unconsciousness. More detail is warranted for this important step.	Did not agree

Animal-based measures are difficult to assess due to container design and the presence of gas.

7.6.27._9_ ICFAW	Category: Deletion Proposed amended text: ~~Animal-based measures are difficult to assess due to container design and the presence of gas.~~ Rationale: As above, the description of the method states, "When animals are exposed to the gas individually or in small groups in a container, the equipment used should be designed, constructed, and maintained in such a way as... allow [the animals] to be observed." Since the gas itself is transparent, it should be possible to observe the animals if the system is properly designed, constructed, and maintained. Therefore, this sentence should be deleted.	Did not agree
7.6.27._10_ CANADA	Comment Category: change Proposed amended text: Animal-based measures ~~are~~ can be difficult to assess due to container design and the presence of gas Rationale: Canada suggests that while the status quo in many cases is that birds cannot be viewed that it not always the case and increasingly better technology is being used. Therefore while measures <i>can be</i> difficult - it is incorrect to say that they <i>are</i> which implies a universal truth.	Did not agree

3. Recommendations

Animals should be caught gently and placed in crates or modules of appropriate size and at appropriate stocking densities to allow all animals to sit down.

Containers should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other.

Containers should allow the required gas concentrations to be maintained.

7.6.27._11_ UK	Category: Addition Proposed amended text Containers should allow the required CO2 and inert gases concentrations and residual oxygen concentration to be maintained and accurately measured. Rational: Residual oxygen concentration is the important factor for welfare when killing with inert gases. Supporting evidence: not relevant.	Did not agree
7.6.27._12_ UK	Category: Addition Proposed amended text Birds should be caught gently and placed in crates or modules of appropriate size and at appropriate stocking densities to allow all birds to sit down. Pigs should also be moved gently and in small groups into the containers. Containers should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other. Containers should allow the required CO2 and inert gases concentrations and residual oxygen concentration to be maintained and accurately measured. Gas injection should be directed away from the birds to prevent hypothermia. A system to vaporise liquid Carbon dioxide or warm compressed gases prior to delivery to the animals should be considered. Rational: This recommendation is missing. Supporting evidence: Physiological responses of laying hens during whole-house killing with carbon dioxide - PubMed	Did not agree
7.6.27._13_ UK	Category: Addition Proposed amended text Birds should be caught gently and placed in crates or modules of appropriate size and at appropriate stocking densities to allow all birds to sit down. Pigs should also be moved gently and in small groups into the containers. Containers should not be overcrowded and measures are needed to avoid animals suffocating by climbing on top of each other. Containers should allow the required CO2 and inert gases concentrations and residual oxygen concentration to be maintained and accurately measured. Gas injection should be directed away from the birds to prevent hypothermia. A system to vaporise liquid Carbon dioxide or warm compressed gases prior to delivery to the animals should be considered. Inert gases are preferable to high concentration CO2 as they cause less pain, fear and respiratory distress. Rational: Exposure to CO2 at high concentrations (defined in this opinion as higher than 80% by volume) is considered a serious welfare concern by the Panel, because it is highly aversive and causes pain, fear and respiratory distress.7) The exposure to inert gases is less aversive as it causes less pain, fear and respiratory distress compared with gas mixtures containing carbon dioxide at high concentrations Supporting evidence:	Did not agree

	Welfare of pigs during killing for purposes other than slaughter	
7.6.27._14_ AUSTRALIA	Category: Addition Proposed amended text: Containers should allow the required CO2 and inert gases concentrations to be maintained and accurately measured. They should also appropriately contain the animals (e.g. walls of sufficient height). Rationale: Animals may attempt to leave the container if stressed or startled, potentially causing more stress during recapture.	Did not agree. Unnecessary details

Sufficient exposure time should be allowed for animals to die before the door is opened.

Each animal should be examined to ensure they are dead.

Any survivors should be killed immediately with a backup method.

7.6.27._15_ AUSTRALIA	Category: Addition Proposed amended text: Any survivors should be killed using a backup killing method without delay. Rationale: Suggested edit for clarity	Agree but using other wording

Staff training to acquire knowledge and skills necessary to proper calibration of equipment and monitoring of gas concentrations and relevant exposure times, to ensure that containers are fit for the purpose, gas is vaporised before injection, the rate of injection is correct and temperature inside the chamber is monitored.

7.6.27._16_ ICFAW	Category: Addition Proposed amended text: Staff training to acquire knowledge and skills necessary to proper calibration of equipment and monitoring of gas concentrations and relevant exposure times, to ensure that containers are fit for the purpose, gas is vaporised before injection, the rate of injection is correct and temperature inside the chamber is monitored and corrected as needed to prevent cold stress. Rationale: Monitoring alone is insufficient. Corrective action is needed to maintain welfare.	Did not agree

4. Species-specific recommendations

CO2 is not effective for mink. Article 7.6.28.

Gas introduced into the barn or whole house gassing

This method is the exposure of birds in their housing to an increasing gas concentration. In general, this means that the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed. The gas is injected which results in a gradual increase of the gas.

In practice mainly CO₂ is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly.

7.6.28._1_ USA	Proposed amended text: This method <u>involves</u> is the exposure of birds in their housing to an increasing gas concentration. In general, this means that the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed <u>but venting is required to force oxygen out</u>. The gas is injected <u>into the barn</u> which results in a gradual increase of the <u>gas concentration</u>. In practice mainly <u>carbon dioxide</u> CO₂ <u>has been used</u> is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly. <u>Whole house gassing can also be performed using liquid or gaseous nitrogen to produce anoxic conditions (oxygen <2%). This method may have significant benefits over carbon dioxide such as for animal welfare (nitrogen is non-aversive), for accessibility (nitrogen is more readily available, as it can be extracted from the atmosphere), and for climate impact (nitrogen is not a greenhouse gas).</u> Rationale: Edited for clarity and to provide recent updates and research surrounding improved higher humane depopulation methods. Supporting references: Équipe québécoise de contrôle des maladies avicoles (EQCMA) (Quebec Animal Diseases Control Team). (2024). Proof of concept of gassing a room with nitrogen gas. Hill, J. (2024), Evaluation of Nitrogen Whole House Gassing for the Mass Depopulation of Poultry. Presentation for Poultry Innovation Partnership, https://poultryinnovationpartnership.ca/presentation/evaluation-for-adopting-nitrogen-in-whole-barn-gassing-during-the-mass-depopulation-of-poultry/ Hill, J. (2025). A BETTER MEANS TO A HUMANE ENDING? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4. Powerpoint presentation available at: https://www.vafaw.org/files/ugd/231617_f76db69528b0489facb1a880a25fb4fb.pdf Manitoba Agriculture. (2024). Evaluation for Adopting Nitrogen in Whole Barn Gassing During the Mass Depopulation of Poultry. McKeegan, D. E. F., McIntyre, J., Demmers, T. G. M., Wathes, C. M., & Jones, R. B. (2006). Behavioural responses of broiler chickens during acute exposure to gaseous stimulation. Applied Animal Behaviour Science, 99(3), 271–286. https://doi.org/10.1016/j.applanim.2005.11.002 Minnesota Department of Agriculture. (2024). Using Nitrogen for Whole House Gassing Depopulation Method for Floor-Raised Poultry and Laying Hens. https://www.aphis.usda.gov/sites/default/files/nadprp-db-mn02.24-open.pdf	Did not agree
7.6.28._2_ UK	Category: Deletion Proposed amended text This method is the exposure of birds in their housing to an increasing gas concentration. In general, this means that	Agreed

	the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed. The gas is injected which results in a gradual increase of the <u>g</u>as. In practice mainly CO₂ is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly. Rational: Typo Supporting evidence: not relevant.	
7.6.28._3_ ICFAW	Category: Addition Proposed amended text: This method is the exposure of birds in their housing to an increasing gas concentration. In general, this means that the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed. The gas is injected which results in a gradual increase of the Gas. In practice mainly CO₂ is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly. <u>Use of liquid nitrogen or gaseous nitrogen to achieve anoxic (O₂<2%) conditions is another emerging method with significant animal welfare benefits since nitrogen is a non-aversive gas.</u> Rationale: While nitrogen whole house gassing is not yet widely used, it has proved successful at depopulating flocks due to HP AI in Italy and the Netherlands and research is on-going in Canada and the United States (Hill 2024; Hill 2025; NADPrP 2025). The chapter should account for emerging, higher welfare options and encourage their uptake. Supporting Evidence: Équipe québécoise de contrôle des maladies avicoles (EQCMA) (Quebec Animal Diseases Control Team). (2024). Proof of concept of gassing a room with nitrogen gas. Link to pdf Galuppo, F. (2023, March 23). The 2021-2022 H5N1 AI Epidemic in Italy: using Nitrogen for outbreak depopulation [Presentation]. https://www.dropbox.com/scl/fi/4a0bmi45xbtiixcypxlt/Galuppo-2023-Whole-house-N2-gassing.pdf?rlkey=27hv408hh0fh4ipdi1wsr9enh&st=zmbyses&dl=0 Hill, J. (2024), Evaluation of Nitrogen Whole House Gassing for the Mass Depopulation of Poultry. Presentation for Poultry Innovation Partnership Link to access Hill, J. (2025). A Better Means to a Humane Ending? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4 Manitoba Agriculture. (2024). Evaluation for Adopting Nitrogen in Whole Barn Gassing During the Mass Depopulation of Poultry. NADPRP. (2025). NADPRP Funded Projects from 2020 to 2024. https://www.aphis.usda.gov/sites/default/files/nadprp-projects-list-2020-2024.pdf UOC Animal Health Service. (2022). Operative Instruction for Poultry Killing and Related Operations, section 7.2 Killing in shed (Translated from Italian.)	Did not agree
7.6.28._4_	Comment Category: addition	Did not agree

CANADA	Proposed amended text: This method is the exposure of birds in their housing to an increasing gas concentration. In general, this means that the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed. The gas is injected which results in a gradual increase of the Gas. In practice mainly CO₂ is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly. Nitrogen whole house gassing is being explored as an alternative to CO₂. Rationale: Canada suggests that N₂ has shown promise as an alternative. Canada is currently reviewing N₂ whole barn gassing trial data and will provide WOAHA a dossier to support its inclusion within Article 7.6.28 upon completion of the work. Supportive evidence: McKeegan, D.E.F., McIntyre, J., Demmers, T.G.M., Wathes, C.M., and Jones, B. 2006. Behavioural responses of broiler chickens during acute exposure to gaseous stimulation. <i>Applied Animal Behaviour Science</i>. 99:271-286. Woolley, S.C., and Gentle, M.J. 1988. Physiological and behavioural responses of the domestic hen to hypoxia. <i>Res Vet Sci</i>. 45(3):377-82. Gent, T.C., Gebhardt-Henrich, S., Schild, S.A., Rahman, A.A., and Toscano, M. J. 2020. Evaluation of Poultry Stunning with Low Atmospheric Pressure, Carbon Dioxide or Nitrogen Using a Single Aversion Testing Paradigm. <i>Animals</i>. 10(8), 1308; https://doi.org/10.3390/ani10081308. Raj A. 1996. Aversive reactions of turkeys to argon, carbon dioxide and a mixture of carbon dioxide and argon. <i>The Veterinary Record</i> 138:592-593. Webster, A.B. and Fletcher, D.L. 2001. Reactions of Laying hens and broilers to different gases used for stunning poultry. <i>Poultry Science</i>. 80:1371-1377.	
7.6.28._5_ AUSTRALIA	Category: Addition Proposed amended text: This method is the exposure of birds in their housing to an increasing gas concentration. In general, this means that the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed. The gas is injected which results in a gradual increase of the Gas. In practice mainly CO₂ is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly. The use of nitrogen is also emerging as an alternative to CO₂ that has the potential to provide better animals welfare outcomes as it is an inert gas, and could be used in the future once further evidence and guidance is available to support its use. Both CO₂ and nitrogen can achieve an anoxic environment for depopulation relatively quickly. Rationale: The use of nitrogen gas is increasing and offers better welfare outcomes compared to CO₂ due to its less aversive nature. Once further evidence e.g. peer reviewed literature, and practical guidance on implementation are available, it should be considered as an alternative to CO₂. Supporting evidence, if relevant	Agreed

	“A better means to a humane ending – nitrogen anoxia for mass depopulation of livestock” – Veterinary Association for Farm Animal Welfare (VFAW) - VFAW webinar	

1. Animal welfare concerns

There is no immediate loss of consciousness. Inhalation of increased concentrations of gas while conscious cause fear and respiratory distress.

7.6.28._6_ USA	Proposed amended text: There is no immediate loss of consciousness. Inhalation of increased concentrations of <u>some</u> gases, <u>such as CO₂</u>, while conscious <u>could</u> cause <u>pain, fear and</u> respiratory distress. Rationale: Edited for clarity, as this section covers various gases used for this killing method, not just CO₂.	Agreed using a different wording
7.6.28._7_ ICFAW	Category: Addition Proposed amended text: There is no immediate loss of consciousness. Inhalation of increased concentrations of <u>carbon dioxide</u> gas while conscious causes respiratory distress, <u>pain, and fear</u>. Rationale: Carbon dioxide causes pain via formation of carbonic acid on mucous membranes (Steiner et al 2019). It stimulates ventilatory drive in both birds and mammals (Powell 2022), and in mammals it is well accepted that rising blood levels of carbon dioxide result in air hunger, a highly aversive form of respiratory distress associated with fear and anxiety (Beausoleil & Mellor 2015; Raj et al 1997; Steiner et al 2019; Banzett et al 2021). Research also clearly supports the aversiveness of carbon dioxide to poultry, particularly at high concentrations (Gerritzen et al 2007; McKeegan & Martin 2020). For example, carbon dioxide concentrations of 45-50% have been shown to stimulate nociceptors (pain receptors) in poultry (McKeegan 2004). Drive to breathe in birds is regulated by carbon dioxide receptors in the brain, arteries, and lungs, so high levels of carbon dioxide also likely cause some degree of respiratory distress (Beausoleil & Mellor 2015; McKeegan & Martin 2020). While there is strong evidence that poultry experience carbon dioxide concentrations above 40% as aversive (McKeegan & Martin 2020), some research suggests that CO₂ may be aversive at concentrations as low as 10-20% (Gerritzen et al 2007; McKeegan et al 2006). This section must make clear that the animal welfare concerns associated with whole house gassing are different when nitrogen, rather than carbon dioxide, is used (McKeegan et al 2006). Supporting Evidence: Banzett, R. B., Lansing, R. W., & Binks, A. P. (2021). Air Hunger: A Primal Sensation and a Primary Element of Dyspnea. Comprehensive Physiology, 11(2), 1449–1483. https://doi.org/10.1002/cphy.c200001 Gerritzen, M., Lambooi, B., Reimert, H., Stegeman, A., & Spruijt, B. (2007). A note on behaviour of poultry exposed to increasing carbon dioxide concentrations. Applied Animal Behaviour Science, 108(1–2),	Agreed using a different wording

	179–185. https://doi.org/10.1016/j.applanim.2006.11.014 McKeegan, D. E. F. (2004).. Mechano-chemical nociceptors in the avian trigeminal mucosa. <i>Brain Res. Rev.</i> 46(2), 146–154. https://doi.org/10.1016/J.BRAINRESREV.2004.07.012 McKeegan, D. E. F., McIntyre, J., Demmers, T. G. M., Wathes, C. M., & Jones, R. B. (2006). Behavioural responses of broiler chickens during acute exposure to gaseous stimulation. <i>Applied Animal Behaviour Science</i>, 99(3), 271–286. https://doi.org/10.1016/j.applanim.2005.11.002 McKeegan, D. E. F., & Martin, J. (2020). Improving welfare in poultry slaughter. In <i>Understanding the behaviour and improving the welfare of chickens</i>. Burleigh Dodds Science Publishing. https://www.research.ed.ac.uk/en/publications/improving-welfare-in-poultry-slaughter Raj, A. B., Johnson, S. P., Wotton, S. B., & McIntyre, J. L. (1997). Welfare implications of gas stunning pigs: 3. The time to loss of somatosensory evoked potentials and spontaneous electrocorticogram of pigs during exposure to gases. <i>Veterinary Journal</i> (London, England: 1997), 153(3), 329–339. https://doi.org/10.1016/S1090-0233(97)80067-6 Powell, F.L. (2022). Respiration. In C.G. Scanes & S. Dridi (Eds.) <i>Sturkie's Avian Physiology</i>, 7th ed. Elsevier. Pp 445-484. https://doi.org/10.1016/B978-0-12-819770-7.00033-5 Steiner, A. R., Flammer, S. A., Beausoleil, N. J., Berg, C., Bettschart-Wolfensberger, R., Pinillos, R. G., Golledge, H. D. W., Marahrens, M., Meyer, R., Schnitzer, T., Toscano, M. J., Turner, P. V., Weary, D. M., & Gent, T. C. (2019). Humanely ending the life of animals: Research priorities to identify alternatives to carbon dioxide. <i>Animals: An Open Access Journal from MDPI</i>, 9(11), 911. https://doi.org/10.3390/ani9110911 Ziemann, A. E., Allen, J. E., Dahdaleh, N. S., Drebot, I. I., Coryell, M. W., Wunsch, A. M., Lynch, C. M., Faraci, F. M., Howard, M. A., 3rd, Welsh, M. J., & Wemmie, J. A. (2009). The amygdala is a chemosensor that detects carbon dioxide and acidosis to elicit fear behavior. <i>Cell</i>, 139(5), 1012–1021. https://doi.org/10.1016/j.cell.2009.10.029	
7.6.28._8_ CANADA	Comment Category: addition Proposed amended text: There is no immediate loss of consciousness. Inhalation of increased concentrations of gas while conscious <u>can</u> cause respiratory distress. Rationale: Canada suggests that N2 has shown promise as a humane alternative so there is an option that does not cause respiratory distress prior to loss of consciousness. The addition of the word “can” allows for an option that does not cause respiratory distress.	Did not agree

The induction of the gas makes noise and can lead to a fear response from the birds. Injection of cold gas directly to the animals in the house causes hypothermia.

7.6.28._9_ UK	Category: addition. Proposed amended text	Agreed

	There is no immediate loss of consciousness. Inhalation of increased concentrations of gas while conscious cause respiratory distress. The induction of the gas makes noise and can lead to a fear response from the birds. Injection of cold or hot gas directly to the animals in the shed/house causes hypothermia. Rational: This concern is missing. Gas injection should be directed away from the birds. Supporting evidence: Physiological responses of laying hens during whole-house killing with carbon dioxide - PubMed	
7.6.28._10_ AUSTRALIA	Category: Addition Proposed amended text: The induction of the gas makes noise and can lead to a fear response from the birds. Expansion of gases on release into the barn/shed may result in drops in temperatures severe enough to cause hypothermia Rationale: The release of compressed gas into the barn or shed may cause temperature decreases as it expands, which may be potentially significant if not managed.	Agreed

2. Animal-based and other measures

Animal-based measures are difficult to assess due to the presence of gas in the whole barn.

7.6.28._11_ CANADA	Comment Category: addition Proposed amended text: in some cases. Animal-based measures are difficult to assess due to the presence of gas in the whole barn in some cases. Rationale: Canada suggests that visualization has been demonstrated throughout the process with the use of cameras/technology.	Did not agree

- a) Animal-based measures of an effective kill are: absence of breathing
- b) absence of muscle tone.
- c) absence of heart beat
- d) fixed and dilated pupils

Gas concentrations should be monitored and used as a proxy for animal based measures

7.6.28._12_ AUSTRALIA	Category: Change Proposed amended text: ~~Animal-based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.~~ Signs of unconsciousness include: lack of body movement and righting reflex, absence of corneal or palpebral reflex	Did not agree

	<u>Additional signs that indicate the absence of life include lack of breathing, heartbeat, or brain stem reflexes.</u> Gas concentrations should be monitored <u>and may assist in monitoring, however animals should also be monitored as much as possible during (e.g. using video feeds) and after the killing method, and used as a proxy for animal based measures</u> Rationale: Some of the signs described as for an effective kill may only indicate unconsciousness. More detail is warranted for this important step. We also do not consider it acceptable to rely purely on monitoring of gas concentrations to determine the welfare status of the animals, instead of checking animals for signs of distress and of life during/after this process.	

3. Recommendations

The method is suitable for all poultry species.

The barns should be checked before starting the procedure to ensure they can be made air-tight enough for the required gas concentrations can be reached.

Staff entering the barn to prepare the gassing procedure should work calmly to minimize fear reactions from the birds.

Measures should be taken to minimise disturbance and stress associated with the release of gas into the area e.g. due to noise and temperature drops.

7.6.28._13_ AUSTRALIA	Category: Addition Proposed amended text: The barns should be checked before starting the procedure to ensure they can be made air-tight enough for the required gas concentrations can be reached. Staff entering the barn to prepare the gassing procedure should work calmly to minimize fear reactions from the birds. <u>Measures should be taken to minimise disturbance and stress associated with the release of gas into the area e.g. due to noise and temperature drops.</u> Rationale: The release of gases into the barn/shed may cause loud noises or severe drops in temperature, which may negatively affect the welfare of the animals. Measures should be taken where possible to address these.	Agreed

Ventilation should be shut down as short as possible before starting the gas inlet.

Before removing the gas equipment but after ventilating the barn there should be a check on the effectiveness of the method.

7.6.28._14_ UK	Category: Addition Proposed amended text	Did not agree

	The barns should be checked before starting the procedure to ensure they can be made air-tight enough for the required gas concentrations can be reached. Gas injection should be directed away from the birds to prevent hypothermia. Where available, a vaporiser diffuser system to pre-heat the air may be fitted. Staff entering the barn to prepare the gassing procedure should work calmly to minimize fear reactions from the birds. Ventilation should be shut down as quickly as possible before starting the gas inlet. Before removing the gas equipment but after ventilating the barn there should be a check on the effectiveness of the method. Rational: This recommendation is missing. Supporting evidence: Physiological responses of laying hens during whole-house killing with carbon dioxide - PubMed	

4. Species-specific recommendations

None identified

Article 7.6.29.

7.6.29._1_ ICFAW	Category: Deletion of Article 7.6.29 Proposed amended text: ~~Article 7.6.29~~ [and all following text on water-based foam] Rationale: Because of the severely negative welfare implications of this method, it should not be described or recommended in this chapter. As described in more detail in the comments below, this method's mechanism of killing and its resulting pathophysiology necessarily result in severely aversive experiences for the animals subjected to it. Water-based foam works by occluding the animal's airway, preventing exchange of both oxygen and carbon dioxide. The resulting rapid rise in blood levels of carbon dioxide strongly stimulates the animal's respiratory drive, while air intake is prevented by the presence of the foam. Therefore, animals experience air hunger, fear, anxiety, frustration, distress, and likely pain. Recently, proponents of water-based foam for use in pigs have gone to great lengths to influence assessment of its impact on animal welfare. For example, in the paper, "Foam-based depopulation methods of swine differ from water submersion based on computer tomography findings and postmortem lesions," Park et al (2025) anesthetized pigs and killed them via various methods, including water-based foam and submersion in water to "addresses the concern of whether foam-based methods are mechanistically similar to drowning" (Park et al 2025). This study, funded by the National Pork Checkoff program in the U.S., is problematic in several regards. First, the paper downplays the crucial differences between water-based foam and high-expansion, nitrogen gas-filled foam, which have disparate mechanism of action with divergent implications for animal welfare. Second, while the study showed that the respiratory systems of pigs contain different amount of fluid depending on the method by which they, while anesthetized, are killed, it fails to address, or even	Article deleted

	acknowledge, the fundamental animal welfare problems that are inherent to use of airway occlusion as a killing method. Whether it is water or foam that prevents gas exchange, coupling a highly increased drive to breathe with inability to inflate the lungs results in severe distress prior to loss of consciousness (Beausoleil & Mellor 2015; Ziemann et al 2009). Third, because the animals in this study were anesthetized, conscious responses to submersion in water or in water-based foam were eliminated, rendering many of the findings questionable, since drowning in conscious individuals is understood to typically involving struggling to keep the airway clear, breath-holding, coughing, and laryngospasm (Tipton & Montgomery 2022; Pellegrino et al 2023). It is well-understood among veterinary and human pathologists that the physical pathology associated with drowning can be quite variable and may relate to the voluntary and involuntary responses of the drowning victim, the amount of liquid inhaled, and the temperature and other characteristics of the media in which they are submerged or immersed (Lunetta & Modell 2005; Byard 2015; McEwen 2016; McEwen & Gerdin 2016; McEwen & Gerdin 2018). However, the subsequent pathophysiology – development of pulmonary edema and impairment of gas exchange – are shared with that resulting from immersion in water-based foam. Therefore, the implications for welfare are largely the same and the Park et al (2025) study fails to alleviate any animal welfare concerns associated with use of water-based foam for killing animals. Should WOAHS decide to keep this article, ICAEW provides specific editing changes below. Supporting Evidence: Byard R. W. (2015). Immersion deaths and drowning: issues arising in the investigation of bodies recovered from water. <i>Forensic science, medicine, and pathology</i>, 11(3), 323–325. https://doi.org/10.1007/s12024-014-9564-5 Lunetta P. & Modell J.H. (2005). Macroscopical, microscopical, and laboratory findings in drowning victims a comprehensive review. In: M Tsokos (Ed.), <i>Forensic pathology reviews</i>. Totowa, NJ: Humana Press. p. 3–77. McEwen B. J. (2016). Nondrowning Asphyxia in Veterinary Forensic Pathology: Suffocation, Strangulation, and Mechanical Asphyxia. <i>Veterinary pathology</i>, 53(5), 1037–1048. https://doi.org/10.1177/0300985816643370 McEwen, B. J., & Gerdin, J. (2016). Veterinary Forensic Pathology: Drowning and Bodies Recovered From Water. <i>Veterinary pathology</i>, 53(5), 1049–1056. https://doi.org/10.1177/0300985815625757 McEwen, B. J., & Gerdin, J. A. (2018). Drowning and bodies recovered from water. <i>Veterinary Forensic Pathology</i>, 2, 1-15. Link to access Park, J. Y., Campler, M. R., Kieffer, J. D., Aarnes, T. K., Green, E. M., Bailey, D., Culhane, M. R., Arruda, A. G., & Bowman, A. S. (2025). Foam-based depopulation methods of swine differ from water submersion based on computed tomography findings and postmortem lesions. <i>American journal of veterinary research</i>, 1–10. Advance online publication. https://doi.org/10.2460/ajvr.25.01.0035 Pellegrino, F., Raffaldi, I., Rossi, R., De Vito, B., Pagano, M., Garelli, D., & Bondone, C. (2023). Epidemiology, clinical aspects, and management of pediatric drowning. <i>Italian journal of pediatrics</i>, 49(1), 74. https://doi.org/10.1186/s13052-023-01464-1	

	Tipton, M., & Montgomery, H. (2022). The experience of drowning. <i>The Medico-legal journal</i>, 90(1), 17–26. https://doi.org/10.1177/00258172211053127 Ziemann, A. E., Allen, J. E., Dahdaleh, N. S., Drebot, I. I., Coryell, M. W., Wunsch, A. M., Lynch, C. M., Faraci, F. M., Howard, M. A., 3rd, Welsh, M. J., & Wemmie, J. A. (2009). The amygdala is a chemosensor that detects carbon dioxide and acidosis to elicit fear behavior. <i>Cell</i>, 139(5), 1012–1021. https://doi.org/10.1016/j.cell.2009.10.029	
7.6.29._2_EU	The EU suggests deleting the entire Article 7.6.29. <u>Justification:</u> According to EFSA suffocation is highly painful and should not be used on welfare grounds. Therefore, it is not appropriate to include such a method in a chapter named animal welfare at the time of killing. There are several mass killing methods which exist and could still be used in different circumstances due to their speed and efficiency, but they should not be recommended in this chapter as they can't ensure even basic animal welfare.	Article deleted

Water based foam

7.6.29._3_ NORWAY	Category: Deletion Proposed deleted text: The article should be deleted. Rationale: See also comment to article 7.6.30 on water content in foam. According to EFSA suffocation is highly painful and should not be used on welfare grounds. Therefore, it is not appropriate to include such a method in a chapter named animal welfare at the time of killing. There are several mass killing methods which exist and could still be used in different circumstances due to their speed and efficiency, but they should not be recommended in this chapter as they can't ensure even basic animal welfare.	Article deleted
7.6.29._4_ ICFAW	Category: Change Proposed amended text: Water based airway-occluding foam Rationale: Various foam products have been proposed for depopulation, and all are partially composed of water. However, there are two general mechanisms by which foam products kill animals and they have very different implications for animal welfare. The foam method described in this section kills via airway occlusion, as opposed to rapidly creating anoxic environmental conditions. As detailed below, killing via airway occlusion raises serious animal welfare concerns, because it prevents exchange of carbon dioxide, and subsequent hypercarbia (increased carbon dioxide in the blood) causes an increased drive to breathe while simultaneously preventing chest expansion and airflow. This results in severe air hunger and an experience similar to that of drowning.	Article deleted

	Airway-occluding foam also results in a slower loss of consciousness compared to high-expansion nitrogen foam when foam levels rise at the same rate. To improve clarity, the foams should be described in a manner that emphasizes their differences and prevents confusion. This type of foam should NOT be included in the section on modified atmosphere killing, as this does not accurately describe its mechanism of action. Supporting evidence: EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. EFSA Journal. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efs.a.2024.8855. Animal Welfare Committee. (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: Link to access Beausoleil, N. J., & Mellor, D. J. (2015). Introducing breathlessness as a significant animal welfare issue. New Zealand Veterinary Journal, 63(1), 44–51. https://doi.org/10.1080/00480169.2014.940410	

Water based foam is a low to high density foam created with air. The principle is that animals in their housing or in a confined area are covered with a blanket of foam and that the animals will die due to occlusion of the airways leading to cessation of brain and heart activity (Benson et al 2009). Due to the density, the foam will not penetrate narrow openings or mesh wire structures. This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals.

7.6.29._5_ USA	Proposed amended text: Water based foam is a low to high density, <u>medium-expansion</u> foam created with air. The principle is that animals in their housing or in a confined area are covered with a blanket of foam and that the animals will die due to occlusion of the airways leading to cessation of brain and heart activity (Benson et al 2009). Due to the density, the foam will not penetrate narrow openings or mesh wire structures. This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals. Rationale: Recommend adding “medium-expansion” for completeness and comparison to other foam types used for animal depopulation.	Article deleted
7.6.29._6_ UK	Category: Addition Proposed amended text Water based foam is a low to high density foam created with air. The principle is that animals in their housing or in a confined area are covered with a blanket of foam and that the animals will die due to <u>asphyxiation by</u> occlusion of the airways leading to cessation of brain and heart activity (Benson et al 2009). Due to the density, the foam will not penetrate narrow openings or mesh wire structures. This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals. Rational:	Article deleted

	This method causes death by asphyxiation. This is not a welfare friendly method and this needs to be made clear from the outset. Supporting evidence: not relevant.	
7.6.29._7_ ICFAW	Category: Change Proposed amended text: Water based <u>airway-occluding</u> foam is a ~~low to high density~~ <u>low- to medium-expansion foam</u> created <u>by mixing foam concentrate, water, and with</u> air. Rationale: The rationale for changing “water based foam” to “water-based airway-occluding foam” is described above. Referring to the density of foam is problematic, as there are no precise definitions for what constitutes low v. high density. In contrast, there are existing classification systems for low-, medium-, and high-expansion foam (UK Animal Welfare Committee 2024; EFSA 2024). As mentioned in the rationale for the previous recommendation, the mechanism of killing between the foam described in this section and high-expansion nitrogen foam is very different, resulting in highly disparate implications for animal welfare (described in greater detail below). To avoid confusion, the clarity of the description should be improved. Supporting evidence: EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. EFSA Journal. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.a.2024.8855. Animal Welfare Committee. (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: Link to access	Article deleted
7.6.29._8_ ICFAW	Category: Addition Proposed amended text: This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals. <u>However, because of its negative implications for animal welfare, airway-occluding foam must be used only as an absolute last resort (such as a situation involving a structurally unstable barn that can't be entered by humans but contains badly burned animals).</u> Rationale: When the airway is occluded exchange of oxygen and carbon dioxide is stopped (Beausoleil & Mellor 2015). This means that blood levels of carbon dioxide rise, increasing the animal's drive to breathe (ventilatory drive) while simultaneously preventing or limiting expansion of the thorax or coelom. In mammals, this is known to result in severe air hunger, described in humans as the most distressing form of breathlessness (respiratory distress). The subjective experience (affective states) resulting from this method is likely very similar to the experience of drowning (EFSA 2024; UK AWC 2024), despite proponents of airway-occluding foam going to extreme lengths to “prove” the dissimilarity between this method and drowning (Bowman et al 2024; Park et al 2025). However, one study purporting to show that airway-occluding foam is “dissimilar to	Article deleted

	drowning" utilized anesthetized animals (Bowman et al 2024; Park et al 2025), failing to account for the behavioral and autonomic responses of animals experiencing submersion and obstruction of the upper airway with liquid (e.g., violent struggling, laryngospasm), the diversity of macroscopic and microscopic lesions found in drowned animals, and the overlap in pathological findings between conscious animals who die via drowning and those who die by obstructive asphyxia (smothering or choking) (Ewen 2016; Byard 2015; Ewen & Gerdin 2018). Whether or not the term "drowning" is applied to killing via airway-occluding foam, the process results in severely compromised animal welfare. Time to loss of consciousness appears to increase with the size of the animal. While poultry may lose consciousness after an average of approximately one to 1.5 minutes (Alphin et al 2010; Rankin et al 2013), the period averages at least 3 minutes for pigs, even with the fastest container-fill times (Campler et al 2023; Korenyi-Both et al 2022), and 4 to 5 minutes for cattle (Capria et al 2023). In both birds and mammals, time to loss of consciousness is prolonged compared to use of high-expansion nitrogen foam (whose mechanism is very different from that of airway-occluding foam), a fact sometimes obscured by the fact that studies on airway-occluding foam tend to set "time zero" at a point when the foam level has risen to twice the height of the animals, while studies on high-expansion nitrogen foam set time zero at the start of foam generation. Because airway-occluding foam is inexpensive and requires very little advanced planning and preparedness, it is poised to become the default method used in the commercial pork industry. Its endorsement by WOAHA would only serve to discourage investment in use of higher-welfare depopulation methods. Supporting evidence: Alphin, R. L., Rankin, M. K., Johnson, K. J., & Benson, E. R. (2010). Comparison of water-based foam and inert-gas mass emergency depopulation methods. <i>Avian diseases</i>, 54(1 Suppl), 757–762. https://doi.org/10.1637/8764-033109-Reg.1 Animal Welfare Committee. (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: Link to access Beausoleil, N. J., & Mellor, D. J. (2015). Introducing breathlessness as a significant animal welfare issue. <i>New Zealand Veterinary Journal</i>, 63(1), 44–51. https://doi.org/10.1080/00480169.2014.940410 Bowman, A.S. (2024). Characterizing the distribution of water-based foam and high-expansion nitrogen foam within the swine respiratory tract using computed tomography (NPB Project PR-005723). https://www.porkcheckoff.org/research/characterizing-the-distribution-of-water-based-foam-and-high-expansion-nitrogen-foam-within-the-swine-respiratory-tract-using-computed-tomography/ Byard R. W. (2015). Immersion deaths and drowning: issues arising in the investigation of bodies recovered from water. <i>Forensic science, medicine, and pathology</i>, 11(3), 323–325. https://doi.org/10.1007/s12024-014-9564-5 Campler, M. R., Cheng, T.-Y., Arruda, A. G., Flint, M., Kieffer, J. D., Youngblood, B., & Bowman, A. S. (2023). Refinement of water-based foam depopulation procedures for finisher pigs during field conditions: Welfare implications and logistical aspects. <i>Preventive Veterinary</i>	

	Medicine, 217, 105974. https://doi.org/10.1016/j.prevetmed.2023.105974 Capria VM, Arruda AG, Cheng TY, et al. (2023) Water-based medium-expansion foam depopulation of adult cattle. <i>Trans An Sci</i>. 7(1):txad065 https://pubmed.ncbi.nlm.nih.gov/37415594 EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA Journal</i>. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.a.2024.8855. Korenyi-Both, J., Vidaurre, J., Held, T., Campler, M. R., Kieffer, J., Cheng, T. Y., Moeller, S. J., Bowman, A. S., & Arruda, A. G. (2022). Description of electroencephalographic data gathered using waterbased medium-expansion foam as a depopulation method for nursery pigs. <i>Scientific Reports</i>, 12(1), 16798. https://doi.org/10.1038/s41598-022-21353-7 McEwen, B. J. (2016). Nondrowning asphyxia in veterinary forensic pathology: Suffocation, strangulation, and mechanical asphyxia: Suffocation, strangulation, and mechanical asphyxia. <i>Veterinary Pathology</i>, 53(5), 1037–1048. https://doi.org/10.1177/0300985816643370 McEwen, B. J. (2018). Strangulation, suffocation, and asphyxia. In <i>Veterinary Forensic Pathology, Volume 1</i> (pp. 129–148). Springer International Publishing. https://doi.org/10.1007/978-3-319-67172-7_8 McKeegan, D. E. F., Reimert, H. G. M., Hindle, V. A., Boulcott, P., Sparrey, J. M., Wathes, C. M., ... & Gerritzen, M. A. (2013). Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. <i>Poultry Science</i>, 92(5), 1145-1154. Link to access Park, J. Y., Campler, M. R., Kieffer, J. D., Aarnes, T. K., Green, E. M., Bailey, D., Culhane, M. R., Arruda, A. G., & Bowman, A. S. (2025). Foam-based depopulation methods of swine differ from water submersion based on computed tomography findings and postmortem lesions. <i>American journal of veterinary research</i>, 1–10. Advance online publication. https://doi.org/10.2460/ajvr.25.01.0035 Rankin, M. K., Alphin, R. L., Benson, E. R., Johnson, A. L., Hougentogler, D. P., & Mohankumar, P. (2013). Comparison of water-based foam and carbon dioxide gas emergency depopulation methods of turkeys. <i>Poultry science</i>, 92(12), 3144–3148. https://doi.org/10.3382/ps.2013-03341	
7.6.29_9_ AUSTRALIA	Category: Change Proposed amended text: <u>This method is applicable to poultry, cattle, pigs, and small ruminants.</u> Water based foam is a low to high density foam created with air. The principle is that animals in their housing or in a confined area are covered with a blanket of foam. <u>Low (expansion ratio of 2-20:1) and medium (expansion ratio (20-200:1) expansion foams, known as wet foams cause death</u> ~~and that the animals will die~~ due to occlusion of the airways leading to cessation of brain and heart activity (Benson et al 2009). Due to the density, the foam will not penetrate narrow openings or mesh wire structures. This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals. Rationale:	Article deleted

	As noted in general comments, we recommend the suitability for different species is listed at the start of the article. Foam may be filled with a variety of gases, including air. Research has shown that air filled foam may be as effective as foam filled with CO₂ in some circumstances, while nitrogen may lead to a shorter time to death. Supporting evidence, if relevant Hewitt, L 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0	

1- **Animal welfare concerns**

~~Animals do not immediately lose consciousness~~

7.6.29._10_ AUSTRALIA	Category: Addition Proposed amended text: Animals do not immediately lose consciousness. <u>This time may be particularly prolonged in waterfowl that breath hold. As animals experience physical suffocation, they are likely to experience considerable distress prior to losing consciousness.</u> Rationale: Waterfowl may breath hold and experience bradycardia, prolonging the time to unconsciousness. In addition, as the mechanism of action is via physical occlusion of airways, this method may cause increased distress compared to some other atmosphere modification methods. Supporting evidence, if relevant Hewitt, L 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0	Article deleted

~~Animals will experience distress as oxygen is lost from the environment.~~

7.6.29._11_ USA	Proposed amended text: Animals ~~may will~~ experience <u>respiratory and other types of</u> distress <u>from as</u> oxygen loss in ~~is lost from the~~ir environment, <u>hearing loud machinery noises and/or being surrounded by rising levels of foam.</u> Rationale: Edited for completeness. Distress may occur from other factors beyond loss of oxygen, including novel loud machinery noises and rising levels of foam. Supporting references: Culhane, M. (2023). Adapting high expansion foam for use in American systems as an alternative method for humane killing [Presentation]. EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. EFSA	Article deleted

	journal. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrisi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougentogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. PloS one, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217 Lindahl, C., Sindhøj, E., Brattlund Hellgren, R., Berg, C., & Wallenbeck, A. (2020). Responses of Pigs to Stunning with Nitrogen Filled High-Expansion Foam. Animals: an open access journal from MDPI, 10(12), 2210. https://doi.org/10.3390/ani10122210 McKeegan, D. E.F., Reimert, H. G., Hindle, V. A., Boulcott, P., Sparrey, J. M., Wathes, C. M., Demmers, T. G., & Gerritzen, M. A. (2013). Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. Poultry science, 92(5), 1145–1154. https://doi.org/10.3382/ps.2012-02587	
7.6.29._12_ UK	Category: Deletion/Addition Proposed amended text Animals will experience distress as their airway is occluded. ~~oxygen is lost from the environment.~~ Rational: This method causes death by asphyxiation not by displacing oxygen from the shed environment. Supporting evidence: not relevant.	Article deleted
7.6.29._13_ ICFAW	Category: Change Proposed amended text: Animals will experience psychological and respiratory distress as foam fills their upper airway and trachea, resulting in pulmonary edema and alveolar hemorrhage and preventing exchange of oxygen ~~is lost from the environment.~~ and carbon dioxide. Rationale: It is not loss of oxygen from the environment that is the cause of distress in animals killed with this type of foam. Research in pigs and cattle indicates that airway-occluding foam fills the upper airway (and in some cases the trachea), preventing gas exchange, rather than creating an anoxic environment around the animal as is the case for high-expansion nitrogen foam (Park et al 2025; Capria et al 2023). Airway occlusion prevents or decreases gas exchange, resulting in both rapidly decreasing blood levels of oxygen and increasing blood levels of carbon dioxide (Beausoleil & Mellor 2015). Since blood concentration of carbon dioxide is what stimulates the drive to breathe in both mammals and birds (intrapulmonary CO2 levels also stimulate ventilatory drive in birds), this method of killing results in severely increased drive to breathe while the obstruction prevents thoracic expansion (coelomic expansion in birds) (Powell 2022; Beausoleil & Mellor 2015; Manning & Schwartzstein 1995). This results in air hunger, the form of breathlessness (dyspnea or respiratory distress) described as the most unpleasant form of dyspnea in humans, in whom it is often accompanied by fear, anxiety and frustration (Beausoleil & Mellor 2015; Banzett et al 2008). Air hunger is known to be processed by the brain in a manner similar to pain (Banzett et al 2021). Rising blood levels of carbon dioxide are known to cause intense fear in mammals via direct stimulation of ion channels within the amygdala (EFSA 2020; McEwen 2018; Ziemann et al 2009).	Article deleted

	Necropsies on pigs killed with this method show significant alveolar hemorrhage and pulmonary edema (Park et al 2025). Supporting evidence: Banzett, R. B., Pedersen, S. H., Schwartzstein, R. M., & Lansing, R. W. (2008). The affective dimension of laboratory dyspnea: air hunger is more unpleasant than work/effort. <i>American journal of respiratory and critical care medicine</i>, 177(12), 1384–1390. https://doi.org/10.1164/rccm.200711-1675OC Banzett, R. B., Lansing, R. W., & Binks, A. P. (2021). Air Hunger: A Primal Sensation and a Primary Element of Dyspnea. <i>Comprehensive Physiology</i>, 11(2), 1449–1483. https://doi.org/10.1002/cphy.c200001 Beausoleil, N. J., & Mellor, D. J. (2015). Introducing breathlessness as a significant animal welfare issue. <i>New Zealand Veterinary Journal</i>, 63(1), 44–51. https://doi.org/10.1080/00480169.2014.940410 Capria VM, Arruda AG, Cheng TY, et al. (2023) Water-based medium-expansion foam depopulation of adult cattle. <i>Trans An Sci</i>. 7(1):txad065 https://pubmed.ncbi.nlm.nih.gov/37415594 EFSA Panel on Animal Health and Welfare (AHAW), Nielsen SS, Alvarez J, et al. Welfare of pigs at slaughter. EFSA J. 2020;18(6):e06148. Published 2020 Jun 17. doi:10.2903/j.efsa.2020.6148 https://www.efsa.europa.eu/en/efsajournal/pub/6148 Manning, H. L., & Schwartzstein, R. M. (1995). Pathophysiology of Dyspnea. <i>The New England Journal of Medicine</i>, 333(23), 1547–1553. https://doi.org/10.1056/NEJM199512073332307 McEwen, B. J. (2018). Strangulation, suffocation, and asphyxia. In <i>Veterinary Forensic Pathology</i>, Volume 1 (pp. 129–148). Springer International Publishing. https://doi.org/10.1007/978-3-319-67172-7_8 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrisi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougantogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. <i>PloS one</i>, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217 Powell, F.L. (2022). Respiration. In C.G. Scanes & S. Dridi (Eds.) <i>Sturkie's Avian Physiology</i>, 7th ed. Elsevier. Pp 445-484. https://doi.org/10.1016/B978-0-12-819770-7.00033-5 Ziemann, A. E., Allen, J. E., Dahdaleh, N. S., Drebot, I. I., Coryell, M. W., Wunsch, A. M., Lynch, C. M., Faraci, F. M., Howard, M. A., 3rd, Welsh, M. J., & Wemmie, J. A. (2009). The amygdala is a chemosensor that detects carbon dioxide and acidosis to elicit fear behavior. <i>Cell</i>, 139(5), 1012–1021. https://doi.org/10.1016/j.cell.2009.10.029	
7.6.29_14_ CANADA	Category: change Proposed amended text: Animals will experience distress as their airway is obstructed with foam~~oxygen is lost from the environment~~. Rationale: Canada suggests that this description of the animal welfare implications of water-based foam depopulation is inaccurate. Water-	Article deleted

	based form kills by occlusion of the airway, equivalent to drowning. It is not a loss of oxygen that results in death. Supporting evidence: Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrisi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougantogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. <i>PloS one</i>, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217 EFSA Panel on Animal Health and Welfare (AHAW), Nielsen SS, Alvarez J, et al. Welfare of pigs at slaughter. <i>EFSA J</i>. 2020;18(6):e06148. Published 2020 Jun 17. doi:10.2903/j.efsa.2020.6148	
7.6.29._15_ ICFAW	Category: Addition Proposed amended text: 1. Animal welfare concerns 2. Animals do not immediately lose consciousness Animals will experience distress as oxygen is lost from the environment. <u>Animals may experience fear at the rising levels of foam.</u> Rationale: Research indicates that pigs and cattle demonstrate escape attempts in response to rising levels of foam. Supporting evidence: Campler, M. R., Cheng, T.-Y., Arruda, A. G., Flint, M., Kieffer, J. D., Youngblood, B., & Bowman, A. S. (2023). Refinement of water-based foam depopulation procedures for finisher pigs during field conditions: Welfare B-8 implications and logistical aspects. <i>Preventive Veterinary Medicine</i>, 217, 105974. https://doi.org/10.1016/j.prevetmed.2023.105974 Capria VM, Arruda AG, Cheng TY, et al. (2023) Water-based medium-expansion foam depopulation of adult cattle. <i>Trans An Sci</i>. 7(1):txad065 https://pubmed.ncbi.nlm.nih.gov/37415594 Park, J. Y., Campler, M. R., Cheng, T. Y., Kieffer, J. D., Arruda, A. G., Benjamin, M. E., Rozeboom, D. W., & Bowman, A. S. (2024). Perceptions of swine industry stakeholders on the use of water-based foam, high-expansion nitrogen foam, and carbon dioxide gas as methods of swine depopulation. <i>Preventive veterinary medicine</i>, 233, 106356. https://doi.org/10.1016/j.prevetmed.2024.106356	Article deleted
7.6.29._16_ AUSTRALIA	Category: Change Proposed amended text: Animals will experience <u>a period of</u> distress as oxygen is lost from the environment as <u>death occurs due to occlusion of the airways.</u> Rationale: It is important to specify the reason why animals experience distress when water-based foam is used for killing because loss of oxygen from the environment is not the cause of the distress.	Article deleted

	Supporting evidence: Raj, A. B. M., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary Record</i>, 162(22), 722. EFSA Panel on Animal Health and Welfare (AHAW), Nielsen SS, Alvarez J, et al. Welfare of pigs at slaughter. EFSA J. 2020;18(6):e06148. Published 2020 Jun 17. doi:10.2903/j.efsa.2020.6148 Hewitt, L 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0	

2- Animal-based and other measures

Animal based measures are difficult to assess once animals are covered in foam. Distress behaviours such as escape attempts and vocalizations (pigs) may be seen or heard.

7.6.29._17_ USA	Proposed amended text: Animal based measures are difficult to assess once animals are covered in foam. Distress behaviours such as escape attempts and ~~vocalizations (pigs)~~ may be seen or heard. Rationale: Deletion recommended due to common references below not listing vocalizations for pigs using this method. Supporting references: Arruda AG, Campler MR, Cheng TY, et al. Reliability of water-based medium-expansion foam as a depopulation method for nursery pigs and cull sows. <i>Trans Emerg Dis</i>. 2022;69(5):e2719-e2730. doi:10.1111/tbed.14622 Kieffer JD, Campler MR, Cheng TY, et al. Evaluation of a water-based medium-expansion foam depopulation method in suckling and finisher pigs. <i>Animals</i>. 2022;12(8):1041. Korenyi-Both J, Vidaurre J, Held T, et al. Description of electroencephalographic data gathered using water-based medium-expansion foam as a depopulation method for nursery pigs. <i>Scientific Reports</i>. 2022;12(1):16798. Bowman A. Validating Water-Based Foam for the Depopulation of Swine. <i>Pork Checkoff</i>. 2023. NPB#21-070. Accessed Oct 27, 2023. https://www.porkcheckoff.org/research/validating-water-based-foam-for-the-depopulation-of-swine/	Article deleted

~~Animal based measures of an effective kill are: absence of signs of life such as breathing, righting reflex or body movement.~~

7.6.29._18_ AUSTRALIA	Category: Change Proposed amended text: ~~Animal based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.~~	Article deleted

	<u>Signs of unconsciousness include: lack of body movement and righting reflex, absence of corneal or palpebral reflex</u> <u>Additional signs that indicate the absence of life include lack of breathing, heartbeat, or brain stem reflexes.</u> Rationale: Some of the signs described as for an effective kill may only indicate unconsciousness. More detail is warranted for this important step.	

3. Recommendations

The temperature of the foam is determined mainly by the temperature of the water. The temperature of water used should be between (15 and 20 °C).

7.6.29._19_ USA	Proposed amended text: <u>The foam that is selected should be free of perfluorooctane sulfonic acid (PFOS) or related compounds due to concerns of environmental, wildlife, and human health impacts.</u> Rationale: Recommend added language to highlight health and safety concerns with foam use	Article deleted
7.6.29._20_ AUSTRALIA	Category: Addition Proposed amended text: <u>The use of wet foam provides a poorer welfare outcome than the use of high expansion foams, as death occurs due to asphyxiation from physical occlusion of the airways. Other less aversive methods of killing should be used if possible.</u> The temperature of the foam is determined mainly by the temperature of the water. The temperature of water used should be between (15 and 20 °C). Rationale: Killing using wet foams (physical asphyxiation) results in a poorer welfare outcome for animals than some other methods, which should be made clear. Supporting evidence: Raj, A. B. M., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary Record</i>, 162(22), 722.	Article deleted

The foam should be produced with foaming agents that are proven to be non irritating and having no aversive effect.

Foam should be applied after animals are contained.

7.6.29._21_ AUSTRALIA	Category: Addition Proposed amended text:	Article deleted

	Foam should be applied after animals are contained. This may be within a container, or within a whole facility/shed if it is suitable to allow for foam use (e.g. lacking internal structures or cages that may prevent foam from completely surrounding animals). Rationale: Foams may be used in large open sheds or by introduction into a container within which animals are located Supporting evidence, if relevant Hewitt, L 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0	

~~Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam.~~

7.6.29._22_ AUSTRALIA	Category: Addition Proposed amended text: Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam. Animals should be examined following removal from the foam to confirm death, and if necessary, a secondary killing method should be applied. Rationale: Death should be confirmed as soon as possible, so secondary measures can be taken if needed to avoid prolonged suffering	Article deleted

~~This method should only be applied to floor-reared animals.~~

7.6.29._23_ UK	Category: Deletion/Addition Proposed amended text The temperature of the foam is determined mainly by the temperature of the water. The temperature of water used should be between (15 and 20 °C). The foam should be produced with foaming agents that are proven to be non-irritating and having no aversive effect. Foam should be applied after animals are contained. Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam. This method should only be applied to floor-reared animals and when no other method is available or practicable. Rational: This method causes death by asphyxiation. This is not a welfare friendly method and should only be used as a last resort. Supporting evidence: not relevant.	Article deleted

~~This method is suitable for poultry, cattle, pigs, and small ruminants.~~

7.6.29._24_ ICFAW	Category: Change Proposed amended text: This method ~~is suitable for~~ <u>effectively kills animals but has negative animal welfare implications for both poultry (particularly Pekin ducks) and mammals. Therefore, it must be used only as a last resort for any species, cattle, pigs. Little to no research has been performed on cattle and small ruminants and it must not be used in these species.</u> Rationale: Use of this method is inconsistent with the General Principles section of this document, which states “Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness should not cause avoidable distress, fear and pain.” The process of inducing unconsciousness with water-based airway-occluding foam will always cause high levels of fear and respiratory distress (air hunger). Please see comments above. While time to unconsciousness is relatively short in turkeys and chickens (approximately 1-1.25 minutes; Alphin et al 2010; Rankin et al 2013), it is prolonged in Pekin ducks (2.5 minutes; Benson et al 2012); pigs (3+ minutes; Campler 2023, Korenyi-Both 2022); and cattle 4-5 minutes (Capria 2023). No research has been published regarding use of this method in small ruminants. Supporting evidence: Alphin, R. L., Rankin, M. K., Johnson, K. J., & Benson, E. R. (2010). Comparison of water-based foam and inert-gas mass emergency depopulation methods. <i>Avian diseases</i>, 54(1 Suppl), 757–762. https://doi.org/10.1637/8764-033109-Reg.1 Campler, M. R., Cheng, T.-Y., Arruda, A. G., Flint, M., Kieffer, J. D., Youngblood, B., & Bowman, A. S. (2023). Refinement of water-based foam depopulation procedures for finisher pigs during field conditions: Welfare B-8 implications and logistical aspects. <i>Preventive Veterinary Medicine</i>, 217, 105974. https://doi.org/10.1016/j.prevetmed.2023.105974 Capria VM, Arruda AG, Cheng TY, et al. (2023) Waterbased medium-expansion foam depopulation of adult cattle. <i>Trans An Sci</i>. 7(1):txad065 https://pubmed.ncbi.nlm.nih.gov/37415594 Korenyi-Both, J., Vidaurre, J., Held, T., Campler, M. R., Kieffer, J., Cheng, T. Y., Moeller, S. J., Bowman, A. S., & Arruda, A. G. (2022). Description of electroencephalographic data gathered using waterbased medium-expansion foam as a depopulation method for nursery pigs. <i>Scientific Reports</i>, 12(1), 16798. https://doi.org/10.1038/s41598-022-21353-7 Rankin, M. K., Alphin, R. L., Benson, E. R., Johnson, A. L., Hougentogler, D. P., & Mohankumar, P. (2013). Comparison of water-based foam and carbon dioxide gas emergency depopulation methods of turkeys. <i>Poultry science</i>, 92(12), 3144–3148. https://doi.org/10.3382/ps.2013-03341	Article deleted
7.6.29._25_ CANADA	Category: change Proposed amended text:	Article deleted

	<u>While [This method is suitable for may effectively kill poultry, cattle, pigs, and small ruminants, it should be considered a method of last resort for exceptional and constrained circumstances.</u> Rationale: Canada suggests that this method raises serious animal welfare concerns since the method of death is mechanical obstruction of the airway, which is similar to drowning or suffocation. While the method can effectively kill animals, the word “suitable” seems too positive for what should be considered a method of last resort. Canada questions if there is evidence that this is a humane method - especially in these species? This paper Water-based medium-expansion foam depopulation of adult cattle - PMC describes that it takes 9 minutes on average for fatal arrhythmias to occur but does not evaluate the behaviour of animals to assess whether they experience suffering during this process. Furthermore, there was a large petition in 2025 by veterinarians to move this method into the ‘not recommended’ category in draft guidelines. This petition cites scientific literature to support their concerns. Supporting evidence: Raj, A.B.M., Smith, C., Hickman, G. (2008) Novel method for killing poultry in houses with dry foam created using nitrogen. Veterinary Record, 162, 722-723. www.researchgate.net/profile/Mohan-Raj-2/publication/5334833_Novel_method_for_killing_poultry_in_houses_with_dry_foam_created_using_nitrogen/links/543bcd9d0cf204cab1db3656/Novel-method-for-killing-poultry-in-houses-with-dry-foam-created-using-nitrogen.pdf European Food Safety Authority. Killing for purposes other than slaughter: poultry (2019). EFSA Journal 17(11), 5850. https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2019.5850 McKeegan, D.E.F. (2018) Mass depopulation. In: Advances in Poultry Welfare (Mench Ed.). Woodhead Publishing, Kidlington, United Kingdom. Sparrey, C.M. Wathes, T.G.M. Demmers, and Gerritzen, M.A.. 2013. Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. Poultry Science 5(1), 1145-1154. www.sciencedirect.com/science/article/pii/S0032579119387000	
7.6.29._26_ AUSTRALIA	Category: Deletion Proposed amended text: <u>This method is suitable for poultry, cattle, pigs, and small ruminants.</u> Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Article deleted

4. Species-specific recommendations

None identified

7.6.29._27_ AUSTRALIA	Category: Change Proposed amended text: <u>None identified</u>	Article deleted

	<u>This method is not recommended for waterfowl, which require a longer time in foam before unconsciousness and death.</u> Rationale: Waterfowl may breath hold and take longer for unconsciousness and death to occur.	

Article 7.6.27.

Gas filled high expansion foam

7.6.30._1_ UK	Category: Deletion/Addition Proposed amended text Gas ~~infused~~ filled high expansion foam Rational: Consistency – gas filled foam has been used previously in the chapter. Language point – this better describes the actual system where the foam surfactant is filled with gas. Infused has a different meaning and does not define the system well. Supporting evidence: not relevant.	Agreed
7.6.30._2_ ICFAW	Category: Change Proposed amended text: <u>Inert gas</u> ~~infused~~ high expansion foam Rationale: While early research on this method trialed the use of carbon dioxide (CO₂) as the gas infused into the high expansion foam (Gerrizen & Sparrey 2008; McKeegan et al 2012; McKeegan et al 2013), carbon dioxide has three significant drawbacks compared to use of nitrogen gas. First, like other methods that utilize carbon dioxide, carbon dioxide-infused foam compromises welfare because the gas is aversive to the animals and results in pain, respiratory distress, and fear (Livetec 2013; McKeegan et al 2012; EFSA 2020; Ziemann 2009; Beausoleil & Mellor 2015; Steiner et al 2019; McKeegan et al 2006; McKeegan 2004). Second, using carbon dioxide rather than nitrogen gas reduces the foam quality and makes foam generation more difficult (McKeegan et al 2012; University of Glasgow et al 2008). Third, carbon dioxide is a by-product of other industries and is subject to shortages (Newman 2022). For these reasons, currently available high expansion foam systems utilize nitrogen, which is nonaversive, better for foam quality, and widely available at an affordable cost. To improve clarity, this section should be titled either “Inert gas infused high expansion foam” or “High expansion nitrogen foam.” Supporting Evidence: Beausoleil, N. J., & Mellor, D. J. (2015). Introducing breathlessness as a significant animal welfare issue. New Zealand Veterinary Journal, 63(1), 44–51. https://doi.org/10.1080/00480169.2014.940410 EFSA Panel on Animal Health and Welfare (AHAW), Nielsen SS, Alvarez J, et al. Welfare of pigs at slaughter. EFSA J. 2020;18(6):e06148. Published 2020 Jun 17. doi:10.2903/j.efsa.2020.6148 https://www.efsa.europa.eu/en/efsajournal/pub/6148	Did not agree. It could be other gases.

	Gerritzen, M.A. & Sparrey, J. (2008). A pilot study to assess whether high expansion CO₂-enriched foam is acceptable for on-farm emergency killing of poultry. <i>Animal Welfare</i>, 17(3), 285–288. Link to pdf Livetec Systems Ltd. (2013). <i>Development of an On-Farm Anoxic Gas Foam Delivery System</i>; Research Project Final Report MH0151; United Kingdom Department for Environment, Food and Rural Affairs. https://randd.defra.gov.uk/ProjectDetails?ProjectId=18404 McKeegan, D. E. F. (2004).. Mechano-chemical nociceptors in the avian trigeminal mucosa. <i>Brain Res. Rev.</i> 46(2), 146–154. https://doi.org/10.1016/J.BRAINRESREV.2004.07.012. McKeegan, D. E. F., McIntyre, J., Demmers, T. G. M., Wathes, C. M., & Jones, R. B. (2006). Behavioural responses of broiler chickens during acute exposure to gaseous stimulation. <i>Applied Animal Behaviour Science</i>, 99(3), 271–286. https://doi.org/10.1016/j.applanim.2005.11.002 McKeegan, D.E.F., Gerritzen, M.A., Sparrey, J.M. (2012, August). High expansion gas filled foam-a humane agent for emergency killing. <i>British Poultry Abstracts</i>, pp.2-4. https://www.researchgate.net/publication/254832805_High_expansion_gas_foam_a_humane_agent_for_emergency_killing_of_poultry McKeegan, D. E.F., Reimert, H. G., Hindle, V. A., Boulcott, P., Sparrey, J. M., Wathes, C. M., Demmers, T. G., & Gerritzen, M. A. (2013). Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. <i>Poultry science</i>, 92(5), 1145–1154. https://doi.org/10.3382/ps.2012-02587 Newman, J. (2022, Aug. 26). There's a Carbon Dioxide Shortage, and Food and Drink Makers are Scrambling. <i>Wall Street Journal</i>. Link to access Steiner, A. R., Flammer, S. A., Beausoleil, N. J., Berg, C., Bettschart-Wolfensberger, R., Pinillos, R. G., Gollledge, H. D. W., Marahrens, M., Meyer, R., Schnitzer, T., Toscano, M. J., Turner, P. V., Weary, D. M., & Gent, T. C. (2019). Humanely ending the life of animals: Research priorities to identify alternatives to carbon dioxide. <i>Animals: An Open Access Journal from MDPI</i>, 9(11), 911. https://doi.org/10.3390/ani9110911 University of Glasgow; Royal Veterinary College; Livetec; LST International. (2008). <i>Welfare Assessment of Anoxic Gas-Foam as an Agent for Emergency Killing of Poultry</i>; Research Project Final Report MH0143; United Kingdom Department for Environment, Food and Rural Affairs. https://randd.defra.gov.uk/ProjectDetails?ProjectId=15445 Ziemann, A. E., Allen, J. E., Dahdaleh, N. S., Drebot, I. I., Coryell, M. W., Wunsch, A. M., Lynch, C. M., Faraci, F. M., Howard, M. A., 3rd, Welsh, M. J., & Wemmie, J. A. (2009). The amygdala is a chemosensor that detects carbon dioxide and acidosis to elicit fear behavior. <i>Cell</i>, 139(5), 1012–1021. https://doi.org/10.1016/j.cell.2009.10.029	

A method for creating a situation with very low O₂ in containers or in buildings that are difficult to fill with gas is by using a high expansion foam filled with the gas. The most suitable gas is Nitrogen. The principle of the method is that animals are exposed to an environment of > 99% of N₂ (or other gas) and die due to hypoxia. The high gas concentration is achieved due to the foam being produced using a gas from a pure source instead of with air.

7.6.30._3_ USA	Proposed amended text: A <u>method for creating</u> way to introduce a high gas concentration or ~~to create~~ a situation with very low O2 in containers or in buildings that are difficult to fill with gas is use of ~~by using~~ a high-expansion foam filled with <u>an inert</u> gas. This ~~includes~~ most suitable gas is ~~N~~Nitrogen <u>or argon. At present, nitrogen is more practical and has been better researched.</u> The principle of the method is that animals are exposed to an environment <u><2% oxygen > 99% of N2 (or other gas)</u> and die due to <u>hypoxia</u>anoxia. <u>The foam is STRICTLY a delivery agent for the inert gas; however, the physical properties of the foam matrix force the oxygen from the container, significantly reducing the time required to reach hypoxic conditions compared to the injection of inert gas.</u> The <u>low oxygen level</u> high gas concentration is achieved ~~because~~due to the foam ~~is being~~ produced using ~~a gas from an inert gas (such as N2) pure source~~ <u>rather than</u>instead of with air. <u>The foam expansion ratio must be at least 300:1 and the bubble size (typically 10-15mm) must be appropriate for the species and animals' size to ensure it does not readily enter or occlude their airways.</u> Rationale: Edited for clarity and accuracy. While some research has examined the use of argon (Lindahl et al 2022), the vast majority has utilized nitrogen as the inert gas infused in the foam. Recommend including the expansion ratio and bubble size in the description due its importance in ensuring this method causes death via its intended mechanism (EFSA 2024, UK AWC 2024). Additionally, to achieve anoxia the gas would need to be applied in a vacuum. The correct term here is 'hypoxia.' Supporting references : Culhane, M. (2023). Adapting high expansion foam for use in American systems as an alternative method for humane killing [Presentation]. Culhane, M. (2023). Effective use of inert gas (nitrogen) for poultry depopulation requires methods that consider bird species, age, size, and sex-specific factors. Presented at AVMA Humane Endings Conference, Chicago, IL, Jan. 26-29, 2023. EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. EFSA journal. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855 Gerritzen, M.A., Reimert, H.G.M., Hindle, V.A., McKeegan, D.E.F., & Sparrey, J.M. (2010). Welfare assessment of gas filled foam as an agent for killing poultry, Report 399. Livestock Research Wageningen UR. https://www.researchgate.net/publication/275647993_welfare_assessment_of_gas_filled_foam_as_an_agent_for_killing_poultry Lindahl, C., Blad, M., Sindhøj, E. Berg, C., & Wallenbeck, A. (2022). Controlled atmosphere stunning of pigs using nitrogen, argon and carbon dioxide in high expansion foam. https://res.slu.se/id/publ/120236 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrisi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougantogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. PloS one, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217	Agreed, just the first addition.

	Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. The Veterinary record, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722 Sparrey, J. (2021). Depopulation of Swine by Inert Gassing Utilizing the Livetec Systems Nitrogen Foam Delivery System; NPB #20-099. https://porkcheckoff.org/wp-content/uploads/2022/07/20-099-SPARREY-final-rpt.pdf United Kingdom Animal Welfare Committee (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: https://www.gov.uk/government/publications/awc-opinion-on-high-expansion-nitrogen-foam-for-culling-poultry/awc-opinion-on-the-use-of-high-expansion-nitrogen-foam-for-culling-poultry Williams, T., Hill, J., Flory, G., Sparrey, J. & Hunt, L. (2023). The Utilization of Livetec Systems' Nitrogen Foam Delivery System for the Rapid, Large-scale Depopulation of Swine: Final Report.	
7.6.30._4_ NORWAY	Category: Addition Proposed new text: <u>High expansion foam should have a very low water content, to avoid airways being blocked and suffocation occurring. The water content can be assessed from the size of the bubbles.</u> Rationale: Foam with an expansion ratio between 250:1 and 350:1 appeared to be the optimum compromise between foam stability, water content, bubble size and wetness. It is recommended that high expansion foam should have a very low water content so as to prevent water entering the respiratory tract and drowning the animals. Furthermore, so that the airways are not blocked, and suffocation does not occur. The water content can be assessed from the size of the bubbles. In this regard, a bubble size of 10 mm has been suggested for poultry and the same may apply also to pigs. Supporting evidence: EFSA opinion on “Welfare of pigs during killing for purposes other than slaughter” https://doi.org/10.2903/j.efsa.2020.6195 EFSA opinion on “Killing for purposes other than slaughter: poultry” https://doi.org/10.2903/j.efsa.2019.5850 EFSA opinion on “The use of high expansion foam for stunning and killing pigs and poultry” https://doi.org/10.2903/j.efsa.2024.8855	Did not agree
7.6.30._5_ ICFAW	Category: Change Proposed amended text: <u>A way to introduce a high gas concentration or to create a situation with very low O₂ in containers or in buildings that are difficult to fill with gas is by using a High expansion foam filled with the an inert gas can be used to create an environment with very low O₂ in containers or buildings that are difficult to seal for gassing. This includes The most suitable gas is N-nitrogen and argon, but nitrogen is more practical and better researched. The principle of the method is that animals are exposed to an environment of >99% of N₂ (or other gas) <2% oxygen and die due to anoxia. The foam is strictly a delivery agent for the inert gas, however, in containers the physical properties of the foam matrix force the oxygen out, significantly reducing the time required to reach anoxic conditions compared to the injection of inert gas. The high gas</u>	Did not agree

	~~concentration low oxygen level~~ is achieved ~~using due to the~~ foam being produced ~~using a with~~ gas from a pure source instead of with air. Rationale: It is essential that this section be informed by the latest research and clearly describe the mechanism behind this message. Because the animal welfare implications of this method would be very different were carbon dioxide to be utilized, it must be accurately described as relying on inert, non-aversive gases rather than carbon dioxide. While some research has examined the use of argon (Lindahl et al 2022), the vast majority has utilized nitrogen as the inert gas infused in the foam. The references listed below are some examples of the research on this use of this method. Please also see the references in the comment above. A video demonstration of high expansion foam is available here: https://www.youtube.com/watch?v=ejA7zDp3NIU Supporting Evidence: Culhane, M. (2023). Adapting high expansion foam for use in American systems as an alternative method for humane killing [Presentation]. Link to PDF Culhane, M. (2023). Effective use of inert gas (nitrogen) for poultry depopulation requires methods that consider bird species, age, size, and sex-specific factors. Presented at AVMA Humane Endings Conference, Chicago, IL, Jan. 26-29, 2023. Link to pdf Link to abstract EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA journal. European Food Safety Authority</i>, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855 Gerritzen, M.A., Reimert, H.G.M., Hindle, V.A., McKeegan, D.E.F., & Sparrey, J.M. (2010). Welfare assessment of gas filled foam as an agent for killing poultry, Report 399. Livestock Research Wageningen UR. Link to access Lindahl, C., Blad, M., Sindhøj, E. Berg, C., & Wallenbeck, A. (2022). Controlled atmosphere stunning of pigs using nitrogen, argon and carbon dioxide in high expansion foam. https://res.slu.se/id/publ/120236 Lindahl, C., Sindhøj, E., Brattlund Hellgren, R., Berg, C., & Wallenbeck, A. (2020). Responses of pigs to stunning with nitrogen filled high-expansion foam. <i>Animals</i>, 10(12), 2210. https://www.mdpi.com/2076-2615/10/12/2210 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrissi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougentogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. <i>PloS one</i>, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217 Raj, A. B., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary record</i>, 162(22), 722–723. https://doi.org/10.1136/vr.162.22.722 Sparrey, J. (2021). <i>Depopulation of Swine by Inert Gassing Utilizing the Livetec Systems Nitrogen Foam Delivery System</i>; NPB #20-099. Link to pdf United Kingdom Animal Welfare Committee (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: https://www.gov.uk/government/publications/awc-	

	opinion-on-high-expansion-nitrogen-foam-for-culling-poultry/awc-opinion-on-the-use-of-high-expansion-nitrogen-foam-for-culling-poultry Williams, T., Hill, J., Flory, G., Sparrey, J. & Hunt, L. (2023). The Utilization of Livetec Systems' Nitrogen Foam Delivery System for the Rapid, Large-scale Depopulation of Swine: Final Report. Link to pdf	
7.6.30._6_ AUSTRALIA	Category: Addition Proposed amended text: <u>This method is suitable for poultry and pigs. This method is a suitable form of modified atmosphere killing because animals are expected to rapidly lose consciousness prior to dying.</u> <u>High expansion foam, also known as 'dry foam, includes foams with an expansion ratio of greater than 200:1..</u> A way to introduce a high gas concentration or to create a situation with very low O2 in containers or in buildings that are difficult to fill with gas is by using a high expansion foam filled with the gas. The most suitable gas is Nitrogen, <u>however other gases such as CO₂ may also be used.</u> The principle of the method is that animals are exposed to an environment of > 99% of N2 (or other gas) and die due to anoxia. The high gas concentration is achieved due to the foam being produced using a gas from a pure source instead of with air. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. More clarity should be provided on the constitution of high expansion foams.	Did not agree. The suitability of the method for the different species, now is at the beginning of the Article
7.6.30._7_ EU	The EU suggests adding the following sentence: <u>'High expansion foam should have very low water content to avoid that the airways are blocked, and suffocation occurs. The water content can be assessed from the size of the bubbles.</u> Justification: Foam with an expansion ratio between 250:1 and 350:1 appeared to be the optimum compromise between foam stability, water content, bubble size and wetness. High expansion foam should have very low water content, which can be assessed from the size of the bubbles, to prevent water entering the respiratory tract and drowning the animals, so that the airways are not blocked, and suffocation does not occur. In this regard, a bubble size of 10 mm has been suggested for poultry and the same may apply also to pigs. EFSA opinion on "Welfare of pigs during killing for purposes other than slaughter" https://doi.org/10.2903/j.efsa.2020.6195 EFSA opinion on "Killing for purposes other than slaughter: poultry" https://doi.org/10.2903/j.efsa.2019.5850 EFSA opinion on "The use of high expansion foam for stunning and killing pigs and poultry" https://doi.org/10.2903/j.efsa.2024.8855	Dit not agreed. But considered in the recommendation s. In particular the expansion ratio.

Animals may be kept in their housing, in a confined area or in a special chamber or box. The building, confined area or box is then filled with gas-filled foam until the box is completely filled or the animals are completely covered. As the bubbles burst the animals will breathe in an atmosphere containing only the gas released from

the foam with less than 1% O₂. This very low O₂ concentration will induce a rapid loss of consciousness and death.

7.6.30._8_ USA	Proposed amended text: Animals may be kept in their housing, in a confined area or in a special chamber or box. The building, confined area or box is then filled with gas-filled foam until ~~it the box~~ is completely filled or the animals are well covered. As the bubbles burst the animals will breathe in an atmosphere containing only the gas released from the foam with less than 1% O₂. This very low O₂ concentration will induce a rapid loss of consciousness and death. Rationale: Edited for readability.	Did not agree
7.6.30._9_ ICFAW	Category: Editorial and addition Proposed amended text: Animals may be kept in their housing, in a confined area or in a special chamber or box. The building, confined area or box is then filled with gas-filled foam until ~~the box is~~ completely filled or the animals are well covered <u>(at least two times body height)</u>. As the bubbles burst the animals will breathe in an atmosphere containing only the gas released from the foam with less than 1% O₂. This very low O₂ concentration will induce a rapid loss of consciousness and death. Rationale: It is important to describe what constitutes the animals being "well covered." One of the biggest welfare hazards with this method is that animals may resurface, exposing them to oxygen and either preventing rapid loss of consciousness via anoxia or permitting animals to regain consciousness. (University of Glasgow et al 2010; Park et al 2025; EFSA 2024; UK AWC 2024). Supporting Evidence: EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA journal. European Food Safety Authority</i>, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrissi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougentogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. <i>PloS one</i>, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217 United Kingdom Animal Welfare Committee (2024). Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for depopulation of poultry flocks affected by notifiable disease in the UK. Available at: https://www.gov.uk/government/publications/awc-opinion-on-high-expansion-nitrogen-foam-for-culling-poultry/awc-opinion-on-the-use-of-high-expansion-nitrogen-foam-for-culling-poultry University of Glasgow; Livetec; LST International. (2010). <i>Further Study to Develop a Humane Method to Kill Poultry Using Gas Filled Foam</i>; Research Project Final Report MH0144; United Kingdom Department for Environment, Food and Rural Affairs, 2010. Link to access	Did not agree. Unnecessary detail.

7.6.30._10_ AUSTRALIA	Category: Addition Proposed amended text: Animals may be kept in their housing, in a confined area or in a special chamber or box. The building, confined area or box is then filled with gas-filled foam until the box is completely filled or the animals are well covered. As the bubbles burst the animals will breathe in an atmosphere containing only the gas released from the foam with less than 1% O2, similar to hypoxia resulting from gassing without foam. This very low O2 concentration will induce a rapid loss of consciousness and death. Rationale: Additional clarity on the method of death is recommended.	Did not agree. Already included in the first paragraph.

This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals however it does require specialized equipment.

1. Animal welfare concerns

Animals do not immediately lose consciousness

7.6.30._11_ UK	Category: addition. Proposed amended text Animals do not immediately lose consciousness. Animals may experience distress by contact with the foam Rational: There is some concern that birds and pigs can be adversely behaviorally affected by contact with the foam. The Animal Welfare Committee made recommendations about keeping the birds in darkness to reduce this effect. You may wish to add a recommendation to suggest foam is delivered in dark environments to reduce distress (or similar). Supporting evidence: AWC opinion on high expansion nitrogen foam for culling poultry - GOV.UK (We have no AWC opinion or adequate science on culling pigs with high expansion gas filled foam yet.)	Agreed in part

Animals may experience respiratory distress as oxygen is lost from the environment.

If the bubble size is too small, foam may be inhaled resulting in airway occlusion.

Noise created by foam-generating machinery may cause fear.

7.6.30._12_ USA	Proposed amended text: Animals ~~may will~~ experience distress ~~or fear due to as~~ oxygen ~~loss is lost~~ from their environment, noise created by foam-generating machinery and/or being surrounded by the foam. Rationale: Edited for completeness. Distress or fear may occur from other factors beyond loss of oxygen, including loud machinery noises and rising levels of foam. Supporting references:	Agreed in part

	Culhane, M. (2023). Adapting high expansion foam for use in American systems as an alternative method for humane killing [Presentation]. EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. EFSA journal. European Food Safety Authority, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrissi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougentogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. PloS one, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217	
7.6.30._13_ NEW ZEALAND	Category: Delete Proposed amended text: 1. Animal welfare concerns ~~Animals will experience distress as oxygen is lost from the environment.~~ Rationale: Mammals and birds have receptors for carbon dioxide. High carbon dioxide levels cause distress and breathlessness. Mammals and birds do not have receptors that alert them to low oxygen levels. Nitrogen gas and foam depopulation has been shown to be effective and acceptable from an animal welfare perspective because birds do not become distressed by a lack of oxygen in their environment. High expansion foams do not occlude the airways and do not cause suffocation. The bubbles burst more easily, and gas is delivered to the birds, creating an atmosphere depleted of oxygen (an anoxic atmosphere). The foam acts as the gas delivery system. In trials with this method using nitrogen filled high expansion foams, time to loss of consciousness was measured to be less than 30seconds, and during induction, birds did not display behaviours indicative of aversion or distress. Inclusion of the sentence is not accurate and should be removed. Supporting evidence: European Food Safety Authority (2024) The use of high expansion foam for stunning and killing pigs and poultry. EFSA Journal, 22: e8855. European Food Safety Authority (EFSA). (2019) Killing for purposes other than slaughter: poultry. EFSA Panel on Animal Health and Welfare (AHAW). EFSA Journal, 17(11): e05850 EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). (2004) Welfare aspects of the main systems of stunning and killing the main commercial species of animals. EFSA Journal. 45:1-29.pg 55	Did not agree
7.6.30._14_ ICFAW	Category: Change Proposed amended text:	Did not agree. Already considered with a different wording in the recommendations.

	Animals ~~will~~ <u>may</u> experience distress as oxygen is lost from the environment. <u>particularly if fill rates are not adequate to result in animals being rapidly covered with the foam matrix.</u> Rationale: Loss of consciousness may be the first sign with anoxia-based methods, particularly when the environment rapidly becomes anoxic (Culhane 2023), therefore animals may not necessarily experience psychological or respiratory distress due to loss of oxygen from the environment with this or other methods that rapidly produce anoxic environmental conditions (Banzett 2021). Most poultry lose posture within 30 seconds (Culhane, 2023). A detailed report about this method of killed by animal welfare experts notes, “There is no full consensus whether or not inert gases are generating minimal or even no respiratory distress when inducing hypoxia...considering the anatomical (with pigs) and physiological similarities between humans and other vertebrates, it could be likely that animals exposed to anoxia do not experience respiratory distress” (EFSA 2024). Supporting Evidence: Banzett, R. B., Lansing, R. W., & Binks, A. P. (2021). Air Hunger: A Primal Sensation and a Primary Element of Dyspnea. <i>Comprehensive Physiology</i>, 11(2), 1449–1483. https://doi.org/10.1002/cphy.c200001 Link to pdf Culhane, M. (2023). Adapting high expansion foam for use in American systems as an alternative method for humane killing [Presentation]. Link to PDF Culhane, M. (2023). Effective use of inert gas (nitrogen) for poultry depopulation requires methods that consider bird species, age, size, and sex-specific factors. Presented at AVMA Humane Endings Conference, Chicago, IL, Jan. 26-29, 2023. Link to pdf Link to abstract EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA journal. European Food Safety Authority</i>, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855	
7.6.30._15_ ICFAW	Category: Addition Proposed amended text: <u>Animals may experience fear due to the noise created by foam-generating machinery or being surrounded in foam.</u> Rationale: It is important to mention these animal welfare impacts for the sake of completeness and because they are actionable. Research shows that both noise caused by the foam generator or other equipment and the experience of being enveloped in foam can cause fear (Park 2025; EFSA 2024; Culhane 2023). In addition, steps can be taken to mitigate these potential animal welfare concerns. For example, when animals are depopulated in containers or trailers, the equipment can be turned on at a distance and the containers or trailers moved toward the equipment, so the sound increases gradually. Fear or anxiety associated with being surrounded by foam can be mitigated by increasing the speed at which the container is filled. Providing animals with anxiolytic medications prior to killing with high expansion nitrogen foam is another potential option. Supporting Evidence:	Did not agreed.

	Culhane, M. (2023). Adapting high expansion foam for use in American systems as an alternative method for humane killing [Presentation]. Link to PDF EFSA Panel on Animal Health and Welfare (AHAW). (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA journal. European Food Safety Authority</i>, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855 Park, J. Y., Campler, M. R., Cheng, T. Y., Youngblood, B. L., Torrissi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougentogler, D. P., Hill, J., Hunt, L., Canturri, A., Culhane, M. R., Miller, J., & Bowman, A. S. (2025). Assessment of three large-scale depopulation methods for swine. <i>PloS one</i>, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217	
7.6.30._16_ CHILE	ES Categoría (adición, supresión,): Texto modificado propuesto: ~~Los animales experimentarán distrés al perder oxígeno del ambiente similar al ahogamiento o asfixia.~~ Justificación: Los animales no presentan diestres porque el ambiente "pierde" oxígeno, el sufrimiento se ocasiona por el cierre de la tráquea cuando los animales inhalan la espuma como si los pulmones se les llenaran de agua y se ahogaran. EN Proposed amended text: Animals will experience distress ~~as oxygen is lost from the environment similar to drowning or suffocation.~~ Rationale: Animals do not show signs of distress because the environment "loses" oxygen; the suffering is caused by the closure of the trachea when the animals inhale the foam as if their lungs were filling with water and they were drowning. Evidencia documentada/Supporting Evidence: Park, J.Y., Campler, M.R., Cheng, T.Y., Youngblood, B.L., Torrissi, D., Cressman, M. D., Kieffer, J. D., Williams, T. E., Arruda, A. G., Flory, G. A., Hougentogler, D.P., Hill, J., Hunt, L., Canturri, A., Culhane, M.R., Miller, J., & Bowman, A.S. (2025). Assessment of three large-scale depopulation methods for swine. <i>PloS one</i>, 20(3), e0320217. https://doi.org/10.1371/journal.pone.0320217 EFSA Panel on Animal Health and Welfare (AHAW), Nielsen SS, Alvarez J, et al. Welfare of pigs at slaughter. <i>EFSA J.</i> 2020;18(6):e06148. Published 2020 Jun 17. doi:10.2903/j.efsa.2020.6148 EFSA Panel on Animal Health and Welfare. (2024). The use of high expansion foam for stunning and killing pigs and poultry. <i>EFSA Journal. European Food Safety Authority</i>, 22(7), e8855. https://doi.org/10.2903/j.efs a.2024.8855. Raj, A. B. M., Smith, C., & Hickman, G. (2008). Novel method for killing poultry in houses with dry foam created using nitrogen. <i>The Veterinary Record</i>, 162(22), 722.	Did not agree.

7.6.30._17_ AUSTRALIA	Category: Change Proposed amended text: <u>Depending on the gas used within the high expansion foam,</u> ~~a~~Animals ~~will~~<u>may</u> experience distress as oxygen is lost from the environment. Rationale: High expansion-based foams are not designed to occlude the airways like water-based foam, therefore animals do not experience distress due to airway occlusion. In the case of inert gas foams (e.g. nitrogen), behavioural assessments suggest poultry do not show respiratory distress or aversion prior to death. They also do not appear to experience signs of hyperventilation before loss of consciousness like that which occurs when using CO2 methods. Current wording suggests that animals will definitely experience distress using this method and needs to be updated to reflect current science. Supporting evidence, if relevant: Hewitt, L. 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, pp. 1–46. McKeegan, D.E.F., Reimert, H.G.M., Hindle, V.A., Boulcott, P., Sparrey, J.M., Wathes, C. M., Demmers, T.G.M., Gerritzen, M.A., (2013a). <i>Physiological and behavioural responses of poultry exposed to gas-filled high expansion foam</i>. Poult. Sci. 92, 1145-1154. EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare), Nielsen, S. S., Alvarez, J., Bicoût, D. J., Calistri, P., Canali, E., Drewe, J. A., Garin-Bastuji, B., Gonzales Rojas, J. L., Gortázar, C., Herskin, M. S., Miranda Chueca, M. Á., Padalino, B., Roberts, H. C., Spooler, H., Stahl, K., Velarde, A., Winckler, C., Viltrop, A., ... Michel, V. (2024). <i>The use of high expansion foam for stunning and killing pigs and poultry</i>. <i>EFSA Journal</i>, 22(7), e8855. https://doi.org/10.2903/j.efsa.2024.8855. Animal Welfare Committee 2024, <i>Opinion on the Use of High Expansion Nitrogen Foam Delivery Systems for Depopulation of Poultry Flocks Affected by Notifiable Disease in the UK</i>, Department for Environment, Food and Rural Affairs, the Scottish Government, and the Welsh Government, pp. 1–20. Available at: https://www.gov.wales/sites/default/files/publications/2024-06/animal-welfare-committee-opinion-use-high-expansion-nitrogen-foam-delivery-systems-depopulation-poultry-flocks-affected-by-notifiable-disease-uk.pdf	Did not agree
7.6.30._18_ EU	The EU suggests reviewing the text with a more cautious wording as regards distress due to hypoxia 'Animals ~~will~~<u>may</u> experience distress as oxygen is lost from the environment' Justification: The existing literature seems inconclusive on this point [EFSA 2024, https://doi.org/10.2903/j.efsa.2024.8855, section 4.1.2.2]	Did not agree

2. Animal-based and other measures

Animal based measures are difficult to assess once animals are covered in foam. Distress behaviours such as escape attempts and vocalizations (pigs) may be seen or heard.

7.6.30._19_ USA	Proposed amended text: Animal based measures are difficult to assess once animals are covered in foam. Distress behaviours such as escape attempts and ~~vocalizations (pigs)~~ may be seen or heard. Rationale: Deletion recommended due to common references below not listing vocalizations for pigs using this method. Supporting references: Arruda AG, Campler MR, Cheng TY, et al. Reliability of water-based medium-expansion foam as a depopulation method for nursery pigs and cull sows. Trans Emerg Dis. 2022;69(5):e2719-e2730. doi:10.1111/tbed.14622 Kieffer JD, Campler MR, Cheng TY, et al. Evaluation of a water-based medium-expansion foam depopulation method in suckling and finisher pigs. Animals. 2022;12(8):1041. Korenyi-Both J, Vidaurre J, Held T, et al. Description of electroencephalographic data gathered using water-based medium-expansion foam as a depopulation method for nursery pigs. Scientific Reports. 2022;12(1):16798. Bowman A. Validating Water-Based Foam for the Depopulation of Swine. Pork Checkoff. 2023. NPB#21-070. Accessed Oct 27, 2023. https://www.porkcheckoff.org/research/validating-water-based-foam-for-the-depopulation-of-swine/	Did not agree

Animal-based measures of an effective kill are: absence signs of life, such as breathing, righting reflex or body movement.

7.6.30._20_ AUSTRALIA	Category: Change Proposed amended text: ~~Animal based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.~~ ~~Signs of unconsciousness include: lack of body movement and righting reflex, absence of corneal or palpebral reflex~~ ~~Additional signs that indicate the absence of life include lack of breathing, heartbeat, or brain stem reflexes.~~ Rationale: Some of the signs described as for an effective kill may only indicate unconsciousness. More detail is warranted for this important step.	Did not agree

3. Recommendations

This method is suitable for poultry, pigs and small ruminants.

The foam should be generated with gas from a pure source (preferable >98%).

7.6.30._21_ ICFAW	Category: Change Proposed amended text: The foam should be generated with gas from a pure source (~~preferable~~ >998%). Rationale: Nitrogen should be high purity (Hill 2025) and this typically means it is 99.998% pure nitrogen (Air products 2025; Parker, M. 2022). This will help ensure that an anoxic environment can be achieved. Supporting Evidence: Air Products. (2025). Industrial and Medical Gas Specifications (U.S.). https://www.airproducts.com/gases/gas-facts/industrial-and-medical-gas-specifications Hill, J. (2025). A Better Means to a Humane Ending? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4. Powerpoint presentation available at: https://www.vafaw.org/files/ugd/231617_f76db69528b0489facb1a880a25fb4fb.pdf Parker, M. (2022). What Are The Nitrogen Purity Specifications & Grades? Link	Agreed with modifications
7.6.30._22_ AUSTRALIA	Category: Addition Proposed amended text: The foam should be generated with gas from a pure source (preferable >98%). Foam with an expansion ratio of between 250:1 to 350:1 appears to provide optimal effectiveness and welfare. Some gases may provide better welfare outcomes than others Rationale: A ratio of 250:1-350:1 may provide the best balance between foam stability, bubble size and wetness. High expansion foam using certain gases (e.g. nitrogen) may be less aversive than others (e.g. CO₂) Supporting evidence, if relevant Hewitt, L 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0	Agreed with modifications
7.6.30._23_ USA	Proposed amended text: To avoid animals being chilled, the foam should be kept as close to their normal body temperature as possible. The source of nitrogen used by the foam delivery system will determine whether heat is supplied via a heated vaporizer (liquid nitrogen) or a heating system (compressed gaseous nitrogen). The temperature of the foam can be more accurately controlled by these components than by merely controlling the water temperature (Hill 2025). If relying on control of water ~~temperature to determine of the foam is temperature determined~~	Agree, but worded in a more succinct way.

	~~mainly by the temperature of the water therefore~~, the temperature of the water used should be between (15 and 20 °C) Rationale: Recommend added language to capture best animal welfare practices when using foam. Supporting references: Hill, J. (2025). A BETTER MEANS TO A HUMANE ENDING? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4. Powerpoint presentation available at: https://www.vafaw.org/_files/ugd/231617_f76db69528b0489facb1a880a25fb4fb.pdf	

The foam expansion ratio should be at least 300:1 and the bubble size (typically 10-15mm), should be appropriate for the species and animals' size to ensure it does not readily enter or occlude their airways

Care should be taken, to avoid freezing of the nozzles while the foam is generated.

The temperature of the foam is determined mainly by the temperature of the water therefore, the temperature of the water used should be between (15 and 20 °C).

7.6.30._24_ ICFAW	Category: Deletion/Addition/Editorial Proposed amended text: ~~The gas should be pre-heated to avoid freezing up the nozzles while the foam is generated.~~ ~~The temperature of the foam is determined mainly by the temperature of the water therefore, the temperature of the water used should be between (15 and 20 °C)~~ <u>The foam must be kept as close to the animals' normal body temperature as possible. If liquid nitrogen is used as the nitrogen source, a heated vaporizer is required. If compressed gaseous nitrogen is used, a heating system designed for the required flow rate and pressures must be used.</u> Rationale: To protect animal welfare and avoid negative affective states like chilling, the temperature of the foam must be as close to the animal's body temperature as possible. The source of nitrogen used by the foam delivery system will determine whether heat is supplied via a heated vaporizer or a heating system. The temperature of the foam can be more accurately controlled by these components than merely by controlling the temperature of the water (Hill 2025). Supporting Evidence: Hill, J. (2025). A BETTER MEANS TO A HUMANE ENDING? Nitrogen Anoxia for the Mass Depopulation of Livestock (Webinar). https://www.youtube.com/watch?v=8ats0zN_gY4. Powerpoint presentation available at: https://www.vafaw.org/_files/ugd/231617_f76db69528b0489facb1a880a25fb4fb.pdf	Did not agree

The foam should be produced with a foam agents that is proven to be non-irritating and having no aversive effect.

Foam should be applied after animals are contained.

7.6.30._25_ USA	Proposed amended text: Foam should be applied <u>rapidly</u> after animals are contained. Rationale: Edited for clarity.	Did not agree. Considered unnecessary.

Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam.

7.6.30._26_ AUSTRALIA	Category: Addition Proposed amended text: Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam. <u>Animals should be examined following removal from the foam to confirm death, and if necessary, a secondary killing method should be applied.</u> Rationale: Death should be confirmed as soon as possible, so secondary measures can be taken if needed to avoid prolonged suffering.	Did not agree. It's included in the animal-based measures

~~This method is suitable for poultry and pigs.~~

7.6.30._27_ UK	Category: Addition Proposed amended text The foam should be generated with gas from a pure source (preferable >98%). The gas should be pre-heated to avoid freezing up the nozzles while the foam is generated. The temperature of the foam is determined mainly by the temperature of the water therefore, the temperature of the water used should be between (15 and 20 °C) The foam should be produced with a foam agents that is proven to be non-irritating and having no aversive effect. Foam should be applied after animals are contained <u>and measure residual oxygen concentration in the foam.</u> Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam. This method is suitable for poultry and pigs. Rational: Residual oxygen concentration is the important factor for welfare when killing with inert gases in foam. Supporting evidence: not relevant.	Did not agree

7.6.30._28_ CHILE	ES Categoría (adición): Texto modificado propuesto: Este método <u>es puede ser</u> apropiado para aves, <u>ganado, cerdos y pequeños rumiantes, pero es un método de menor bienestar que la espuma de alta expansión rellena de nitrógeno.</u> Justificación: Se ha investigado poco o nada sobre la espuma a base de agua para el ganado y los pequeños rumiantes, y la investigación en cerdos y aves de corral sugiere que este método es inhumano. Si bien puede matar eficazmente a los animales, lo hace mediante la oclusión mecánica de las vías respiratorias, lo que equivale a ahogarlos. EN This method <u>is can be</u> suitable for poultry, <u>and pigs, cattle, and small ruminants, but the method have more welfare concerns than the nitrogen-filled high-expansion foam.</u> Rationale: Little research has been done on water-based foam for cattle and small ruminants, and research on pigs and poultry suggests that this method is inhumane. While it can effectively kill animals, it does so by mechanically occluding their airways, which is equivalent to drowning. Evidencia documentada/ Supporting evidence : European Food Safety Authority. Killing for purposes other than slaughter: poultry (2019). EFSA Journal 17(11), 5850. https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2019.5850 McKeegan, D.E.F. (2018) Mass depopulation. In: Advances in Poultry Welfare (Mench Ed.). Woodhead Publishing, Kidlington, United Kingdom. Sparrey, C.M. Wathes, T.G.M. Demmers, and Gerritzen, M.A. (2013). Physiological and behavioral responses of poultry exposed to gas-filled high expansion foam. Poultry Science 5(1), 1145-1154. www.sciencedirect.com/science/article/pii/S0032579119387000 Raj, A.B.M., Smith, C., Hickman, G. (2008) Novel method for killing poultry in houses with dry foam created using nitrogen. Veterinary Record, 162, 722-723. www.researchgate.net/profile/Mohan-Raj-2/publication/5334833_Novel_method_for_killing_poultry_in_houses_with_dry_foam_created_using_nitrogen/links/543bcd9d0cf204cab1db3656/Novel-method-for-killing-poultry-in-houses-with-dry-foam-created-using-nitrogen.pdf	Did not agree. This comment is related water-based foam
7.6.30._29_ AUSTRALIA	Category: Deletion Proposed amended text: <u>This method is suitable for poultry and pigs.</u> Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Agreed

4. Species-specific recommendations

None identified

Article 7.6.31.

Low atmosphere pressure **stunning** (LAPS)

7.6.31._1_ USA	Proposed amended text: Low atmosphere pressure <u>stunning</u> (LAPS) Rationale: Edited for acronym accuracy	Agreed

In this method, the birds are placed in crates or modules into a **specialised** decompression chamber and are exposed to gradual decompression with a reduction of available oxygen to less than 5% [Martin et al., 2016a,b, c; Holloway and Pritchard, 2017].

7.6.31._2_ AUSTRALIA	Category: Addition Proposed amended text: This method is applicable to poultry, specifically broiler chickens up to approximately 4kg liveweight. In this method, the birds are placed in crates or modules into a decompression chamber and are exposed to gradual decompression with a reduction of available oxygen to less than 5% [Martin et al., 2016a,b, c; Holloway and Pritchard, 2017]. This method requires specialised equipment that may not be widely available. Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. it is important to note that specialised equipment is required, as regular decompression equipment may not be suitable	Did not agree. Part of the proposal is included in the recommendations point. Agreed to include the characteristics of the equipment.

When correctly applied, the LAPS procedure leads to loss of consciousness followed by death in all birds. The LAPS procedure does not induce immediate unconsciousness.

Mobile LAPS system can be used for on-farm killing.

1. Animal welfare concerns

No immediate onset of unconsciousness.

Rapid decompression and expansion of gases in the body cavity (i.e., sinuses, gut, or air sacs) can cause pain and respiratory distress. Furthermore, conscious birds might get injured from the convulsions of adjacent unconscious animals (i.e., strong wing flapping and leg paddling).

2. Animal-based and other measures

- Animal- based measures of aversion: escape attempts
- Animal base measures of unconsciousness: loss of posture; loss of posture; absence of movements; tonic-clonic convulsions (wing flapping)

7.6.31._3_ USA	Proposed amended text: - Animal base measures of unconsciousness: loss of posture; ~~loss of posture~~; absence of movements; tonic-clonic convulsions (wing flapping) Rationale: Edited to remove duplication.	The text was edited in a different way.

- Animal-based measures of an effective kill are: absence of signs of life such as breathing, righting reflex or body movement.

3. Recommendations

During the first phase, the decompression rate shall not be greater than equivalent to a reduction in pressure from standard sea level atmospheric pressure 760 to 250 Torr for a period of not less than 50 seconds.

During the second phase, a minimum standard sea level atmospheric pressure of 160 Torr shall be reached within the following 210 seconds.

The pressure time curve shall be adjusted to ensure that all animals are irreversibly stunned within the cycle time.

The chamber should be leak tested and pressure gauges calibrated before each operational session and not less than daily during periods of use.

Low atmospheric pressure stunning equipment shall be designed and built to ensure a vacuum within the chamber enabling slow gradual decompression with reduction in available oxygen and holding at minimal pressure.

The system shall be equipped to measure , display and record continuously the absolute vacuum pressure, the time of exposure, the temperature, the humidity and to give a clearly visible and audible warning if the pressure deviates from the required levels. The device should be clearly visible to the personnel.

7.6.31._4_ UK	Category: Deletion Proposed amended text : The system shall be equipped to measure, display and record continuously the absolute vacuum pressure, the time of exposure, the temperature, the humidity and to give a clearly visible and audible warning if the pressure deviates from the required levels. The device should be clearly visible to the personnel. Rational: Typo (double space) Supporting evidence: not relevant.	Agreed
7.6.31._5_ AUSTRALIA	Category: Addition Proposed amended text: The system shall be equipped to measure, display and record continuously the absolute vacuum pressure, the time of exposure, the temperature, the humidity and to give a clearly visible and audible warning if the pressure deviates from the required levels. The device should be clearly visible to the personnel.	Did not agree. Already considered

	The equipment should ensure animals are visible (directly or via video) so they can be observed for signs of unconsciousness and death, and for the development of any welfare concerns. Rationale: Monitoring is an important part of any killing method and visibility has been identified as a key tool for mentoring welfare (Hewitt 2023). Supporting evidence, if relevant Hewitt, L 2023, <i>An independent animal welfare assessment of mass destruction methods for poultry on-farm</i>, report prepared for the Department of Agriculture, Fisheries and Forestry, Canberra, January. CC BY 4.0	

Rate of decompression, duration of exposure, ambient temperature and humidity are key parameters.

7.6.31._6_ AUSTRALIA	Category: Addition Proposed amended text: Rate of decompression, duration of exposure, ambient temperature and humidity are key parameters. Rapid decompression is not acceptable. Rationale: As noted above, rapid decompression is associated with poor welfare (pain and suffering due to expansion of body gasses) and it should be made clear this is not acceptable (EFSA 2017, Underwood & Anthony 2020). Supporting evidence, if relevant EFSA Panel on Animal Health and Welfare (AHAW), More, S., Bicot, D., Bøtner, A., Butterworth, A., Calistri, P., Depner, K., Edwards, S., Garin-Bastuji, B., Good, M. and Gortazar Schmidt, C., 2017. Low atmospheric pressure system for stunning broiler chickens. <i>EFSA Journal</i>, 15(12), p.e05056. Underwood, W. and Anthony, R., 2020. AVMA guidelines for the euthanasia of animals: 2020 edition. Available at https://www.avma.org/resources-tools/avma-policies/avma-guidelines-euthanasia-animals	Did not agree. It's included as a key parameter

Emergency procedures associated with system failures should be included by the manufacturer in the manufacturer's instructions for the use of the equipment.

~~This method is suitable for broiler chickens up to proximately 4kg liveweight.~~

7.6.31._7_ UK	Category: Addition Proposed amended text : This method is suitable for broiler chickens up to aproximately 4kg liveweight. Rational: Typo Supporting evidence: not relevant.	Agreed, but his text is included at the beginning of this section without mentioning a specific weight.
7.6.31._8_ AUSTRALIA	Category: Deletion Proposed amended text:	Agreed

	~~This method is suitable for broiler chickens up to proximately 4kg liveweight.~~ Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	

4. Species-specific recommendations

~~None identified~~ Should only be used in chickens at this time.

7.6.31._9_ USA	Proposed amended text: <u>Should only be used in poultry at this time.</u> Rationale: Recommend added language to clarify species suitability for this method. Supporting reference: American Veterinary Medical Association. (2019). AVMA Guidelines for the Depopulation of Animals: 2019 Edition. https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	Agreed

Article 7.6. ~~3229~~

7.6.32._1_ ICFAW	Category: Deletion Proposed amended text: ~~Article 7.6.32~~ ~~Ventilation shut down with supplementation~~ Rationale: A method that causes death via heatstroke (hyperthermia) must not be included in the WOAHA code. Use of this method is inconsistent with the General Principles section of this document, which states "Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness should not cause avoidable distress, fear and pain." The process of inducing unconsciousness with this method will always cause heat stress/overheating, fear, pain, anxiety, frustration, debility, dyspnea, and malaise. It likely also causes nausea (due to the damage caused to the gastrointestinal tract), thirst (due to attendant dehydration), and disorientation (based on affective states described by humans experiencing potentially fatal hyperthermia) (Reyes-Illg et al 2023). Moreover, in the United States, once this method was authorized for use, it rapidly became the means by which the majority of birds on HPAI-affected premises were killed, particularly within the egg industry (APHIS 2024). Through January 2025, 72% of birds, or approximately 103 million, on HPAI-affected poultry operations were killed in depopulations in which VSD+ (ventilation shut down with supplementation) was used either for the entire flock or on at least one barn on the premises (Animal Welfare Institute 2025).	Article deleted

	Supporting evidence: Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2022). The Rise of Heatstroke as a Method of Depopulating Pigs and Poultry: Implications for the US Veterinary Profession. <i>Animals : an open access journal from MDPI</i>, 13(1), 140. https://doi.org/10.3390/ani13010140 APHIS. (2024). 2022-2023 Highly Pathogenic Avian Influenza Outbreak. https://www.aphis.usda.gov/sites/default/files/hpai-2022-2023-summary-depop-analysis.pdf Animal Welfare Institute. (2025). Depopulation (Mass Killing) of Farmed Animals. https://awionline.org/content/depopulation-mass-killing-farmed-animals	
7.6.32. _2_ CHILE	ES Categoría: (supresión) Texto modificado propuesto: Article 7.6.32 ~~Supresión de la Ventilación con medidas suplementarias~~ Justificación: Eliminar la Supresión de la ventilación del Artículo 7.6.10, ya que no cumple con los requisitos establecidos en otras secciones de este capítulo, como: • Artículo 7.1.1, que establece: «El bienestar animal requiere un sacrificio o matanza humanitaria». • Artículo 7.6.3, que establece: «Los métodos de matanza utilizados deben provocar la muerte inmediata o la pérdida de consciencia que dure hasta la muerte. Cuando la pérdida de consciencia no sea inmediata, la inducción de la pérdida de consciencia debe implicar la menor aversión posible y no debe causar angustia, miedo ni dolor evitables». • Artículo 7.6.4, que establece: «Las consideraciones de bienestar animal siempre deben abordarse como prioridad en estos planes». • Artículo 7.6.5. “Responsabilidades del veterinario... de garantizar el bienestar animal... durante el proceso de sacrificio” • Artículo 7.6.7 “Los riesgos para el bienestar animal pueden minimizarse mediante... la elección del equipo y el método de sacrificio, y mediante un buen manejo...” La supresión de la ventilación, incluso con calor y/o humedades adicionales, requiere horas para sacrificar a los animales y no cumple con los demás requisitos enumerados en el capítulo. Parte de la misión de WOAHA es “promover el bienestar animal mediante un enfoque basado en la ciencia”. La supresión de la ventilación es lo opuesto a promover el bienestar animal. Los países miembros pueden evitar el uso de la supresión de la ventilación planificando y preparándose para utilizar métodos que mejoren el bienestar animal. WOAHA debe proporcionar una guía clara a los países para que adopten métodos que no causen dolor ni sufrimiento excesivos. Evidencia documentada, si corresponde: (por ejemplo, referencias científicas, informes nacionales o internacionales, experiencias referidas al tema).	Article deleted

	McKeegan, DEF. 2018. Mass depopulation. In: Advances in Poultry Welfare (Mench Ed.). Woodhead Publishing, Kidlington, United Kingdom. https://www.google.com/books/edition/Advances in Poultry Welfare/0hVHDgAAQBAJ?hl=en&gbpv=1&dq=Advances+in+Poultry+Welfare+(Mench+Ed.).+Woodhead+Publishing,+Kidlington,+United+Kingdom&pg=PP1&printsec=frontcover Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2023). The rise of heatstroke as a method of depopulating pigs and poultry: Implications for the US veterinary profession. Animals, 13(1), 140. https://www.mdpi.com/2076-2615/13/1/140?trk=public_post_comment-text Reyes-Illg, G. A. (2021). Ventilation shutdown. Education, 259(4), 415-424.	
7.6.32._3_ AUSTRALIA	Category: General Comment: Australia has not approved the use of ventilation shut down with (or without) supplementation, noting the significant welfare concerns associated with its use. In particular, ventilation shut down without supplementation should not be used. The chapter should clarify the extreme circumstances under which it could be considered a method of last resort including that all other permitted killing methods have been explored and found impractical, and include a requirement for an animal welfare assessment to be conducted prior to its use.	Article deleted
7.6.32._4_ EU	The EU suggests deleting the entire Article 7.6.32. <u>Justification:</u> Same as above, according to EFSA ventilation shut down with or without additional provision of heat or CO2 is likely to be highly painful and should not be used on welfare grounds. Therefore, it is not appropriate to include such methods in a chapter named animal welfare at the time of killing. There are several mass killing methods which exist and could still be used in different circumstances due to their speed and efficiency, but they should not be recommended in this chapter as they can't ensure even basic animal welfare.	Article deleted
7.6.32._5_ AU	Category of comments: General African Union supports this method of killing large numbers of animals at low costs. The method requires shutting down ventilation in animal housings that rely on the ventilation system to maintain constant temperature and air quality. It is a measure that kills animals predominantly by heat stress and lack of fresh air. Active heating of the ambient air or increasing the humidity in the building during ventilation shut down will shorten time to death and increase the effectiveness of the method. Rationale:	Article deleted

	This method Ventilation shut down with supplementation can be effective at killing large numbers of animals with limited human-animal interaction and few resources. While this method is a last resort for killing poultry, African Union supports the method for its field applicability and low costs.	

Ventilation shut down with supplementation

7.6.32._6_ USA	General comments: Ventilation shutdown with supplementation (VSD+) is still a necessary method of depopulation to include in this section. However, it should be limited to constrained circumstances (as noted with specific comments/edits) when safety, depleted or unavailable resources, and/or the threat of further significant disease spread would not allow for other preferred methods of depopulation. The current global highly pathogenic avian influenza disease event has reiterated the need to maintain VSD+ as a depopulation option for some countries (including the USA), who have experienced multiple, simultaneous outbreaks and other significant world events, similar to the COVID-19 pandemic, that deplete country-level resources, create overwhelming supply chain disruptions and threaten further, difficult-to-control disease spread within the country or beyond, when no other preferred depopulation methods are available to meet the need within the necessary timeframe. As with other depopulation methods, VSD+ should be undertaken thoughtfully, only where adequate facilities exist, using trained and experienced personnel who can properly monitor the situation and provide a backup method of depopulation should there be any survivors (since any preferred killing method can result in some survivors). Research to improve this depopulation method and seek alternative, higher humane options should continue to be a noteworthy area of attention, though emergency management has not yet been reached a point where VSD+ can be completely replaced.	Article deleted
7.6.32._7_ NORWAY	Category: Deletion Proposed deleted text: The whole article should be deleted. Rationale: This is not a method merely something humans resort to when they do not have a method available to humanely kill the birds. It is inhumane and has no place in a chapter with animal welfare recommendations. Supporting evidence: According to EFSA ventilation shut down with or without additional provision of heat or CO₂ is likely to be highly painful and should not be used on welfare grounds.	Article deleted

Ventilation shut down with supplementation such as active heating must not be routinely used and should be regarded as a method of last resort for poultry where the risks associated with a delay in killing would outweigh the welfare outcomes associated with this method. This method must only be used as an interim measure while efforts are made to secure equipment, resources and personnel to implement more preferred methods. Ventilation

shut down with supplementation such as active heating should not be routinely used and should be regarded as a method of last resort for poultry.

7.6.32. _8_ USA	Proposed amended text: Ventilation shut down with supplementation such as active heating should not be <u>used</u> routinely ~~used, and should only be used in 1. constrained circumstances and 2. when other preferred depopulation methods are not possible.~~ be regarded as a ~~method of last resort for~~ <u>This method should only be used in</u> poultry <u>and swine</u>. Rationale: Recommend added language to clarify the specific situations when VSD+ is an appropriate method of depopulation. Constrained circumstances have been defined as “emergency circumstances constrain the ability to reasonably implement a preferred method. Potential situations that might result in use of methods in this category include, but are not limited to, constraints on human safety, depopulation efficiency, deployable resources, equipment, animal access, disruption of infrastructure, disease transmission risk, and zoonotic disease risk.” (2019 AVMA Guidelines for the Depopulation of Animals) Supporting references (for poultry): AVMA Guidelines for the Depopulation of Animals Available at: https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf Anderson et al 2017 Anderson K, Livingston K, Shah S, et al. Evaluating hen behavior and physiological stressors during VSD for the development of humane methodologies for mass depopulation during a disease outbreak. Final report. Project BRU007: March 30, 2017. US Poultry and Egg Association, Tucker, Ga: 2017 Anderson, K.E., R. D. Malheiros, S. Shah, K.L. Harding, M. Martin. Evaluating the impact of environmental relative humidity and temperature with ventilation shutdown for depopulation of laying hens, Final Report. Project F99, March 1, 2023. US Poultry and Egg Association, Tucker, Ga: 2023a Mendoza, A.V., S.Weimer, and Z.Williams. 2024. Can steam be usable as a “plus” for ventilation shutdown? J Appl Poult Res. 2024;33:100381. https://doi.org/10.1016/j.japr.2023.100381 Anderson, K. E. and T. A. Carter. 1993. Hot weather management of poultry. North Carolina Cooperative Extension Service. PS&T Guide No. 30. Wang H, Wang B, Normoyle KP, et al. Brain temperature and its fundamental properties: a review for clinical neuroscientists. Front Neurosci. 2014;8:307. doi:10.3389/fnins.2014.00307 Anderson KE, Eberle-Krish KN, Malheiros RD, Livingston KA, Shah SB, Martin MP. Evaluating the environmental and physiological effects of ventilation shutdown, with or without with the addition of heat or carbon dioxide, on turkeys and broiler chickens. 2019. U.S. Poultry & Egg Association, Board Research Initiative. Lumb WV. Euthanasia by noninhalant pharmacologic agents. J Am Vet Med Assoc. 1974; 165:851–852.	Article deleted

	Eberle-Krish, K.N., M.P. Martin, R.D. Malheiros, S.B. Shah, K.A. Livingston, K.E. Anderson. 2018. Evaluation of Ventilation Shutdown in a Multi-level Caged System. J Applied Poult. Res. 27 (4):555-563. http://dx.doi.org/10.3382/japr/pfy036 Supporting references (for swine): Baysinger A, Senn M, Gebhardt J, Rademacher C, Pairis-Garcia M. A case study of ventilation shutdown with the addition of high temperature and humidity for depopulation of pigs. J Am Vet Med Assoc. 2021 Aug 15;259(4):415-424. Bird N. Ventilation failure alarms: 2 case studies. Accessed Mar 26, 2019. http://www.dicam.co.uk/wp-content/uploads/filebase/research/Case_Study_2_ventilation_failure_incidents.pdf	
7.6.32._9_ ICFAW	Category: Change Proposed amended text: Ventilation shut down with supplementation such as active heating ~~should not be routinely~~ <u>must not be used due to its prolonged and severe negative impact on animal welfare. and should be regarded as a method of last resort for poultry</u> Rationale: As described in the suggested language for animal welfare concerns below, use of ventilation shutdown with supplementation (VSD+) causes birds subjected to it a prolonged period (hours) of severely negative animal welfare (Reyes-Illg et al 2023). In most cases, it also fails to kill all birds subjected to it, thus leaving survivors who must be found and killed. For example, according to the United States Department of Agriculture, 51% of turkey houses depopulated with VSD+ required use of a secondary method, as did 74% of layer hen houses, 73% of duck houses, and 100% of broiler chicken houses (APHIS 2024). When this method is applied to large hen houses, it can take up to five days for all survivors to be found and killed (APHIS 2024). Unintentionally or intentionally killing animals with heatstroke by locking them in a parked vehicle is a crime in many jurisdictions (Wisch 2025). WOAHA has chosen not to include other killing methods that are "in use," such as live burial and burning (Schreijer-Pierik 2019; McNeil 2006), presumably due to their unacceptable welfare implications. Guidance and leadership is needed from WOAHA by also refusing to include VSD+, or by mentioning it only in the context of advising against its use. Supporting evidence: Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2022). The Rise of Heatstroke as a Method of Depopulating Pigs and Poultry: Implications for the US Veterinary Profession. <i>Animals : an open access journal from MDPI</i>, 13(1), 140. https://doi.org/10.3390/ani13010140 APHIS. (2024). 2022-2023 Highly Pathogenic Avian Influenza Outbreak. https://www.aphis.usda.gov/sites/default/files/hpai-2022-2023-summary-depop-analysis.pdf Schreijer-Pierik, A. (2019). An inhumane and dangerous practice. <i>The Parliament</i>. https://www.theparliamentmagazine.eu/news/article/an-inhumane-and-dangerous-practice	Article deleted

	McNeil, D.G. (2006). In War on Bird Flu, U.N. Looks to Recruit Killer Army. <i>New York Times</i>. https://www.nytimes.com/2006/01/29/world/in-war-on-bird-flu-un-looks-to-recruit-killer-army.html Wisch, R.F. (2025). Table of State Laws that Protect Animals Left in Parked Vehicles. <i>Animal Legal & Historical Center</i>. https://www.animallaw.info/topic/table-state-laws-protect-animals-left-parked-vehicles	
7.6.32._10_ CANADA	Category: change Proposed amended text: Ventilation shut down with supplementation such as active heating should not be <del> routinely used</del> <u> due to its negative impact on animal welfare and should not be used in non-poultry species. Ventilation shut down with or without supplementation should be regarded as a method of last resort in poultry only when absolutely necessary to protect public health and to halt an otherwise uncontrollable spread of a disease,</u> Rationale: Canada suggests that as described in the suggested language for animal welfare concerns below, use of ventilation shutdown with supplementation (VSD+) causes birds subjected to it a prolonged period (hours) of severely negative animal welfare (Reyes-Illg et al 2023). The Rise of Heatstroke as a Method of Depopulating Pigs and Poultry: Implications for the US Veterinary Profession. <i>Animals</i> 2022 https://pubmed.ncbi.nlm.nih.gov/36611748/ When this method is applied to large hen houses, it can take up to five days for all survivors to be found and killed (APHIS 2024). Killing animals with ventilation shutdown methods causes severe hyperthermia, heat stress and heat stroke, which are painful and distressful and cause negative outcomes such as fear, anxiety, and frustration. It can take hours or even days for all the birds to be killed. When proper planning and preparation are in place, there is no need to use ventilation shutdown. There are more humane methods, such as whole house nitrogen gassing and high expansion nitrogen foam. Countries must work to be prepared to use these instead. Canada recommends that the terminology of method of last resort needs a qualification to ensure all other possible solutions have been adequately investigated. We suggest that the combination of protection of human health and to halt uncontrollable spread of disease are appropriate qualifications for inclusion. Supporting evidence: McKeegan, DEF. (2018). Mass depopulation. In: <i>Advances in Poultry Welfare</i> (Mench Ed.). Woodhead Publishing, Kidlington, United Kingdom. Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2022). The Rise of Heatstroke as a Method of Depopulating Pigs and Poultry: Implications for the US Veterinary Profession. <i>Animals : an open access journal from MDPI</i>, 13(1), 140. https://doi.org/10.3390/ani13010140	Article deleted
7.6.32._11_	Category: Addition	Article deleted

AUSTRALIA	Proposed amended text: <u>This method is a method of last resort, applicable to poultry. Ventilation shut down with supplementation such as active heating should not be routinely used and should be regarded as a method of last resort for poultry, where the risks associated with a delay in killing would outweigh the poor welfare outcomes associated with this method.</u> Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article. This method of killing provides very negative welfare outcomes, and additional information is suggested to provide guidance on what circumstances may justify its application. Supporting evidence, if relevant Animal Welfare Committee: Advice on emergency culling for the depopulation of poultry affected by high pathogenic avian influenza (HPAI) – consideration of ventilation shutdown (VSD) found at https://assets.publishing.service.gov.uk/media/65eae0965b652445f6f21a98/Advice_on_emergency_culling_for_the_depopulation_of_poultry_affected_by_high_pathogenic_avian_influenza_HPAI_consideration_of_ventilation_shutdown_VSD_.pdf	

The method requires shutting down ventilation in animal housings that rely on the ventilation system to maintain constant temperature and air quality. It is a measure that kills animals predominantly **by hyperthermia by heat stress and lack of fresh air**. Active heating of the ambient air or increasing the humidity in the building during ventilation shut down **is required to will** shorten time to death and increase the effectiveness of the method.

7.6.32._12_ USA	Proposed amended text: The method requires shutting down ventilation in animal housings that rely on the ventilation system to maintain constant temperature and air quality. It is a measure that kills animals predominantly by heat stress <u>and lack of fresh air</u>. Active heating of the ambient air or increasing the humidity in the building during ventilation shut down will shorten time to death and increase the effectiveness of the method. Rationale: Edited for accuracy.	Article deleted
7.6.32._13_ ICFAW	Category: Addition Proposed amended text: The method requires shutting down ventilation in animal housings that rely on the ventilation system to maintain constant temperature and air quality. It is a measure that kills animals predominantly by heat stress and lack of fresh air. Active heating of the ambient air or increasing the humidity in the building during ventilation shut down will shorten time to death and increase the effectiveness of the method-; <u>however, it will lead to increased pain and discomfort and may cause hot air burns.</u> Rationale: The temperatures currently utilized for VSD+ in the U.S. are 40° C (104° F) to 43.3° C (110° F) in theory (APHIS 2024), up to 54.4° C (130° F) in practice (see supporting evidence, public records describing use of VSD+ in Lancaster County, Pennsylvania).	Article deleted

	Research on use of VSD+ under commercial conditions indicates that, even when an ambient temperature of 43.3° C (110° F) is not exceeded, chickens' average core body temperature increases to 46–47 °C (114.8–116.6 °F) and maximal surface temperature reaches 48.1 °C (118.6 °F) in some individuals (Zhao et al 2019). These temperatures exceed chickens' nociceptive thresholds (e.g., 42.5°C [108.5 °F] and 41.3°C [106.3 °F]) as determined by peer-reviewed research (Hothersall et al 2014; Hothersall et al 2011). Moreover, when conditions of high heat and humidity are created by use of heaters and steam generators, the risk of subjecting animals to hot air burns increases significantly (Reyes-Illg et al 2023). Research conducted on the use of heat and steam to depopulate pigs documented temperatures as high as 76.7 °C (170.1 °F) and humidity as high as 96.8% (Baysinger et al 2021). Temperatures in this range have been shown to result in third-degree burns and rhabdomyolysis (muscle destruction) in humans exposed to them for as little as 30 minutes and, in a research setting, dermal burns of ex vivo porcine skin (reviewed in Reyes-Illg et al 2023; primary references include: Koljonen 2009; Kluger et al 2011; Ghods et al 2008; Koski et al 2005; Papp 2002; Zhai et al 2018). The limited research performed on poultry subjected to heatstroke-based methods involving addition of steam (Mendoza et al 2024) failed to evaluate chickens for burns post-mortem. Using an online heat index calculator (https://www.calculator.net/heat-index-calculator.html) to evaluate the conditions created by VSD Plus Steam in this study suggests that, after 100 minutes, animals would be experiencing a heat index temperature of 140°C (284°F). Supporting evidence: APHIS. (2024). 2022-2023 Highly Pathogenic Avian Influenza Outbreak. https://www.aphis.usda.gov/sites/default/files/hpai-2022-2023-summary-depop-analysis.pdf USDA. (2023). HPAI Monitoring Depopulation Report Lancaster [Pennsylvania] 10/003KHH3. Public records obtained by Animal Partisan via under the Pennsylvania Right to Know Law, 65 §66.1. Link to pdf Hothersall, B.; Caplen, G.; Parker, R.M.A.; Nicol, C.J.; Waterman-Pearson, A.E.; Weeks, C.A.; Murrell, J.C. Thermal nociceptive threshold testing detects altered sensory processing in broiler chickens with spontaneous lameness. <i>PLoS ONE</i> 2014, 9, e97883. Link to pdf Hothersall, B.; Caplen, G.; Nicol, C.J.; Taylor, P.M.; Waterman-Pearson, A.E.; Weeks, C.A.; Murrell, J.C. Development of mechanical and thermal nociceptive threshold testing devices in unrestrained birds (broiler chickens). <i>J. Neurosci. Methods</i> 2011, 201, 220–227. Link to pdf Baysinger, A., Senn, M., Gebhardt, J., Rademacher, C., & Pairis-Garcia, M. (2021). A case study of ventilation shutdown with the addition of high temperature and humidity for depopulation of pigs. <i>Journal of the American Veterinary Medical Association</i>, 259(4), 415–424. https://avmajournals.avma.org/view/journals/javma/259/4/javma.259.4.415.xml Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2022). The rise of heatstroke as a method of depopulating pigs and poultry: Implications for the US veterinary profession. <i>Animals: An</i>	

	Open Access Journal from MDPI, 13(1), 140. https://www.mdpi.com/2038778 Ghods, M.; Corterier, C.; Zindel, K.; Kiene, M.; Rudolf, K.; Steen, M. Hot air sauna burns. <i>Burns</i> 2008, 34, 122–124. Link to pdf Koski, A.; Koljonen, V.; Vuola, J. Rhabdomyolysis caused by hot air sauna burn. <i>Burns</i> 2005, 31, 776–779. Link to pdf Papp A. (2002). Sauna-related burns: a review of 154 cases treated in Kuopio University Hospital Burn Center 1994-2000. <i>Burns: journal of the International Society for Burn Injuries</i>, 28(1), 57–59. Link to pdf Koljonen, V. Hot air sauna burns—Review of their etiology and treatment. <i>J. Burn Care Res.</i> 2009, 30, 705–710. Link to pdf Kluger, N.; Laipio, J.; Virolainen, S.; Ranki, A.; Koljonen, V. A Fatal Case of Hot Air Sauna Burn in an Elderly Patient Initially Misdiagnosed as Bullous Pemphigoid. <i>Acta Derm. Venerol.</i> 2011, 91, 732–733. https://www.medicaljournals.se/acta/download/10.2340/00015555-1140 Zhai, L.; Adlhart, C.; Spano, F.; Innocenti Malini, R.; Piątek, A.K.; Li, J.; Rossi, R.M. Prediction of Steam Burns Severity using Raman Spectroscopy on ex vivo Porcine Skin. <i>Sci. Rep.</i> 2018, 8, 6946. Link to pdf Mendoza, A. V., Weimer, S., & Williams, Z. (2024). Can steam be usable as a “plus” for ventilation shutdown? <i>Journal of Applied Poultry Research</i>, 33(1), 100381-. https://doi.org/10.1016/j.japr.2023.100381 Zhao, Y.; Xin, H.; Li, L. Modelling and validating the indoor environment and supplemental heat requirement during ventilation shutdown (VSD) for rapid depopulation of hens and turkeys. <i>Biosyst. Eng.</i> 2019, 184, 130–141. Link to access	
7.6.32._14_ AUSTRALIA	Category: Change Proposed amended text: The method requires shutting down ventilation in animal housings that rely on the ventilation system to maintain constant temperature and air quality. It is a measure that kills animals predominantly by heat stress hyperthermia and lack of fresh air. Active heating of the ambient air or increasing the humidity in the building during ventilation shut down is required, to will shorten time to death and increase the effectiveness of the method. Rationale: Research suggests death occurs primarily due to hyperthermia. Changes made to clarify VSD without supplementation should not be considered acceptable as it will prolong the time until death. Supporting evidence, if relevant AVMA Guidelines for the Depopulation of Animals: 2019 Edition	Article deleted

This method can be effective at killing large numbers of animals with limited human-animal interaction and few resources. The effective implementation of the method can be challenging based on the ambient temperature at the facility and how well the facility can be sealed. It is critical that this method be implemented thoughtfully and

only in facilities that can be appropriately sealed to allow complete depopulation. This method can be effective at killing large numbers of animals with limited human-animal interaction and few resources. The effective implementation of the method can be challenging based on the ambient temperature at the facility and how well the facility can be sealed.

7.6.32._15_ USA	Proposed amended text: This method can be effective at killing large numbers of animals with ~~limited human-animal interaction and~~ few resources <u>(people and specialized equipment)</u> in a short timeframe. The effective implementation of the method can be challenging based on the ambient temperature at the facility and how well the facility can be sealed. <u>Therefore, it is important that ventilation shutdown with supplementation be implemented thoughtfully, where adequate facilities exist and can be appropriately sealed to complete the method by properly trained personnel who are skilled in performing the procedure and can actively monitor the situation through completion.</u> Rationale: Edited for clarity and to emphasize the importance, particularly with respect to animal welfare, of necessary facility parameters and knowledgeable and trained personnel who know how to properly perform and monitor this method of depopulation.	Article deleted
7.6.32._16_ ICFAW	Category: Change Proposed amended text: This method can be effective at killing large numbers of animals with limited human-animal interaction and few resources. ~~however. The effective implementation of the method can be~~ <u>it is rarely effective in killing all animals due to</u> challenges based on <u>controlling the</u> ambient temperature at the facility and how well the facility can be sealed. <u>Even after several hours, survivors are likely and will be in a debilitated condition due to prolonged severe heat stress.</u> Rationale: Assuming “effective implementation” refers to the ability to rapidly destroy all animals, it must be mentioned that this method typically fails to do so. According to the United States Department of Agriculture’s own analysis, 51% of turkey houses depopulated with VSD+ required use of secondary method, as did 74% of layer hen houses, 73% of duck houses, and 100% of broiler houses (USDA Animal and Plant Health Inspection Service [APHIS] 2024). When this method is applied to large hen houses, it can take up to five days for all survivors to be found and killed (APHIS 2024). In a range of species, heatstroke and other forms of severe heat stress are well documented cause concerning sequelae for days after survivor’s body temperatures have returned to normal (see numerous references listed below). Supporting evidence: APHIS. (2024). 2022-2023 Highly Pathogenic Avian Influenza Outbreak. https://www.aphis.usda.gov/sites/default/files/hpai-2022-2023-summary-depop-analysis.pdf Alhenaky, A.; Abdelqader, A.; Abuajamieh, M.; Al-Fataftah, A.-R. The effect of heat stress on intestinal integrity and Salmonella invasion in broiler birds. <i>J. Therm. Biol.</i> 2017, 70, 9–14. Link to pdf	Article deleted

	Bruchim, Y.; Horowitz, M.; Aroch, I. Pathophysiology of heatstroke in dogs—Revisited. <i>Temperature</i> 2017, 4, 356–370. https://pubmed.ncbi.nlm.nih.gov/29435477 Bruchim, Y.; Loeb, E.; Saragusty, J.; Aroch, I. Pathological findings in dogs with fatal heatstroke. <i>J. Comp. Pathol.</i> 2009, 140, 97–104. Link to pdf Pearce, S.C.; Mani, V.; Boddicker, R.L.; Johnson, J.S.; Weber, T.E.; Ross, J.W.; Rhoads, R.P.; Baumgard, L.H.; Gabler, N.K. Heat Stress Reduces Intestinal Barrier Integrity and Favors Intestinal Glucose Transport in Growing Pigs. <i>PLoS ONE</i> 2013, 8, e70215. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0070215 Pearce, S.C.; Sanz-Fernandez, M.V.; Hollis, J.H.; Baumgard, L.H.; Gabler, N.K. Short-term exposure to heat stress attenuates appetite and intestinal integrity in growing pigs. <i>J. Anim. Sci.</i> 2014, 92, 5444–5454. Link to pdf Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2023). The Rise of Heatstroke as a Method of Depopulating Pigs and Poultry: Implications for the US Veterinary Profession. <i>Animals</i>, 13(1), 140. https://doi.org/10.3390/ani13010140 Romanucci, M.; Salda, L.D. Pathophysiology and pathological findings of heatstroke in dogs. <i>Vet. Med. Auckl. NZ</i> 2013, 4, 1–9. https://pmc.ncbi.nlm.nih.gov/articles/PMC7337213	
7.6.32._17_ CANADA	Comment Category: Proposed amended text: changed from: This method can be effective at killing large numbers of animals with limited human-animal interaction and few resources. The effective ~~However~~ implementation of the method can be ineffective in killing all poultry due to challenges with the ambient temperature at the facility and how well the facility can be sealed. Rationale: Canada suggests that according to the United States Department of Agriculture's analysis, 51% of turkey houses depopulated with VSD+ required use of secondary method, as did 74% of layer hen houses, 73% of duck houses, and 100% of broiler houses (USDA Animal and Plant Health Inspection Service [APHIS] 2024). When this method is applied to large hen houses, it can take up to five days for all survivors to be found and killed (APHIS 2024).	Article deleted

1. Animal welfare concerns

~~The animals will experience heat stress, distress and suffering.~~

~~Time to loss of consciousness can be extended and variable based on environmental and species differences.~~

~~It can take a long time for animals to lose consciousness.~~

~~Animals will experience heat stress.~~

7.6.32._18_	Proposed amended text:	Article deleted

USA	~~It can take a long time for animals~~<u>Time</u> to los<u>se of</u> consciousness <u>can be variable based on environmental and species differences.</u> Rationale: Edited for recognition that animal condition (debilitated health status vs completely healthy), as well as environmental and species differences will impact time to unconsciousness. Supporting reference: AVMA Guidelines for the Depopulation of Animals Available at: https://www.avma.org/sites/default/files/resources/AVMA-Guidelines-for-the-Depopulation-of-Animals.pdf	
7.6.32._19_ ICFAW	Category: Change Proposed amended text: It can take ~~a long time~~ <u>multiple hours</u> for animals to lose consciousness~~, during which time they experience intense suffering.~~ <u>In most barns in which this method has been deployed, some birds have survived after four hours or longer of being subjected to this method.</u> Rationale: More specificity on the length of time needed to induce unconsciousness is needed. While some research has suggested that poultry lose consciousness in less than one hour when subjected to heatstroke-based depopulation methods, this is based on spurious measures of consciousness and experimental settings that differ drastically from field use of VSD+. For example, a recent study characterized panting as an “unconscious behavior” (Harding et al 2025), despite this being a behavior that is frequently performed by conscious birds as a mechanism of thermoregulation (McKechnie 2022). Adoption of lateral recumbency is also described as an unconscious behavior by this study (Harding et al 2025), despite videos recorded during experimental VSD+ trials clearly demonstrating that birds debilitated by the conditions of VSD+ to the point of intermittently adopting a position of lateral recumbency still lift their heads, look around, and periodically stand up and attempt to escape. Video recordings of chickens undergoing experimental ventilation shutdown plus heat were recorded as part of trials at North Carolina State University and obtained via request by Animal Outlook under North Carolina Public Records Law, G.S. §132-1. The following footage is available online at https://drive.google.com/drive/folders/1Ocvpj6kcc1w-oHEw6yQUHs2DkK-WbzT7: – VSD Videos 5 (5 videos) – VSD Videos 6 (7 videos) – VSD Videos 8 (the following videos: - o VSD- Camera 2 VH 1-21-16 (1) - o VSD- Camera 2 VH 1-21-16 (2) - o VSD- Camera 2b VH 2-3-16 (1) - o VSD- Camera 2b VH 2-3-16 (2) - o VSD- Camera 2b VH 2-3-16 (3)	Article deleted

	- o VSD- Camera 2b VH 2-3-16 (4) - o VSD- Camera 2b VH 2-3-16 (5) The comment below under Article 7.6.32.2 “Animal-based measures of unconsciousness” provides numerous examples of hens in lateral recumbency who are clearly conscious. Finally, all of the research reporting EEG evidence that birds reach unconsciousness within an hour or less has been conducted on individual birds in small plexiglass chambers, rather than under field conditions (e.g., Anderson et al 2017). The EEG methodology employed has not been validated behaviorally and most of the research has not been peer-reviewed (Liss 2017). In practice, even birds subjected to VSD+ conditions for over four hours often survive (APHIS 2024). When this approach is used on large egg operations, it can take up to five days to locate and kill the survivors (APHIS 2024). Supporting evidence: McKechnie, A.E. Regulation of body temperature. In <i>Sturkie’s Avian Physiology</i>; Elsevier: London, UK, 2022; pp. 1231–1264. ISBN 978-0-12-819770-7. APHIS. (2024). 2022-2023 Highly Pathogenic Avian Influenza Outbreak. https://www.aphis.usda.gov/sites/default/files/hpai-2022-2023-summary-depop-analysis.pdf Harding, K. L., Boot, E., Evans, J. O., Shah, S. B., Malheiros, R. D., & Anderson, K. E. (2025). Determining how different ventilation shutdown plus methods change the electroencephalography, blood chemistry, corticosterone, and heat shock protein 70 of laying hens. <i>Frontiers in physiology</i>, 16, 1534385. https://doi.org/10.3389/fphys.2025.1534385 Anderson, K.E.; Livingston, K.; Shah, S.; Martin, M. Evaluating Hen Behavior and Physiological Stressors during VSD for the Development of Humane Methodologies for Mass Depopulation during a Disease Outbreak. Final Report. 2017. Available online: https://www.documentcloud.org/documents/21590311-ncsu-pre-publication-version-from-awi-03302017 Liss, C.; (Animal Welfare Institute, Washington, D.C., USA); Jones, D.; (Animal Welfare Institute, Washington, D.C., USA). Personal Communication to Janet Donlin and AVMA. Available online: https://awionline.org/sites/default/files/uploads/documents/Letter-from%20AWI-to-AVMA-re-VSD-Research-2017.pdf	
7.6.32._20_ AUSTRALIA	Category: Change Proposed amended text: It can take an ~~an extended long~~ time <u>(up to several hours)</u> for animals to lose consciousness. Rationale: Additional information added for clarity and to ensure users of the method are aware that prolonged times are required. Research conducted by Eberle-Krish 2018 demonstrated that with added heat, the average to death time for VSD+ (heat) in laying hens was 2 hours. Zhao et al found animals remaining standing after 3.5 hours. Supporting evidence, if relevant Zhao, Y., Xin, H. and Li, L., 2019. Modelling and validating the indoor environment and supplemental heat requirement during ventilation	Article deleted

	shutdown (VSD) for rapid depopulation of hens and turkeys. <i>biosystems engineering</i>, 184, pp.130-141. Eberle-Krish, K.N., Martin, M.P., Malheiros, R.D., Shah, S.B., Livingston, K.A. and Anderson, K.E., 2018. Evaluation of ventilation shutdown in a multi-level caged system. <i>Journal of Applied Poultry Research</i>, 27(4), pp.555-563.	
7.6.32._21_ USA	Proposed amended text: Animals will experience heat stress <u>and, potentially, conditions associated with heat stress</u>. Rationale: Recommend added language to capture how animals may experience additional affective states or conditions associated with heat stress, such as fear, distress, nausea and thirst. Supporting references: Hodgson, D. D. (2022). Physiology of Poultry during Ventilation Shut Down (+) in Response to a Foreign Animal Disease Outbreak [Master of Science]. North Carolina State University. Mendoza, A. V., Weimer, S., & Williams, Z. (2024). Can steam be usable as a “plus” for ventilation shutdown? <i>Journal of Applied Poultry Research</i>, 33(1), 100381-. https://doi.org/10.1016/j.japr.2023.100381	Article deleted
7.6.32._22_ UK	Category: Addition Proposed amended text Animals will experience heat stress <u>distress and suffering</u>. Rational: This is not a welfare friendly method and needs to be very clear that this should not be used Supporting evidence: Eg. <u>Welfare of pigs during killing for purposes other than slaughter</u>.	Article deleted
7.6.32._23_ ICFAW	Category: Addition Proposed amended text: Animals will experience <u>prolonged</u> heat stress (<u>overheating</u>), <u>as well as pain, fear, anxiety, frustration, debility, respiratory distress, malaise, nausea, thirst, and disorientation</u>. Rationale: The current description of “animal welfare concerns” associated with heatstroke-based depopulation methods is incomplete given what is known about the pathophysiology of fatal heatstroke in a range of species. It must be expanded to include negative affective states for which there is strong evidence. In its evaluation of heatstroke-based methods of depopulation, a governmental animal welfare committee report states: “This complex process may be assumed to represent a profoundly negative experience for the bird, and potential welfare harms are likely to include anxiety, fear, pain, malaise, and breathlessness” (Animal Welfare Committee 2023). Below, we present, for each of these affective states, a summary of the evidence that it is experienced by some or all poultry undergoing VSD+. Despite VSD+ having been used to kill tens of millions of poultry in the United States, complete necropsies have not been performed on any of these animals and the experimental research purportedly	Article deleted

	evaluating welfare impacts has either not been peer reviewed or has failed to use validated animal welfare indicators (e.g., Anderson 2017; Hodgson 2022). As mentioned above, video recordings taken as part of VSD+ research on chickens was obtained from North Carolina State University by public record request by Animal Outlook under North Carolina Public Records Law, G.S. §132-1. These videos can be reviewed for additional information about the likely affective states and subjective experience of birds undergoing VSD+. Available online: https://drive.google.com/drive/folders/1Ocvpj6kcc1w-oHEw6yQUHs2DkK-WbzT7 Specifically, the following videos show VSD+ Heat: – VSD Videos 5 (all 5 videos) – VSD Videos 6 (all 7 videos) – In the folder VSD Videos 8. the following videos show VSD+Heat: - o VSD- Camera 2 VH 1-21-16 (1) - o VSD- Camera 2 VH 1-21-16 (2) - o VSD- Camera 2b VH 2-3-16 (1) - o VSD- Camera 2b VH 2-3-16 (2) - o VSD- Camera 2b VH 2-3-16 (3) - o VSD- Camera 2b VH 2-3-16 (4) - o VSD- Camera 2b VH 2-3-16 (5) Pain: Pain is likely with VSD plus heat, given what is known about the nociceptive threshold of chickens. It is even more likely when VSD+heat+steam is used, given the potential for hot air burns and the increased heat-carrying capacity of steam (Reyes-Illg et al 2023). Specifically, the temperatures currently utilized for VSD+ in the U.S. are 40° C (104° F) to 43.3° C (110° F) in theory (APHIS 2024) and up to 54.4° C (130° F) in practice (supporting evidence public records describing use of VSD+ in Lancaster County, Pennsylvania: USDA 2023). Research on use of VSD+ under commercial conditions indicates that, even when an ambient temperature of 43.3° C (110° F) is not exceeded, chickens' average core body temperature increases to 46–47 °C (114.8–116.6 °F) and maximal surface temperature reaches 48.1 °C (118.6 °F) in some individuals (Zhao et al 2019). These temperatures significantly exceed chickens' nociceptive thresholds (e.g., 42.5°C [108.5 °F] and 41.3°C [106.3 °F]) as determined by peer-reviewed research (Hothersall et al 2014; Hothersall et al 2011). Please see comment above regarding concern for hot air burns when a high level of humidity (steam) is added as “supplementation” to ventilation shut down. Burns are accepted to be painful in conscious animals. Based on gross examination of chicken carcasses, VSD+ has been shown to result in rhabdomyolysis (muscle damage) (Zhao 2019) which is known to be a painful condition (Stanley et al 2022). Several other potential sources of pain are reviewed in Reyes-Illg et al 2023. Frustration: When animals experience temperatures outside of their thermoneutral zone, they perform various behavior in an attempt to	

	increase heat loss. In birds, these include seeking shade, raising their wings, and panting (Nawaz et al 2021; McKechnie 2022). However, when heatstroke is used as a method of killing, animals' attempts at thermoregulation are ineffective in relieving heat stress. Frustration, defined as "the emotional states experienced when the animal fails to achieve expected gratification," is understood as a consequence of unmitigated heat stress (Polsky & von Keyserlingk 2017). Thus, it is likely that animals killed by VSD+ experience frustration prior to loss of consciousness. Fear/anxiety: It is well understood that heat stress stimulates the release of epinephrine, norepinephrine and cortisol (Lesiow & Xiong 2024), physiologic changes that are often accompanied by subjective states of fear and anxiety. In humans, anxiety is frequently reported even in those suffering only heat exhaustion, a milder form of heat stress than fatal heatstroke (Glazer 2005). Anxiety and fear also frequently accompany dyspnea (Beausoleil & Mellor 2015), as occurs in the terminal phase of heatstroke and VSD+ (Epstein & Yanovich 2019; Bruchim et al 2017; Bruchim et al 2009; also see NC State videos). Respiratory distress (breathlessness/dyspnea): It is well accepted that rapid breathing is a part of the pathophysiology of VSD+ in poultry (Harding et al., 2025). Fatal heatstroke has been documented to cause acute congestion of the lungs in avian species (Xie et al 2019; Hofkeister & Hernandez-Divers 2005). In multiple species in which the pathophysiology of heatstroke has been studied, acute respiratory distress syndrome (ARDS) has been noted and the animal's cause of death is often "acute respiratory failure due to the accumulation of frothy hemorrhagic fluid in the airways" (reviewed in Reyes-Illg et al 2023; primary references include: Bruchim et al 2009; Bruchim 2017; Burhans et al 2022; Romanucci & Salda 2013). These impacts on the respiratory system are likely to be experienced as respiratory distress (a.k.a., breathlessness or dyspnea). Debility/malaise: In humans, malaise is a classic feature of heat exhaustion, a milder form of heat stress (Glazer 2005). Depression and collapse are common signs in dogs (Bruchim et al 2017). Videos of VSD+ carried out in poultry demonstrate the onset of malaise and eventual debility prior to loss of consciousness. Nausea: Nausea is reported as an early sign of heatstroke in dogs and cats (Romanucci & Salda 2013; Bruchim et al 2009; Bruchim et al 2017). Humans experiencing heat-related conditions, including heatstroke, frequently report nausea (Glazer 2005). It is well established that, across species, heat stress reduces blood flow to the gastrointestinal tract, damaging its integrity and potentially leading to sloughing of the gastrointestinal mucosa and subsequent bloody diarrhea and vomiting of blood (Bruchim et al 2017; Burhans et al 2022; Pearce et al 2013; Pearce et al 2014, Alhenaky et al 2017). These pathophysiological changes to the gut are likely to result in the affected individual experiencing nausea. Thirst: Dehydration is a common feature of heat stress (when an inadequate amount of water is provided) and of heatstroke (Brugaletta et al 2022 Polsky & von Keyserlingk 2017; Bruchim et al 2017). It has also been documented in experimental studies of VSD+ (Hodgeson 2022). Dehydration developing prior to loss of consciousness will result in thirst. Chickens exposed to heat stress typically drink more to relieve thirst (Nawaz et al 2021), but this is not possible under VSD+ conditions, when water is removed (Mendoza et al 2024).	

	Disorientation: Dizziness and delirium are reported in humans experiencing heatstroke (Epstein & Yanovich 2019; Glazer 2005). Disorientation is reported in dogs experiencing heatstroke and is associated with cerebral hypoperfusion (Bruchim et al 2017; Romanucci & Salda 2013). In mammals, heatstroke's mechanism of killing is well established to involve distributive and/or hypovolemic shock, acute respiratory distress syndrome (ARDS), multiorgan failure, and/or disseminated intravascular coagulation (DIC) (Glazer 2005; Bruchim et al 2017; Romanucci & Salda 2013; Bruchim 2009). Proponents of VSD+ at times appear to suggest that the method kills by causing a severe respiratory alkalosis that develops as a result of panting (hyperventilation) and excessive loss of carbon dioxide (Mendoza 2024). However, it has never been shown that acid-base disturbance is the cause of death with VSD+ and, in fact, research fails to support this conclusion. For example, one experimental study found that chickens' blood pH rose only to 7.54 (Hodgson 2022), which is within the normal range for most birds (Montesinos et al 2013). A study on VSD+ in turkey hens noted fluctuations in blood pH but levels consistent with lethal alkalosis were not reached (Andersen et al 2019). Finally, a recent study on chickens undergoing VSD+heat and VSD+heat+99% humidity is difficult to interpret due to lack of clarity in presentation and discussion of the findings and due to blood being collected by severing of blood vessels rather than venipuncture; however, despite reporting that, near time of death, birds developed higher pH values than had previously been reported, the study failed to establish acid-base derangement as the cause of death (Harding et al 2025). Supporting evidence: Alhenaky, A.; Abdelqader, A.; Abuajamieh, M.; Al-Fataftah, A.-R. The effect of heat stress on intestinal integrity and Salmonella invasion in broiler birds. <i>J. Therm. Biol.</i> 2017, 70, 9–14. Link to pdf Anderson, K.E.; Livingston, K.; Shah, S.; Martin, M. Evaluating Hen Behavior and Physiological Stressors during VSD for the Development of Humane Methodologies for Mass Depopulation during a Disease Outbreak. Final Report. 2017. https://www.documentcloud.org/documents/21590311-ncsu-pre-publication-version-from-awi-03302017 Animal Welfare Committee. (2023). Advice on emergency culling for the depopulation of poultry affected by high pathogenic avian influenza (HPAI) – consideration of ventilation shutdown (VSD). Link to pdf Animal and Plant Health Inspection Service (APHIS). (2024). 2022-2023 Highly Pathogenic Avian Influenza Outbreak. https://www.aphis.usda.gov/sites/default/files/hpai-2022-2023-summary-depop-analysis.pdf Bruchim, Y.; Horowitz, M.; Aroch, I. Pathophysiology of heatstroke in dogs—Revisited. <i>Temperature</i> 2017, 4, 356–370. https://pmc.ncbi.nlm.nih.gov/articles/PMC5800390 Bruchim, Y.; Loeb, E.; Saragusty, J.; Aroch, I. Pathological findings in dogs with fatal heatstroke. <i>J. Comp. Pathol.</i> 2009, 140, 97–104. Link to pdf Burhans, W. S., Rossiter Burhans, C. A., & Baumgard, L. H. (2022). Invited review: Lethal heat stress: The putative pathophysiology of a	

	deadly disorder in dairy cattle. <i>Journal of dairy science</i>, 105(5), 3716–3735. https://doi.org/10.3168/jds.2021-21080 Emergency Management Response System. HPAI Monitoring Depopulation Report. Lancaster. Link to pdf Epstein, Y.; Yanovich, R. Heatstroke. <i>N. Engl. J. Med.</i> 2019, 380, 2449–2459. https://www.nejm.org/doi/full/10.1056/NEJMra1810762 Glazer, J.L. Management of heatstroke and heat exhaustion. <i>Am. Fam. Physician</i> 2005, 71, 2133–2140. https://pubmed.ncbi.nlm.nih.gov/15952443 Harding, K. L., Boot, E., Evans, J. O., Shah, S. B., Malheiros, R. D., & Anderson, K. E. (2025). Determining how different ventilation shutdown plus methods change the electroencephalography, blood chemistry, corticosterone, and heat shock protein 70 of laying hens. <i>Frontiers in physiology</i>, 16, 1534385. https://doi.org/10.3389/fphys.2025.1534385 Hodgson, D. D. (2022). Physiology of Poultry during Ventilation Shut Down (+) in Response to a Foreign Animal Disease Outbreak [Master of Science]. North Carolina State University. https://repository.lib.ncsu.edu/bitstreams/ebaca9e1-435a-4164-b90d-401ec33fc2ca/download Hofmeister, E.H. & Hernandez-Divers, S.J. (2005). Anesthesia Case of the Month. <i>JAVMA</i>, 227(5), 718-720. Link to access Hothersall, B.; Caplen, G.; Parker, R.M.A.; Nicol, C.J.; Waterman-Pearson, A.E.; Weeks, C.A.; Murrell, J.C. Thermal nociceptive threshold testing detects altered sensory processing in broiler chickens with spontaneous lameness. <i>PLoS ONE</i> 2014, 9, e97883. Link to pdf Hothersall, B.; Caplen, G.; Nicol, C.J.; Taylor, P.M.; Waterman-Pearson, A.E.; Weeks, C.A.; Murrell, J.C. Development of mechanical and thermal nociceptive threshold testing devices in unrestrained birds (broiler chickens). <i>J. Neurosci. Methods</i> 2011, 201, 220–227. Link to pdf Lesiów, T., & Xiong, Y. L. (2024). Heat/Cold Stress and Methods to Mitigate Its Detrimental Impact on Pork and Poultry Meat: A Review. <i>Foods</i>, 13(9), 1333. https://doi.org/10.3390/foods13091333 McKechnie, A.E. Regulation of body temperature. In <i>Sturkie's Avian Physiology</i>; Elsevier: London, UK, 2022; pp. 1231–1264. ISBN 978-0-12-819770-7. Mendoza, A. V., Weimer, S., & Williams, Z. (2024). Can steam be usable as a “plus” for ventilation shutdown? <i>Journal of Applied Poultry Research</i>, 33(1), 100381. https://doi.org/10.1016/j.japr.2023.100381 Montesinos, A., & Ardiaca, M. (2013). Acid-base status in the avian patient using a portable point-of-care analyzer. <i>The Veterinary Clinics of North America. Exotic Animal Practice</i>, 16(1), 47–69. Link to pdf Nawaz, A. H., Amoah, K., Leng, Q. Y., Zheng, J. H., Zhang, W. L., & Zhang, L. (2021). Poultry Response to Heat Stress: Its physiological, metabolic, and genetic implications on meat production and quality including strategies to improve broiler production in a warming world. <i>Frontiers in veterinary science</i>, 8, 699081.	

	https://doi.org/10.3389/fvets.2021.699081 Pearce, S.C.; Mani, V.; Boddicker, R.L.; Johnson, J.S.; Weber, T.E.; Ross, J.W.; Rhoads, R.P.; Baumgard, L.H.; Gabler, N.K. Heat stress reduces intestinal barrier integrity and favors intestinal glucose transport in growing pigs. <i>PLoS ONE</i> 2013, 8, e70215. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0070215 Pearce, S.C.; Sanz-Fernandez, M.V.; Hollis, J.H.; Baumgard, L.H.; Gabler, N.K. Short-term exposure to heat stress attenuates appetite and intestinal integrity in growing pigs. <i>J. Anim. Sci.</i> 2014, 92, 5444–5454. Link to pdf Polsky, L.; von Keyserlingk, M.A.G. Invited review: Effects of heat stress on dairy cattle welfare. <i>J. Dairy Sci.</i> 2017, 100, 8645–8657. https://www.sciencedirect.com/science/article/pii/S0022030217308494 Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2023). The Rise of Heatstroke as a Method of Depopulating Pigs and Poultry: Implications for the US Veterinary Profession. <i>Animals</i>, 13(1), 140. https://doi.org/10.3390/ani13010140 Romanucci, M. & Salda, L.D. Pathophysiology and pathological findings of heatstroke in dogs. <i>Vet. Med. Auckl. NZ</i> 2013, 4, 1–9. https://pmc.ncbi.nlm.nih.gov/articles/PMC7337213 Stanley, M.; Chippa, V.; Aeddula, N.R.; Quintanilla Rodriguez, B.S.; Adigun, R. Rhabdomyolysis. In <i>StatPearls</i>; StatPearls Publishing: Treasure Island, FL, USA, 2022. USDA. (2023). HPAI Monitoring Depopulation Report Lancaster [Pennsylvania] 10/003KHH3. Obtained by Animal Partisan via under the Pennsylvania Right to Know Law, 65 §66.1. Link to pdf Xie, S.; Nicholson, A.; Woolford, L.; McWhorter, T.J. Physiological, biochemical and histopathological changes associated with heatstroke in the galah (<i>Eolophus roseicapilla</i>) and rock dove (<i>Columba livia</i>). <i>Avian Pathol.</i> 2019, 48, 57–72. Link to pdf Zhao, Y.; Xin, H.; Li, L. Modelling and validating the indoor environment and supplemental heat requirement during ventilation shutdown (VSD) for rapid depopulation of hens and turkeys. <i>Biosyst. Eng.</i> 2019, 184, 130–141. Link to access	
7.6.32_24_ CANADA	Comment Category: change Proposed amended text: change : It can take a long time several hours of intense suffering for animals to lose consciousness. Animals will experience prolonged heat stress, thirst, pain, anxiety, profound respiratory distress and fear before losing consciousness. Rationale: Canada suggests that more specificity related to the welfare risks is required to ensure that the risks are clearly stated. Birds subjected to VSD+ conditions for over four hours often survive (APHIS 2024). When this approach is used on large egg operations, it can take up to five days to locate and kill the survivors (APHIS 2024). Canada suggests that based on gross examination of chicken carcasses, VSD+ has been shown to result in rhabdomyolysis (muscle damage) (Zhao 2019) which is known to be a painful	Article deleted

	condition (Stanley et al 2022). Several other potential sources of pain are reviewed in Reyes-Illg et al 2023. Anderson, K.E.; Livingston, K.; Shah, S.; Martin, M. Evaluating Hen Behavior and Physiological Stressors during VSD for the Development of Humane Methodologies for Mass Depopulation during a Disease Outbreak. Final Report. 2017. Available online: https://www.documentcloud.org/documents/21590311-ncsu-pre-publication-version-from-awi-03302017	
7.6.32._25_ AUSTRALIA	Category: Addition Proposed amended text: Animals will experience heat stress which is associated with prolonged suffering. Poor implementation (e.g. due to poor sealing of the facility) will prolong the time to unconsciousness and death, resulting in worse welfare outcomes. Rationale: This detail is important in ensuring the method is performed effectively and to try and minimise time until death.	Article deleted

2. Animal-based and other measures

Animal-based measures may only be assessed via video if available.

7.6.32._26_ USA	Proposed amended text: Animal-based measures may only be assessed via audio or video if available. Rationale: Recommend addition of 'audio or' because auditory monitoring devices can also be used with this method.	Article deleted
7.6.32._27_ AUSTRALIA	Category: Addition Proposed amended text: Animal-based measures may only be assessed via video if available. Once personnel can access the facility, animals should be individually assessed as soon as possible for loss of consciousness and/or death. Rationale: Death should be confirmed as soon as possible, so secondary measures can be taken if needed to avoid prolonged suffering.	Article deleted

Animal- based measures of an effective kill are::

- a) absence of muscle tone
- b) absence of breathing,
- c) fixed and dilated pupils

7.6.32._28_ ICFAW	Category: Addition Proposed amended text:	Article deleted

	Animal-based measures of unconsciousness: Loss of posture <u>accompanied by complete lack of muscle tone and</u>, absence of movements. Rationale: It is well established that humans and other animals experiencing heat exhaustion or heatstroke will develop weakness, muscle pain, and/or lethargy that results in a position of lateral or sternal recumbency, even while remaining conscious (Glazer 2005; Bruchim et al 2017; Epstein & Yanovich 2019 Romanucci & Salda 2013; Cudney et al 2021; Zhao et al 2019). Because heatstroke causes rhabdomyolysis (muscle damage) in birds and mammals (Glazer 2005; Bruchim et al 2017; Zhao et al 2019; Xie 2019), continued standing may also result in pain. Therefore, a bird being subjected to VSD+ who adopts a recumbent position should not be interpreted as having lost consciousness unless this is accompanied by a complete lack of muscle tone, including inability to raise the head. Review of videos obtained during experiments meant to replicate VSD+ show birds who (1) are clearly conscious but have adopted a position of dorsal or lateral recumbency, or (2) have been recumbent for some time, but then stand up and change positions. As described above, video recordings taken as part of VSD+ research on chickens was obtained from North Carolina State University by public record request by Animal Outlook under North Carolina Public Records Law, G.S. §132-1. These videos can be reviewed for additional information about the likely affective states and subjective experience of birds undergoing VSD+. Available online: https://drive.google.com/drive/folders/1Ocpj6kcc1w-oHEw6yQUHs2DkK-WbzT7 Specifically, the following videos show VSD+ Heat: - Folder: VSD Videos 5 - o VSD- Camera 2 CH 1-20-16(2)(video).mp4 ♣ at time 1:30, a chicken who had been in sternal recumbency, suddenly rouses and attempts to walk and escape, prior to collapsing back into sternal recumbency - o VSD- Camera 2 VH 1-20-16 (video).mp4 ♣ at time 7:03, a chicken who has been in sternal recumbency with some neck tone suddenly rouses, jumps up and begins standing, walking, and making numerous escape attempts prior to becoming sternally recumbent again around 8:00 - Folder: VSD Videos 6 - o VSD- Camera 2a VH 2-3-16 (3)(video).mp4 ♣ Around time 8:14, the chicken adopts a position of sternal recumbency but maintains an elevated head and is clearly conscious. At 9:23, the chicken returns to a standing position. Around time 13:24, the chicken adopts a position of lateral recumbency, but maintains neck tone and an elevated head and moves her head until the end of the video (17:19).	

	- o VSD- Camera 2a VH 2-3-16 (5)(video).mp4 ♣ At time 0:03, the chicken suddenly moves from a position of right lateral recumbency to a standing position and attempts to remove the wire affixed to her body. After walking around the chamber for some time, she again collapses into a position of right lateral recumbency at time 1:20 before again standing at 1:58. She become sternally recumbent around time 5:13. This cycle of recumbency and returning to standing repeats numerous times until the end of the video (17:43). - o VSD- Camera 2a VH 2-3-16 (6)(video).mp4 ♣ This video appears to be a continuation of the previous one, based on a time location to the right of the heating chamber. In this video, the chicken is in lateral recumbency throughout, but frequently lifts her head and looks around and changes positions. Even when in lateral recumbency for a prolonged period, the chicken often lifts her head and appears to struggle. Supporting evidence: Bruchim, Y.; Horowitz, M.; Aroch, I. Pathophysiology of heatstroke in dogs—Revisited. <i>Temperature</i> 2017, 4, 356–370. https://pubmed.ncbi.nlm.nih.gov/29435477 Cudney, S. E., Wayne, A., & Rozanski, E. A. (2021). Clothes dryer–induced heat stroke in three cats. <i>Journal of Veterinary Emergency and Critical Care (San Antonio, Tex. : 2000)</i>, 31(6), 800–805. https://doi.org/10.1111/vec.13131 Link to pdf Epstein, Y.; Yanovich, R. Heatstroke. <i>N. Engl. J. Med.</i> 2019, 380, 2449–2459. Glazer, J.L. Management of heatstroke and heat exhaustion. <i>Am. Fam. Physician</i> 2005, 71, 2133–2140. https://www.aafp.org/pubs/afp/issues/2005/0601/p2133.html Romanucci, M. & Salda, L.D. Pathophysiology and pathological findings of heatstroke in dogs. <i>Vet. Med. Auckl. NZ</i> 2013, 4, 1–9. https://pmc.ncbi.nlm.nih.gov/articles/PMC7337213 Xie, S.; Nicholson, A.; Woolford, L.; McWhorter, T.J. Physiological, biochemical and histopathological changes associated with heatstroke in the galah (<i>Eolophus roseicapilla</i>) and rock dove (<i>Columba livia</i>). <i>Avian Pathol.</i> 2019, 48, 57–72. Link to pdf Zhao, Y.; Xin, H.; Li, L. Modelling and validating the indoor environment and supplemental heat requirement during ventilation shutdown (VSD) for rapid depopulation of hens and turkeys. <i>Biosyst. Eng.</i> 2019, 184, 130–141. Link to access	

3. Recommendations

This method is a method of last resort that can only be applied in poultry.

7.6.32._29_ USA	Proposed amended text: Ventilation shut down with supplementation ~~should only be used as a method of last resort~~ <u>not be used routinely, and should only be used in 1. constrained circumstances and 2. when other preferred depopulation methods are not possible.</u> Rationale: Recommend same added language, provided earlier in this section, to clarify the specific situations when VSD+ is an appropriate method of depopulation. Constrained circumstances have been defined as “emergency circumstances constrain the ability to reasonably implement a preferred method. Potential situations that might result in use of methods in this category include, but are not limited to, constraints on human safety, depopulation efficiency, deployable resources, equipment, animal access, disruption of infrastructure, disease transmission risk, and zoonotic disease risk.” (2019 AVMA Guidelines for the Depopulation of Animals). While this content seems most appropriate to include under “Recommendations,” its inclusion at the beginning of this section is also welcomed to help emphasize the careful considerations necessary for animal welfare reasons.	Article deleted
7.6.32._30_ CHILE	ES Categoría (adición, supresión): Texto modificado propuesto (o supresión sugerida): El cierre de la ventilación ~~sólo~~ <u>no deberá</u> utilizarse ~~como último recurso.~~ Justificación: Este es un muy buen ejemplo de métodos de muerte que NO deben permitirse debido a la agonía prolongada que causa, ya que la muerte ocurre por hipertermia y es una de las formas más inhumanas de provocar la muerte. EN Proposed amended text: Ventilation shut down with supplementation should ~~not only~~ be used ~~as a method of last resort.~~ Rationale: This is a very good example of killing methods that should NOT be allowed due to the prolonged agony it causes, as death occurs by hyperthermia and is one of the most inhumane ways to cause death. Evidencia documentada/Supporting evidence: Animal Welfare Committee. (2023). Advice on emergency culling for the depopulation of poultry affected by high pathogenic avian influenza (HPAI) – consideration of ventilation shutdown (VSD). https://www.gov.wales/sites/default/files/publications/2023-10/animal-welfare-committee-opinion-ventilation-shutdown-emergency-culling-method-poultry-affected.pdf	Article deleted

	McKeegan, DEF. 2018. Mass depopulation. In: Advances in Poultry Welfare (Mench Ed.). Woodhead Publishing, Kidlington, United Kingdom. DOI: 10.1016/B978-0-08-100915-4.00017-8 Reyes-Illg, G., Martin, J. E., Mani, I., Reynolds, J., & Kipperman, B. (2023). The rise of heatstroke as a method of depopulating pigs and poultry: Implications for the US veterinary profession. <i>Animals</i>, 13(1), 140. https://www.mdpi.com/2076-2615/13/1/140?trk=public_post_comment-text	

Ventilation shut down with supplementation should achieve greater than 95% mortality in one hour and complete killing within 3 hours.

Facilities must be properly sealed. Facilities that cannot be sealed properly or have poor insulation should not be used, due to the inability to hinder airflow and maintain uniform in-house temperatures depending on the season, and prolonging even further time to loss of consciousness.

7.6.32._31_ USA	Proposed amended text: Facilities must be properly sealed. Facilities that cannot be sealed properly or have poor insulation should not be used, due to the inability to hinder airflow and maintain uniform in-house temperatures depending on the season, and prolonging even further time to loss of consciousness. <u>Adequate facilities allow for greater than 95% death rate in less than one hour (while 100% mortality is still the necessary goal for this and all depopulation methods).</u> Rationale: Recommend added language for additional important clarity.	Article deleted

Supplemental heaters should be used to increase the temperature of the facility.

7.6.32._32_ USA	Proposed amended text: Supplemental heaters should be used to increase the temperature of the <u>sealed</u> facility <u>where the animals are located.</u> Rationale: Edited for clarity.	Article deleted

Temperatures should be monitored at various heights and locations in the facility and the temperature should exceed 120° F or 49° C within 30 minutes and be maintained at that level for at least three hours.

7.6.32._33_ AUSTRALIA	Category: Addition Proposed amended text: Temperatures should be monitored at various heights and locations in the facility: ~~And t~~he temperature should exceed 120° F or 49° C <u>within 30 minutes and be maintained at that level for at least three hours.</u> <u>Animals should be individually examined for signs of consciousness and/or death as soon as feasible once VSD is complete. Where animals are found alive (conscious or unconscious), a backup killing</u>	Article deleted

	method should be applied as soon as possible to avoid prolonging suffering. Rationale: As per the AVMA and USDA recommendations, temperatures should be maintained for several hours to ensure maximum efficacy. Death should be confirmed as soon as possible, so secondary measures can be taken if needed to avoid prolonged suffering Supporting evidence, if relevant AVMA Guidelines for the Depopulation of Animals: 2019 Edition	

Humidity should be monitored at various heights and locations in the facility.

7.6.32._34_ USA	Proposed amended text: This method ~~is a method of last resort suitable for poultry~~should only be used in poultry and swine Rationale: Recommend same added language, provided earlier in this section highlighting the species that are appropriate to this depopulation method. While this content seems most appropriate to include under "Recommendations," its inclusion at the beginning of this section is also welcomed to help emphasize the careful considerations necessary for animal welfare reasons.	Article deleted
7.6.32._35_ USA	Proposed amended text: Future research may provide additional information to inform decision-making surrounding Ventilation shut down with supplementation. Rationale: Recommend added language (from 2019 AVMA Guidelines for the Depopulation of Animals) to highlight how improved, especially higher humane methods of depopulation should always be a goal we strive to follow.	Article deleted
7.6.32._36_ UK	Category: Deletion/Addition Proposed amended text This method is a method of last resort ~~suitable for poultry~~ only suitable for poultry. Rational: Stresses the justifiable limitations of use Supporting evidence: not relevant.	Article deleted
7.6.32._37_ AUSTRALIA	Category: Change Proposed amended text: <u>Recommendations</u> Ventilation shut down with supplementation must never be used as a method of depopulation, due to the severity of its impacts on animal welfare and the prolonged period (hours) during which animals remain conscious while experiencing pain.	Article deleted

	~~distress, and suffering. In countries where it is relied upon, governments and industry should immediately take measures to ensure higher-welfare methods can be implemented promptly in the event of an emergency necessitating mass killing of poultry, should only be used as a method of last resort.~~ ~~Facilities must be properly sealed. Facilities that cannot be sealed properly or have poor insulation should not be used, due to the inability to hinder airflow and maintain uniform in-house temperatures depending on the season, and prolonging even further time to loss of consciousness.~~ ~~Supplemental heaters should be used to increase the temperature of the facility.~~ ~~Temperatures should be monitored at various heights and locations in the facility and the temperature should exceed 120° F or 49° C.~~ ~~Humidity should be monitored at various heights and locations in the facility.~~ ~~This method is a method of last resort suitable for poultry.~~ Rationale: As described in the comments above, VSD+ causes numerous negative affective states for a prolonged period in birds subjected to it. This method in no way comports with the principles described in the introduction to this section. Numerous higher welfare methods are available and, with adequate planning and preparation, should be easily accessible. WOAHP must not in any way condone the use of this method. Supporting evidence: See all references cited above.	
7.6.32. 38_ AUSTRALIA	Category: Deletion Proposed amended text: ~~This method is a method of last resort suitable for poultry~~ Rationale: As noted in general comments, we recommend the suitability for different species is listed at the start of the article.	Article deleted

4. Species-specific recommendations

This can only be applied to poultry as a last resort.

References

- Atkinson, S., Velarde, A., & Algers, B. (2013). Assessment of stun quality at commercial slaughter in cattle shot with captive bolt. *Animal Welfare*, 22(4), 473-481. doi:10.7120/09627286.22.4.473
- Bates G. Humane issues surrounding decapitation reconsidered. *J Am Vet Med Assoc* 2010; 237: 1024–1026.
- CB Johnson, DJ Mellor, PH Hemsworth and AD Fisher (2015). A scientific comment on the welfare of domesticated ruminants slaughtered without stunning. *New Zealand Veterinary Journal* 63 58-65.
- Gregory NG, Lee CJ, Widdicombe JP. Depth of concussion in cattle shot by penetrating captive bolt. *Meat Sci.* 2007 Dec;77(4):499-503. doi: 10.1016/j.meatsci.2007.04.026. Epub 2007 May 13. PMID: 22061934.
- Gregory, N. G., & Wilkins, L. J. (1997). Stupefying and lethal effects of alpha chloralose in chickens. *New Zealand Journal of Agricultural Research*, 40(3), 361-364.
- Holloway PH and Pritchard DG, 2017. Effects of ambient temperature and water vapor on chamber pressure and oxygen level during low atmospheric pressure stunning of poultry. *Poultry Science*, 96, 2528–2539. <https://doi.org/10.3382/ps/pex066>
- Kamenik, J., Paral, V., Pyszko, M., & Voslarova, E. (2019). Cattle stunning with a penetrative captive bolt device: A review. *Animal Science Journal*, 90(3), 307-316. <https://doi.org/10.1111/asi.13168>.
- K Kongara, AE McIlhone, NJ Kells and CB Johnson (2014). Electroencephalographic evaluation of decapitation of the anaesthetized rat. *Laboratory Animals* 48 15.
- Martin JE, Christensen K, Vizzier-Thaxton Y, Mitchell MA and McKeegan DEF, 2016a. Behavioural, brain and cardiac responses to hypobaric hypoxia in broiler chickens. *Physiology & Behavior*, 163, 25–36. <https://doi.org/10.1016/j.physbeh.2016.04.038>
- Martin JE, Christensen K, Vizzier-Thaxton Y and McKeegan DEF, 2016b. Effects of analgesic intervention on behavioural responses to low atmospheric pressure stunning. *Animal Behaviour Science*, 180, 157–165. <https://doi.org/10.1016/j.applanim.2016.05.007>
- Martin JE, Christensen K, Vizzier-Thaxton Y and McKeegan DEF, 2016c. Effects of light on responses to low atmospheric pressure stunning in broilers. *British Poultry Science*, 57, 585–600. <https://doi.org/10.1080/00071668.2016.1201200>
- Mikeska JA, Klemm WR. EEG evaluation of humaneness of asphyxia and decapitation euthanasia of the laboratory rat. *Lab Anim Sci* 1975; 25:175–179.
- Terlouw C, Bourguet C, Deiss V. Consciousness, unconsciousness and death in the context of slaughter. Part I. Neurobiological mechanisms underlying stunning and killing. *Meat Sci.* 2016 Aug;118:133-46. doi: 10.1016/j.meatsci.2016.03.011. Epub 2016 Mar 10. PMID: 27103547.
- TJ Gibson, CB Johnson, JC Murrell, CM Hulls, SL Mitchinson, KJ Stafford, AC Johnstone and DJ Mellor (2009). Electroencephalographic responses of calves to slaughter by ventral neck incision without prior stunning. *New Zealand Veterinary Journal* 57 77-83.
- Scientific Opinion on monitoring procedures at slaughterhouses for bovines. 2013. *EFSA Journal*, 11(12), 3460. <https://doi.org/10.2903/j.efsa.2013.3460>.
- [Walsh, J.L.; Percival, A.; Turner, P.V. Efficacy of Blunt Force Trauma, a Novel Mechanical Cervical Dislocation Device, and a Non-Penetrating Captive Bolt Device for On-Farm Euthanasia of Pre-Weaned Kits, Growers, and Adult Commercial Meat Rabbits. *Animals* 2017, 7, 100. https://doi.org/10.3390/ani7120100](https://doi.org/10.3390/ani7120100)
- Van der Wal, P.G. (1971) Stunning procedures for pigs and their physiological consequences. *Proc 2nd Int Symp Condition Meat Quality Pigs*, Zeist, Pudoc, Wageningen, The Netherlands.

Vecerek, V., Kamenik, J., Voslarova, E., Vecerkova, L., Machovcova, Z., Volfova, M., & Konvalinova, J. (2020). The occurrence of reflexes and reactions in cattle following stunning with a captive bolt at the slaughterhouse. *Animal Science Journal*, 91(1), e13373. <https://doi.org/10.1111/asj.13373>

Vogel, Kurt & Badtram, G & Claus, James & Grandin, Temple & Turpin, S & Weyker, Robert & Voogd, E. (2010). Head-only followed by cardiac arrest electrical stunning is an effective alternative to head-only electrical stunning in pigs. *Journal of animal science*. 89. 1412-8. 10.2527/jas.2010-2920.

8.8._1_Korea (Rep. of)	Category: General comment Proposed amended text: Rationale: The Republic of Korea supports this new Article on trade recommendation based on FMD virus inactivation in FBS. However, the provision of the supporting data for this specific gamma irradiation conditions in the coming commission report would improve transparency of the rationale and further support of the article.	Refer to Item 6.10. of report.
8.8._2_EU	Category: (general) Proposed amended text: Rationale: The EU in general supports the proposed change to chapter 8.8. provided the following comment be considered.	Noted

CHAPTER 8.8.

INFECTION WITH FOOT AND MOUTH DISEASE VIRUS

[...]

Article 8.8.33bis.

Recommendations for importation of fetal bovine serum from countries or zones infected with FMDV

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that this product has been subjected to:

- 1) gamma irradiation at a dose of at least 30 kilo Gray (kGy); or

8.8.33bis_1 _Australia	Category: Deletion Proposed amended text: ~~1) gamma irradiation at a dose of at least 30 kilo Gray (kGy); or~~ Rationale: Australia does not support the use of a minimum dose of 30 kGy as adequate for the inactivation of FMDV in foetal bovine serum. Recommend that this dose is reviewed. Foetal bovine serum is used as a component of cell culture medium for both routine laboratory use and production of immunobiologicals. While 30 kGy will have a significant effect on the titre of FMDV present it may not completely inactivate FMDV at titres present in blood and serum. Titres of FMDV in calf blood following experimental infection via natural transmission can reach at least 10 ^{5.2} PFU/mL (Bravo de Rueda et al. 2015). Therefore, at minimum an FMDV titre reduction exceeding 6-log is required. Although there is evidence demonstrating 30 kGy can	Given the expert input on this matter, the Commission decided to include further testing in addition to the gamma irradiation. Refer to Item 6.10. of the report.

	achieve a significant reduction in FMDV titre, there is also evidence demonstrating that this is not the case for all strains (Dekker 1998). FMDV can replicate in various continuous cell lines (Gray et al. 2020), including commonly used Vero and Madin-Darby bovine kidney (MDBK) cells (Abdulla et al. 2017; Kopliku et al. 2015). Although cytopathic effects are usually apparent with FMDV contamination of cell lines, FMDV can cause persistent infection in some BHK-21 (baby hamster kidney) cell lines (de la Torre et al 1985; Dill et al 2018; Huang et al 2011). BHK-21 cell lines are commonly used in laboratories including those laboratories which do not routinely work with infectious diseases, and persistent infection can go undetected for significant periods. Titres of FMDV below those which would be normally identifiable in culture can initiate persistent infection. FMDV is highly contagious and very low doses of virus are required to initiate infection in susceptible species (Paton, Gubbins & King 2018). Specific guidelines have been developed for laboratories intending to handle FMDV due to the high level of risk of accidental environmental contamination associated with laboratory manipulation of the virus (European Commission for the control of foot-and-mouth disease 2023). The use of foetal bovine serum contaminated with FMDV in susceptible cell lines within a laboratory that is not designed to manage the risks of FMDV, or in manufacture of veterinary immunobiologicals with an intended end use in susceptible species, poses an unmanaged biosecurity risk. For this reason, Australia considers 30 kGy gamma irradiation used as the sole risk management measure for FMDV for foetal bovine serum from countries or zones infected with FMDV to be inadequate. Supporting evidence: Abdulla, NM, Mohran, KA, Haroun, M, Ausama, AA & Shalaby, MA 2017, 'Identification of Foot and Mouth Disease Virus Strains Originating from Multispecies Susceptible Animals', Journal of Veterinary Science & Medical Diagnosis vol. 6, no. 1, p. 2. Bravo de Rueda, C, de Jong, MCM, Eblé, PL & Dekker, A 2015, 'Quantification of transmission of foot-and-mouth disease virus caused by an environment contaminated with secretions and excretions from infected calves', Veterinary Research, vol. 46, pp. 1-12. de la Torre, J.C., DáVila, M., Sobrino, F., Ortín, J. and Domingo, E., 1985. 'Establishment of cell lines persistently infected with foot-and-mouth disease virus', Virology, vol. 145, no. 1, pp. 24-35. Dill, V., Hoffmann, B., Zimmer, A., Beer, M. and Eschbaumer, M., 2018. 'Influence of cell type and cell culture media on the propagation of foot-and-mouth disease virus with regard to vaccine quality', Virology Journal, vol. 15, no. 1, pp.1-11. Dekker A (1998) 'Inactivation of foot-and mouth disease virus by heat, formaldehyde, ethylene oxide and gamma radiation'. The Veterinary Record, vol. 143, pp. 168-169. European Commission for the control of foot-and-mouth disease 2023, 'Minimum biorisk management standards for laboratories working with foot-and-mouth disease virus', Food and Agriculture Organization of the United Nations, Rome.	

	Gray, AR, Wood, BA, Henry, E, Azhar, M, King, DP & Mioulet, V 2020, 'Evaluation of cell lines for the isolation of foot-and-mouth disease virus and other viruses causing vesicular disease', <i>Frontiers in Veterinary Science</i>, vol. 7, p. 426. Huang, X., Li, Y., Fang, H. and Zheng, C., 2011. 'Establishment of persistent infection with foot-and-mouth disease virus in BHK-21 cells', <i>Virology Journal</i>, vol. 8, no.1, pp. 1-12. Kopliku, L, Relmy, A, Romey, A, Gorna, K, Zientara, S, Bakkali-Kassimi, L & Blaise-Boisseau, S 2015, 'Establishment of persistent foot-and-mouth disease virus (FMDV) infection in MDBK cells', <i>Archives of Virology</i>, vol. 160, pp. 2503-16. Paton, DJ, Gubbins, S & King, DP 2018, 'Understanding the transmission of foot-and-mouth disease virus at different scales', <i>Current Opinion in Virology</i>, vol. 28, pp. 85-91.	
8.8.33bis._2_EU	Category: (general) Proposed amended text: Expand on point 1) by adding a reliable testing regime and requirements for the place of collection to ensure fetal bovine serum can be safely traded. Rationale: While the gamma irradiation dosage appears to be suitable, there are no provisions on the effectiveness checks that this was done in a meaningful manner. In addition, provisions for the place of collection (in relation to their FMD epidemiological situation) are missing. This can represent a risk for this commodity in case of cross contamination or insufficient treatments. As such both the testing regime and requirements for the place of collection are necessary additions to this draft article.	Agreed New point 1 was added.

2) an equivalent treatment that has been demonstrated to inactivate FMDV.

8.8.33bis_3_Australia	Category: Addition Proposed amended text: 2) an equivalent treatment that has been demonstrated to inactivate FMDV in fetal bovine serum. 3) the necessary precautions which were taken after collection and processing to avoid contact of fetal bovine serum with any potential source of FMDV Rationale: The recommended changes are to align the text and recommendations with similar sections relating to 'Recommendations for importation....' of other products in the FMDV Chapter (8.8), e.g. <i>Article 8.8.29 Recommendations for importation of milk and milk products (other than those listed in Article 8.8.2) from countries or zones infected with FMDV.</i>	Agreed

[...]

NOT FOR COMMENT

Reference	Comment	TAHSC response
8.8._1_ Canada	Comment Category: General Canada supports the proposed changes however requests that Members be provided an update regarding the request made at the General Session on the evaluation of the potential impacts of the proposed changes on the official status framework.	Noted
8.8._2_ Korea (Rep. of)	Category: general The Republic of Korea agrees with the revised Chapter emphasizing the importance of import risk analysis when commodities are imported into or moved into a FMD free country or zone.	Noted
8.8._3_ AU-IBAR	Category: addition Comments: Our observation relates to the general framing of FMD freedom (Articles 8.8.3, 8.8.4, 8.8.8). Current framework emphasizes country/zone freedom, limiting trade flexibility. Proposed amendment: Include references to Commodity-based Trade and compartmentalization as complementary pathways for safe trade, particularly for countries with endemic wildlife reservoirs. Rationale: Commodity-based trade and compartmentalization approaches allow safe trade even in endemic contexts, aligning with SPS principles.	Noted In the current chapter, specific risk mitigation measures are recommended, for different animal health status, depending on the type of commodity. The structure of the chapter is thus both status- and commodity-based.
8.8._4_EU	Category: general The EU thanks the Code Commission for the continued efforts to harmonise official-status chapters and for aligning the revision of the FMD chapter with the revised approach to the assessment and maintenance of official statuses. The EU can in general support the approach taken, provided that the specific proposed changes below are taken on board and that the revised provisions remain consistent across all official-status disease chapters. Specific comments on Articles 8.8.3, 8.8.4 and 8.8.8 are provided below. Finally, the EU suggests revising the full FMD chapter, instead of just a few articles, in line with the revision proposed for the PPR chapter. Reference is made to the EU comment on Annex 23 (PPR).	Noted

CHAPTER 8.8.

INFECTION WITH FOOT AND MOUTH DISEASE VIRUS

[...]

Article 8.8.3.

Country or zone free from FMD where vaccination is not practised

A country or *zone* may be considered free from FMD where *vaccination* is not practised when the relevant provisions in point 2 of Article 1.4.6. have been complied with, and when within the country or *zone* for at least the past 12 months:

- 1) there has been no *infection* with FMDV;

8.8.3._1_ New Caledonia	Category: change Proposed amended text: “Il n'y a eu <u>aucun cas</u> ~~aucune d'~~ <i>infection</i> par le virus de la fièvre aphteuse ;” Rationale : Articles 8.8.3.1) et 8.8.4.1) b) Pour harmoniser par rapport aux chapitres 11.5 et 12.1, il est proposé de préciser “aucun cas d'infection” :	Agreed

- 2) the *Veterinary Authority* has current knowledge of, and authority over, all *herds* of domestic and *captive wild* susceptible animals in the country or *zone*;
- 3) the *Veterinary Authority* has current knowledge of the distribution and habitat of *wild* and *feral* susceptible animals in the country or *zone*;
- 4) appropriate *surveillance* has been implemented in accordance with:

8.8.3._2_ AU-IBAR	Category: addition Proposed amendment: Article 8.8.3 (point 4) should specify that surveillance should be risk-based, targeting high-risk populations and interfaces, with clear protocols for wildlife monitoring. Rationale: Surveillance requirements are referenced but not sufficiently detailed for risk-based application. Countries with wildlife–livestock interfaces (e.g., African buffalo) face unique epidemiological risks. Explicit guidance on risk-based surveillance design would improve applicability.	Did not agree as surveillance articles of this chapter and other chapters in the <i>Terrestrial Code</i> already covers the details. The Commission noted that WOAHP had also published a set of guidelines on this topic.

- a) point 2 b) of Article 1.4.6. where historical freedom can be demonstrated; or
- b) Articles 8.8.43. to 8.8.45. where historical freedom cannot be demonstrated, which includes the detection of clinical signs of FMD and demonstrates:
 - i) no *infection* with FMDV in unvaccinated animals;
 - ii) no transmission of FMDV in previously vaccinated animals;
- 5) measures to prevent the introduction of the *infection* have been in place; in particular, the importations or movements of *commodities* into the country or *zone* have been carried out in accordance with this chapter ~~and/or~~ other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. ‘Import risk analysis’. Unless otherwise specified in this chapter, movements of *commodities* within a country between *zones* of different *animal health status* should comply with the same requirements as for importation;

8.8.3._3_	Category: editorial Proposed amended text:	Agreed (only in French version)

New Caledonia	“des mesures ont été appliquées pour empêcher l'introduction de l'<i>infection</i> : en particulier, les importations et les mouvements de <i>marchandises</i> dans le pays ou la <i>zone</i> ont été effectués conformément au présent chapitre ~~et ou aux à d'~~ autres chapitres pertinents du <i>Code terrestre</i>...” Rationale : Articles 8.8.3.5) et 8.8.4.g) : Pour harmoniser par rapport aux chapitres 11.5 et 12.1, il est proposé de faire référence “aux autres chapitres pertinents du Code” et non “à d'autres” :	
8.8.3._4_ New Zealand	Category: change Proposed amended text: accordance with this chapter ~~and or and~~ other relevant chapters of the <i>Terrestrial Code</i>, <u>including Chapter 2.1. 'Import risk analysis'</u>. Rationale: Retaining the 'and' will maintain the robustness of the freedom provisions. The proposed change makes the clause ineffectual and ambiguous as a standard – it is not clear which alternative chapters are 'relevant'. In addition, the proposed change of 'and' to an 'or' removes clarity of the requirement for Member Countries to align with the relevant trade related measures in the horizontal chapters when the disease specific chapter recommended measures are applied. If the proposed change is to provide for the use of equivalence measures based on risk assessment, it is not necessary, as the current text using an 'and' already provides for countries to: i) utilise Import Risk Analysis as outlined in Chapter 2.1 to, if scientifically justified, apply measures higher than WOAHS import mitigation measures or develop measures where none exist, or ii) use Chapter 5.3. to assess and recognised measures equivalent to those recommended by WOAHS. We recognise that this change was made at the WOAHS General Session for CBPP and AHS but the change undermines the Code standard framework and should not be perpetuated. This same comment also applies to the similar change made within the classical swine fever chapter (Article 15.2.3), Japanese encephalitis chapter (Article 8.10.3), Tularemia chapter (Article 8.20.2), VEE chapter (Article 12.11.3), PPR chapter (Article 14.7.3), Sheep and goat pox chapter (Article 14.9.3), and the lumpy skin disease chapter (Article 11.9.3).	Did not agree The Commission highlighted that this revision ensures harmonisation of the relevant texts with those adopted in May 2025. The use of the term 'or' provides Members with the necessary flexibility to demonstrate equivalence of the measures applied, which is in line with the WTO/SPS Agreement.

- 6) *vaccination* against FMD is prohibited and the prohibition has been effectively implemented and supervised.

8.8.3._5_ New Caledonia	Category: addition Proposed amended text: <u>7) aucun animal ayant été vacciné ou traité contre la fièvre aphteuse n'a été introduit.</u> Rationale : Article 8.8.3, comme pour la PPCB, il est proposé de prévoir également l'interdiction d'introduction d'animaux vaccinés en particulier dans les pays ayant un statut officiellement indemne sans vaccination :	Did not agree as there are provisions for risk mitigation measures for the safe importation of vaccinated animals into any country, including FMD free countries where vaccination is not practised.

The country or *zone* will be included in the list of countries or *zones* free from FMD, where *vaccination* is not practised in accordance with Chapter 1.6.

Retention on the list requires annual reconfirmation of compliance with all points above and provisions under point 4 of Article 1.4.6. Documented evidence should be resubmitted annually for all points above. Any changes in the epidemiological situation or other significant events should be notified to WOAHA in accordance with Chapter 1.1.

8.8.3._6_ EU	Category: change Proposed amended text: “Retention on the list requires annual reconfirmation of compliance with all points above and provisions under point 4 of Article 1.4.6. ~~Documented evidence should be resubmitted annually for all points above. A declaration by the Delegate should be submitted annually confirming that the epidemiological situation has not changed and that the conditions described in the points above continue to be met.~~ Any changes in the epidemiological situation or other significant events should be notified to WOAHA in accordance with Chapter 1.1.”. Rationale: As already requested in previous years, the EU proposes to simplify the annual reconfirmation process so that it remains sustainable and proportionate to the workload of Member's veterinary authorities and WOAHA Secretariat. Requiring the annual re-submission of full documentary evidence is unnecessary where the epidemiological situation remains stable. This provision should be harmonised with Chapter 1.6, which does not require documentary evidence but relies instead on an annual declaration by the Delegate confirming that the situation and compliance with conditions remain unchanged. Such harmonisation across all official-status disease chapters (including on AHS and CBPP last amended in May 2025) will maintain transparency while reducing administrative burden for both Members and the WOAHA Secretariat.	The Commission noted that this should be discussed in the revision of Chapter 1.6. (refer to Item 6.4. of report)

Provided the conditions of point 4 are fulfilled, the status of a country or *zone* will not be affected by applying official emergency *vaccination* to susceptible animals in zoological collections in the face of a FMD threat identified by the *Veterinary Authorities*, provided that the following conditions are met:

- the zoological collection has the primary purpose of exhibiting animals or preserving rare species, has been identified, including the boundaries of the facility, and is included in the country's contingency plan for FMD;
- appropriate *biosecurity* is in place, including effective separation from other susceptible domestic *populations* or *wildlife*;
- the susceptible animals are identified as belonging to the collection and any movements can be traced;
- the vaccine used complies with the standards described in the *Terrestrial Manual*;
- *vaccination* is conducted under the supervision of the *Veterinary Authority*;
- the zoological collection is placed under *surveillance* for at least 12 months after *vaccination*.

A country or *zone* free from FMD where *vaccination* is not practised may maintain its free status despite an incursion of African buffaloes from a neighbouring infected country or *zone* provided that it is demonstrated that the provisions in this article continue to be met and documented evidence has been submitted to and accepted by WOA.

Article 8.8.4.

Country or zone free from FMD where vaccination is practised

A country or *zone* may be considered free from FMD where *vaccination* is practised when the relevant provisions in point 2 of Article 1.4.6. have been complied with, and when within the country or *zone*:

- 1) for at least the past 12 months:
 - a) there has been no transmission of FMDV;
 - b) there has been no *infection* with FMDV;

8.8.4._1_ New Caledonia	Category: change Proposed amended text: "Il n'y a eu <u>aucun cas</u> ~~aucune d'~~ infection par le virus de la fièvre aphteuse ;" Rationale : Articles 8.8.3.1) et 8.8.4.1) b) Pour harmoniser par rapport aux chapitres 11.5 et 12.1, il est proposé de préciser "aucun cas d'infection" :	Agreed

- c) the *Veterinary Authority* has current knowledge of, and authority over, all *herds* of domestic and *captive wild* susceptible animals in the country or *zone*;
- d) the *Veterinary Authority* has current knowledge of the distribution and habitat of *wild* and *feral* susceptible animals in the country or *zone*;
- e) compulsory systematic *vaccination* in the target *population* has been carried out to achieve adequate *vaccination* coverage and population immunity; based on the epidemiology of FMD in the country or *zone*, the target *population* should be defined in accordance with Chapter 4.18.;
- f) *vaccination* has been carried out following appropriate vaccine strain selection;

8.8.4._2_	Category: addition	Did not agree as this information is already

New Caledonia	Proposed amended text: f) la <i>vaccination</i> a été effectuée à la suite d'une sélection appropriée des souches vaccinales ; <u>le vaccin utilisé est conforme aux normes décrites dans le Manuel terrestre</u> Rationale : Article 8.8.4.f) : il est proposé de préciser que le vaccin utilisé est conforme aux normes du Manuel, tel que cela est prévu en cas de vaccination d'urgence pour les collections zoologiques :	covered by Article 8.8.1.

- g) measures to prevent the introduction of *infection* have been in place; in particular, the importations or movements of *commodities* into the country or *zone* have been carried out in accordance with this chapter and/or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';

8.8.4._3_ New Caledonia	Category: editorial Proposed amended text: “des mesures ont été appliquées pour empêcher l'introduction de <i>infection</i> : en particulier, les importations et les mouvements de <i>marchandises</i> dans le pays ou la <i>zone</i> ont été effectués conformément au présent chapitre <u>et ou aux à d'autres</u> chapitres pertinents du <i>Code terrestre</i> ...” Rationale : Articles 8.8.3.5) et 8.8.4.g) : Pour harmoniser par rapport aux chapitres 11.5 et 12.1, il est proposé de faire référence “aux autres chapitres pertinents du Code” et non “à d'autres” :	Agreed (only in French version)

- 2) for the past 24 months:

appropriate *surveillance* has been implemented in accordance with Articles 8.8.43. to 8.8.45. and demonstrates points 1 a) and 1 b) above.

8.8.4._4_ AU-IBAR	Category: Addition Proposed amendment: Article 8.8.4 (point 2) should specify that surveillance should be risk-based, targeting high-risk populations and interfaces, with clear protocols for wildlife monitoring. Rationale: Surveillance requirements are referenced but not sufficiently detailed for risk-based application. Countries with wildlife–livestock interfaces (e.g., African buffalo) face unique epidemiological risks. Explicit guidance on risk-based surveillance design would improve applicability.	Did not agree as this is already described in other articles.

The country or *zone* will be included in the list of countries or *zones* free from FMD where *vaccination* is practised in accordance with Chapter 1.6. Retention on the list requires annual reconfirmation of compliance with all points above and relevant provisions under point 4 of Article 1.4.6. Documented evidence should be resubmitted annually for all points above. Any changes in the epidemiological situation or other significant events should be notified to WOAHP in accordance with Chapter 1.1.

8.8.4._5_ EU	Category: change Proposed amended text:	Refer to comment above (8.8.3._6_EU) :

	“The country or zone will be included in the list of countries or zones free from FMD where vaccination is practised in accordance with Chapter 1.6. Retention on the list requires annual reconfirmation of compliance with all points above and relevant provisions under point 4 of Article 1.4.6. <u>Documented evidence should be resubmitted annually for all points above. A declaration by the Delegate should be submitted annually confirming that the epidemiological situation has not changed and that the conditions described in the points above continue to be met.</u> Any changes in the epidemiological situation or other significant events should be notified to WOAHP in accordance with Chapter 1.1.”. Rationale: Same rationale as point above.	The Commission noted that this should be discussed in the revision of Chapter 1.6. (refer to Item 6.4. of report)

[...]

Article 8.8.8.

Country or zone infected with FMDV

A country or *zone* shall be considered as infected with FMDV when the conditions in points 1 to 6 of Article 8.8.3 or points 1 and 2 of 8.8.4. requirements for acceptance as a country or zone free from FMD either where vaccination is not practised or where vaccination is practised are not fulfilledmet.

8.8.8._1_ UK	Category: Addition. Proposed amended text (or precise suggested deletion): A country or <i>zone</i> shall be considered as infected with FMDV when <u>any of the conditions in points 1 to 6 of Article 8.8.3 or points 1 and 2 of 8.8.4. requirements for acceptance as a country or zone free from FMD either where vaccination is not practised or where vaccination is practised are not fulfilled</u>met. Rationale: Since Article 8.8.3 specifies that all conditions listed in points 1 to 6 must be fulfilled simultaneously, our interpretation is that if any single condition is not met, the country should no longer be considered free from FMD and should instead be regarded as infected. Supporting evidence: Not relevant.	Did not agree as it is clear as written that if one or more of the conditions are not met, the status is considered infected.

[...]

8.8.2._1_ WRO	Category: addition Proposed amended text: <u>8. rendered fat;</u> Rationale: Rendered fats are not currently listed in Article 8.8.2 as safe commodities, despite being globally traded, highly processed products that follow the same sanitary principles as other commodities already recognised in this Article. Including rendered fats in the list of safe commodities will align the FMD chapter with the approach adopted in other WOAHP disease chapters (for example, 11.5.2, 12.1.2 and 12.3.2), which already recognise rendered fats as safe trade commodities regardless of the exporting country's animal health status.	Noted The Commission explained that comments falling outside the scope of the current revision have been noted and will be discussed in the future (refer to Item 5.6. of report).

	Supporting evidence: The WRO Scientific Advisory Panel report provides detailed descriptions of rendering systems in which rendered fats are produced under strict time and temperature parameters. In dry and wet rendering processes, fats are exposed to sustained temperatures well above 100°C, with process monitoring showing that product temperature frequently exceeds 110°C for extended periods, conditions that are sufficient to inactivate transboundary animal disease agents, including FMD virus. The same report classifies rendered fats as one of the four main categories of rendered commodities produced and traded globally, obtained only after controlled thermal processing with defined critical control points and sanitary barriers, designed to eliminate biological hazards and ensure product safety. Given their high level of processing, established safety parameters and global trade relevance, rendered fats clearly meet the principles used to identify the commodities already listed in Article 8.8.2 and should therefore be explicitly recognised as safe for international trade regardless of country or zone FMD status.	
8.8.16bis._1_ Türkiye (Rep. of)	Category: addition Proposed amended text: <u>8.8.16bis</u> <u>Recommendations for the importation of susceptible animals from countries or zones infected with FMDV where vaccination is applied and an official control programme exists</u> <u>Veterinary Authorities should require the presentation of an international veterinary certificate attesting that:</u> 1. <u>the animals showed no clinical signs of foot and mouth disease on the day of shipment;</u> 2. <u>in the case of pigs, they have not been fed with swill not compliant with the provisions of Article 8.8.35.;</u> 3. <u>prior to isolation, the animals were kept in the establishment of origin :</u> a) <u>for 30 days, or since birth if younger than 30 days, if a stamping-out policy is applied to control FMD in the exporting country or zone, or</u> b) <u>for three months, or since birth if younger than three months if a stamping-out policy is not applied to control FMD in the exporting country or zone;</u> 4. <u>the establishment of origin is covered by the official control programme and FMD has not occurred within it for the relevant period as defined in points 3(a) and 3(b) above;</u> 5. <u>the animals were isolated for at least 30 days prior to shipment and:</u> a) <u>in a quarantine station, and all animals in isolation were primarily subjected to NSP serological testing for evidence of FMDV with negative results on samples collected at least 28 days after the start of the isolation period; animals yielding positive results were subsequently subjected to diagnostic virological testing</u>	Noted The Commission explained that comments falling outside the scope of the current revision have been noted and will be discussed in the future (refer to Item 5.6. of report).

	<u>with negative results; or</u> b) <u>in an establishment that is not a quarantine station, infection with FMDV did not occur within a 10-kilometre radius of the establishment during that period, and all animals in isolation were primarily subjected to NSP serological testing for evidence of FMDV with negative results on samples collected at least 28 days after the start of the isolation period; animals yielding positive results were subsequently subjected to diagnostic virological testing with negative results;</u> 6. <u>the animals were not exposed to FMDV during transportation from the establishment to the place of shipment.</u> Rationale: The current WOAHP Terrestrial Code Article 8.8.16 requires that all animals intended for shipment yield negative results in both serological and virological tests at the end of the isolation period; however, this provision is not based on a risk framework specifically designed for vaccinated populations. Consequently, invasive, labour-intensive and operationally unsustainable virological sampling is also applied to animals of low epidemiological risk, creating a disproportionate burden for vaccinated herds. In vaccinated populations, NSP (Non-Structural Protein) antibody tests are internationally recognised as the standard DIVA screening method for monitoring the circulation of foot and mouth disease virus and provide high sensitivity and specificity. Nevertheless, limited false-positive results may occur due to insufficient purification of vaccines or repeated vaccination practices. For this reason, targeted virological confirmation in NSP-positive or suspect animals is scientifically recommended. On these grounds, it is proposed that a separate provision be introduced for animals intended for movement from vaccinated populations, based on a risk-based and sustainable approach whereby NSP serological screening is applied to all animals and virological confirmation by probang sampling and RT-qPCR is performed only in animals yielding positive results. This amendment would maintain epidemiological security, strengthen implementation capacity and support the safe international movement of animals.	

Reference	Comment	TAHSC response
8.20._1_ Korea (Rep. of)	Category: general The Republic of Korea agrees with this chapter to align its structural framework with other chapters. The Republic of Korea also agrees with the clear stipulation in article 8.20.2 of country or zone free from tularemia, and accordingly the clear specification of the recommendation for importation from free zone in infected countries.	Noted
8.20._2_ Singapore	Category: general Proposed amended text Suggest to include recommendations for importation of all animal hosts as defined in Article 8.20.1. Rationale: While the animal hosts for chapter 8.20 are defined as 'animals in the order <i>Lagomorpha</i> and <i>Rodentia</i> ', the current Article 8.20.54. (Recommendations for importation of hares from countries infected with <i>Francisella tularensis</i>) seems to only provide for hares, genus <i>Lepus</i> .	The Commission recalled that the purpose of revising this chapter is to include the case definition and align the text with the current style of the disease-specific chapters. The Commission decided to include this request in the work programme as a new item for future consideration.
8.20._3_EU	Category: general The EU supports this draft revised chapter and provided editorial suggestions in the text below.	Noted

CHAPTER 8.20.

INFECTION WITH FRANCISELLA TULARENSIS (TULAREMIA)

Article 8.20.1.

General provisions

The aim of this chapter is to mitigate the animal health and public health risks posed by tularemia. A wide variety of mammals, including humans, and some birds have been reported to be infected, but tularemia is primarily a disease of the orders *Lagomorpha* and *Rodentia*.

8.20.1._1_ New Zealand	Category: editorial Proposed amended text: <u>The aim of this chapter is to mitigate the animal health and public health risks posed by tularemia. Infection has been reported in a A wide variety of mammals, including humans, and some birds ~~have been reported to be infected~~, but tularemia is primarily a disease of the orders <i>Lagomorpha</i> and <i>Rodentia</i>.</u> Rationale: Reframed sentence to clarify (and emphasise) that while infections are seen in mammals and bird species, the disease is primarily found in <i>Lagomorpha</i> and <i>Rodentia</i> .	Agreed with the rationale, text was amended differently for clarity.

For the purposes of the *Terrestrial Code*, tularemia is defined as an *infection* of lagomorphs and rodents (hereafter 'animal hosts') with *Francisella tularensis* subsp. *tularensis* or *Francisella tularensis* subsp. *holarctica*.

Hereafter '*Francisella tularensis*' is used to collectively refer to both *Francisella tularensis* subsp. *tularensis* and *Francisella tularensis* subsp. *holarctica*.

The following defines the occurrence of *infection* with *Francisella tularensis*:

- 1) *Francisella tularensis* has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid or antigen specific to *Francisella tularensis* has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with *infection* with *Francisella tularensis*; or epidemiologically linked to a confirmed or suspected case or a human infected with *Francisella tularensis*, or giving cause for suspicion of association or contact with *Francisella tularensis*; or
- 3) seroconversion specific to *Francisella tularensis* has been detected in an animal host; or
- 4) antibodies specific to *Francisella tularensis* have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with *infection* with *Francisella tularensis*, or epidemiologically linked to a confirmed or suspected case or a human infected with *Francisella tularensis*, or giving cause for suspicion of previous association or contact with *Francisella tularensis*.

For the purposes of the *Terrestrial Code*, the *incubation period* for tularemia (in hares, genus *Lepus*) shall be 15 days.

Standards for diagnosis diagnostic tests, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Article 8.20.2.

Tularemia-free country **Country or zone free from tularemia**

A country or zone may be considered free from tularemia when:

- 1) the *infection* has been notifiable in the entire country ~~it has been shown that tularemia has not been present for at least the past two years;~~
- 2) **either:**
 - a) **the country or zone is historically free as described in point 2) b) of Article 1.4.6.; or**
 - b) **for at least the past two years,** specific surveillance in accordance with Chapter 1.4. has been in place in the entire country or zone, and there has been no case in the country or zone **for at least the past two years;** and when bacteriological or serological surveys in previously infected zones have given negative results.
- 3) appropriate *biosecurity* and *sanitary measures* to prevent the introduction of *infection* have been in place; in particular, the importations or movements of animal hosts and other *commodities* into the country or zone have been carried out in accordance with this chapter or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';.

Article 8.20.2.bis

Recovery of free status

Should a *case of infection* with *Francisella tularensis* occur in a previously free country or zone, its status may be recovered one year after the *disinfection* and *disinsection* of the last affected *establishment*, provided that in

the entire country or zone, specific surveillance in accordance with Chapter 1.4. has been carried out and has demonstrated the absence of any case of infection with *Francisella tularensis*.

8.20.2bis_1_ New Zealand	Category: addition Proposed amended text: <u>Should a case of infection with <i>Francisella tularensis</i> occur in a previously free country or zone, its status may be recovered one year after the disinfection and disinsection of the last affected establishment, provided that in the entire country or zone, pathogen-specific surveillance in accordance with Chapter 1.4. has been carried out and has demonstrated the absence of any case of infection with <i>Francisella tularensis</i>.</u> Rationale: Consistent terminology. Alternatively for increased clarity reference Article 1.4.6 point 2.c.	Considering the specific provisions regarding the animal health status for tularemia in domestic animals and wildlife, the Commission decided to follow the provisions for a free country or zone described in Article 8.20.2. for recovery of free status. The text was amended to simplify the wording.

Otherwise, Article 8.20.2. applies.

Article 8.20.3.

Tularemia-infected zone-Country or zone infected with *Francisella tularensis*

8.20.3._1_ EU	Category: editorial Proposed amended text: Proposed to put in italics <i>Francisella tularensis</i> Rationale: It is a Latin name and should be italicised.	Agreed

A country or zone should be considered as infected with *Francisella tularensis* when the conditions for freedom from tularemia are not met fulfilled, tularemia until:

1) —at least one year has elapsed after the last case has been confirmed;

AND

2) —a bacteriological survey on ticks within the infected zone has given negative results; or
 regular serological testing of hares and rabbits from that zone have given negative results.

Article 8.20.4.

Trade in commodities

Veterinary Authorities of tularemia free countries may prohibit importation or transit through their territory, from countries considered infected with tularemia, of live hares.

Article 8.20.54.

Recommendations for importation of hares from countries considered infected with *Francisella tularensis*tularemia

8.20.4._1_ EU	Category: editorial Proposed amended text:	Agreed

	Proposed to put in italics <i>Francisella tularensis</i> Rationale: It is a Latin name and should be italicised.	

For live hares

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) ~~showed no clinical sign of tularemia on the day of shipment;~~
- 12) ~~dower~~ not ~~come from a zone kept in an~~ tularemia-infected ~~with *Francisella tularensis*.zone;~~
- 23) ~~have been~~ were treated against ~~ectoparasites~~ arthropod vectors upon entry into the quarantine centre; and
- 34) were kept in a *quarantine station centre* for the at least 15 days prior to shipment and during this period the animals showed no clinical signs of infection with *Francisella tularensis*.

Reference	Comment	TAHSC response
8.X._1_ Chile	Category: general Justificación: Chile agradece el trabajo de la Comisión del Código. Chile remite un comentario a este capítulo, el cual fue remitido el año pasado, pero no fue revisado, desconociendo la razón de aquello. Evidencia documentada: Revisar por favor el correo remitido por el SAG el año pasado, con los comentarios enviados por Chile a los documentos de la reunión de la Comisión del Código de septiembre del 2024. Adicionalmente, el informe de la reunión de la Comisión del Código de septiembre del 2025, en su página 28 no indica a Chile y sólo señala a los siguientes países: 5.7. Infection with Crimean-Congo haemorrhagic fever virus (new Chapter 8.X.) Comments were received from Australia, China (People's Rep. of), Korea (Rep. of), Mexico, New Zealand, Thailand, the USA, AU-IBAR and the EU.	Agreed This is reflected in the latest revised text in Spanish.
8.X._2_ Korea (Rep. of)	Category: general The Republic of Korea supports a clear definition of the occurrence of infection with CCHFV.	Noted
8.X._3_EU	Category: general The EU thanks the Code Commission for considering the EU comments to this draft Code chapter and in general supports it provided the comment below is taken into consideration. The EU agrees with the approach proposed by the Code Commission and invites to increase the priority, in the work programme, of the review of the User's guide to clarify the terms "for the purpose of the Terrestrial Code". This work should be done in conjunction with the work on disease notification and reporting requirements of Chapter 1.1.	The Code Commission noted that this point has been discussed in the 'User's Guide'. Refer to Item 6.1. of the report.

CHAPTER 8.X.

INFECTION WITH CRIMEAN-CONGO HAEMORRHAGIC FEVER VIRUS

Article 8.X.1.

General provisions

Crimean-Congo haemorrhagic fever (CCHF) is a zoonotic disease, resulting in severe illness or death in humans. It is caused by a tick-borne virus (CCHFV) that can infect, in general subclinically, a wide variety of vertebrate animals, in general causing no clinical signs in animals.; some Some of them these animals playing a significant role in the amplification and virus-transmission of the virus to humans.

8.X.1._1_ Thailand	Category: editorial Proposed amended text: Crimean-Congo haemorrhagic fever (CCHF) is a zoonotic disease, <u>resulting in severe illness or death in humans. It is caused by a tick-borne virus (CCHFV) that can infect, in general, subclinically, a wide variety of vertebrate animals, in general causing no clinical signs in animals, some. Some of them these animals playing a significant role in the amplification and virus transmission of the virus to humans.</u> Rationale: To be in line with other disease-specific chapters	Agreed.
8.X.1._2_ USA	Comment Category: Addition Proposed amended text: <u>Some of them these animals, of particular note hares and small rodents, playing a significant role in the amplification and virus transmission of the virus to humans.</u> Rationale: Hares and small rodents play a particularly significant epidemiological role in amplifying CCHFV through their spread to immature ticks in the environment. Supporting evidence: Hawman, D. W., & Feldmann, H. (2023). Crimean–Congo haemorrhagic fever virus. <i>Nature Reviews Microbiology</i>, 21(7), 463-477. S. Celina S, Italiya J, Tekkara AO and Černý J (2025). Crimean-Congo haemorrhagic fever virus in ticks, domestic, and wild animals. <i>Front. Vet. Sci.</i> 11:1513123. doi: 10.3389/fvets.2024.1513123	Did not agree While these species may be susceptible to infection (susceptible animals), the Commission noted that to maintain the focus and clarity of the <i>Terrestrial Code</i>, it is essential to list 'animal hosts' rather than all susceptible animals. Such information would be captured in the corresponding chapter in the <i>Terrestrial Manual</i>.

The aim of this chapter is to mitigate the animal health and public health risks posed by CCHF.

For the purposes of the *Terrestrial Code*, Crimean-Congo haemorrhagic fever CCHF is defined as an *infection* of ruminants, dromedary camels and ostriches (hereafter 'animal hosts') with Crimean-Congo haemorrhagic fever virus (CCHFV).

8.X.1._3_ Thailand	Category: editorial Proposed amended text: For the purposes of the <i>Terrestrial Code</i>, Crimean-Congo haemorrhagic fever CCHF is defined as an <i>infection</i> of ruminants, dromedary camels and ostriches (hereafter 'animal hosts') with <u>Crimean-Congo haemorrhagic fever virus (CCHFV).</u> Rationale: To be in line with other disease-specific chapters	Agreed
8.X.1._4_ EU	Category: general Proposed amended text: “For the purposes of the <i>Terrestrial Code</i>, CCHF is defined as an infection of ruminants, dromedary camels, <u>Iberian lynx, wild boar</u> and ostriches (hereafter 'animal hosts') with CCHFV.” Rationale: Due to serological evidence, we would recommend adding Iberian lynx and wild boar as susceptible animals for CCHFV. Key references:	Did not agree The Commission noted that the list of 'animal hosts' identifies those species that play a significant role in the epidemiology of the disease and for which Members are obliged to notify WOA of a disease occurrence. Therefore, the list should be limited to species that trigger this notification obligation,

	• Frías M, Fischer K, Castro-Scholten S, Bost C, Cano-Terriza D, Rialde M, et al. Epidemiologic Survey of Crimean-Congo Hemorrhagic Fever Virus in Suids, Spain. <i>Emerg Infect Dis</i>. 2024;30(5):984-990. https://doi.org/10.3201/eid3005.240074 • Marta Sánchez-Sánchez, Javier Caballero-Gómez, Marinela Contreras, Alberto Moraga-Fernández, Clara Muñoz-Hernández, Isabel Fernández-Verón, Kerstin Fischer, Caroline Bost, Sabrina Castro-Scholten, Sara Baz-Flores, Teresa del Rey, Fernando Nájera, Ignacio Montoya-Oliver, Javier Salcedo, Isabel G. Fernández de Mera, Ignacio García-Bocanegra, Epidemiological surveillance of Crimean-Congo haemorrhagic fever virus in the Iberian lynx (<i>Lynx pardinus</i>), 2010–2022, <i>Veterinary Microbiology</i>, Volume 310, 2025, 110722, ISSN 0378-1135, https://doi.org/10.1016/j.vetmic.2025.110722 • Bernard C, Apolloni A, Grosbois V, Peyraud A, Saengram P, Jori F, et al. (2025) First detection of Crimean Congo Hemorrhagic Fever antibodies in cattle and wildlife of southern continental France: Investigation of explanatory factors. <i>PLoS One</i> 20(9): e0331875. https://doi.org/10.1371/journal.pone.0331875	rather than including all susceptible animals.

The following defines the occurrence of *infection* with CCHFV:

- 1) CCHFV has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid specific to CCHFV has been detected in a sample from an animal host epidemiologically linked to a confirmed or suspected case, or to a human infected with CCHFV, or giving cause for suspicion of previous association ~~or contact~~ with or exposure to CCHFV; or

8.X.1._5_ Chile	Comment Category: editorial and general Texto modificado propuesto (o supresión sugerida): 2) nucleic acid specific to CCHFV has been detected in a sample from an animal host epidemiologically linked to a confirmed or <u>suspected case</u>, or to a human infected with CCHFV, or giving cause for suspicion of previous association ~~or contact~~ with <u>or exposure to</u> CCHFV; or 2) la detección de ácido nucleico específico del virus de la fiebre hemorrágica de Crimea–Congo en una muestra procedente de un animal hospedador que esté relacionado epidemiológicamente con un caso confirmado o <u>sospechoso presunto</u>, o con un ser humano infectado por el virus de la fiebre hemorrágica de Crimea–Congo, o que haya dado motivo para sospechar una asociación ~~o un contacto~~ <u>o una exposición previa</u> al ~~con el~~ virus de la fiebre hemorrágica de Crimea–Congo; o 3) antibodies specific to CCHFV have been detected in a sample from an animal host epidemiologically linked to a confirmed or <u>suspected case</u>, or to a human infected with CCHFV, or giving cause for suspicion of previous association ~~or contact~~ with <u>or exposure to</u> CCHFV. 3) la detección de anticuerpos específicos del virus de la fiebre hemorrágica de Crimea–Congo en una muestra procedente de un animal hospedador que esté relacionado epidemiológicamente con un caso confirmado o <u>sospechoso presunto</u>, o con un ser humano infectado por el virus de la fiebre hemorrágica de Crimea–Congo, o que haya dado motivo para sospechar una asociación o una	Agreed [Spanish version only] Agreed to replace this term in the 2026 edition of the <i>Terrestrial Code</i>.

	<u>exposición</u> ~~contacto~~ <u>previos</u> al virus de la fiebre hemorrágica de Crimea–Congo. Justificación: OMSA tiene en su plan de trabajo, la incorporación en el Glosario, de una definición para “caso sospechoso (<i>suspected case</i>)”. En consecuencia, se propone usar este término en vez de presunto. A su vez, se sugiere que la Comisión del Código Terrestre proponga el reemplazo de la palabra “presunto” por “sospechoso” en todos los capítulos.	

- 3) antibodies specific to CCHFV have been detected in a sample from an animal host epidemiologically linked to a confirmed or suspected case, or to a human infected with CCHFV, or giving cause for suspicion of previous association ~~or contact~~ with or exposure to CCHFV.

Standards for diagnosis and information on the epidemiology are described in the *Terrestrial Manual*.

Reference	Comment	TAHSC response
10.X._1_ Korea (Rep. of)	Category: general The Republic of Korea agrees with the TAHSC's response regarding the definition of "seroconversion" in point 3 and its review of Member Countries' comments in point 4.	Noted.
10.X._2_EU	Category: general The EU supports this draft chapter and thanks the Code Commission for considering the previous EU comments.	Noted.

CHAPTER 10.X.

INFECTION WITH AVIAN METAPNEUMOVIRUS (TURKEY RHINOTRACHEITIS AND SWOLLEN HEAD SYNDROME OF CHICKENS)

Article 10.X.1.

General provisions

For the purposes of the *Terrestrial Code*, *infection* with avian metapneumovirus is defined as an *infection* of *poultry* with avian metapneumovirus.

The following defines the occurrence of *infection* with avian metapneumovirus:

- 1) Avian metapneumovirus, excluding vaccine strains, has been isolated and identified as such in a sample from *poultry*; or
- 2) nucleic acid specific to avian metapneumovirus, which is not the consequence of *vaccination*, has been detected in a sample from *poultry showing clinical signs or pathological lesions consistent with infection with avian metapneumovirus or is epidemiologically linked to a confirmed or suspected case*; or

10.X.1._1_ Chile	Category: editorial and general Texto modificado propuesto (o supresión sugerida): 2) la detección de ácido nucleico específico del metapneumovirus aviar que no sea consecuencia de la <i>vacunación</i> en una muestra procedente de <i>aves de corral que hayan manifestado signos clínicos o lesiones patológicas compatibles con la infección por metapneumovirus aviar o que estén epidemiológicamente relacionadas con un caso confirmado o sospechoso presunto</i> ; o 4) la detección de anticuerpos específicos del metapneumovirus aviar que no sean consecuencia de la <i>vacunación</i> , en una muestra procedente de <i>aves de corral que hayan manifestado signos clínicos o lesiones patológicas compatibles con la infección por metapneumovirus aviar o que estén relacionadas epidemiológicamente con un caso confirmado o sospechoso presunto</i> .	Agreed. This is a translation issue that will be addressed throughout the 2026 Spanish version of the TAHC.

	Justificación: OMSA tiene en su plan de trabajo, la incorporación en el Glosario, de una definición para “caso sospechoso (<i>suspected case</i>)”. En consecuencia, se propone usar este término en vez de presunto. A su vez, se sugiere que la Comisión del Código Terrestre proponga el reemplazo de la palabra “presunto” por “sospechoso” en todos los capítulos.	
10.X.1._2_ UK	Category: general. Proposed amended text: 2) nucleic acid specific to avian metapneumovirus, which is not the consequence of <i>vaccination</i>, has been detected in a sample from <i>poultry showing clinical signs or pathological lesions consistent with infection with avian metapneumovirus or is epidemiologically linked to a confirmed or suspected case</i>; or Rationale: We recommend that WOAHA expand on the scientific basis for point 2, which links nucleic acid detection to clinical signs or pathological lesions. While molecular detection is highly sensitive, it can identify subclinical infections which may not indicate active disease. Clear guidance on why clinical correlation is required would help ensure consistent interpretation and avoid misclassification of cases. Additionally, we note that point 3 (seroconversion) does not require association with clinical signs. Clarification on those two points would be helpful to ensure harmonised interpretation of case definitions for this disease.	Did not agree. Nucleic acid detection alone is not specific enough to define a case as highly sensitive molecular methods may detect subclinical, transient or epidemiologically insignificant infections and therefore require supporting clinical, pathological or epidemiological evidence. Seroconversion (glossary definition of ‘seroconversion’ is being circulated for comment and adoption) does not require association with clinical signs because paired serological samples taken at appropriate time intervals where there is a change from seronegative to seropositive or showing a four-fold or more rise in antibody titre indicates active infection.

- 3) seroconversion specific to avian metapneumovirus, which is not the consequence of vaccination, has been detected in *poultry*; or
- 4) antibodies specific to avian metapneumovirus, which are not the consequence of *vaccination*, have been detected in a sample from *poultry* showing clinical signs or pathological lesions consistent with *infection* with avian metapneumovirus, or epidemiologically linked to a confirmed or suspected case.

Standards for diagnosis and vaccines, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Reference	Comment	TAHSC response
11.9._1_ Korea (Rep. of)	Category: general The Republic of Korea agrees overall with the proposed revision, which updates the definition of infection with LSDV and animal hosts, including unusual hosts, and highlights the importance of import risk analysis for commodities imported into or moved into an LSD-free country or zone.	Noted
11.9._2_EU	Category: general The EU in general supports this revised chapter provided the comments below are addressed. As a general comment it is suggested to fully take on board the new approach proposed in Article 1 by reviewing throughout the draft Chapter where the individual animal species names should be replaced by with 'animal hosts'. In addition, it is suggested to submit the draft chapter to an expert consultation to assess the duration of the risk mitigating measures provided in this draft chapter in the specific framework of LSD. Specific comments are provided below.	Noted

CHAPTER 11.9.

INFECTION WITH LUMPY SKIN DISEASE VIRUS

Article 11.9.1.

General provisions

Lumpy skin disease (~~LSD~~) virus (LSDV), belonging to the genus *Capripoxvirus*, ~~may infect susceptible animals~~ are bovines (~~*Bos indicus* and *B. taurus*~~) and water buffaloes (~~*Bubalus bubalis*~~) and certain *wild* ruminants, ~~which do not play a significant epidemiological role.~~

11.9.1._1_ New Zealand	Category: editorial Proposed amended text: Lumpy skin disease (~~LSD~~) virus (LSDV), belonging to the genus <i>Capripoxvirus</i> , ~~may infect susceptible animals~~ are bovines (~~<i>Bos indicus</i> and <i>B. taurus</i>~~) and water buffaloes (~~<i>Bubalus bubalis</i>~~) and certain <i>wild</i> ruminants, ~~which~~ <u>wild ruminants do not play a significant epidemiological role.</u> Rationale: Clarity	Agreed
11.9.1._2_ USA	Comment Category: Deletion Proposed amended text: ...and certain <i>wild</i> ruminants, ~~which do not play a significant epidemiological role.~~ Rationale: The epidemiological significance of wild ruminants remains unclear. As LSDV continues to expand into new regions new species (Porco et al, 2023, Sudhakar 2024) have been reported as affected however	Did not agree, wild ruminants receive spillover infections from domestic.

	their role in spread does not seem to be well understood. Additionally, it is known that multiple species in sub-Saharan Africa have evidence of current or past infection and the role of the springbok as a reservoir is unknown (van Schalkwyk, 2024). Supporting evidence: Porco A, <i>et al.</i> (2023) Case report: Lumpy skin disease in an endangered wild banteng (<i>Bos javanicus</i>) and initiation of a vaccination campaign in domestic livestock in Cambodia. <i>Front. Vet. Sci.</i> 10:1228505. doi: 10.3389/fvets.2023.1228505. Ul-Rahman, A., <i>et al.</i> The expanding host range of lumpy skin disease virus in wild and domestic animals. <i>Trop Anim Health Prod</i> 56, 269 (2024). https://doi.org/10.1007/s11250-024-04154-0 van Schalkwyk A, <i>et al.</i> Detection and Genome Sequencing of Lumpy Skin Disease Viruses in Wildlife Game Species in South Africa. <i>Viruses</i>. 2024 Jan 24;16(2):172. doi: 10.3390/v16020172. PMID: 38399948; PMCID: PMC10892850.	
11.9.1._3_ EU	Category: change Proposed amended text: "[...] and certain wild ruminants, which although these wild animals do not play a significant epidemiological role". Rationale: Clarify the sentence	Agreed, text was amended differently.

For the purposes of the *Terrestrial Code*, lumpy skin disease (LSD) is defined as an *infection* of bovines, hereafter 'animal hosts' and water buffaloes with lumpy skin disease virus (LSDV).

The following defines the occurrence of *infection* with LSDV:

- 1) LSDV has been isolated from a sample from an animal host ~~bovine or a water buffalo~~; or
- 2) antigen specific to capripoxviruses or nucleic acid specific to LSDV, excluding vaccine strains, has been identified in a sample from ~~a bovine or a water buffalo~~ an animal host showing clinical signs consistent with LSD, or epidemiologically linked to a suspected or confirmed case, or giving cause for suspicion of previous association ~~or with or exposure to contact with~~ LSDV; or
- 3) antibodies specific to ~~LSDV capripoxviruses~~ which are not the consequence of vaccination have been detected in a sample from ~~a bovine or a water buffalo~~ an animal host ~~buffalo~~ that either shows clinical signs consistent with LSD, or is epidemiologically linked to a suspected or confirmed case.

11.9.1._4_ USA	Comment Category: Addition Proposed amended text: 3. antibodies specific to ~~LSDV capripoxviruses~~ <u>which are not the consequence of vaccination</u> have been detected in a sample from ~~a bovine or a water buffalo~~ <u>an animal host</u> ~~buffalo~~ that either shows clinical signs consistent with LSD, or is epidemiologically linked to a suspected or confirmed case. Rationale: Vaccination should be ruled out as a cause of capripoxvirus antibodies prior to case confirmation. A similar notation has been proposed in the related sheeppox/goatpox case definition.	Agreed

For the purposes of the *Terrestrial Code*, the *incubation period* for LSD shall be 28 days. Standards for diagnostic tests, ~~and vaccines and information on epidemiology~~ are described in the *Terrestrial Manual*.

11.9.1._5_ EU	Category: editorial Proposed amended text: "For the purposes of the Terrestrial Code, the incubation period for LSD shall be 28 days. Standards for diagnosis and vaccines, as well as information on the epidemiology, diagnostic tests, and vaccines and ~~information on epidemiology~~ are described in the Terrestrial Manual". Rationale: Clarify the sentence and aligns wording with other recent Code chapters.	Agreed

Article 11.9.2.

Safe commodities

When authorising import or transit of the following *commodities*, *Veterinary Authorities* should not require any LSD-related conditions regardless of the status of the animal population of the *exporting country*:

- 1) skeletal muscle *meat* of animals slaughtered in an approved *slaughterhouse/abattoir* and subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results;

11.9.2._1_ Japan	Category: Deletion Proposed amended text: 1) skeletal muscle <i>meat</i> of animals slaughtered in an approved slaughterhouse/abattoir and subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results; Rationale: According to the <i>Glossary</i> , <i>slaughterhouse/abattoir</i> means premises, including facilities for moving or lairaging <i>animals</i> , used for the <i>slaughter</i> of <i>animals</i> to produce <i>animal</i> products and approved by the <i>Veterinary Services</i> or other <i>Competent Authority</i> .	Agreed

- 2) *casings*;
- 3) gelatine and collagen;
- 4) tallow;

11.9.2._2_ WRO	Category: Editorial Proposed amended text: 4) ~~tallow~~ rendered fat. Rationale: The term tallow refers specifically to rendered fat derived from ruminant tissues, while the global rendering industry produces several types of rendered fats with identical sanitary status obtained from multiple species and raw materials. It is common for commercially traded grease or animal oil products to contain ruminant-derived fat only as a minor component, which makes the use of a species-specific name technically inappropriate. Using a species-specific commercial term narrows the scope of the provision and may lead to inconsistencies when interpreting and applying safe-commodity rules across different contexts.	Agreed

	Adopting the general term rendered fat ensures consistency with the terminology already used in other WOAHA disease chapters, where rendered fat is treated as a commodity category independent of species. This approach promotes harmonisation across the Code, prevents misinterpretation by Members and reflects the terminology used in international trade and in the WRO technical report submitted to the TAHS. Supporting evidence: The WRO Scientific Advisory Panel report identifies rendered fat as one of the four principal rendered commodities globally produced and traded, independent of the animal species of origin. The report consistently uses rendered fat as the general commodity term and does not restrict definitions to species-specific names such as tallow. Other WOAHA chapters that address transboundary animal diseases, including BSE-related provisions, already refer to rendered fat using the general term rather than tallow. This demonstrates an established internal standard for species-neutral terminology within the Code. Rendered fats of different species origin undergo the same validated thermal processing steps described in the WRO report, which include sustained exposure to temperatures exceeding the inactivation parameters for PPR virus. This confirms that the sanitary safety of rendered fats does not depend on the species of origin, further supporting the use of a general commodity name. For these reasons, replacing tallow with the broader term rendered fat improves clarity, reflects established WOAHA terminology, and aligns the PPR chapter with the structure used in other disease chapters.	

5) processed hooves and horns;

11.9.2._3_ Australia	Category: Change General Comment: Suggest that greater clarity is needed around what “processed” hooves and horns includes.	Proposed to delete ‘processed’. Considered that by definition these commodities would have been cleaned so that there is no residual skins or tissue.

6) extruded dry pet food;

11.9.2._4_ Japan	Category: Clarification Rationale: According to report of the Code Commission’s September 2025 meeting, extruded dry pet food was included in Article 14.9.2. given that the pressure and heat treatment would inactivate capripoxviruses. Temperature and time combinations in the production process may vary for each extruded dry pet food. Japan would like to ask for more detailed information on the rationale for the inclusion of extruded dry pet food in Article 14.9.2. (e.g., whether industrial processing activities are standardised and known to inactivate the lumpy skin disease virus).	Noted that the production of ‘extruded dry pet food’ follows a standardised process involving a minimum of 80°C throughout the kibble and 70°C min 30 min for coating ingredients.

7) protein meal.

11.9.2._5_ China (People's Rep. of)	Category: deletion Proposed amended text : 7) protein meal. Rationale : Protein meal may present varying safety profiles due to differences in raw materials (e.g., whey, blood, minced meat) and processing objectives, which lead to significant variations in its parameters (e.g., temperature, pH, and processing time). Whether protein meal qualifies as a safe commodity depends on its specific processing methods. Therefore, it is recommended that protein meal not be categorized as a safe commodity. supporting evidence: not relevant	Referred to Glossary definition for 'protein meal' which means any final or intermediate solid protein-containing product, obtained when animal tissues are rendered, excluding peptides of a molecular mass less than 10,000 daltons and amino-acids.
11.9.2._6_ Australia	Category: Change Proposed amended text: 8) pasteurised dairy products Rationale: Research has shown that pasteurisation is able to inactivate LSD virus in milk (Riddell et al 2023). References: Riddell, Shane; Goldie, Sarah; Hill, Andrew. Dairy Australia Report – Lumpy Skin Disease transmission studies in milk. Dairy Australia website: CSIRO; 2023. csiro:EP2024-1603. https://doi.org/10.25919/c38k-pq42	Agreed
11.9.2._7_ New Caledonia	Category: deletion Proposed amended text: 7) farines protéiques. 7) protein meal. Rationale: L'ajout au 7) de l'article Article 11.9.2. des "farines protéiques" en tant que marchandise dénuée de risque est contradictoire avec l'article 11.9.12 qui précise les recommandations relatives à l'importation de farines de sang, de farines de viandes ou de farines d'os, autres que les produits définis à l'article 11.9.2. issus de bovins. En effet, les farines de viande sont des farines protéiques qui sont donc, selon le 11.9.2., dénuées de risque. Il est proposé de supprimer le 7) :	Did not agree, modified Article 11.9.12.

Article 11.9.3.

Country or zone free from LSD

A country or a *zone* may be considered free from LSD when *infection* with LSDV is notifiable in the entire country, importation of bovines and water buffaloes and their *commodities* is carried out in accordance with this chapter, and either:

11.9.3._1_ China (People's Rep. of)	Category: change Proposed amended text : A country or a <i>zone</i> may be considered free from LSD when <i>infection</i> with LSDV is notifiable in the entire country, importation of bovines and water buffaloes and their <i>commodities</i> is carried out in accordance with this chapter, and ~~either~~ <u>when</u> :	Agreed

	Rationale : The recognition of a country or zone as free from Lumpy Skin Disease (LSD) shall compliance with both criteria 1) and 2), and either one of the sub-criteria under criterion 3): a) 、 b) or c) . To ensure the scientific rigor of the disease-free recognition process, the initial "and either" in the first paragraph should be amended to "when". supporting evidence: not relevant	
11.9.3._2_ New Zealand	Category: editorial Proposed amended text: A country or a zone may be considered free from LSD when <u>infection with LSDV is notifiable in the entire country, importation of bovines and water buffaloes and their commodities is carried out in accordance with this chapter, and either:</u> Rationale: Duplication of requirements.	Agreed
11.9.3._3_ EU	Category: deletion Proposed amended text: "A country or a zone may be considered free from LSD when infection with LSDV is notifiable <u>in the entire country</u>, importation of bovines and their commodities is carried out in accordance with this chapter, and either<u>.</u>". Rationale: Avoid duplication with the requirement in point 1) below.	Addressed with proposed change

1) LSD has been a *notifiable disease* in the entire country:

11.9.3._4_ Japan	Category: Deletion Proposed amended text: <u>1) ~~LSD has been a notifiable disease in the entire country;~~</u> Rationale: The first paragraph states that 'A country or a zone may be considered free from LSD when <u>infection with LSDV is notifiable in the entire country, ...</u>'.	Agreed
11.9.3._5_ Canada	Comment Category: Deletion Proposed amended text <u>1) ~~LSD has been a notifiable disease in the entire country;~~</u> Rationale Duplication as this is already include in the first paragraph of <u>this article.</u>	Agreed

2) appropriate *biosecurity and sanitary measures* to prevent the introduction of *infection* have been in place; in particular, the importations or movements of relevant *commodities* into the country or *zone* have been carried out in accordance with this chapter or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis':

11.9.3._6_ New Zealand	Category: editorial Proposed amended text: <u>appropriate <i>biosecurity and sanitary measures</i> to prevent the introduction of <i>infection</i> have been in place; in particular, the importations or movements of relevant <i>commodities</i> into the country</u>	Did not agree as it mentions 'in particular'

	<u>or zone have been carried out in accordance with this chapter or other relevant chapters of the <i>Terrestrial Code</i>, including Chapter 2.1. 'Import risk analysis';</u> Rationale: Inclusion of 'appropriate' is subjective and unnecessary, and not consistent with other similar text currently adopted.	

3) and either:

- a) the country or *zone* is historically free as described in Article 1.4.6.; or

11.9.3._7_ EU	Category: addition Proposed amended text: "the country or zone is historically free as described in point 2 b) of Article 1.4.6.; or". Rationale: Provide precision as Article 1.4.6. has a broader scope.	Agreed

- b) for at least three years, *vaccination* has been prohibited in the country or *zone* and a clinical *surveillance* programme in accordance with Article 11.9.15. has demonstrated no occurrence of *infection* with LSDV; or
- c) for at least two years, *vaccination* has been prohibited in the country or *zone* and a clinical, virological and serological *surveillance* programme in accordance with Article 11.9.15. has demonstrated no occurrence of *infection* with LSDV.

A country or *zone* free from LSD that is adjacent to an infected country or *zone* should include a *zone* in which *surveillance* is conducted in accordance with Article 11.9.15.

~~A country or zone free from LSD will not lose its status as a result of introduction of seropositive or vaccinated bovines or water buffaloes or their commodities, provided they were introduced in accordance with this chapter.~~

11.9.3._8_ USA	Comment Category: Change Proposed amended text: A country or zone free from LSD will not lose its status as a result of introduction of seropositive or vaccinated bovines or water buffaloes or their commodities, provided they were introduced in accordance with this chapter. Rationale: Propose to keep this deleted statement in the LSD chapter. We feel the statement should remain in case a country imports an animal that may have been vaccinated for LSD (thus seropositive) and moved several times before import to a third country. This can be particularly problematic when zoological ruminants are moved between collections in different countries. The detection of a serological non-negative imported animal may not indicate presence of LSD in the importing region and should not threaten a country's LSD-free status. We do not feel that the newly proposed point 2 in this article adequately addresses this concern.	Did not agree as did not consider this necessary and not a good general practice. Conditions of freedom are clarified in Article 11.9.3.
11.9.3._9_ EU	Category: general Request for clarification on the rationale for deleting this para above.	Refer to comment 11.9.3._8_USA

Article 11.9.4.

Recovery of free status

- 1) When a case of LSD occurs in a country or zone previously free from LSD, one of the following waiting periods is applicable to regain free status:

- a) when a *stamping-out policy* has been applied;
- i) 14 months after the cleaning and disinfection of the last infected establishment following the slaughter or killing of the last case, or after the last *vaccination* if emergency *vaccination* has been used, whichever occurred last, and during which period clinical, virological and serological *surveillance* conducted in accordance with Article 11.9.15. has demonstrated no occurrence of *infection* with LSDV;

11.9.4._1_ EU	Category: change Proposed amended text: It is proposed to change from 14 months to 8 months in the para above. Rationale: In terms of disease control measures, the EU has noted by its experience and via scientific risk assessment that the stamping-out of the entire epidemiological unit is required for effectively control and eradicate this disease. It is recommended this Article be revised in view of having an 8 months timeframe as recovery period. This request is due to the fact that we need to consider in the assessment the recovery period (which refers to the animal health status of the animal population) and the epidemiological characteristics of the LSD virus.	Did not agree, but proposed to reduce to 12 months to cover a whole vector season

- ii) 26 months after the cleaning and disinfection of the last infected establishment following the slaughter or killing of the last case, or after the last *vaccination* if emergency *vaccination* has been used, whichever occurred last, and during which period clinical *surveillance* alone conducted in accordance with Article 11.9.15. has demonstrated no occurrence of *infection* with LSDV;

- b) when a *stamping-out policy* is not applied, Article ~~11~~9.3. applies.

- 2) When preventive *vaccination* is conducted in a country or zone free from LSD, in response to a threat but without the occurrence of a case of LSD, free status may be regained eight months after the last vaccination when clinical, virological and serological *surveillance* conducted in accordance with Article 11.9.15. has demonstrated no occurrence of *infection* with LSDV.

11.9.4._2_ New Zealand	Category: addition Proposed amended text: <u>3. A country or zone free from LSD that is adjacent to an infected country or zone should include a zone in which surveillance is conducted in accordance with Article 11.9.15.</u> Rationale: The addition of point 3 is proposed to account for neighbouring countries which are not free and vector spread over the border, and aligns with Article 11.9.3.	Did not agree

11.9.4._3_ New Zealand	Category: addition Proposed amended text: Consider adding clarity that maintenance of freedom requires meeting Article 1.4.6. point 4, with a requirement of on-going active surveillance adapted to the detection of infection in the absence of clinical signs conducted in the remaining vaccinated animals. Rationale: i) Consistency and harmonisation of the Code. ii) Vaccinated animals may not demonstrate clinical infection able to be detected by a country's general surveillance system.	Did not agree as this article is on recovery not maintenance of freedom which is in Article 11.9.3.

Article 11.9.5.

Recommendations for importation of bovines from countries or zones free from LSD

For bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical sign of LSD on the day of shipment;
- 2) come from a country or zone free from LSD.

11.9.5._1_ EU	Category: general Proposed amended text: It is proposed to add a residency period which takes into account the incubation period of the disease. Rationale: Adding a residence requirement, could prevent import of animals recently moved into a free zone in the incubation period.	Did not agree as did not consider this necessary. One of the requirements for free status is the need to comply with articles on trade of commodities

Article 11.9.6.

Recommendations for importation of bovines from countries or zones ~~not free from~~ infected with LSDV

For bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical sign of LSD on the day of shipment;
- 2) were kept since birth, or for the past 60 days prior to shipment, in an *epidemiological unit* where no case of LSD occurred during that period;
- 3) were vaccinated against LSD according to manufacturer's instructions between 60 days and one year prior to shipment;

11.9.6._1_ New Zealand	Category: editorial and addition Proposed amended text: 3) <u>either</u>, <u>a)</u> were vaccinated against LSD according to manufacturer's instructions between 60 days and one year prior to shipment; <u>or</u> 4) ~~were demonstrated to have antibodies at least 30 days after vaccination;~~ 54) ~~b)~~ were kept in a ~~quarantine station~~ <u>quarantine centre</u> for the 28 days prior to shipment during which time they were subjected to an agent identification test with negative results; Rationale: The placement of 'either' and 'or' is appropriate for the risk management of LSD and aligns it with the requirements of the sheep and goat pox chapter. Format change to provide clarity of which requirements have options, and aligns the text with the format proposed in Japanese encephalitis chapter.	Agreed

4) ~~were demonstrated to have antibodies at least 30 days after vaccination;~~

11.9.6._2_ China (People's Rep. of)	Category: change Proposed amended text : 4) ~~were demonstrated to have antibodies at least 30 days after vaccination;~~ <u>were demonstrated to have antibodies at least 30 days after vaccination;</u> Rationale : Demonstrate the presence of Lumpy Skin Disease antibodies for at least 30 days post-vaccination serves as a critical measure to ensure vaccine efficacy. For different breeds of cattle, the positive rate of serum antibodies after immunization with nodular virus vaccine varies greatly, ranging from 33.3% to 73.3%; After immunization with the goat pox vaccine, the antibody positivity rate can reach 96%. Therefore, it is not recommended to deletion. supporting evidence: Bok, E.-Y., Jung, M., Kim, U.-H., Lee, H.G., Do, Y.J., Son, Y.-B., Choi, Y. and Ha, S. (2025) 'Breed-specific humoral immune responses to lumpy skin disease vaccination and its associated factors in cattle', Veterinary Immunology and Immunopathology, 287, art. no. 110983. Bayyappa, M.R.G., Pabbineedi, S.M., Nagaraj, S., Bijalwan, S., Tadakod, S., Uma, C.R., Pawar, S., Khan, P.Y., Teotia, V.K. and Gulati, B.R. (2025) 'Spatiotemporal Epidemiology of Lumpy Skin Disease and Evaluation of the Heterologous Goatpox Vaccine: Insights into Immunogenicity and Impact', <i>Vaccines</i>, 13, art. no. 641.	Did not agree. Not all vaccinated animals display an immune response and this does not imply ineffective vaccination.

54) were kept in a ~~quarantine station~~ quarantine centre for the 28 days prior to shipment during which time they were subjected to an agent identification test with negative results.

11.9.6._3_ New Zealand	Category: editorial and addition Proposed amended text: 4) <u>either</u> a) <u>_____ did not transit through another infected country or zone during transportation to the place of shipment; or</u> b) <u>_____ were protected from biting insects at all times when transiting through another infected country or zone.</u> Rationale: Propose the addition of point 4, as transmission by vectors is recognised by this chapter. Alternatively, a generic requirement for countries to manage exposure to vectors, where they have WOA-listed vector borne disease relevant to the transiting species, could be included in the horizontal transit chapter (Chapter 5.5) currently under revision.	Agree with the addition of point b) with further text modifications
11.9.6._4_ EU	Category: general Proposed amended text: There are concerns linked with the risk mitigating measures provided in this article, in particular the 60-day period does not appear to be scientifically justified. The 28-day period covers the incubation period or the time required for vaccinated animals to acquire immunity. Therefore the EU would suggest for an expert consultation to assess the duration of the risk mitigating measures provided above in the specific framework of LSD.	Agreed, proposed to change this to 30 days

Article 11.9.7.

Recommendations for importation of semen of bovines from countries or zones free from LSD

For semen of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor animals:
 - a) showed no clinical sign of LSD on the day of collection;
 - b) were kept in a free country or *zone* for at least 28 days prior to collection;
- 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

11.9.7._1_ New Zealand	Category: addition Proposed amended text: <u>if the country or zone free from LSD is adjacent to an infected country or zone the semen should not be from the adjacent zone in which surveillance is conducted in accordance with Article 11.9.15.</u> Rationale: Vectors could still infect animals inside the time window specified in this section and no clinical signs would be apparent as the incubation period is 28 days.	Did not agree as it is too stringent and "the adjacent zone" is not defined.

Article 11.9.8.

Recommendations for importation of semen of bovines from countries or zones ~~not free~~ infected with from LSDV

11.9.8._1_ UK	Category: Editorial. Proposed amended text: Recommendations for importation <u>of semen of bovines</u> from countries or zones ~~not free~~ <u>with animals infected with from LSDV</u> Rationale: We think the title is grammatically incorrect and conceptually misleading. A country or zone cannot be "infected"; animals are infected.	Did not agree as this is a convention that is used throughout the disease-specific chapters

For semen of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 4) 1) the donor males:
- a) showed no clinical sign of LSD on the day of collection and the following 28 days;
 - b) were kept for the 60 days prior to collection in a *semen collection centre* where no case of LSD occurred during that period;

11.9.8._2_ EU	Category: general Proposed amended text: Same comment as above, the EU would suggest for an expert consultation to assess the duration of the risk mitigating measures in the specific framework of LSD.	Noted and adjusted 60 days to 30 days.

c) EITHER:

- i) were vaccinated regularly against LSD according to manufacturer's instructions, the first *vaccination* being administrated at least 60 days prior to the first semen collection; ~~and/or~~

11.9.8._3_ EU	Category: general Proposed amended text: Same comment as above, the EU would suggest for an expert consultation to assess the duration of the risk mitigating measures in the specific framework of LSD.	Noted

- ii) ~~were demonstrated to have antibodies against LSDV at least 30 days after vaccination;~~

11.9.8._4_	Category: change	Did not agree. Refer to comment

China (People's Rep. of)	Proposed amended text : ii) ~~were demonstrated to have antibodies against LSDV at least 30 days after vaccination;~~ <u>ii) were demonstrated to have antibodies against LSDV at least 30 days after vaccination;</u> OR Rationale : LSDV can be transmitted via semen, as both clinically and sub-clinically infected bulls can shed the virus in their semen and may continue viral shedding for along period (up to 42 days after infection as reported by Irons et al., 2005). Conducting PCR tests on semen are essential measures to ensure the safety of semen. The sub-point ii under Criterion 1(c) could demonstrate the presence of Lumpy Skin Disease antibodies for at least 30 days post-vaccination that serves as a critical measure to ensure vaccine efficacy. Therefor, it is not recommended to deletion. supporting evidence: Irons, P.C., Tuppurainen, E.S.M. and Venter, E.H. (2005) 'Excretion of lumpy skin disease virus in bull semen', <i>Theriogenology</i>, 63(5), pp. 1290–1297. Annandale, C.H., Holm, D.E., Ebersohn, K. and Venter, E.H. (2014) 'Seminal Transmission of Lumpy Skin Disease Virus in Heifers', <i>Transboundary and Emerging Diseases</i>, 61, pp. 443–448. Annandale, C.H., Smuts, M.P., Ebersohn, K., du Plessis, L., Venter, E.H. and Stout, T.A.E. (2018) 'Effect of semen processing methods on lumpy skin disease virus status in cryopreserved bull semen', <i>Animal Reproduction Science</i>, 195, pp. 24–29. Annandale, C.H., Smuts, M.P., Ebersohn, K., du Plessis, L., Thompson, P.N., Venter, E.H. and Stout, T.A.E. (2019) 'Effect of using frozen–thawed bovine semen contaminated with lumpy skin disease virus on in vitro embryo production', <i>Transboundary and Emerging Diseases</i>, 66, pp. 1539–1547.	11.9.6._2_China (People's Rep. of)

OR

- iii) ~~ii)~~ were subjected to a serological test to detect antibodies specific to capripoxviruses~~LSDV~~, with negative results, at least every 28 days throughout the collection period and one test 21 days after the final collection for this consignment; ~~and or~~
- iv) ~~iii)~~ were subjected to agent detection by PCR conducted on blood samples collected at commencement and conclusion of, and at least every 28 days during, semen collection for this consignment, with negative results;

11.9.8._5_ EU	Category: change Proposed amended text: It is proposed to having points ii) and iii) both required. They should not be alternative options. Rationale: Given that, for LSD, negative results from a blood PCR test cannot reliably confirm the absence of infection (considering that the viraemia is very short), monitoring male donors through both	Did not agree, consider that it is sufficient if tested at the start and at least every 28 days

	methods appears a requirement.	

2) ~~the semen to be exported was subjected to agent detection by PCR;~~

11.9.8. 6_ China (People's Rep. of)	Category: change Proposed amended text : ~~2) the semen to be exported was subjected to agent detection by PCR;~~ <u>2) the semen to be exported was subjected to agent detection by PCR;</u> Rationale : LSDV can be transmitted via semen, as both clinically and sub-clinically infected bulls can shed the virus in their semen and may continue viral shedding for along period (up to 42 days after infection as reported by Irons et al., 2005). Conducting PCR tests on semen are essential measures to ensure the safety of semen. The sub-point ii under Criterion 1(c) could demonstrate the presence of Lumpy Skin Disease antibodies for at least 30 days post-vaccination that serves as a critical measure to ensure vaccine efficacy. Therefor, it is not recommended to deletion. supporting evidence: Irons, P.C., Tuppurainen, E.S.M. and Venter, E.H. (2005) 'Excretion of lumpy skin disease virus in bull semen', <i>Theriogenology</i>, 63(5), pp. 1290–1297. Annandale, C.H., Holm, D.E., Ebersohn, K. and Venter, E.H. (2014) 'Seminal Transmission of Lumpy Skin Disease Virus in Heifers', <i>Transboundary and Emerging Diseases</i>, 61, pp. 443–448. Annandale, C.H., Smuts, M.P., Ebersohn, K., du Plessis, L., Venter, E.H. and Stout, T.A.E. (2018) 'Effect of semen processing methods on lumpy skin disease virus status in cryopreserved bull semen', <i>Animal Reproduction Science</i>, 195, pp. 24–29. Annandale, C.H., Smuts, M.P., Ebersohn, K., du Plessis, L., Thompson, P.N., Venter, E.H. and Stout, T.A.E. (2019) 'Effect of using frozen–thawed bovine semen contaminated with lumpy skin disease virus on in vitro embryo production', <i>Transboundary and Emerging Diseases</i>, 66, pp. 1539–1547.	Did not agree, sufficient to test donor animals and considering these animals have been in the SCC for the preceding 30 days

3) 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 11.9.9.

Recommendations for importation of embryos of bovines from countries or zones free from LSD

11.9.9._1_ New Zealand	Category: editorial Proposed amended text: Recommendations for importation <u>of embryos of bovines</u> <u>bovine embryos</u> from countries or zones free from LSD Rationale: Clarity and readability	Agreed

For embryos of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor females:
 - a) showed no clinical sign of LSD on the day of collection of the embryos;
 - b) kept for at least 28 days prior to collection in a free country or *zone*;
- 2) the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10., as relevant;

11.9.9._2_ New Zealand	Category: deletion Proposed amended text: the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10., ~~as relevant~~ ; Rationale: Unnecessary text and creates ambiguity.	Did not agree as not all procedures in all these chapters may be required

- 3) the semen used for the production of the embryos complied with Articles 11.9.7. and 11.9.8., as relevant.

11.9.9._3_ New Zealand	Category: deletion Proposed amended text: the semen used for the production of the embryos complied with Articles 11.9.7. and 11.9.8., ~~as relevant~~ . Rationale: Unnecessary text and creates ambiguity.	As above
11.9.9._4_ New Zealand	Category: addition Proposed amended text: <u>4. if the country or zone free from LSD is adjacent to an infected country or zone the semen should not be from the adjacent zone in which surveillance is conducted in accordance with Article 11.9.15.</u> Rationale: Vectors could still infect animals inside the time window specified in this section and no clinical signs would be apparent as the incubation period is 28 days.	Did not agree (covered in Article 11.9.3.)

Article 11.9.10.

Recommendations for importation of embryos of bovines from countries or zones ~~not free~~ infected with

from LSDV

For embryos of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor females:
 - a) showed no clinical sign of LSD on the day of collection and the following 28 days;
 - b) were kept in an *establishment* where no case of LSD occurred during the 60 days prior to collection;

11.9.10._1 _EU	Category: general Proposed amended text: Same comment as above, the EU would suggest for an expert consultation to assess the duration of the risk mitigating measures in the specific framework of LSD.	As above

c) EITHER:

- i) were vaccinated regularly against LSD according to manufacturer's instructions, the first *vaccination* being administrated at least 60 days prior to the first collection; and/or

11.9.10._2 _EU	Category: general Proposed amended text: Same comment as above, the EU would suggest for an expert consultation to assess the duration of the risk mitigating measures in the specific framework of LSD.	As above

- ii) ~~were demonstrated to have antibodies against LSDV at least 30 days after vaccination; OR~~
- iii) were subjected to a serological test to detect antibodies ~~specific to capripoxviruses~~ LSDV, with ~~negative~~ results, on the day of collection and at least 21 days after collection;

11.9.10._3 _Australia	Category: addition Proposed amended text: iii) were subjected to a serological test to detect antibodies ~~specific to capripoxviruses~~ LSDV, with ~~negative~~ <u>negative</u> results, on the day of collection and at least 21 days after collection; Rationale: If there is an error in the deletion of negative in iii), then it makes sense i.e. for a non-vaccinated animal. Alternatively, this could be for vaccinated or non-vaccinated animals with no rising titre. It is not clear to say "with results" without providing interpretation criteria for the two test results 21 days apart.	Agreed

11.9.10._4 _Japan	Category: Addition Proposed amended text: iii) were subjected to a serological test to detect antibodies <u>specific to capripoxviruses</u> ~~LSDV~~ , with ~~negative~~ results, on the day of collection and at least 21 days after collection; Rationale: In alignment with Article 11.9.8	Agreed
11.9.10._5 _USA	Comment Category: General Request clarification of point c) iii : were subjected to a serological test to detect antibodies <u>specific to capripoxviruses</u> ~~LSDV~~ , with ~~negative~~ results, on the day of collection and at least 21 days after collection; Rationale: Proposed deletion of the word “negative” renders this point unclear.	Agreed
11.9.10._6 _EU	Category: addition Proposed amended text: In point iii) above, it is suggested keeping “ <u>negative</u> ” to be clear that the test need to test negative for clarity reasons.	Agreed

d) ~~were subjected to agent detection by PCR with negative results on a blood sample on the day of collection;~~

- 2) the semen used for the production of the embryos complied with Articles 11.9.7. and 11.9.8., as relevant;
- 3) the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10.

Article 11.9.11.

11.9.11._1 _UK	Category: General. Proposed amended text: Article 11.9.11 Rationale: The new draft Article for recommendations on the importation of milk and milk products appears to permit trade in pasteurised milk regardless of the disease status of the country. UK would like to request clarification on the scientific evidence supporting this approach. We also note that this recommendation seems inconsistent with requirements in other chapters, where disease status remains a key consideration for similar commodities. Clarification would help ensure alignment and avoid conflicting interpretations across the Code.	Agreed, proposed text to clarify status of originating country or zone
11.9.11._2 _EU	Category: general A clarification is required on the health status of the exporting country or zone. Are these recommendations valid for infected countries? It would be more clear if this is specified in the Article and the title. Possible solution could be having two separate articles for free and non-free countries or zones.	As above

Recommendations for the importation of milk and milk products

11.9.11._3 _Singapore	Category: editorial Proposed amended text Article 11.9.11. Recommendations for the importation of milk and milk products of bovines Rationale: To align with the rest of the chapter.	Agreed

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the *milk* or the *milk products*:

- 1) ~~have been derived from animals in a country or zone free from LSD;~~

11.9.11._4 _New Zealand	Category: change Proposed amended text: 1) have been derived from animals in a country or zone free from LSD; OR 2) originated from animals kept in establishments that were not subjected to restrictions due to LSD; originate from establishments which at the time of milk collection were not infected or suspected of being infected with LSDV; and Rationale: i) Recognises no measures are required from countries or zones free from LSD. li) The current wording too ambiguous and does not provide sufficient assurance the establishment is free from infection e.g. an establishment may have infection, but restrictions have not been applied. The change is also more consistent with the FMD chapter.	Agreed and proposed text to clarify this

OR

- 2) ~~were subjected to pasteurisation or any combination of control measures with equivalent performance as described in the Codex Alimentarius Code of Hygienic Practice for Milk and Milk Products.~~

- 1) originated from animals kept in establishments that were not subjected to restrictions due to LSD;

11.9.11._5 _Australia	Category: addition Proposed amended text: 1) ~~originated from animals kept in establishments that were not subjected to restrictions due to LSD;~~ 2) <u>were subjected to one of the following treatments:</u> a) <u>pasteurisation;</u> b) <u>pH maintained at less than 6 for more than one hour;</u> c) <u>any combination of control measures with equivalent performance.</u> Rationale: It has been reported that LSD virus is susceptible to extremes of pH. Polson and Turner (1954) report that the virus is	Did not agree, see explanation in report.

	stable between pH 2 – 8. Australia is not aware of any evidence that demonstrates LSD virus inactivation at pH 6. Therefore, Australia suggests removing references to pH and combined control measures of equivalent performance as per the above. Australia does not consider establishment freedom from restrictions appropriate for a vector borne disease such as lumpy skin disease. However, recent research has shown that pasteurisation is able to inactivate LSD virus in milk (Riddell et al 2023). Australia instead proposes that pasteurised dairy products are included as a safe commodity for LSD as per the above. This article may then be removed. References: Polson A & Turner GS (1954). pH stability and purification of lumpy skin disease virus. Journal of General Microbiology 11:228-235 Riddell, Shane; Goldie, Sarah; Hill, Andrew. Dairy Australia Report – Lumpy Skin Disease transmission studies in milk. Dairy Australia website: CSIRO; 2023. csiro:EP2024-1603. https://doi.org/10.25919/c38k-pq42	

2) were subjected to one of the following treatments:

a) pasteurisation:

b) pH maintained at less than 6 for more than one hour:

11.9.11._6 _Canada	Category: deletion Proposed amended text: <u>pH maintained at less than 6 for more than one hour:</u> Rationale: We could not find evidence to support inclusion of item 2b) in the scientific literature: The Commission recommended in its September report to include an additional option of maintaining pH at less than 6 for more than an hour as this would significantly inactivate capripoxviruses, rendering a loss of infectivity and referred to Weiss, 1968 article (Report of the Meeting of WOAHS Terrestrial Animal Health Standards Commission). The Weiss article stated that "LSDV is remarkably stable between pH 6.6 and 8.6 and will show no significant reduction in titer after exposure for 5 days at 37°C within the pH range mentioned above". The change proposed is likely based on unpublished information by Weiss, and is not sufficient to substantiate inactivation at pH<6. Demonstration of stability within a certain pH range does not equate to inactivation outside of this range. Apart from the WOAHS Technical Disease Card for LSD and a few review articles citing the data from Weiss (1968), very limited data is available on the susceptibility of LSDv to physicochemical factors, especially pH. Polson and Turner (1954) showed that LSD virus infectivity remained relatively stable when it was subjected to wide variations in pH value. <u>The virus remained stable at pH values from 4.0 to 8.0 after 1h at 37°C and 14 days at 0-4°C.</u>	Agreed

	Ferreira, 1973 mentioned in its summary a loss of infectivity - measured by cytopathic effects in titrations and recorded as log 10 units- of 4.7 at pH 3 for 30 minutes and a total loss at 2 hours; a loss of 3.4 at pH 11 for 30 minutes and a total loss at 2 hours. References: Ferreira C, 1973. Effects of physical and chemical agents on sheep pox virus. <i>J Anais da Escola Superior de Medicina Veterinaria</i> 15 7–40. Polson A & Turner GS, 1954. pH Stability and Purification of Lumpy Skin Disease Virus. <i>J gen Microbiology</i> 11: 228-235. Weiss KE, 1968. Lumpy Skin Disease Virus. In: Hanshaw JB, Plowright W and Weiss KE (eds.), <i>Cytomegaloviruses. Rinderpest Virus. Lumpy Skin Disease Virus</i>. Berlin, Heidelberg: Springer Berlin Heidelberg. pp. 111-131.	

c) any combination of control measures with equivalent performance.

11.9.11._7 _EU	Category: change Proposed amended text: “c) ~~any combination of control measures with equivalent performance~~ <u>any equivalent treatment that has been demonstrated to inactivate LSDV in milk</u>”. Rationale: These 'equivalent treatments' are hard to interpret in practice. Scientific justification or demonstration of efficacy of an equivalent treatment would be needed.	Did not agree
11.9.11._8 _Japan	Category: Clarification Rationale: Japan would like to ask for clarification whether it is necessary to attest that both of conditions referred to in 1) and 2) in Article 11.9.11. are met.	No longer relevant with proposed amendments

Article 11.9.12.

11.9.12._1 _WRO	Category: Deletion Proposed amended text: ~~Article 11.9.12.~~ ~~Recommendations for importation of meal and flour from blood, meat, or bones except products listed in Article 11.9.2. from bovines~~ ~~Veterinary Authorities of importing countries should require the presentation of an international veterinary certificate attesting:~~ ~~1) that these products were derived from animals in a country or zone free from LSD; or~~ ~~2) that~~ ~~a) the products were processed using heat treatment to a minimum internal temperature of 65°C for at least 30 minutes;~~ ~~b) the necessary precautions were taken after processing to avoid contact of the commodities with any potential source of LSDV.~~	Did not agree to delete article, but agreed to remove meal and flour from blood from this article

	Rationale: Protein meals and rendered fats are already included as safe commodities in Article 11.9.2., which means they can be traded without any LSD-related conditions regardless of the animal health status of the exporting country. Because all products addressed in Article 11.9.12 fall within the commodity categories covered by Article 11.9.2, maintaining a separate article for their importation requirements is redundant and inconsistent with the safe-commodity structure of the chapter. Additionally, the term flour is not used in English to describe rendered protein products. While harina or farinha are commonly used in Spanish and Portuguese, the English term flour does not correspond to any commercial or technical designation used by the global rendering sector. Its presence in the chapter introduces unnecessary ambiguity and may lead to misinterpretation by Competent Authorities. Given that Article 11.9.2 already provides sufficient guidance and correctly reflects the sanitary safety of these commodities, the deletion of Article 11.9.12 improves clarity, avoids terminology conflicts and ensures internal consistency within the chapter. Supporting evidence: The WRO Scientific Advisory Panel report details the validated time and temperature combinations routinely applied in the production of protein meals and rendered fats. These include: • 80°C for 30 minutes • 90°C for 10 minutes • 100°C for 1 minute • 110°C for 1 second All of these exceed, by a large margin, the processing parameters listed in Article 11.9.12 (65°C for 30 minutes). This demonstrates that the manufacturing conditions of protein meals and rendered fats, regardless of the raw material source (blood, meat or bones), inherently achieve thermal inactivation levels far above those required for LSD virus. The report also shows that these commodities are produced only after controlled thermal processing under defined critical control points within HACCP systems, ensuring effective pathogen elimination. These characteristics justify their inclusion as safe commodities in Article 11.9.2 and confirm that an additional article regulating their import is unnecessary. Because the thermal lethality achieved during standard rendering processes already ensures compliance with the safe-commodity criteria, maintaining Article 11.9.12 offers no additional sanitary benefit and creates internal inconsistency within the chapter.	

Recommendations for importation of meal and flour from blood, meat ~~other than skeletal muscle~~, or bones except products listed in Article 11.9.2, from bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting:

- 1) that these products were derived from animals in a country or *zone* free from LSD; or
- 2) that
 - a) the products were processed using heat treatment to a minimum internal temperature of 65°C for at

least 30 minutes;

11.9.12._2 _EU	Category: change Proposed amended text: It proposed to exclude offal (which should be treated F03 in hermetically sealed containers)	Did not agree because conditions are sufficient to inactivate LSDV in offal.

- b) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.9.13.

Recommendations for importation of hides of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products were derived from animals that had been kept in a country or *zone* free from LSD since birth or for at least the past 28 days;

OR

- 2) these products were:
- a) derived from animals which had undergone ante- and post-mortem inspections in accordance with Chapter 6.3. with favourable results; and
 - b) dry-salted or wet-salted for a period of at least 14 days prior to dispatch; or
 - c) treated for a period of at least seven days in salt (NaCl) with the addition of 2% sodium carbonate (Na₂CO₃); or
 - d) dried for a period of at least 42 days at a temperature of at least 20°C; and
- 3) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.9.14.

Recommendations for importation of other animal products of animal origin from bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products were derived from animals that have been kept in a country or *zone* free from LSD since birth or for at least the past 28 days; or
- 2) these products were processed to ensure the destruction of the LSDV and the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.9.15.

Surveillance

1. General principles of surveillance

A Member Country should justify the *surveillance* strategy chosen as being adequate to detect the presence of *infection* with LSDV even in the absence of clinical signs, given the prevailing epidemiological situation in accordance with Chapter 1.4. and Chapter 1.5. and under the responsibility of the *Veterinary Authority*.

The *Veterinary Services* should implement programmes to raise awareness among farmers and workers who have day-to-day contact with livestock, as well as *veterinary paraprofessionals*, *veterinarians* and diagnosticians, who should report promptly any suspicion of LSD.

In particular Member Countries should have in place:

- a) a formal and ongoing system for detecting and investigating cases;
- b) a procedure for the rapid collection and transport of samples from suspected cases to a *laboratory* for diagnosis;
- c) a system for recording, managing and analysing diagnostic and *surveillance* data.

2. Clinical surveillance

Clinical *surveillance* is essential for detecting cases of *infection* with LSDV and requires the physical examination of susceptible animals.

Surveillance based on clinical inspection provides a high level of confidence of detection of disease if a sufficient number of clinically susceptible animals is examined regularly at an appropriate frequency and investigations are recorded and quantified. Clinical examination and *laboratory* testing should be pre-planned and applied using appropriate types of samples to clarify the status of suspected cases.

3. Virological and serological surveillance

An active programme of *surveillance* of susceptible populations to detect evidence of *infection* with LSDV is useful to establish the status of a country or *zone*. Serological and molecular testing of bovines and water buffaloes may be used to detect presence of *infection* with LSDV in naturally infected animals.

11.9.15._1 _Australia	Category: deletion Proposed amended text: An active programme of <i>surveillance</i> of susceptible populations to detect evidence of <i>infection</i> with LSDV is useful to establish the status of a country or <i>zone</i> . Serological and molecular testing of bovines ~~and water buffaloes~~ may be used to detect presence of <i>infection</i> with LSDV in naturally infected animals. Rationale: consistency with remainder of the chapter, in which 'and water buffaloes' has been deleted as they are included in 'bovines'.	Agreed
11.9.15._2 _Canada	Comment Category: Deletion Proposed amended text: An active programme of <i>surveillance</i> of susceptible populations to detect evidence of <i>infection</i> with LSDV is useful to establish the status of a country or <i>zone</i> . Serological and molecular testing of bovines and ~~water buffaloes~~ may be used to detect presence of <i>infection</i> with LSDV in naturally infected animals.	Agreed

	Rationale: Water buffaloes have been included as bovines throughout the chapter and as such were removed everywhere else in this chapter.	
11.9.15._3 _EU	Category: general Proposed amended text: Linked to the comment in the introduction of the chapter. Better to refer to animal hosts.	Agree in principle but preferred to keep 'bovines'

The study population used for a serological survey should be representative of the target population (population at risk) in the country or zone and should be restricted to susceptible unvaccinated animals. Identification of vaccinated animals may minimise interference with serological *surveillance* and assist with recovery of free status.

4. Surveillance in high-risk areas

Disease-specific enhanced surveillance in a free country or zone should be carried out over an appropriate distance from the border with an infected country or zone, based upon geography, climate, history of infection and other relevant factors. The surveillance should be carried out over a distance of at least 20 kilometres from the border with that country or zone, but a lesser distance could be acceptable if there are relevant ecological or geographical features likely to interrupt the transmission of LSDV. A country or zone free from LSD may be protected from an adjacent infected country or zone by a protection zone.

11.9.15._4 _New Zealand	Category: editorial Proposed amended text: A country or zone free from LSD may be protected from an adjacent infected country or zone by a protection zone <u>established and maintained in accordance with Chapter 4.4.</u> Rationale: Clarity what a protective zone means by reference to Chapter 4.4.	Agreed

Reference	Comment	TAHSC response
12.11._1_ Australia	Category: General comment Consider updating the chapter to acknowledge that: (a) non-rodent mammals may become infected; (b) subtypes beyond I-AB/I-C (e.g. IE, ID, II) have demonstrated or may demonstrate equine or human disease under certain conditions; (c) molecular (genetic) surveillance; sequencing of viral envelope genes (E2) should be explicitly recommended; and (d) a One Health approach (wildlife, human, equid surveillance) offers stronger early-warning capacity especially in endemic zones or areas at risk. Rationale: Scientific evidence has accumulated over recent decades indicating that epizootic VEEV can arise from enzootic lineages via small genetic changes, and that sylvatic host range may be broader than rodents. See references below (subtype IE outbreaks in equids; isolation from nonhuman primate; molecular studies demonstrating emergence via E2 mutations).	a) The text was added in Article 12.11.1. (refer to comment 12.11.1._1_Australia) b) This is based on the listing assessment in accordance with Chapter 1.2. of the <i>Terrestrial Code</i> and the recommendation of the <i>ad hoc</i> Group (refer to Item 6.15. of the report) c) Considering the scope of the subtypes, it is not necessary to include this detail in the chapter. d) agreed (refer to comment 12.11.10._1_Australia)
12.11._2_ Canada	Comment Category: General Canada would like to the Code Commission to consider not limiting the listed disease case definition to I-AB and I-C variants of VEEV but rather include any VEEV causing clinical signs in equids. Canada believes that all strains of VEEV in horses should be notifiable, noting that these would likely be detected in clinically affected horses. Rationale: VEEV epizootic strains, where equids are amplifying hosts, are most often cause of clinical disease. Enzootic variants and subtypes have been considered to be nonpathogenic for equids, but can cause clinical disease in humans (Aguilar et al 2011). Moreover, it is documented that epidemic variants emerge from clinically silent enzootic cycles that still exist in several countries, causing serious epidemics in equids and /or humans (Rico-Hesse 2000). In comparison, for EEEV and WEEV, horses are dead-end hosts and the specific code chapters include these in the case definition. Moreover, the challenges restricting diagnosis to test able to differentiate between VEEV variants may require laboratory testing that may not be readily available to allow confirmation. Supporting evidence: • WOAH Terrestrial Manual Chapter 3 . 6 . 4 . Equine Encephalomyelitis (Eastern, Western and Venezuelan) • April 2025 ad hoc Group report on the Revision of Chapter 12.11. 'Venezuelan equine encephalomyelitis' • Rico-Hesse, Rebeca; Venezuelan Equine Encephalomyelitis; Veterinary Clinics of North America: Equine Practice, Volume 16, Issue 3, 2000, Pages 553-563, https://doi.org/10.1016/S0749-0739(17)30095-0 • Aguilar et al.. Endemic Venezuelan equine encephalitis in the Americas: hidden under the dengue umbrella. Future Virol. 2011;6(6):721-740. 10.2217/FVL.11.5	Refer to comment above.

12.11._3_ USA	Comment Category: General USA requests the Code Commission to consider expanding the VEE case definition to include any VEE virus (VEEV) variants causing clinical signs in equids. Rationale: We believe all VEEV variants, not only I-AB and I-C variants, should be notifiable when causing clinical signs in equids because: 1. While VEEV epizootic variants are most often the cause of clinical disease, the variant I-E did result in clinically affected horses in 1993 and 1996 in Mexico; 2. Equids are dead end hosts for the enzootic variants which is similar to Eastern and Western Equine Encephalomyelitis (EEE/WEE) that remain WOAHA-listed diseases; 3. VEEV poses a human health risk, regardless of epizootic or enzootic variant. (Aguilar <i>et al.</i>, 2011); 4. Enzootic variants can mutate into epizootic variants, causing serious epidemics in horses and/or humans. It is documented that epidemic variants emerge from clinically silent enzootic cycles that still exist in several countries (Rico-Hesse 2000); 5. As for all WOAHA-listed diseases, VEE disease notifications for both epizootic and enzootic variants are useful for providing early warning to support preparedness by other countries or zones, particularly those countries or zones adjacent to affected areas. Supporting evidence: • WOAHA 2025 Terrestrial Manual Chapter 3 . 6 . 4 . Equine Encephalomyelitis (Eastern, Western and Venezuelan) • April 2025 ad hoc Group report on the Revision of Chapter 12.11. 'Venezuelan equine encephalomyelitis' • Rico-Hesse, Rebeca; Venezuelan Equine Encephalomyelitis; Veterinary Clinics of North America: Equine Practice, Volume 16, Issue 3, 2000, Pages 553-563, https://doi.org/10.1016/S0749-0739(17)30095-0 • Aguilar et al.. Endemic Venezuelan equine encephalitis in the Americas: hidden under the dengue umbrella. Future Virol. 2011;6(6):721-740. 10.2217/FVL.11.5 • Spickler, A.R. Eastern, Western and Venezuelan Equine Encephalomyelitis. 2017 [2021/06/25]; Available from: http://www.cfsph.iastate.edu/DiseaseInfo/factsheets.php	Refer to comment above
12.11._4_ Australia	Category: General comment There is a discrepancy between the WOAHA technical disease card for VEE (2021) (https://www.woah.org/app/uploads/2021/03/vee.pdf) and the draft Chapter 12.11 in terms of the incubation period (disease card 5 days; draft Chapter 7 days) and infective period (disease card 14 days; draft Chapter 7 days). This may need to be updated on the disease card. The terms enzootic/endemic and epizootic/epidemic are used interchangeably under Article 12.11.10. It is not clear if the term "epidemic" is only used for instances where it is describing occurrence of disease in both equids and humans concurrently.	Agreed The technical disease card will be updated once this revision is adopted.

12.11._5_ China (People's Rep. of)	Category: general The literature indicate that rodents can transmit Venezuelan equine encephalitis virus. But it remains uncertain whether infected rodents can directly transmit the virus to equine animals through close contact or indirectly via mosquito-mediated transmission. Therefore, it is recommended that the relevant sections of the Code pertaining to epidemiological investigations and regional disease eradication strategies be strengthened to include enhanced surveillance of potential reservoir hosts, such as rodents, along with expanded diagnostic testing protocols. supporting evidence: Guzmán-Terán, C., Calderón-Rangel, A., Rodriguez-Morales, A. and Mattar, S. (2020) 'Venezuelan equine encephalitis virus: the problem is not over for tropical America', <i>Annals of Clinical Microbiology and Antimicrobials</i>, 19, art. no. 19. Luethy, D. (2023) 'Eastern, Western, and Venezuelan Equine Encephalitis and West Nile Viruses: Clinical and Public Health Considerations', <i>Veterinary Clinics of North America: Equine Practice</i>, 39, pp. 99–113. Medina, G., Garzaro, D.J., Barrios, M., Auguste, A.J., Weaver, S.C. and Pujol, F.H. (2015) 'Genetic Diversity of Venezuelan Alphaviruses and Circulation of a Venezuelan Equine Encephalitis Virus Subtype IAB Strain During an Interepizootic Period', <i>The American Journal of Tropical Medicine and Hygiene</i>, 93(1), pp. 7–10.	Did not agree as the scientific evidence for this transmission route is currently insufficient. Furthermore, since the revised chapter focuses on the epizootic variants (I-AB and I-C), expanding its scope beyond this objective is not considered appropriate.
12.11._6_ China (People's Rep. of)	Category: general Several mosquito species have been incriminated as vectors of epizootic VEEV, including <i>Psorophora columbiae</i>, <i>Aedes taeniorhynchus</i>. Epidemic VEEV can be transmitted efficiently by a number of mosquito genera. Therefore, replacing “<i>Culex</i>” with “mosquitoes” would be more accurate in the general description. supporting evidence: Aguilar, P.V., Estrada-Franco, J.G., Navarro-Lopez, R., Ferro, C., Haddow, A.D. and Weaver, S.C. (2011) 'Endemic Venezuelan equine encephalitis in the Americas: hidden under the dengue umbrella', <i>Future Virology</i>, 6(6), pp. 721–740. The Center for Food Security and Public Health (2024) <i>Eastern, Western and Venezuelan Equine Encephalomyelitis</i>. Ames, Iowa: Iowa State University.	Did not agree as the term 'culicine mosquito' covers the whole range of currently known competent vectors for VEE (refer to the <i>ad hoc</i> Group report).
12.11._7_ Korea (Rep. of)	Category: general As the strains causing VEE in equids are generally reported to be VEEV subtypes of serotypes I-AB and I-C, the Republic of Korea agrees with the revision that defines the causative agent of infection as being limited to VEEV subtypes I-AB and I-C, rather than all VEEV.	Noted
12.11._8_ EU	Category: general The EU generally supports this draft revised chapter provided the comments below are taken into consideration.	Noted

CHAPTER 12.11.

INFECTION WITH I-AB AND I-C VARIANTS OF VENEZUELAN EQUINE ENCEPHALITIS VIRUS (VENEZUELAN EQUINE ENCEPHALOMYELITIS)

12.11._1_ Canada	Comment category: Deletion Proposed amended text: INFECTION WITH ~~I-AB AND I-C~~ ~~VARIANTS OF~~ VENEZUELAN EQUINE ENCEPHALITIS VIRUS (VENEZUELAN EQUINE ENCEPHALOMYELITIS) Rationale: We suggest that the listed disease include all VEE variants causing clinical signs in equids (see general comment above). Modification would be expected throughout the chapter.	Did not agree as it is based on the criteria for listing (refer to comment above).

Article 12.11.1.

General provisions

Venezuelan equine encephalomyelitis (VEE) is a *vector*-borne disease of significant importance to public health transmitted by culicine mosquitoes, while sylvatic rodents are the reservoir.

12.11.1._1_ Australia	Category: Addition Proposed amended text: Venezuelan equine encephalomyelitis (VEE) is a <i>vector</i>-borne disease of significant importance to public health transmitted by culicine mosquitoes, while sylvatic rodents are the reservoir. <u>Other mammalian species (e.g., non-rodent wildlife) have occasionally been shown to be infected by VEEV in sylvatic settings, indicating a potentially broader reservoir/host range than previously identified.</u> Rationale: Recent detection and isolation of VEEV (subtype IE) from a nonhuman primate in Guatemala (2023) demonstrates that non-rodent mammals may become infected, which has implications for risk assessment, surveillance, and spillover potential. Supporting evidence, if relevant Jo WK, Piche-Ovares M, Carranza L, et al. Venezuelan Equine Encephalitis Virus Infection in Nonhuman Primate, Guatemala, 2023. <i>Emerging Infectious Diseases</i>. 2025;31(2):397-400. doi:10.3201/eid3102.241484.	Agreed, but used alternative text.
12.11.1._2_ New Zealand	Category: editorial Proposed amended text: Venezuelan equine encephalomyelitis (VEE) is a <i>vector</i>-borne disease of significant importance to public health transmitted by <u>bites of</u> culicine mosquitoes, ~~while~~ sylvatic rodents <u>are considered the</u> reservoir hosts. Rationale: Consistency with approach in Article 8.10.1 of the Japanese encephalitis chapter.	Agreed, but used alternative text.

The causal agent of the VEE comprises a complex of six antigenic subtypes (I-VI), each currently considered a separate viral species. Equids are considered amplifying hosts of I-AB and I-C variants of virus, which are the only ones associated with epidemics in equids and humans.

12.11.1_3_ Australia	Category: Change Proposed amended text: Equids are considered the primary amplifying hosts of I-AB and I-C variants of virus for classical epizootics, ~~which are the only ones associated with epidemics in equids and humans~~. However, other VEEV subtypes (e.g., I-E, I-D, II) have on occasion been associated with disease in equids or humans, and small genetic changes may give rise to new epizootic variants. Rationale: Evidence from past outbreaks shows that subtype IE (previously considered strictly enzootic) has caused equine disease and deaths in Mexico (1993, 1996). Molecular studies indicate that epizootic strains may arise from enzootic progenitors via mutations in the viral E2 glycoprotein gene, affecting vector competence and host range. Supporting evidence: Brault AC, Powers AM, Ortiz D, Estrada-Franco JG, Navarro-Lopez R, Weaver SC. Venezuelan equine encephalitis emergence: enhanced vector infection from a single amino acid substitution in the envelope glycoprotein. <i>Proc Natl Acad Sci U S A</i>. 2004;101(31):11344-11349. doi:10.1073/pnas.0402905101 Gonzalez D, Estrada-Franco JG, Carrara A, et al. Equine Amplification and Virulence of Subtype IE Venezuelan Equine Encephalitis Viruses Isolated during the 1993 and 1996 Mexican Epizootics. <i>Emerging Infectious Diseases</i>. 2003;9(2):162-168. doi:10.3201/eid0902.020124.	Agreed with rationale, but noted that this information should be in the surveillance article (refer to point 3 of Article 12.11.10.).

For the purposes of the *Terrestrial Code*, VEE is defined as an *infection* of equids (hereafter 'animal host') with I-AB or I-C variants of Venezuelan equine encephalitis virus (hereafter 'VEEV/IABC').

The following defines the occurrence of *infection* with VEEV/IABC:

12.11.1_4_ USA	Comment Category: Change Proposed amended text The following defines the occurrence of <i>infection</i> with VEEV/IABC: 1) VEEV/IABC has been isolated and identified as such in a sample from an animal host; or 2) nucleic acid specific to VEEV/IABC has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with VEE, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion of previous association with or exposure to VEEV/IABC. Rationale: Request inclusion of all VEEV variants, not only I-AB and I-C variants, as described above; and adding antibody detection options to the case definition of VEE disease occurrence:	Did not agree Refer to comment 12.11._1_Australia

- 1) VEEV/IABC has been isolated and identified as such in a sample from an animal host; or

12.11.1._5_	Comment category: Modification	Did not agree

Canada	Proposed amended text: 1) VEEV/IABC has been isolated and identified as such in a sample from an animal host; or Rationale: - Supporting evidence:	Refer to comment 12.11._1_Australia

- 2) nucleic acid specific to VEEV/IABC has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with VEE, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion of previous association with or exposure to VEEV/IABC.

12.11.1._6_ Canada	Comment category: Modification Proposed amended text: 2) nucleic acid <u>or antigen</u> specific to VEEV/IABC has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with VEE, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion of previous association with or exposure to VEEV/IABC; <u>or</u> 3) <u>antibodies specific to VEEV, which are not the consequence of vaccination, have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with VEE, or epidemiologically linked to a confirmed or suspected case.</u> Rationale: Antigen and antibody detection are useful and adequate tools to confirm cases of VEE. By limiting the case definition to horses with clinical signs or cases epidemiologically linked to a confirm case, these diagnosis tools would be more accessible to confirm a case. VEEV is included in serological panels for the diagnosis of equine encephalitis. Detection of VEEV by PCR, antigenic identification methods or rise in antibodies from paired serum sample testing (aligned with the proposed definition of seroconversion) or single detection of IgM antibodies in a clinical animal is considered diagnostic, as specified in the current Terrestrial Manual. Moreover, differentiating between VEEV variants may require laboratory testing that may not be readily available to allow confirmation. Supporting evidence: - Spickler, Anna Rovid. 2024. <i>Equine Encephalomyelitis</i>. Retrieved from http://www.cfsph.iastate.edu/DiseaseInfo/factsheets.php. - WOAH Terrestrial Manual Chapter 3.6.4. Equine Encephalomyelitis (Eastern, Western and Venezuelan) NVSL Ames IA Diagnostic catalog	Did not agree The detection of antigens or antibodies to VEEV/IABC are insufficient for distinguishing epizootic strains from enzootic ones (refer to the <i>ad hoc</i> Group report). The Commission also noted that <i>Terrestrial Manual</i> Chapter 3.6.4. is currently under revision and consistency between the <i>Terrestrial Code</i> and <i>Terrestrial Manual</i> should be ensured (refer to the BSC February 2026 report).
12.11.1._7_ USA	Comment Category: Addition Proposed amended text 3) <u>antibodies specific to VEEV, which are not the consequence of vaccination, have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with</u>	Did not agree Refer to comment above.

	<u>VEE, or epidemiologically linked to a confirmed or suspected case.</u> Rationale: When antibody detection methods are used on samples from equids with clinical signs or equids epidemiologically linked to a confirmed case, they are useful and adequate tools to confirm cases of VEE and are currently listed for this purpose in the 2025 Terrestrial Manual chapter on Equine Encephalomyelitis (i.e. paired serological tests, IgM ELISA). As proposed in point 2, case confirmation using nucleic acid detection through whole genome sequencing methods to differentiate epizootic variants could prove difficult for some Members. Sequencing may be a challenge for some Member Countries to perform, causing delayed or reduced case confirmation, reporting and/or disease response and potential public health impacts. Supporting evidence: WOAH 2025 Terrestrial Manual <u>Chapter 3 . 6 . 4 . Equine Encephalomyelitis (Eastern, Western and Venezuelan)</u>	
12.11.1._8_ EU	Category: change Proposed amended text: The EU invites the Code Commission to use a harmonised approach when proposing case definitions. As indicated in the report of the AHG of April 2025, serological findings should not be the sole criteria for defining a case of VEE. Indeed, as is true for most Terrestrial Code case definitions, the serological confirmation should be coupled with other factors (e.g. display of clinical signs or epidemiological link with other suspected or confirmed cases) and remain as an option at the disposal of the Delegate to confirm the case. Serological diagnostic methods are provided in the WOAH Terrestrial Manual in chapter 3.6.4. The EU therefore invites the Code Commission to develop a third option to confirm an outbreak based on serological findings coupled with display of clinical signs or epidemiological link with other suspected or confirmed cases.	Did not agree Refer to comment above.

For the purposes of the *Terrestrial Code*, the *incubation period* shall be seven days.

For the purposes of the *Terrestrial Code*, the *infective period* shall be seven days.

Standards for diagnosis and vaccines, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Article 12.11.2.

Safe commodities

When authorising the importation or transit of the following *commodities*, *Veterinary Authorities* should not require any VEE-related conditions regardless of the *animal health status* of the country or *zone* of origin:

- 1) *meat products*;
- 2) *processed hides and skins*;

- 3) processed hooves;
- 4) gelatine and collagen;
- 5) *protein meal*;
- 6) extruded dry pet food.

12.11.2. _1 _WRO	Category: Addition Proposed amended text: <u>7) rendered fat</u> Rationale: Rendered fats are not currently listed in Article 12.11. 2 as safe commodities, despite being globally traded, highly processed products that follow the same sanitary principles as other commodities already recognised in this Article. Including rendered fats in the list of safe commodities will align the Venezuelan Equine Encephalomyelitis (VEE) chapter with the approach adopted in other WOAH disease chapters (for example, 11.5.2, 12.1.2 and 12.3.2), which already recognise rendered fats as safe trade commodities regardless of the exporting country's animal health status. Supporting evidence: The WRO Scientific Advisory Panel report provides detailed descriptions of rendering systems in which rendered fats are produced under strict time and temperature parameters. In dry and wet rendering processes, fats are exposed to sustained temperatures well above 100°C, with process monitoring showing that product temperature frequently exceeds 110°C for extended periods, conditions that are sufficient to inactivate transboundary animal disease agents, including VEE virus. The same report classifies rendered fats as one of the four main categories of rendered commodities produced and traded globally, obtained only after controlled thermal processing with defined critical control points and sanitary barriers, designed to eliminate biological hazards and ensure product safety. Given their high level of processing, established safety parameters and global trade relevance, rendered fats clearly meet the principles used to identify the commodities already listed in Article 8.8.2 and should therefore be explicitly recognised as safe for international trade regardless of country or zone VEE status.	Agreed

Article 12.11.3.

Country or zone free from VEE

A country or *zone* may be considered free from VEE when:

- 1) the *infection* has been notifiable in the entire country for at least the past 24 months;
- 2) either:
 - a) the historical freedom provisions as described in point 2 b) of Article 1.4.6. are met; or
 - b) *surveillance* in accordance with Article 12.11.10. demonstrated no evidence of *infection* with VEEV/IABC in the country or *zone* for at least the past 24 months;

- 3) appropriate *biosecurity* and *sanitary measures* to prevent the introduction of *infection* have been in place; in particular, the importations or movements of animal hosts and their *commodities* into the country or *zone* have been carried out in accordance with this chapter or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis'.

12.11.3._1 _New Zealand	Category: deletion Proposed amended text: ~~appropriate~~ <i>biosecurity</i> and <i>sanitary measures</i> to prevent the introduction of <i>infection</i> have been in place; in particular, the importations or movements of animal hosts and their <i>commodities</i> into the country or <i>zone</i> have been carried out in accordance with this chapter or other relevant chapters of the <i>Terrestrial Code</i>, including Chapter 2.1. 'Import risk analysis'. Rationale: Inclusion of 'appropriate' is subjective and unnecessary, and not consistent with other similar text currently adopted. This comment also applies to similar text within the proposed Japanese encephalitis chapter (Article 8.10.3), Tularemia chapter (Article 8.20.2), and the lumpy skin disease chapter (Article 11.9.3). Supporting evidence: Article.8.8.3	Did not agree as this text is intended for specific biosecurity and sanitary measures. To clarify that these are not general biosecurity and sanitary measures, the term 'appropriate' is necessary. The Commission noted that this will be applied for the other disease-specific chapters.

Article 12.11.4.

Compartment free from VEE

The establishment of a *compartment* free from VEE should follow the relevant provisions laid down in Article 12.11.3. and in Chapters 4.4. and 4.5.

Animal hosts in the free *compartment* should be protected against culicine mosquitoes by the application of an effective *biosecurity* management system, other preventive measures, and measures in accordance with Article 12.11.9.

Article 12.11.5.

Country or zone infected with VEE

A country or *zone* should be considered as infected with VEE when the conditions for freedom from VEE are not met.

Article 12.11.6.

Recovery of free status

Should a case of VEE occur in a previously free country or *zone*, its status may be recovered in accordance with Article 12.11.3.

Article 12.11.7.

Recommendations for importation of equids from countries, zones or compartments free from VEE

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical signs of VEE on the day of shipment;

- 2) were kept in a country, *zone* or *compartment* free from VEE since birth or for at least the past 90 days prior to shipment.

12.11.7._1 _USA	Comment Category: General Request Code Commission's review and reassessment of time when an animal should be kept in a country, zone or compartment free from VEE, currently noted for at least the past 90 days. Rationale: In their report, the AHG revising the VEE Code chapter references that 90 days is consistent with other similar disease-chapters and aligned with the Handbook for the management of high health, high performance (HHHP) horses. However, the 2025 Terrestrial Code, Chapter 12.11, VEE notes the infective period for VEE is 14 days/incubation period is 5 days. This text now proposes 7 days for both infective and incubation period. Using precedent from other WOAH Code chapters, two incubation periods—for VEE, at least 14 days--would appear to be an appropriate safety-margin. For comparison, the 2018 HHHP Handbook mentioned, recommends 3 weeks (21 days) to ensure an animal can no longer transmit VEEV. Supporting evidence does not suggest that a 90-day pre-shipment safety window for animals is necessary for VEE. Supporting evidence: 2018 HHHP Handbook (pg 60) WOAH 2025 Terrestrial Code Chapter 12.11. Venezuelan equine encephalomyelitis	Agreed. The Commission noted that the 90-day period described in the 2018 HHHP Handbook is intended as the maximum duration for temporary importation and is not appropriate to apply to the recommendations for importation of equids from free country, zone or compartment.

Article 12.11.8.

Recommendations for importation of equids from countries or zones infected with VEE

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical signs consistent with VEE on the day of shipment; and
- 2) either,
 - a) were vaccinated against VEEV at least 60 days prior to shipment; or

12.11.8._1 _UK	Category: addition. Proposed amended text (or precise suggested deletion): a) <i>were vaccinated against VEEV within the validity period recommended by the manufacturer and at least 60 days prior to shipment; or</i> Rationale: We suggest the text should explicitly require that vaccination is both within the manufacturer's recommended validity period and completed at least 60 days before shipment, ensuring adequate immune response. This clarifies that the requirement is not only about a minimum interval before shipment, but also about ensuring the vaccine remains valid and in line with its licensed protective duration. This enhances clarity for Competent Authorities and supports the effectiveness of immunisation measures in reducing VEE transmission risk during international movements.	Agreed Text was added differently for consistency with the other chapters.

	Supporting evidence: Manufacturer guidelines on vaccine validity periods WOH principles on ensuring effective immunisation for safe trade	

- b) were isolated in a *vector*-protected *quarantine centre* for at least seven days prior to shipment, which is located in an area of demonstrated low *vector* activity, were subjected to a nucleic acid test between two to five days after entry into the *quarantine centre* with negative results, and were protected from culicine mosquito bites at all times during transportation from the *quarantine centre* to the *place of shipment* in accordance with Article 12.11.9.

12.11.8._2 _UK	Category: addition. Proposed amended text (or precise suggested deletion): b)were isolated in a <i>vector</i>-protected <i>quarantine centre</i> for at least seven days prior to shipment, which is located in an area of demonstrated low <i>vector</i> activity, were subjected to a nucleic acid test between two to five days after entry into the <i>quarantine centre</i> with negative results, and were protected from culicine mosquito bites at all times during transportation from the <i>quarantine centre</i> to the <i>place of shipment</i> in accordance with Article 12.11.9. Rationale: The proposed timing for nucleic acid testing (2–5 days after entry) may be too early given the incubation period of approximately 7 days. This could risk missing infections that manifest later. We suggest reviewing whether the isolation period should be extended beyond 7 days and whether testing should occur closer to the end of quarantine to ensure reliability.	The Commission recalled the recommendation of the <i>ad hoc</i> Group that while the incubation period for VEE can be up to 7 days, the period of viraemia typically occurs between 1 to 6 days post-infection. The 7-day period was established specifically to cover the maximum infective period, and this period allows any recently infected animal to develop detectable viraemia. To provide the flexibility, the term 'at least' was added and the term 'to five days' was removed.
12.11.8._3 _USA	Comment Category: Change Proposed amended text ...were subjected to an antibody and/or a nucleic acid test between two to five days after entry into the <i>quarantine centre</i> with negative results,... Rationale: The proposed import testing of unvaccinated equids relies on a RT-PCR assay that has not been fully validated with field samples (Section 1.2.2, Chp 3.6.4. 2025 Terrestrial Manual). Molecular detection of VEEV can be useful postmortem on brain samples (Leon et al, 2023), but may have reduced value on antemortem samples. With limited options for antemortem diagnosis of VEE, antibody testing, especially IgM ELISA, is also important to retain for import testing. Allowing both molecular and antibody detection methods is less restrictive for countries in their ability to detect VEEV with antemortem diagnostics for international movement of equids. Supporting evidence: WOH 2025 Terrestrial Manual Chapter 3 . 6 . 4 . Equine Encephalomyelitis (Eastern, Western and Venezuelan) Leon et al. Detection of Venezuelan Equine Encephalitis Virus from Brain Samples of Equines with Encephalitis. Zoonotic Dis. 2023;3(3):215-225; https://doi.org/10.3390/zoonoticdis3030018	Did not agree Refer to comment above. The Commission also noted that <i>Terrestrial Manual</i> Chapter 3.6.4. is currently under revision and consistency between the <i>Terrestrial Code</i> and <i>Terrestrial Manual</i> should be ensured (refer to the BSC February 2026 report).

Protecting equids from culicine mosquito bites1) Vector-protected quarantine centre

The means of protection of the *quarantine centre* should at least comprise the following:

- a) appropriate physical barriers at entry and exit points, for example a double-door entry-exit system;
- b) openings of the building are *vector* screened with mesh of appropriate gauge;
- c) *vector surveillance* and *vector* control within and around the building;
- d) measures to limit or eliminate larval habitats for *vectors* in the vicinity of the *quarantine centre*, such removal of standing water;
- e) Standard Operating Procedures for operation of the *quarantine centre* and for transport of equids to the place of *loading*.

2) During transportation

When transporting unvaccinated equids through countries or *zones* infected with VEEV/IABC, *Veterinary Authorities* should require that strategies to protect equids from culicine mosquito bites are in place, considering the local ecology of the *vector*.

a) Transport by land

Risk management strategies should include:

- i) treating animals with an *approved* repellent to prevent bites prior to and during transportation, in *means of transport* disinfected and disinfected with *approved* disinfectant and insecticide;

12.11.9._1_ Canada	Comment Category: Addition Proposed amended text: i) treating animals with an approved repellent to prevent bites prior to and during transportation <u>and at the destination</u> , in means of transport disinfected and disinfected with approved disinfectant and insecticide; Rationale: to cover all timing of transport	Did not agree as the current text clearly covers all stages of transport.

- ii) *loading*, transporting and *unloading* animals at times of low *vector* activity, and avoiding areas of known high *vector* activity;
- iii) ensuring *means of transport* do not stop en route during dawn or dusk, or overnight, unless the *means of transport* is *vector* protected;

12.11.9._2_ New Zealand	Category: addition Proposed amended text: iii) ensuring <i>means of transport</i> do not stop en route during dawn or dusk, or overnight, unless the <i>means of transport</i> is <i>vector</i> protected, <u>including ensuring the vehicle used to transport equids is fitted with mosquito proof nets or fully enclosed to prevent entry of vectors</u> .	Agreed with rationale, text was amended differently.

	Rationale: We propose adding text to clarify the meaning of protection from vectors, similar to the detail that is provided in the section on 'Transport by air'.	

- iv) using historical, current or modelling information on VEEV/IABC and *surveillance* for *vectors* at common stopping and offloading points to identify low risk ports and transport routes.

b) Transport by air

Prior to *loading* the equids, *containers* are sprayed with an *approved* insecticide.

Containers in which equids are being transported, and the cargo hold of the aircraft should be sprayed with an *approved* insecticide when the doors have been closed and prior to take off. All possible insect harbourage should be treated. The insecticide sprayers should be retained for inspection on arrival.

In addition, during any stopover in countries or *zones* where *infection* with VEEV/IABC occurs, prior to the opening of any aircraft door and until all doors are closed, netting of appropriate gauge impregnated with an *approved* insecticide should be placed over all *containers*.

Article 12.11.10.

Surveillance for VEE

Surveillance of VEE should be carried out in accordance with Chapter 1.4. and with the following recommendations.

- 1) The primary objective of *surveillance* for VEE, including both epizootic and enzootic variants, is to mitigate animal health and public health *risks* through early detection and rapid response. *Surveillance* enables *Veterinary Authority* to coordinate effectively and in a timely manner with public health and other relevant *Competent Authorities*, facilitating the exchange of information critical to protect both animal health and human health. It also supports the safe *international trade* of equids.
- 2) Equids are amplifying hosts of VEEV/IABC and key sentinel species for the presence of the VEEV epizootic variants. In some cases, they may also act as useful sentinels for enzootic variants providing valuable early warning of virus circulation in endemic regions. As such, they should be targeted by *surveillance*.
- 3) *Early warning systems* for VEE should be capable of identifying epidemic events. *Veterinary Authorities* should promote awareness campaigns to sensitise the owners and keepers of equids, *veterinarians* and the public health authorities of the disease risks.

Clinical and syndromic *surveillance* to detect signs of *infection* with VEEV/IABC in animal hosts are essential components of an *early warning system*. Clinical disease in animal hosts is characterised by fever, anorexia, and severe depression. In severe cases, it can progress to neurological signs and death. Clinical *surveillance* targeted at neurological signs in equids can provide reinforced evidence of the occurrence of an epidemic. However, clinical signs are not pathognomonic per se. Suspect cases should always be confirmed by laboratory testing, that should include sequencing and taking into account the epidemiological situation. Because VEEV mutates rapidly, it is important to monitor molecular and epidemiological data for changes in transmission and genetic diversity, especially in endemic lineages, to detect newly emerging epizootic strains.

12.11.10._ 1_Australia	Category: Addition Proposed amended text: [...] Because VEEV mutates rapidly, it is important to monitor molecular and epidemiological data for changes in transmission and genetic diversity, especially in endemic lineages, to detect newly emerging epizootic strains. <u>This surveillance should include</u>	Agreed with rationale The Commission decided to include this proposed text under point 1 of Article 12.11.10. where it

	sequencing of structural genes, particularly the E2 glycoprotein, to detect mutations potentially associated with increased vector infectivity, equine virulence or host-range expansion, and should be integrated with human and wildlife (non-equid mammal) surveillance under a One Health framework, particularly in endemic or high-risk regions. Rationale: The additions make explicit certain high-risk elements of molecular surveillance. They clarify specific surveillance targets and cross-sector linkages needed for effective early warning. These considerations may alternatively sit within the Terrestrial Manual. Australia will also provide a position on the corresponding Manual chapter out for consultation. Supporting evidence: Evidence for the claim that small E2 mutations alter vector competence and drive emergence: Brault AC, Powers AM, Weaver SC. Vector infection determinants of Venezuelan equine encephalitis virus reside within the E2 envelope glycoprotein. <i>J Virol.</i> 2002;76(12):6387-6392. doi:10.1128/jvi.76.12.6387-6392.2002 Brault AC, Powers AM, Ortiz D, Estrada-Franco JG, Navarro-Lopez R, Weaver SC. Venezuelan equine encephalitis emergence: enhanced vector infection from a single amino acid substitution in the envelope glycoprotein. <i>Proc Natl Acad Sci U S A.</i> 2004;101(31):11344-11349. doi:10.1073/pnas.0402905101 Powers AM, Oberste MS, Brault AC, et al. Repeated emergence of epidemic/epizootic Venezuelan equine encephalitis from a single genotype of enzootic subtype ID virus. <i>J Virol.</i> 1997;71(9):6697-6705. doi:10.1128/JVI.71.9.6697-6705.1997 Brault AC, Powers AM, Ortiz D, Estrada-Franco JG, Navarro-Lopez R, Weaver SC. Venezuelan equine encephalitis emergence: enhanced vector infection from a single amino acid substitution in the envelope glycoprotein. <i>Proc Natl Acad Sci U S A.</i> 2004;101(31):11344-11349. doi:10.1073/pnas.0402905101	is more appropriate. Alternative text used.

- 4) Considering the epidemiological situation in association with prevailing agricultural practices (i.e., rice culture) and weather conditions favouring the emergence of a large population of mosquitoes, an epidemic of VEEV/IABC should be suspected when there is an increased number of equids showing clinical signs consistent with *infection* with VEEV/IABC or reports of infection in humans. This is especially the case for countries or *zones* where *infection* with VEEV/IABC has occurred, or countries or *zones* adjacent to a country or *zone* in which epidemics have been reported. Ecological conditions can be assessed through sharing and analysis of meteorological data, including information access through remote sensing to estimate precipitation and water levels, and especially monitoring of *vector* activity.
- 5) In epidemic situations, *surveillance* should be conducted to define the extent of the epidemic area for the purpose of disease prevention and control.
- 6) *Surveillance* for *vectors* conducted in accordance with Chapter 1.5. may be helpful in identifying *vector* activity and a situation conducive to risk of transmission for VEEV/IABC. However, testing large numbers of mosquitoes to detect VEEV/IABC circulation is of low sensitivity and, therefore, is not recommended as a routine procedure. Rather, *animal*-based *surveillance* strategies are preferred to detect VEEV/IABC circulation.

12.11.10._ 2_Australia	Category: Change Comment: Consideration should be given to recommending surveillance in non-equid mammalian hosts in endemic regions, particularly where sylvatic cycles overlap with human populations or equid holdings. Rationale: Expands surveillance guidance beyond equids, consistent with evidence of occasional infection in non-rodent hosts; improves risk mitigation. Supporting evidence: Jo WK, Piche-Ovares M, Carranza L, et al. Venezuelan Equine Encephalitis Virus Infection in Nonhuman Primate, Guatemala, 2023. <i>Emerg Infect Dis.</i> 2025;31(2):397-400. doi:10.3201/eid3102.241484	Did not agree The primary objective of surveillance is focused on early detection and rapid response, and equids are key sentinel species and primary amplifying hosts for epizootic variants. Considered surveillance in non-equid mammalian hosts a specialised research activity which falls outside the scope of standard surveillance recommendations for Veterinary Authorities.

Reference	Comment	TAHSC response
14.9._1_ Australia	Category - General comment Consistency is needed in the use of 'sheep pox' and 'sheeppox' vs 'goat pox' and 'goatpox.' The Chapter uses the term 'sheeppox' and 'goatpox' except for Articles 14.9.19 and Article 14.9.20 (they are spelt 'sheep pox' and 'goat pox', respectively). However, the use of 'sheeppox' and 'goatpox' in the Code is not consistent with the WOAHP sheep and goat pox webpage, listing in <i>Terrestrial Code</i> Chapter 1.3, and sections of the FAO website. It is also not consistent with wording used by the European Commission, Australia's Department of Agriculture, Fisheries and Forestry (DAFF) and Animal Health Australia.	Agreed to maintain as sheeppox and goatpox. Agreed to work with the Biological Standards Commission for consistency in the <i>Terrestrial Manual</i> .
14.9._2_ USA	Category: general Updates to this chapter have preferred no spaces in the disease names sheeppox and goatpox. Recommend alignment of disease names (with or without space) between this chapter, and Code Chapter 1.3 (Listed Diseases) and Manual Chapter 3.8.11 (Sheep pox and Goat pox), where disease names include a space. Rationale: For editorial consistency	As above
14.9._3_ Korea (Rep. of)	Category: general The Republic of Korea agrees overall with the proposed revision, which revises the definition of infection with SPPV or GTPV, and newly introduces principles of surveillance as well as prevention and control programme.	Noted
14.9._4_ EU	Category: general The EU in general supports this revised chapter provided the comments below are addressed. As a general comment we invite to review the chapter to identify when provisions for wild animals should be provided. It is also suggested to review the whole chapter for consistency in the use of the terms 'animal hosts' as introduced in Article 1. It is suggested to review the distinction of measures from free and non free countries or zones across the relevant articles (e.g. Article 19). Include a review of the title in this review.	Noted

CHAPTER 14.9.

INFECTION WITH SHEEPPOX VIRUS (SHEEPPOX) AND GOATPOX VIRUS (GOATPOX)

Article 14.9.1.

General provisions

For the purposes of the *Terrestrial Code*, sheeppox or goatpox is defined as an *infection* of domestic sheep or goats, hereafter 'animal hosts' with sheeppox virus (SPPV) or goatpox virus (GTPV), belonging to the genus *Capripoxvirus*.

14.9.1._1_ USA	Category: editorial Proposed amended text: For the purposes of the <i>Terrestrial Code</i> , sheeppox ~~and~~ goatpox ~~are~~ defined as ~~an~~ <i>infection</i> s of domestic sheep or goats,... Rationale: Grammatical edit for clarity	Did not agree as these are distinct pathogenic agents though they are listed under one disease

The following defines the occurrence of *infection* with SPPV or GTPV:

- 1) SPPV or GTPV has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid specific to SPPV or GTPV, excluding vaccine strains, has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion by previous association with or exposure to SPPV or GTPV; or
- 3) antigens specific to capripoxviruses, which are not the consequence of *vaccination*, has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion by previous association or exposure to SPPV or GTPV; or

14.9.1._2_ Chinese Taipei	Category change Proposed Amended Text: antigens specific to capripoxviruses, which are not the consequence of vaccination, ~~have~~ <i>has</i> been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or... Rationale: The singular verb "has been" should not used with plural subject "antigens".	Agreed

- 4) antibodies specific to capripoxviruses, which are not the consequence of *vaccination*, have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion by previous association or exposure to SPPV or GTPV.

For the purposes of the *Terrestrial Code*, the *incubation period* for sheeppox and goatpox shall be 21 days.

Standards for diagnosis and vaccines, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Article 14.9.2.

Safe commodities

When authorising the importation or transit of the following *commodities*, *Veterinary Authorities* should not require any sheeppox- and goatpox-related conditions regardless of the *animal health status* of the country or *zone* of origin:

- 1) skeletal muscle *meat* of animals slaughtered in an approved *slaughterhouse/abattoir* and subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results;

14.9.2._1_ China (People's Rep. of)	Category: change Proposed amended text : ~~1) skeletal muscle meat of animals slaughtered in an approved slaughterhouse/abattoir and subjected to ante and post mortem inspections in accordance with Chapter 6.3., with favourable results;~~ Rationale : In the safe commodity list, the processing techniques for Category 1, 3, and 4 products are diverse. There is no relatively uniform standard for processing methods, processing duration, and other parameters, making it impossible to achieve consistent confirmation of viral inactivation efficacy. It is recommended to provide corresponding scientific validation evidence; otherwise, these commodities should not be included in the scope of safe commodities for the time being. supporting evidence: Embury-Hyatt, C., Babiuk, S., Manning, L., Ganske, S., Bowden, T.R., Boyle, D.B. and Copps, J. (2012) 'Pathology and Viral Antigen Distribution following Experimental Infection of Sheep and Goats with Capripoxvirus', <i>Journal of Comparative Pathology</i>, 146, pp. 106–115.	Did not agree, the risk of skeletal muscle meat is mitigated by inspections

- 2) heat-treated *meat products* in a hermetically sealed container with an F_0 value of 3 or above;
- 3) *protein meal*;
- 4) gelatin and collagen;

14.9.2._2_ China (People's Rep. of)	Category: change Proposed amended text : ~~3) protein meal;~~ ~~4) gelatin and collagen;~~ Rationale : In the safe commodity list, the processing techniques for Category 1, 3, and 4 products are diverse. There is no relatively uniform standard for processing methods, processing duration, and other parameters, making it impossible to achieve consistent confirmation of viral inactivation efficacy. It is recommended to provide corresponding scientific validation evidence; otherwise, these commodities should not be included in the scope of safe commodities for the time being. supporting evidence: Embury-Hyatt, C., Babiuk, S., Manning, L., Ganske, S., Bowden, T.R., Boyle, D.B. and Copps, J. (2012) 'Pathology and Viral Antigen Distribution following Experimental Infection of Sheep and Goats with Capripoxvirus', <i>Journal of Comparative Pathology</i>, 146, pp. 106–115.	Did not agree, referred to Glossary definition for 'protein meal'. Clarified that standardised parameters are also recognised for gelatin and collagen.

- 5) processed hooves and horns;
- 6) extruded dry pet food.

14.9.3._3_ WRO	Category: addition Proposed amended text: 7) rendered fat. Rationale: Rendered fats are not currently listed in Article 14.9.2 as safe commodities, despite being globally traded, highly processed products that follow the same sanitary principles as other commodities already recognised in this Article. Including rendered fats in the list of safe commodities will align the Sheeppox and Goatpox (SPGP) chapter with the approach adopted in other WOAHP disease chapters (for example, 11.5.2, 12.1.2 and 12.3.2), which already recognise rendered fats as safe trade commodities regardless of the exporting country's animal health status. Supporting evidence: The WRO Scientific Advisory Panel report provides detailed descriptions of rendering systems in which rendered fats are produced under strict time and temperature parameters. In dry and wet rendering processes, fats are exposed to sustained temperatures well above 100°C, with process monitoring showing that product temperature frequently exceeds 110°C for extended periods, conditions that are sufficient to inactivate transboundary animal disease agents, including SPGP virus. The same report classifies rendered fats as one of the four main categories of rendered commodities produced and traded globally, obtained only after controlled thermal processing with defined critical control points and sanitary barriers, designed to eliminate biological hazards and ensure product safety. Given their high level of processing, established safety parameters and global trade relevance, rendered fats clearly meet the principles used to identify the commodities already listed in Article 8.8.2 and should therefore be explicitly recognised as safe for international trade regardless of country or zone SPGP status. Rendered fats of different species origin undergo the same validated thermal processing steps described in the WRO report, which include sustained exposure to temperatures exceeding the inactivation parameters for PPR virus. This confirms that the sanitary safety of rendered fats does not depend on the species of origin, further supporting the use of a general commodity name. For these reasons, replacing tallow with the broader term rendered fat improves clarity, reflects established WOAHP terminology, and aligns the SPGP chapter with the structure used in other disease chapters.	Agreed

Article 14.9.3.

Country or zone free from sheeppox and goatpox

A country or zone may be considered free from sheeppox and goatpox when:

- 1) *infection* with SPPV and GTPV has been a *notifiable disease* in the entire country for at least the past two years;

14.9.3._1_ China (People's Rep. of)	Category: change Proposed amended text : 1) <i>infection</i> with SPPV and GTPV has been a <i>notifiable disease</i> in the entire country for at least the past <u>two three</u> years;	Did not agree, refer to rationale provided in report of the <i>ad hoc</i> Group on sheeppox and goatpox

	2) for at least the past ~~two~~ <u>three</u> years, appropriate <i>biosecurity</i> and <i>sanitary measures</i> to prevent the introduction of <i>infection</i> have been in place; in particular, the importations or movements of animal hosts and other <i>commodities</i> into the country or <i>zone</i> have been carried out in accordance with this chapter or other relevant chapters of the <i>Terrestrial Code</i>, including Chapter 2.1. 'Import risk analysis'; Rationale : Firstly, the previous edition of the Code required "sheep pox and goat pox has not been present for at least the past three years.". To ensure the rigor, it is recommended to reinstate this three-year requirement.	

2) for at least the past two years, appropriate *biosecurity* and *sanitary measures* to prevent the introduction of *infection* have been in place; in particular, the importations or movements of animal hosts and other *commodities* into the country or *zone* have been carried out in accordance with this chapter or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';

3) *vaccination* is prohibited and no *vaccination* has taken place for at least the past eight months;

14.9.3._2_ China (People's Rep. of)	Category: change Proposed amended text : 3) <i>vaccination</i> is prohibited and no <i>vaccination</i> has taken place for at least the past ~~eight~~ <u>12</u> months; Rationale : Secondly, revise the period that vaccination is prohibited from 8 months to 12 months. WOA "Terrestrial Manual" Chapter 3.8.11 "Sheep pox and goat pox" stipulates that the attenuated vaccines should provide complete protection against challenge with virulent field strains for a minimum of 1 year. Currently, it is impossible to distinguish whether antibodies are generated from vaccination with attenuated vaccines or from field strain infection. Therefore, to demonstrate the disease-free status of a country, vaccination should be prohibited for at least one year, and testing can confirm negative antibody results before a conclusion can be drawn.	Agreed
14.9.3_3_ EU	Category: general Request for clarification: It appears there are significant variations among several chapters in the Code. In some cases (PPR, LSD) this period can be as long as 2 or 3 years. Is the risk mitigation measure being proposed here aligned with what is done in other chapters?	Noted and proposed modifications to text Does not need to be consistent with LSD

4) and either:

- a) the country or *zone* is historically free as described in point 2 b) of Article 1.4.6.; or
- b) for at least two years, a clinical *surveillance* programme in accordance with Article 14.9.22. has been in place in the entire country or *zone* and there has been no case in the country or *zone*; or

- c) for at least twelve months, a clinical, virological and serological *surveillance* programme in accordance with Article 14.9.22. has been in place in the entire country or *zone* and there has been no case in the country or *zone*.

14.9.3._4_ China (People's Rep. of)	Category: change Proposed amended text : c) for at least ~~twelve months~~ <u>two years</u>, a clinical, virological and serological <i>surveillance</i> programme in accordance with Article 14.9.22. has been in place in the entire country or <i>zone</i> and there has been no case in the country or <i>zone</i>. Rationale : Thirdly, to extended the a clinical, virological and serological surveillance programme period from 12 months to two years. Based on the transmission routes and epidemiological characteristics of sheeppox and goatpox, the diseases can be spread by insect vectors and exhibit certain seasonal patterns. Implementing surveillance across two high-risk periods will help confirm disease-free status more reliably.	Did not agree
14.9.3._5_ New Zealand	Category: editorial Proposed amended text: c) for at least twelve months, a ~~clinical, virological and serological surveillance~~ programme <u>including clinical, virological and serological surveillance</u>, in accordance with Article 14.9.22. has been in place in the entire country or <i>zone</i> and there has been no case in the country or <i>zone</i>. Rationale: The key point of point c) is that all the surveillance requirements of Article 14.9.22 are to be met. The proposed change is to provide clarity; the current placement of the text means that it could be read to exclude reference to the horizontal chapter when this clause is read alongside Article 14.9.22.	Did not agree, this should be consistent with LSD
14.9.3._6_ EU	Category: general Request for clarification: How can clinical surveillance in the past two years (point b) or one year (point c) be meaningful when in point b) above vaccination has been stopped only eight months earlier?	Addressed with proposed amendments

In order to maintain its status, a country or *zone* free from sheeppox and goatpox should:

- 1) comply with points 1), 2) and 3) above;

14.9.3._7_ New Zealand	Category: editorial Proposed amended text: 1) comply with points ~~1), 2) and~~ 3) above; <u>and</u> Rationale: Providing better alignment between the horizontal provisions and the disease specific chapter for same outcome.	Addressed with proposed amendments

- 2) conduct *surveillance* in accordance with Articles 14.9.20. and 14.9.21.

14.9.3._8_ New Zealand	Category: editorial Proposed amended text: 2) ~~conduct surveillance in accordance with Articles 14.9.20. and 14.9.21. meet provisions of Article 1.4.6. point 4.~~ Rationale: Providing better alignment between the horizontal provisions and the disease specific chapter for same outcome.	Did not agree, reference should be made to the articles on surveillance in this chapter.

Article 14.9.4.

Compartment free from sheeppox and goatpox

The establishment of a *compartment* free from sheeppox and goatpox should follow the relevant provisions laid down in this chapter and in Chapters 4.4. and 4.5.

Animal hosts in the *compartment* should be protected against all potential transmission routes including fomite and *vector-borne* transmission by the application of an effective *biosecurity* management system.

Article 14.9.5.

Country or zone infected with SPPV and GTPV

A country or *zone* should be considered as infected with SPPV and GTPV when the conditions for freedom from sheeppox and goatpox are not met.

14.9.5._1_ EU	Category: editorial Proposed amended text: “A country or zone should be considered as infected with SPPV and GTPV when the conditions ~~of Article 14.9.3. for freedom from sheeppox and goatpox~~ are not met.”. Rationale: Editorial comment	Did not agree as not consistent with framework.

Article 14.9.6.

Recovery of free status of the country or zone

Should a *case of infection* with SPPV or GTPV occur in a previously free country or *zone*, its status may be recovered eight months after the cleaning and *disinfection* of the last infected *establishment* or the last *vaccination*, whichever occurred last, provided that;

14.9.6._2_ Australia	Category - Addition Proposed new text: Should a <i>case of infection</i> with SPPV or GTPV occur in a previously free country or <i>zone</i> ~~and it implements a prevention and control programme in accordance with Article 14.9.23,~~ its status may be recovered eight months after the cleaning and <i>disinfection</i> of the last infected <i>establishment</i> or the last <i>vaccination</i> , whichever occurred last, provided that; Rationale: Given the closely related nature of the Capripoxviruses analogous chapter structures for LDSV and SPPV and GTPV would help clarity and consistency of approach in the Code. It would be	Agreed but point inserted in Article 14.9.23 instead of this article.

	particularly useful to include an article in Chapter 11.9 on Prevention and Control Programmes for LSD analogous to Article 14.9.23 as vaccination use as part of disease control has increased globally over the years, recently in Europe. Article 14.9.6 is not explicitly linked to recovery of freedom when prevention and control programmes including vaccination have been used in a previously SGP free country/zone, whereas the proposed Article 11.9.4.2 does. These two articles should be consistent.	
14.9.6._3_ China (People's Rep. of)	Category: change Proposed amended text : Should a <i>case of infection</i> with SPPV or GTPV occur in a previously free country or <i>zone</i> , its status may be recovered ~~eight~~ 14 months after the cleaning and <i>disinfection</i> of the last infected <i>establishment</i> or the last <i>vaccination</i> , whichever occurred last, provided that; Rationale : After the cleaning and disinfection of the last infected establishment or the last vaccination, the period required to recovery the recovery disease-free status should be extended from at least 8 months to at least 14 months . Because a period of 8 months is too short to cover one full high-risk season, which could allow for the pathogen to remain latent.	Did not agree, timeframe should be shorter for recovery than for freedom.
14.9.6._4_ EU	Category: general It is proposed to review the time for recovering the free status and differentiating between vaccination followed by culling or vaccination to live. Proposed time frame could be 12 months after last vaccination, or six months after killing of vaccinated animals.	Did not agree, there is no carrier status after vaccination.

- 1) a *stamping out policy* has been implemented;
- 2) clinical, virological and serological *surveillance* conducted in accordance with Article 14.9.22. has demonstrated the absence of *infection*.

14.9.6._5_ EU	Category: editorial Proposed amended text: “clinical, virological and serological <i>surveillance</i> <u>in accordance with Article 14.9.22. has been carried out with negative results conducted in accordance with Article 14.9.22. has demonstrated the absence of infection</u> ”. Rationale: Editorial comment	Did not agree as not consistent with framework.

Otherwise, Article 14.9.3. applies.

14.9.6._6_ New Zealand	Category: addition Proposed amended text: For vaccinated animals on-going active surveillance adapted to the detection of infection in the absence of clinical signs should be considered. Rationale: Vaccinated animals may not exhibit clinical signs enabling detection by a country's general surveillance system.	Did not agree, addressed in Article 14.9.22.

Article 14.9.7.

Recommendations for importation of domestic sheep and goats from countries, zones or compartments free from sheepox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical sign of sheepox and goatpox on the day of shipment;
- 2) were kept since birth or at least 21 days prior to shipment in the free country, *zone* or *compartment*.

Article 14.9.8.

Recommendations for importation of domestic sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical sign of sheepox and goatpox on the day of shipment;
- 2) were kept in a *quarantine centre* for the 42 days prior to shipment; and

14.9.8._1_ Thailand	Category: general We would like to ask for more clarification about the rationale for revising the pre-export quarantine period for goats and sheep from countries or zone infected with SPPV and GTPV, from 21 days to 42 days (twice the duration of the incubation period) as specified in the relevant articles. Rationale: In comparison with Chapter 11.9 (Infection with lumpy skin disease virus), which is also caused by a Capripoxvirus, the pre-export quarantine period for bovines from countries or zones infected with LSDV, as specified in Article 11.9.6, is 28 days, corresponding to the maximum incubation period.	Amendments proposed for consistency with LSD chapter, either quarantined or vaccinated.
14.9.8._2_ UK	Category: general Proposed amended text: <u>2)</u> were kept in a <i>quarantine station-centre</i> for the <u>21</u> days prior to shipment; Rationale: We note that the quarantine period for SPGP has been changed to 42 (two incubation periods), while for PPR it is 21 days (one incubation periods). We understand WOA's rationale that PPR virus does not persist as long outside the host and that strict quarantine, testing, and clinical monitoring mitigate risk, whereas SPGP requires longer due to higher environmental persistence and limitations of clinical detection. However, the UK would appreciate references to scientific evidence or official documents supporting these differing requirements to ensure transparency and consistency.	See above

EITHER

14.9.8._3_ New Zealand	Category: editorial Proposed amended text: 2) were kept in a <i>quarantine centre</i> for the 42 days prior to shipment; ~~and~~ <u>EITHER</u> 3) <u>either,</u> a) have not been vaccinated against sheeppox and goatpox and were subjected to a serological test at least 35 days after entering the <i>quarantine centre</i>, with negative results; <u>or</u> <u>OR</u> b) were vaccinated using a live attenuated vaccine following manufacturer's guidelines not less than 28 days prior to shipment; <u>and</u> Rationale: Suggested a change to the formatting similar to the Japanese encephalitis chapter (e.g. Article 8.10.6) to increase clarity.	See above

- a) have not been vaccinated against sheeppox and goatpox and were subjected to a serological test at least 35 days after entering the *quarantine centre*, with negative results;

OR

- b) were vaccinated using a live attenuated vaccine following manufacturer's guidelines not less than 28 days prior to shipment.

14.9.8._4_ New Zealand	Category: addition Proposed amended text: <u>4) either,</u> <u>a) did not transit through another infected country or zone during transportation to the place of shipment; or</u> <u>b) were protected from biting insects at all times when transiting through an infected country or zone.</u> Rationale: Propose the addition of point 4, as transmission by vectors is recognised by this chapter. Alternatively, a generic requirement for countries to manage exposure to vectors, where they have WOAHL-listed vector borne disease relevant to the transiting species, could be included in the horizontal transit chapter (Chapter 5.5) currently under revision.	Did not agree, vector risk is much less significant in the transmission of sheeppox and goatpox.

Article 14.9.9.

Recommendations for importation of semen of sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor males:
 - a) showed no clinical sign of sheeppox and goatpox on the day of semen collection;

- b) were kept in a free country, *zone* or *compartment* since birth or at least 21 days prior to semen collection; and

14.9.9._1_ China (People's Rep. of)	Category: change Proposed amended text : <u>c) tested negative for sheeppox and goatpox by PCR; and</u> Rationale : Though there's no direct evidence showed that sheeppox and goatpox could transmitted through infected semen, an experiment showed transmission of the LSD virus and lead to infection in cows or embryos during artificial insemination. Therefor it is essential to ensure the quality of its source. It is recommended that, in addition to the existing conditions for semen donor animals, a requirement be added stating "tested negative for sheeppox and goatpox by PCR."	Did not agree, testing of semen with PCR is not reliable.

- 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 14.9.10.

Recommendations for importation of semen of sheep and goats from countries or zones infected with SPPV and GTPV

14.9.10._1_ _EU	Category: editorial Proposed amended text: Harmonise throughout the chapter the use of 'animal hosts' as introduced in Article 1. Rationale: Editorial comment	Did not agree, need to be consistent with framework

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor males:
- a) have been kept for at least 42 days prior to semen collection in a *semen collection centre* where no *case of infection* with SPPV and GTPV was reported during that period;
 - b) showed no clinical sign of sheeppox and goatpox during that period and for the following 21 days; and
- EITHER
- c) were vaccinated using a live attenuated vaccine following manufacturer's guidelines; not less than 28 days prior to the first semen collection; and
- OR
- d) have not been vaccinated against sheeppox and goatpox; and
 - i) were subjected to a serological test to detect antibodies specific to capripoxviruses, with negative results, at least every 28 days throughout the collection period and one test 28 days after the final collection for this consignment; OR

- ii) were subjected to an agent detection test at commencement and conclusion of, and at least every 28 days during semen collection for this consignment, with negative results;
- 2) the semen was collected, processed and stored in a *semen collection centre* in accordance with Chapters 4.6. and 4.7.

Article 14.9.11.

Recommendations for importation of oocytes or embryos of sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor animals:
 - a) showed no clinical sign of sheeppox and goatpox on the day of collection;
 - b) were kept in a free country, *zone* or *compartment* since birth or at least 21 days prior to collection; and
- 2) the semen used to fertilise the oocytes complied with the conditions referred to in Article 14.9.9. or Article 14.9.10., as relevant;
- 3) the oocytes or embryos were collected, processed and stored in accordance with Chapters 4.8. and 4.10., as relevant.

Article 14.9.12.

Recommendations for importation of oocytes or embryos of sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor animals:
 - a) have been kept for at least 42 days prior to collection, in an *establishment* where no *case of infection* with SPPV and GTPV was reported during that period;
 - b) showed no clinical sign of sheeppox and goatpox during that period and for the following 21 days; and
- EITHER
- c) were vaccinated using a live attenuated vaccine following manufacturer's guidelines; not less than 28 days prior to the first collection;
- OR
- d) have not been vaccinated against SPPV and GTPV and were subjected to a serological test to detect antibodies specific to capripoxviruses, with negative results, on the day of collection and at least 28 days after collection;
- 2) the semen used to fertilise the oocytes complied with the conditions referred to in Article 14.9.9. or Article 14.9.10., as relevant;
 - 3) the oocytes or embryos were collected, processed and stored in accordance with Chapters 4.8. and 4.10., as relevant.

Article 14.9.13.

Recommendations for importation of fresh meat and meat products except products listed in Article 14.9.2. from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat* comes from animals which:

- 1) were kept since birth or at least 21 days prior to shipment in the free country, *zone* or *compartment*;
- 2) have been slaughtered in an approved *slaughterhouse/abattoir* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results.

Article 14.9.14.

Recommendations for importation of meat products except products listed in Article 14.9.2. from countries or zones infected with SPPV and GTPV

14.9.14._1_ UK	Category: general Proposed amended text: <u>Recommendations for importation of meat products except products listed in Article 14.9.2. from countries or zones infected with SPPV and GTPV</u> Rationale: Clarification is needed on the scope of “meat products” (processed meat vs. broader animal products such as offal). We recommend explicit reference to the WOAHS Glossary definition to avoid ambiguity and ensure consistency with other legislation. In addition, confirmation is required that the exemption in the title (“except products listed in Article 14.9.2”) applies to the entire article, not only paragraph 2. Finally, we note stricter requirements for SPPG meat products compared to PPR and request the scientific rationale for this difference. Supporting evidence: • WOAHS Terrestrial Code Glossary definition of “meat products.” • Comparative provisions in Chapter 14.7 (PPR).	Clarified that this means meat products as defined in the Glossary, and applies to the whole article.

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the entire consignment of *meat products* comes from animals which:
 - a) showed no clinical sign of sheeppox and goatpox within 24 hours before *slaughter*;
 - b) have been slaughtered in an approved *slaughterhouse/abattoir* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results;
- 2) the *meat products* were processed using heat treatment to a minimum internal temperature of 65°C for at least 30 minutes;

14.9.14._2_ EU	Category: change It proposed to exclude offal (which should be treated as in 14.9.2. i.e. to F03 in hermetically sealed containers)	Did not agree as conditions are sufficient to inactivate the virus in offal

- 3) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of SPPV and GTPV.

Article 14.9.15.

Recommendations for importation of milk and milk products from sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that these products come from animals which have been kept in a country, zone or compartment free from sheeppox and goatpox for at least 21 days prior to milking.

Article 14.9.16.

Recommendations for importation of milk and milk products from sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that these products:

- 3) originated from animals kept in *establishments* that were not subjected to restrictions due to sheeppox and goatpox;

14.9.16._1_ New Zealand	Category: change Proposed amended text: originated from animals kept in <i>establishments</i> that <u>at the time of milk collection were not infected or suspected of being infected with that were not subjected to restrictions due to</u> sheeppox and goatpox; Rationale: The current wording is vague and does not provide sufficient assurance the establishment is free from infection e.g. an establishment may have infection, but restrictions have not been applied. Wording is also more consistent with the FMD chapter.	Agreed

- 4) were subjected to one of the following treatments:

a) pasteurisation;

14.9.16._2_ Australia	Category - Addition Proposed new text: a) <u>batch pasteurisation at a temperature of no less than 63°C and retaining at such temperature for no less than 30 minutes;</u> b) <u>ultra-high temperature (UHT) pasteurisation at a temperature of no less than 132°C and retaining at such temperature for no less than 1 second</u>	Did not agree, it is not just a single treatment, it is also combined with other risk mitigation measures. There has not been substantiated transmission of sheeppox and goatpox via milk. Taken together, the risk measures would render the product safe.

	Rationale: Australia considers that there is evidence that heat treatments equivalent to batch pasteurisation (63°C for no less than 30 minutes) and ultra-high temperature (UHT) pasteurisation (132°C for no less than 1 second), are likely to inactivate capripoxviruses in milk. However, there is no scientific evidence to show that heat treatment equivalent to high-temperature short-time (HTST) pasteurisation (72°C for no less than 15 seconds) will inactivate sheeppox and goatpox viruses in milk. Although HTST pasteurisation is likely to reduce the amount of virus, there is limited evidence to demonstrate its efficiency or degree of inactivation. The sensitivity of sheeppox and goatpox viruses to heat differs among strains. Although inactivation of 4 goatpox virus strains has been reported following various time/temperature combinations, including 55°C for 60 minutes, 60°C for 30 minutes and 65°C for 30 minutes (Ferreira 1973; Datta & Soman 1991; Kavitha et al. 2009), some goatpox virus strains have also been demonstrated to retain infectivity following treatment at 56°C for 60 minutes and 60°C for 30 minutes (Tantawi et al. 1979, 1980). There is currently insufficient evidence to conclude that these viruses will be inactivated by the same conditions which inactivate LSDV in milk. A pH of less than 6 for one hour is considered insufficient to be recommended as a single effective treatment. While sheeppox and goatpox viruses are susceptible to highly acidic pH, we are not aware of any evidence demonstrating their inactivation above pH 5 (EFSA Panel on Animal Health and Welfare 2014). A study demonstrated that sheeppox virus was no longer detectable after 2 hours at pH 3 and pH 11 (Ferreira 1973). Datta & Soman (1991) obtained a 3 log₁₀ reduction in infectivity when goatpox virus was exposed to pH 5 for 1 hour. At pH 3 and 5, Kavitha et al. (2009) reported complete inactivation of four strains of goatpox after exposure for one hour. As pH is a logarithmic scale, Australia considers that meaningful differences in survival may be seen between pH 5 and pH 6, and therefore pH 6 may not necessarily 'significantly inactivate capripoxes' as suggested in TAHSC 24 25 discussion. Scientific evidence: Ferreira, C 1973, Effects of physical and chemical agents on sheep pox virus, <i>Anais de Escola Superior de Medicina Veterinaria</i>, vol. 15, 16 July 2020, pp. 7-40 Datta, S & Soman, JP 1991, Host range and physiochemical characterization of 'Ranchi' strain of goat-pox virus, <i>Indian Journal of Animal Sciences</i>, vol. 61, no. 9, pp. 955-7 EFSA Panel on Animal Health and Welfare 2014, Scientific opinion on sheep and goat pox, <i>EFSA Journal</i>, vol. 12, no. 11, pp. 3885, DOI: 10.2903/j.efsa.2014.3885 Kavitha, K, Chetty, MS & Sreenivasulu, D 2009, Characterisation of indigenous goatpox virus strains, <i>Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases</i>, vol. 30, no. 1, pp. 1-4 Tantawi, HH, Al Falluji, MM 1979, Laboratory characteristics of four strains of goatpox virus, <i>Acta Virologica</i>, vol. 23, no. 6, pp 455-60 Tantawi, H, Awad, M, Shony, M, Alwan, A & Hassan, F 1980, Preliminary characterisation of the Sersenk strain of goat pox virus, <i>Tropical Animal Health and Production</i>, vol. 12, no. 1, pp. 30-4, DOI: 10.1007/bf02242628	

- b) pH maintained at less than 6 for more than one hour;

14.9.16._3_ Australia	Category - Addition Proposed new text: <u>pH maintained at or less than 6.5 for more than one hour:</u> Rationale: Australia considers that there is evidence that heat treatments equivalent to batch pasteurisation (63°C for no less than 30 minutes) and ultra-high temperature (UHT) pasteurisation (132°C for no less than 1 second), are likely to inactivate capripoxviruses in milk. However, there is no scientific evidence to show that heat treatment equivalent to high-temperature short-time (HTST) pasteurisation (72°C for no less than 15 seconds) will inactivate sheeppox and goatpox viruses in milk. Although HTST pasteurisation is likely to reduce the amount of virus, there is limited evidence to demonstrate its efficiency or degree of inactivation. The sensitivity of sheeppox and goatpox viruses to heat differs among strains. Although inactivation of 4 goatpox virus strains has been reported following various time/temperature combinations, including 55°C for 60 minutes, 60°C for 30 minutes and 65°C for 30 minutes (Ferreira 1973; Datta & Soman 1991; Kavitha et al. 2009), some goatpox virus strains have also been demonstrated to retain infectivity following treatment at 56°C for 60 minutes and 60°C for 30 minutes (Tantawi et al. 1979, 1980). There is currently insufficient evidence to conclude that these viruses will be inactivated by the same conditions which inactivate LSDV in milk. A pH of less than 6 for one hour is considered insufficient to be recommended as a single effective treatment. While sheeppox and goatpox viruses are susceptible to highly acidic pH, we are not aware of any evidence demonstrating their inactivation above pH 5 (EFSA Panel on Animal Health and Welfare 2014). A study demonstrated that sheeppox virus was no longer detectable after 2 hours at pH 3 and pH 11 (Ferreira 1973). Datta & Soman (1991) obtained a 3 log₁₀ reduction in infectivity when goatpox virus was exposed to pH 5 for 1 hour. At pH 3 and 5, Kavitha et al. (2009) reported complete inactivation of four strains of goatpox after exposure for one hour. As pH is a logarithmic scale, Australia considers that meaningful differences in survival may be seen between pH 5 and pH 6, and therefore pH 6 may not necessarily 'significantly inactivate capripoxes' as suggested in TAHSC 24 25 discussion. Scientific evidence: Ferreira, C 1973, Effects of physical and chemical agents on sheep pox virus, Anais de Escola Superior de Medicina Veterinaria, vol. 15, 16 July 2020, pp. 7-40 Datta, S & Soman, JP 1991, Host range and physiochemical characterization of 'Ranchi' strain of goat-pox virus, Indian Journal of Animal Sciences, vol. 61, no. 9, pp. 955-7 EFSA Panel on Animal Health and Welfare 2014, Scientific opinion on sheep and goat pox, EFSA Journal, vol. 12, no. 11, pp. 3885, DOI: 10.2903/j.efsa.2014.3885 Kavitha, K, Chetty, MS & Sreenivasulu, D 2009, Characterisation of indigenous goatpox virus strains, Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases, vol. 30, no. 1, pp. 1-4 Tantawi, HH, Al Falluji, MM 1979, Laboratory characteristics of four strains of goatpox virus, Acta Virologica, vol. 23, no. 6, pp 455-60	Proposed to delete this option as it is difficult from a processing standpoint to have milk reach a pH of less than 5. Noted that this option was also removed from the LSD chapter.

	Tantawi, H, Awad, M, Shony, M, Alwan, A & Hassan, F 1980, Preliminary characterisation of the Sersenk strain of goat pox virus, Tropical Animal Health and Production, vol. 12, no. 1, pp. 30-4, DOI: 10.1007/bf02242628	
4.19.16._4_ Canada	Comment Category: deletion Proposed amended text: ~~pH maintained at less than 6 for more than one hour;~~ Rationale: The WOAHA <i>ad hoc</i> Working Group on Sheep and Goat Pox (November 26–28, 2024) examined issues related to the importation of milk and milk products from infected countries. The group highlighted the similarities in sensitivity to pasteurization among LSDV, sheeppox virus, and goatpox virus, while emphasizing the notable lack of published scientific literature on this topic. The WOAHA manual chapter 3.8.11. (English version only) specifies in the introduction that “Capripoxvirus is inactivated at [...]. The virus survives between pH 6.6–8.6”. This is likely extrapolated from unpublished information cited in Weiss (1968) which is not sufficient to substantiate inactivation of SPPV and GTPV at pH<6, especially since Polson and Turner (1954) showed that LSD virus <u>remained stable at pH values from 4.0 to 8.0 after 1h à 37°C</u>. In addition, it was noted that “Capripox virus” is treated as if it were a single virus species, when it actually is a genus comprising three different viruses and it is unknown if all three viruses react the same to pH changes. References: Polson A & Turner GS, 1954. pH Stability and Purification of Lumpy Skin Disease Virus. J gen Microbiology 11: 228-235. Weiss KE, 1968. Lumpy Skin Disease Virus. In: Hanshaw JB, Plowright W and Weiss KE (eds.), Cytomegaloviruses. Rinderpest Virus. Lumpy Skin Disease Virus. Berlin, Heidelberg: Springer Berlin Heidelberg. pp. 111-131.	See above.

c) any combination of control measures with equivalent performance.

Article 14.9.17.

Recommendations for importation of skins, wool and hair from sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that these products originated from animals that:

- 1) showed no clinical sign of sheeppox and goatpox;
- 2) were kept since birth or at least 21 days prior in a free country, *zone or compartment*.

Article 14.9.18.

Recommendations for importation of wool and hair from sheep and goats from countries or zones infected with SPPV and GTPV

14.9.18._1_ UK	Category: general Proposed amended text:	Members can apply the principles of equivalence

	<u>Recommendations for importation of wool and hair from sheep and goats from countries or zones infected with SPPV and GTPV</u> Rationale: The article specifies validated treatments for hides and skins. Could WOAHP clarify whether using alternative treatments not listed in the chapter could affect a Member's annual freedom reconfirmation status? This would help ensure compliance and avoid unintended consequences for disease status recognition.	and also refer to Chapter 2.1.

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products:
 - a) were derived from animals complying with Article 14.9.8.; or
 - b) have been washed by immersion in a water-soluble detergent with sodium hydroxide or potassium hydroxide held at 60 to 70°C for a minimum of 10 minutes;
- 2) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of SPPV and GTPV.

Article 14.9.19.

14.9.19._1_ USA	Category: general Request clarification and review if Article 14.9.19 is meant to apply to skins from sheep and goats originating from <u>both</u> free and infected countries or only infected countries. Article 14.9.17 is now also proposed to include skins from sheep and goats originating from free countries. Rationale: Clarification on which article and associated points apply to importation from free countries	Addressed and removed from Article 14.9.17.

Recommendations for importation of skins from sheep and goats

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products were derived from *animals* that had been kept in a country or *zone* free from sheep pox and goat pox since birth or for at least the past 42 days;

14.9.19._2_ Chinese Taipei	Category change Proposed Amended Text: these products were derived from animals that had been kept in a country or zone free from <u>sheeppox and goatpox</u> ~~sheep pox and goat pox~~ since birth or for at least the past 42 days; Rationale: To be consistent throughout this chapter.	Agreed

OR

- 2) these products were:

- a) derived from *animals* which had undergone ante- and post-mortem inspections in accordance with Chapter 6.3. with favourable results; and
- b) dry-salted or wet-salted for a period of at least 14 days prior to dispatch; or
- c) treated for a period of at least seven days in salt (NaCl) with the addition of 2% sodium carbonate (Na₂CO₃); or
- d) dried for a period of at least 42 days at a temperature of at least 20°C; and

14.9.19._3_ UK	Category: general Proposed amended text: <u>dried for a period of at least 42 days at a temperature of at least 20°C;</u> <u>and</u> Rationale: We note that Sheep Pox and Goat Pox viruses are highly persistent in scabs, with survival documented for up to three months under certain conditions. The proposed treatment of drying for 42 days at ≥20°C seems less stringent than expected given this persistence. We kindly request WOAHP to please provide the scientific rationale or supporting evidence that demonstrates this period is sufficient for virus inactivation in hides and skins, and clarify whether additional factors such as humidity or airflow were considered. Without such evidence, the recommendation may not fully mitigate the risk and may need revision to align with available data on virus stability.	Requested Secretariat to seek expert opinion

- 3) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of SPPV and GTPV.

Article 14.9.20.

Principles of surveillance for sheeppox and goatpox

Articles 14.9.20. to 14.9.22. define the principles and provide guidance on *surveillance* for sheeppox and goat pox, complementary to Chapter 1.4. and Chapter 1.5.

The purposes of *surveillance* may be the early detection of *cases*, the measurement and gathering of data for the design of control programmes, monitoring of prevention and control programmes, or for the demonstration of freedom of *infection* in a country, *zone* or *compartment*.

Important components of the epidemiology of sheeppox and goatpox that should be considered when planning *surveillance* programmes are:

- Multiple routes of transmission including direct contact, aerosols, *vector*-borne and via fomites;

14.9.20._1_ USA	Category: addition Proposed amended text: Multiple routes of transmission including direct contact, aerosols, <i>vector</i> -borne and via fomites <u>including the environment</u> . Rationale: As the virus can survive in the environment for prolonged periods of time, it is important to specifically point out this as a source of infection. Supporting evidence:	Agreed, but used alternative text.

	https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2014.3885 WOAH Terrestrial Manual. Chapter 14.9 Sheep pox and Goat pox	

- Skin lesions and scabs contain high viral loads which are important sources for transmission;
- The absence of carrier states, subclinical *infection*, or latent *infection*;
- A long *incubation period* of up to 21 days;
- Ability of the virus to potentially survive for months in the environment under appropriate conditions.

Article 14.9.21.

Surveillance for early warning of sheeppox and goatpox

An ongoing *surveillance* programme for sheeppox and goatpox should be in place and be designed to detect the presence of *infection* with SPPV or *infection* with GTPV in the country, *zone* or *compartment* in a timely manner.

The sheeppox and goatpox *surveillance* programme should include the following:

- 1) An *early warning system* for reporting suspected animals, in accordance with Article 1.4.5.;
- 2) Implementation, as relevant, of regular and frequent clinical inspection of animals at risk of sheeppox and goatpox that may, for instance, include animals that were imported from infected countries, animals in high-risk areas adjacent to infected countries or *zones*, or animals in or around *establishments* such as *slaughterhouses/abattoirs* or live animal markets;
- 3) Samples from suspected cases should be sent to a *laboratory* for confirmatory testing.

Veterinary Authority should develop *early warning systems* to detect sheeppox or goatpox, and promote awareness campaigns to sensitise *veterinarians*, owners, keepers, and other stakeholders of the domestic sheep and goat industry.

14.9.21._1_ New Zealand	Category: deletion Proposed amended text: ~~<i>Veterinary Authority</i> should develop <i>early warning systems</i> to detect sheeppox or goatpox, and promote awareness campaigns to sensitise <i>veterinarians</i>, owners, keepers, and other stakeholders of the domestic sheep and goat industry.~~ Rationale: Duplication, this requirement is already covered by Article 14.9.21 point 1). We suggest 'Inform' would be more appropriate terminology than 'sensitise' if retained. Supporting evidence: Article 1.4.5.	Agreed to delete mention of early warning systems as this article precisely refers to this.

Article 14.9.22.

14.9.22._1_ China (People's Rep. of)	Category: general Currently, the sensitivity and specificity of serological tests for capripoxviruses are both limited, making it difficult to accurately distinguish between sheep pox, goat pox, and lumpy skin disease. Additionally, infection of goats or sheep with orf virus can lead to increased serum antibodies, which may result in false-positive serological results for capripoxviruses. In contrast, molecular biology methods can differentiate between the pathogens of sheep pox, goat pox, and lumpy skin disease, as well as distinguish between vaccine strains and wild-type strains. Therefore, it is recommended to combine serological methods with molecular biology approaches.	Requested Secretariat to seek expert opinion for incorporation into the article.

Surveillance for demonstrating freedom from sheeppox and goatpox

In addition to the provisions in Article 1.4.6., the following strategies may be used by Member Countries seeking to demonstrate freedom in accordance with Articles 14.9.3. and 14.9.6.

1. Clinical surveillance

Clinical *surveillance* is essential for detecting any *case of infection* with SPPV or GTPV and requires the physical examination of animal hosts. This should be based on a *surveillance* programme that is designed to provide a high level of confidence of detection of disease and requires a sufficient number of clinically susceptible animals to be examined regularly at an appropriate frequency and investigations recorded and quantified.

14.9.22._1_ USA	Category: change Proposed amended text: This ~~must~~ ^{should} be based on a <i>surveillance</i> programme that is designed to provide a high level of confidence of detection of disease.... Rationale: Article 14.9.3 (4)a allows a clinical surveillance program to be the basis of country freedom, therefore a more definitive requirement is recommended in this section.	Did not agree as this is not in line with standard language.

2. Serological and virological surveillance

As an addition to clinical *surveillance*, serological and virological testing of domestic sheep and goats may be used to detect the presence of *infection* with SPPV and GTPV. The study population should be representative of the target population (population at risk) in the country or *zone*.

Serological and virological *surveillance* programmes should take into account *vaccination* programmes in the region and *vaccine* strains being used. It is not possible to differentiate vaccinated and unvaccinated animals via serological methods and therefore any serological *surveillance* should be restricted to unvaccinated animals.

In some circumstances it is possible to differentiate between wild-type and vaccine strains using nucleic acid identification methods.

Article 14.9.23.

Prevention and control programmes for sheeppox and goatpox

This article describes important components of prevention and control programmes, complementary to Chapter 4.19. Important components of a prevention and control programme for sheeppox and goatpox include a combination of *biosecurity*, *stamping-out policy*, *animal traceability*, movement controls, *vaccination*, *surveillance* and *risk communication*.

Prevention of sheeppox and goatpox relies on *biosecurity*, awareness programmes and movement controls undertaken in accordance with the *sanitary measures* recommended in this chapter. Member Countries may also apply a *vaccination* programme in accordance with Chapter 4.18. in areas of high risk. *Protection zones* in accordance with Article 4.4.6. may be established.

- **Laboratory capacity:** Member Countries are advised to have systems in place for the collection and submission of samples to a *laboratory* that performs diagnostic testing to confirm suspected cases.
- **Biosecurity:** SPPV and GTPV are stable for long periods of time in the environment and on fomites and therefore *biosecurity*, as well as cleaning and *disinfection* and safe disposal of dead animals, by-products and waste are important. *Biosecurity* should apply to all actors in the production chain including service providers like *veterinarians* and shearers.
- **Stamping-out policy:** a *stamping-out policy* including the *killing* of all susceptible animals in the *flock* or *epidemiological unit* is useful for the rapid control of sheeppox and goatpox. Member Countries may choose to implement a *stamping-out policy* that only involves the removal of selected animals such as clinical or in-contact animals which could assist in progressively reducing the prevalence of disease. Zoning and movement controls are important in instances where a *stamping-out policy* is applied. Compensation should be considered to facilitate compliance.
- **Movement controls:** movement controls of animals and *animal products* are important to stop direct and indirect transmission, in particular animals as they present the highest risk of virus transmission. *Animal identification* in accordance with Chapter 4.2. and *animal traceability* should be in place to support the application of movement controls. Movement controls may also be applied as part of zoning in accordance with Chapter 4.4. Attention should be given to management of common grazing and transhumance practices which represent an important route of virus transmission.
- **Vaccination:** *vaccination* may be used to control sheeppox and goatpox in endemic areas, or in a high-risk free *zone* to prevent the introduction or spread of SPPV and GTPV or as an emergency measure in response to *outbreaks*. Any vaccine used should comply with a *vaccination* strategy as described in Chapter 4.18. Member Countries may consider having in their legal framework the provisions for emergency *vaccination* using live attenuated vaccines. Post-vaccination monitoring should be used to measure the effectiveness of *vaccination* programmes and may be done using approaches like serological methods, epidemiological methods and *vaccination* records.

14.9.23_1_ Australia	Category - Addition Proposed new text: • <i>Vaccination:</i> <i>vaccination</i> may be used to control sheeppox and goatpox in endemic areas, or in a high-risk free country or zone to prevent the introduction or spread of SPPV and GTPV or as an emergency measure in response to <i>outbreaks</i>. Any vaccine used should comply with a <i>vaccination</i> strategy as described in Chapter 4.18. Member Countries may consider having in their legal framework the provisions for emergency <i>vaccination</i> using live attenuated vaccines. Post-vaccination monitoring should be used to measure the effectiveness of <i>vaccination</i> programmes and may be done using approaches like serological methods, epidemiological methods and <i>vaccination</i> records. Rationale: Provide clarity and consistency for use of vaccination in free countries and zones	Agreed

- *Vector* control: although transmission of SPPV and GTPV by *vectors* is possible, it is not the main transmission route and therefore other measures should be implemented prior to *vector* control measures. *Vector* control may include *vector* protection or applying insect repellents or insecticides to *establishments*.

14.9.23._2 New Zealand	Category: deletion Proposed amended text: <i>Vector</i> control: although transmission of SPPV and GTPV by <i>vectors</i> is possible, it is not the main transmission route ~~and therefore other measures should be implemented prior to vector control measures.~~ <i>Vector</i> control may include <i>vector</i> protection or applying insect repellents or insecticides to <i>establishments</i> . Rationale: If prevention and control is intended all relevant risk pathways should be implemented. This sentence is unnecessary and undermines inclusion of vector control where relevant.	Agreed, revised language.

As with all prevention and control programmes, collaboration with stakeholders is essential and *risk communication* should be designed in accordance with Chapter 2.1.

Reference	Comment	TAHSC response
15.2._1_ Korea (Rep. of)	Category: general The Republic of Korea agrees with the revised Chapter emphasizing the importance of import risk analysis when commodities are imported into or moved into a CSF-free country or zone.	Noted
15.2._2_EU	Category: general The EU thanks the Code Commission for the continued efforts to harmonise official-status chapters and for aligning the revision of the CSF chapter with a streamlined approach to the assessment of official statuses. The EU can in general support the approach taken, provided that the specific proposed changes below are taken on board and that the revised provisions remain consistent across all official-status disease chapters. Specific comments on Articles 15.2.3 and 15.2.5 are provided below. Finally, the EU suggests revising the full CSF chapter, instead of just a few articles, in line with the revision proposed for the PPR chapter. Reference is made to the EU comment on Annex 23 (PPR).	Noted

CHAPTER 15.2.

INFECTION WITH CLASSICAL SWINE FEVER VIRUS

[...]

Article 15.2.3.

Country or zone free from CSF

A country or *zone* may be considered free from CSF when the relevant provisions in point 2 of Article 1.4.6. have been complied with, and when within the proposed free country or *zone* for at least the past 12 months:

- 1) there has been no *case* of *infection* with CSFV in domestic and *captive wild* pigs;
- 2) the *Veterinary Authority* has current knowledge of, and authority over, all domestic and *captive wild* pig *herds* in the country or *zone*;
- 3) the *Veterinary Authority* has current knowledge of the distribution, habitat and indication of disease occurrence through passive *surveillance* of *wild* and *feral* pigs in the country or *zone*;
- 4) appropriate *surveillance* has been implemented in accordance with:
 - a) point 2 b) of Article 1.4.6. where historical freedom can be demonstrated; or
 - b) Articles 15.2.28. to 15.2.33. where historical freedom cannot be demonstrated;
- 5) measures to prevent the introduction of the *infection* have been in place: in particular, the importations or movements of *commodities* into the country or *zone* have been carried out in accordance with this chapter and/or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';

15.2.3._1_ New Caledonia	Category: Proposed amended text: “des mesures ont été appliquées pour empêcher l'introduction de l'<i>infection</i> : en particulier, les importations et les mouvements de <i>marchandises</i> dans le pays ou la <i>zone</i> ~~sont-ont été~~ effectués conformément au présent chapitre ~~et ou aux~~ à d'autres chapitres pertinents du <i>Code terrestre</i>...” Rationale: Pour harmoniser par rapport aux chapitres 11.5 et 12.1, il est proposé de faire référence “aux autres chapitres pertinents du Code” et non “à d'autres”	Agreed (French version only)
15.2.3._2_ New Zealand	Category: change Proposed amended text: accordance with this chapter ~~and-or-and~~ other relevant chapters of the <i>Terrestrial Code</i>, <u>including Chapter 2.1. 'Import risk analysis'</u>. Rationale: The proposed change makes the clause ineffectual and ambiguous as a standard – it is not clear which alternative chapters are 'relevant'. In addition, the proposed change of 'and' to an 'or' removes clarity of the requirement for Member Countries to align with the relevant trade related measures in the horizontal chapters when the disease specific chapter recommended measures are applied. If the proposed change is to provide for the use of equivalence measures based on risk assessment, it is not necessary, as the current text using an 'and' already provides for countries to: i) utilise Import Risk Analysis as outlined in Chapter 2.1 to, if scientifically justified, apply measures higher than WOAHP import mitigation measures or develop measures where none exist, or ii) use Chapter 5.3. to assess and recognised measures equivalent to those recommended by WOAHP. We recognise that this change was made at the WOAHP General Session for CBPP and AHS but the change undermines the Code standard framework and should not be perpetuated.	Refer to comment 8.8.3._4_ New Zealand

- 6) no *vaccination* against CSF has been carried out in domestic and *captive wild* pigs unless there are means, validated according to Chapter 3.8.3. of the *Terrestrial Manual*, of distinguishing between vaccinated and infected pigs;
- 7) if relevant, the domestic and *captive wild* pig populations have been separated by appropriate *biosecurity*, effectively implemented and supervised, from the *wild* and *feral* pig populations, based on the assessed likelihood of spread of the disease within the *wild* and *feral* pig populations and *surveillance* in accordance with Article 15.2.33.

The country or *zone* will be included in the list of countries or *zones* free from CSF in accordance with Chapter 1.6.

Retention on the list requires annual reconfirmation of compliance with all points above and relevant provisions under point 4 of Article 1.4.6. Documented evidence should be resubmitted annually for points 1 to 5 above. Any changes in the epidemiological situation or other significant events should be notified to WOAHP in accordance with Chapter 1.1.

15.2.3._3_ EU	Category: change Proposed amended text:	Refer to comment 8.8.3._6_ EU

	"Retention on the list requires annual reconfirmation of compliance with all points above and relevant provisions under point 4 of Article 1.4.6. ~~Documented evidence should be resubmitted annually for points 1 to 5 above.~~ <u>A declaration by the Delegate should be submitted annually confirming that the epidemiological situation has not changed and that the conditions described in points 1 to 5 above continue to be met.</u> Any changes in the epidemiological situation or other significant events should be notified to WOAAH in accordance with Chapter 1.1." Rationale: As already requested in previous years, the EU proposes to simplify the annual reconfirmation process to ensure that it remains sustainable and proportionate to the workload of Member's veterinary authorities and WOAAH Secretariat. Requiring the re-submission of full documentary evidence every year is unnecessary when the epidemiological situation remains stable. In addition, this provision should be harmonised with Chapter 1.6., which does not require documentary evidence but relies instead on an annual declaration provided by the Delegate confirming that the situation and compliance with conditions remain unchanged. This alignment would need to be applied across all official-status disease chapters (including on AHS and CBPP last amended in May 2025) and will maintain transparency while reducing administrative burden for both Members and the WOAAH Secretariat.	

[...]

Article 15.2.5.

Country or zone infected with CSFV

A country or *zone* is considered as infected with CSFV when the conditions in points 1 to 7 of Article 15.2.3. requirements for acceptance as a free country or zone are not fulfilled ~~met~~.

[...]

15.2.2._1_ WRO	Category: addition Proposed amended text: 3. protein meal: 4. rendered fat. Rationale: Protein meal and rendered fat are not currently listed in Article 15.2.2 as safe commodities, despite being globally traded products that undergo validated thermal processing capable of eliminating transboundary animal disease agents, including classical swine fever virus. The WRO report submitted to the TAHSC describes that both protein meals and rendered fats are produced under controlled time and temperature parameters that significantly exceed the thermal	Noted The Commission explained that comments falling outside the scope of the current revision have been noted and will be discussed in the future (refer to Item 5.6. of the report)

	conditions required to inactivate classical swine fever virus. These manufacturing conditions are systematically applied in dry rendering, wet rendering, pressure hydrolysis and drying systems, ensuring reliable pathogen destruction across all relevant production technologies. Including protein meals and rendered fats in Article 15.2.2 harmonises the CSF chapter with the approach already adopted in other WOAHP disease chapters, such as 11.5.2, 12.1.2 and 12.3.2, which recognise these commodities as safe for international trade regardless of the animal health status of the exporting country or zone. This amendment ensures regulatory coherence and supports consistent implementation among Member Countries. Supporting evidence: The WRO Scientific Advisory Panel report provides detailed descriptions of rendering technologies in which protein meals and rendered fats are produced under strict thermal conditions. In both dry and wet rendering processes, materials are heated from ambient temperature to discharge temperatures routinely above 110°C, sustained for periods well beyond the minimum time required for inactivation of classical swine fever virus. These high-temperature conditions are inherent to the normal operating parameters of rendering cookers and dryers. The report also identifies protein meals and rendered fats as two of the four principal rendered commodities globally produced and traded, each generated only after undergoing validated critical control points linked to heat treatment. These CCPs are defined within HACCP plans and include minimum thermal limits of 80°C for 30 minutes, 90°C for 10 minutes, 100°C for 1 minute, or equivalent validated processes. Such parameters exceed those known to inactivate classical swine fever virus and other enveloped viruses. Additionally, the WRO report documents that rendered fats and protein meals originate from raw materials sourced under official veterinary inspection and are subsequently processed within production systems designed to eliminate transboundary pathogens through controlled heat, sanitary barriers and moisture reduction. These systems ensure that both commodities meet WOAHP principles for safe trade regardless of disease status. Given their high level of processing, validated thermal lethality and global commercial relevance, protein meals and rendered fats clearly meet the criteria for recognition as safe commodities in the context of classical swine fever. Their inclusion in Article 15.2.2 is therefore justified and necessary for regulatory consistency across WOAHP disease chapters. The previously presented WRO's standard procedures report supplies evidence that Protein meal and rendered fat are highly processed commodities and should not have any trade restriction regardless the Country status.	

**WORK PROGRAMME FOR
THE TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION**

Chapter	Issues	Summary of the work	Status – February 2026		Priority order *
			Stage of consideration	Remarks (Month when draft text first circulated for comment /# of rounds for comment) or last TAHSC report reference	
General	Wildlife Health	Overarching consideration on how wildlife animal health is addressed in the <i>Terrestrial Code</i>	In progress	Noted in Sep 2024 TAHSC report	2
	Commodities	Consideration to determine whether several types of highly processed products (such as protein meal, rendered fats, and hydrolysed protein) have a globally standardised production process and meet criteria to be considered safe commodities as regards specific diseases. Pet-food: Consider the inclusion of 'extruded dry pet food' and 'heat-treated meat products in a hermetically sealed container with an F0 value of 3 or above' in the list of safe commodities of chapters (when revised).	In progress	Noted in Sep 2024 TAHSC report Noted in Sep 2022 TAHSC report (pet-food commodities)	2
Use of terms	Use of terms: animal health status	- Consider the need to revise definition to incorporate 'herd', and avoid restrictive wording - Possible revision of the Glossary definition - Review use of the terms across the <i>Code</i> for consistency	circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
	Use of terms: notify / notifiable disease / report / reportable disease	Review use of the terms across the <i>Code</i> for consistency. Develop a policy for their use Consider the revision of definitions for 'notification' and 'notifiable disease'	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1

User's guide	Revision of the Users' guide (standing item)	Partial revision - clarification of chapters	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
Glossary	1. New definition for 'swill', definitions for 'biosecurity' and 'biosecurity plan' 2. New definitions for 'isolation' and 'pathogenic agent', and definition for 'disinfection'	Swill: Review use of the term across the <i>Code</i> . Develop a policy for its use and consider developing a definition. (connected to biosecurity work)	Proposed for adoption	1. Noted in Feb 2026 TAHSC report (Sep 2023/5) 2. Noted in Feb 2026 TAHSC report (Sep 2024/4)	1
	Definition for 'disinsection'	Develop a new definition	Propose for adoption	Noted in Feb 2026 TAHSC report (Feb 2025/3)	1
	1. New definition for 'point of exit' and definitions for 'border post' and 'quarantine station' 2. New definition for 'point of entry' and definitions for 'transit country', 'container' and 'means of transport'	Review as a part of the work to revise Chs 5.4. to 5.7.	Proposed for adoption	1. Noted in Sep 2025 TAHSC report (Sep 2023/4) 2. Noted in Sep 2025 TAHSC report (Sep 2024/3)	1
	New definition for 'veterinary medical use'	Move the definition from Ch 6.9.	Pending the work of AMRWG	Noted in Sep 2023 TAHSC report	3
	Definition of 'poultry'	(Not defined yet, related to revision of chapters in Section 10)	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
	Definition for 'laboratory'	Revision of definition (in collaboration with BSC)	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2025/2)	1
	New definition for 'seroconversion'	Develop a new definition (in coordination with BSC)	Propose for adoption	Noted in Feb 2026 TAHSC report (Feb 2025/3)	1
	Definition for 'approved'	Revision of definition (add other Competent Authority)	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2025/2)	1
	Definitions for 'animal health status', 'containment zone', 'free zone', 'protection zone', and 'zone'	Revision as a part of the work to revise Chapter 4.4. and to develop new Chapter 4.Y.	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	2

	New definition for 'animal host'	Develop a new definition	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
	Definitions for 'notification' and 'notifiable disease'	Revision of definition (to improve clarification)	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	2
	New definition for 'suspected case'	Consider a new definition	Expert consultation	Noted in Feb 2024 TAHSC report	2
Section 1					
1.1.	Notification of diseases and provision of epidemiological information	Revision of relevant articles	Circulated for comments	Refer to Feb 2026 TAHSC report (Feb 2026/1)	1
1.3.	Diseases, infections and infestations listed by WOA	Removal of 'Nairobi sheep disease'	Propose for adoption	Noted in Feb 2026 TAHSC report (Feb 2025/3)	1
		Revision of disease names to chapters to be proposed for adoption	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2025/2)	1
1.6.	Procedures for official recognition of animal health status, endorsement of an official control programme, and publication of a self-declaration of animal health status, by WOA	Partial revision: - New article to improve clarity on the ability for Members to hold pathogenic agents within laboratories without affecting their animal health status. - Amendments to clarify the text	Circulated for comments	Noted in Feb 2026 TAHSC report (Sep 2024/6)	2
1.7.- 1.12	Status Questionnaires	Deletion of chapters, to move their content to the WOA Website - introduce the possibility to host the questionnaires on the web.	Preparatory work	Noted in Sep 2025 TAHSC report	3
Section 3					
3.X	New chapter on emergency management	Develop a new chapter and potentially modify the existing chapters	Circulated for comments	Noted in Feb 2026 TAHSC report (Sep 2025/2)	2

Section 4					
4.4., 4.Y.	Zoning and compartmentalisation New chapter on application of zoning	To address necessary points, as relevant, with the development of new Ch 4.4. and develop a full new chapter (taskforce by SCAD and TAHSC to work on this issue)	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
4.7.	Collection and processing of bovine, small ruminant and porcine semen	Comprehensive revision of chapter	Expert consultation	Refer to Feb 2026 TAHSC report	1
4.8.	Collection and processing of <i>in vivo</i> derived embryos from livestock and equids	Consider potential amendments as a consequence of the changes in the IETS Manual	Preparatory work	Pending progress of data collection	2
4.9.	Collection and processing of oocytes and <i>in vitro</i> produced embryos from livestock and horses	Consider potential amendments as a consequence of the changes in the IETS Manual	Preparatory work	Pending progress of data collection	2
4.13.	Disposal of dead animals	Consider including all potentially contaminated wastes/products/fomites	Preparatory work	Refer to Feb 2022 TAHSC report	2
4.14.	General recommendations on disinfection and disinsection	Comprehensive revision of chapter Consider question from AHG on biosecurity	Expert consultation	Refer to Feb 2026 TAHSC report	1
4.X.	New chapter on biosecurity	Develop a new chapter	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2023/5)	1
Section 5					
General	Revision of Section 5 Trade measures, import/export procedures and veterinary certification (especially Chs 5.4. to 5.7.)	Comprehensive revision of Chs 5.4., 5.5., 5.6. and 5.7.	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2023/5 for Chs 5.4. and 5.6., Sep 2024/4 for Chs 5.5. and 5.7.)	1
5.Y.	Development of introductory chapter	New introductory chapter for Section 5 (task force, TAHSC and AAC)	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	2

5.1., 5.2., 5.10. to 5.13.	Certification procedures	Partial revision to review provisions on electronic certification and check model of certificate For Ch 5.12. Update the relevant chapters on equine diseases to take into account proposals made by the AHG on HHP Horses Veterinary Certificates	Expert consultation	Refer to Feb 2025 TAHSC report	2
5.8.	International transfer and laboratory containment of animal pathogenic agents	- Consider impact of holding PA in labs (and research facilities) - Align with corresponding <i>Manual</i> chapter (categories of PA) - Potential link with work with Nagoya protocol	Preparatory work	Noted in Sep 2023 TAHSC report	3
Section 6					
6.8.	Harmonisation of national antimicrobial resistance surveillance and monitoring programmes	Inclusion of definitions for monitoring and surveillance, as well as for active and passive surveillance and integrated surveillance	Expert consultation	Noted in Sep 2025 TAHSC report	2
6.12.	Zoonoses transmissible from non-human primates	Consider possible inclusion of SARS-CoV-2 in this chapter, possible inclusion of Macacine Herpesvirus 1 and the revision of test schedule and animal species to be tested for tuberculosis (Origin Member requests)	Not started	Refer to Feb 2022 TAHSC report	4
Section 7					
7.2., 7.3., 7.4.	Transport of animals by land, sea and air	Comprehensive revision of chapters	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
7.5.	Animal welfare during slaughter	Article 7.5.30. Electrical water-bath stunning for poultry (points under study)	Propose for adoption	Noted in Feb 2026 TAHSC report (Feb 2025/3)	1
7.6.	Killing of animals for disease control purposes	- Comprehensive revision of chapter	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2024/3 for Articles 1 to 8, Feb 2025/2 for rest articles)	1

Section 8					
8.2.	Infection with Aujeszky's disease virus	Comprehensive revision - To change the section	Not started	Noted in Feb 2026 TAHSC report	3
8.4.	Infection with <i>Brucella abortus</i> , <i>B. melitensis</i> and <i>B. suis</i>	Revision of provisions for free status	Not started	Noted in Sep 2024 TAHSC	2
8.8.	Infection with foot and mouth disease virus	Partial revision: development of an article with provision for safe trade of fetal bovine serum and Article 8.8.13.	Circulated for comments	Noted in Feb 2026 TAHSC report (Sep 2024/2)	3
		Consider safe commodities (rendered fat)	Preparatory work	Noted in Feb 2026 TAHSC report	3
		Partial revision: consideration of recommendations for import of 'horns'	Expert consultation	Noted in Sep 2024 TAHSC report	3
		Harmonisation of animal health status related articles (recently adopted Chapters on CBPP and AHS)	Proposed for adoption	Noted in Feb 2026 TAHSC report (Sep 2025/2)	1
8.10.	Japanese encephalitis	Comprehensive revision of chapter (related to works on Chs 8.21., 12.4. and 12.11.)	Expert consultation	Noted in Feb 2026 TAHSC report (Feb 2025/2)	2
8.11.	Infection with <i>Mycobacterium tuberculosis</i> complex	Partial revision - to add recommendations for camelids and goats - to clarify point 1(b) of Article 8.11.4. ,provisions of free status	Not started	Refer to Feb 2022 TAHSC report	3
8.15.	Infection with rabies virus	Partial revision - to add recommendations on wildlife-mediated rabies - revise recovery of free status	Preparatory work	Refer to Sep 2022 TAHSC report	3
8.20.	Tularemia	Partial revision (case definition and to align other articles without altering current contents)	Propose for adoption	Noted in Feb 2026 TAHSC report (Feb 2025/3)	2
		Partial revision - to consider the import risk of commodities (live animal hosts) - to consider the article on surveillance	Not started	Noted in Feb 2026 TAHSC report	3
8.21.	West Nile fever	Comprehensive revision of chapter (related to works on Chs 8.10., 12.4. and 12.11.) including safe commodities	Expert consultation	Noted in Feb 2026 TAHSC report	2

8.X.	New Chapter on Crimean-Congo haemorrhagic fever	Develop a new chapter (case definition)	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2024/4)	2
		Consider need to develop recommendations for prevention	Preparatory work	Noted in Sep 2024 TAHSC report	3
Section 10					
General	Overall consideration of Section 10 Aves	Consider approach to risk management recommendations for different production sectors, species, commodities, structure of chapter (following latest adopted HPAI) across different diseases.	Preparatory work	Noted in Sep 2023 TAHSC report	2
10.2.	Avian infectious bronchitis	Review trade articles for clarity. Review safe commodities	Preparatory work	Noted in Sep 2023 TAHSC report	3
10.3.	Avian infectious laryngotracheitis	Consider amendments to ensure alignment with recently revised <i>Manual</i> chapter	Not started	Noted in Sep 2023 TAHSC report	3
10.4.	Infection with high pathogenicity avian influenza virus	Revision of Articles 10.4.1., 10.4.3. 10.4.4. and 10.4.6., and a new article to align with the work on revision of Glossary definition of ‘poultry’	Circulated for comments	Noted in Feb 2026 TAHSC report (Feb 2026/1)	1
10.5.	Infection with <i>Mycoplasma gallisepticum</i> (Avian mycoplasmosis)	Full update of the chapter (content and structure) based on the recent update of the <i>Manual</i> Chapter. Consider inclusion of <i>M. synoviae</i> into a single chapter (and listed disease).	Preparatory work	Noted in Sep 2023 TAHSC report	3
10.9.	Infection with Newcastle disease virus	Revision to align with recent revision of Ch 10.4. Provision on recovery of free status Review safe commodities	In progress	Noted in Sep 2025 TAHSC report	2
10.X.	Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chicken)	Develop a new chapter (case definition)	Propose for adoption	Noted in Feb 2026 TAHSC report (Sep 2024/4)	2
Section 11					
11.9.	Infection with lumpy skin disease virus	Comprehensive revision of chapter in relation to Chapter 14.9. (article on surveillance is still being worked on)	Circulated for comments and Expert consultation	Noted in Feb 2026 TAHSC report (Sep 2025/2)	2

11.11.	Trichomonosis	Comprehensive revision of chapter	Not started	Refer to Feb 2022 TAHSC report (Sep 2020/2)	4
11.X.	New Chapter on Infection with bovine pestivirus (bovine viral diarrhoea)	Develop a new chapter (case definition)	Expert consultation	Noted in Sep 2025 TAHSC report (Sep 2022/6)	3
Section 12					
12.8.	Infection with equid herpesvirus-1 (Equine rhinopneumonitis)	For consistency of disease name	Preparatory work	Noted in Feb 2024 TAHSC report Manual chapter adopted at the last GS	3
12.11.	Venezuelan equine encephalomyelitis	Comprehensive revision of chapter (related to works on Chs 8.10., 8.21. and 12.4.)	Circulated for comments and expert consultation	Noted in Feb 2026 TAHSC report (Sep 2025/2)	2
Section 13					
13.2.	Rabbit haemorrhagic disease	Comprehensive revision of chapter including safe commodities	Preparatory work	Noted in Sep 2023 TAHSC report	3
Section 14					
14.1. and 14.5.	Caprine arthritis/encephalitis and Maedi-visna	Comprehensive revision - include case definition - combine into one chapter	Preparatory work	Noted in Feb 2025 TAHSC report	3
14.7.	Infection with peste des petits ruminants virus	Partial revision: - Reconsider susceptible animals targeted in the chapter (wild animals, pigs) - Review Article 14.7.19. and Article 14.7.25 to remove reference to Chapter 8.8. - New article on recommendations for importation of animals for direct slaughter - Apply new drafting conventions - Harmonisation of animal health status related articles (recently adopted Chapters on CBPP and AHS)	Expert consultation	Noted in Feb 2026 TAHSC report (Sep 2025/1)	1

14.8.	Scrapie	Comprehensive revision of chapter	Pending revision of Manual chapter	Noted in Sep 2025 TAHSC report	3
14.9.	Sheep pox and goat pox	Comprehensive revision of chapter	Circulated for comments and expert consultation	Noted in Feb 2026 TAHSC report (Sep 2025/2)	1
Section 15					
15.2.	Infection with classical swine fever virus	Harmonisation of animal health status related articles (recently adopted Chapters on CBPP and AHS)	Proposed for adoption	Noted in Feb 2026 TAHSC report (Sep 2025/2)	1

* Description of the consequence of priority order	
1	- <i>active work for the TAHSC</i> - <i>identified as the priority to progress as soon as possible</i> - <i>to be put forward for next meeting agenda</i>
2	- <i>active work for the TAHSC</i> - <i>progression as time and resources allow</i> - <i>to be included in next meeting agenda</i>
3	- <i>not immediate work for the TAHSC</i> - <i>possible progression if time, resources allow</i> - <i>needs to progress before consideration for next meeting agenda</i>
4	- <i>not active</i> - <i>not to be immediately started</i>
List of abbreviations	
AAC	Aquatic Animals Commission
AHG	Ad hoc Group
BSC	Biological Standards Commission
Ch	Chapter
HQ	WOAH Headquarters
IETS	International Embryo Technology Society
SCAD	Scientific Commission for Animal Diseases
TAHSC	Terrestrial Animal Health Standard Commission

GLOSSARY

APPROVED

means officially approved, accredited, ~~or~~ registered ~~or recognised~~ by the *Veterinary Authority* ~~or other relevant Competent Authority~~.

BIOSECURITY

means a set of management, behavioural and physical measures designed to reduce the likelihood ~~risk~~ of entry of pathogenic agents into a given population and the exposure of *animals* to these pathogenic agents introduction, establishment and spread of pathogenic agents ~~animal diseases, infections or infestations~~ in order to avoid their establishment and spread within and from and within an animal that population.

BIOSECURITY PLAN

means a ~~plan~~ document or series of documents that ~~identifies~~ potential sources and pathways and factors for entry of pathogenic agents into a given population, and the exposure of *animals* and factors for the transmission of these pathogenic agents ~~the introduction, establishment and spread of pathogenic agents~~ disease in a zone or compartment, and ~~that describes the corresponding biosecurity measures to be implemented and the mechanisms to evaluate its performance and to update the plan it~~ which are being or will be applied to mitigate the disease *risks*, if applicable, in accordance with the recommendations in the *Terrestrial Code*.

BORDER INSPECTION POST

means any ~~airport, or any port, railway station or road check point~~ international point of entry for commodities open to international trade of commodities, and associated facilities, where ~~import veterinary official inspections can be~~ is performed by Veterinary Services.

CONTAINER

means a non-self-propelled receptacle or other rigid structure ~~for holding animals to carry hold~~ commodities during transportation a journey by one or several means of transport.

DISINFECTION

means ~~an action the application, after thorough cleansing, of procedures intended to inactivate or destroy pathogenic agents on potentially contaminated objects and surfaces, the infectious or parasitic agents of animal diseases, including zoonoses; this applies to premises, vehicles and different objects which may have been directly or indirectly contaminated.~~

DISINSECTION

means an action intended to kill or eliminate arthropods from establishments, means of transport, slaughterhouses or any other premises or equipment used for animals.

ISOLATION

means the ~~placement~~ physical separation of an animal or a group of animals separated from other animals under appropriate adequate biosecurity.

LABORATORY

~~means a properly equipped institution staffed by technically competent personnel under the control of a specialist in veterinary diagnostic methods, who is responsible for the validity of the results. The Veterinary Authority approves and monitors such laboratories with regard to the diagnostic tests required for international trade.~~

means an **approved** facility used for diagnosis, research, or to develop and manufacture **biological products**. Some **laboratories** may manipulate pathogenic agents *in vivo* or *in vitro*, and store and dispose of **biological products** and **pathological material**.

PATHOGENIC AGENT

means a biological agent that causes, or contributes to, the development of a disease in **animals**.

POINT OF ENTRY

means any ~~point~~ specific location at which **commodities** enter the territory of a country.

POINT OF EXIT

means any ~~point~~ specific location from where **commodities** leave the territory of a country ~~the exporting country~~.

QUARANTINE-STATION CENTRE

~~means an **establishment** under the control of the **Veterinary Authority** where **animals** are maintained in isolation for observation, and if appropriate, testing and treatment, during a specified length of time under ~~appropriate~~ adequate **biosecurity** to prevent ~~with no direct or indirect~~ **ensure no contact** with other **animals** and **vectors** when relevant, to ensure so that there is no transmission ~~entry~~ of specified pathogenic agents ~~from entering outside into nor escape~~ **escaping out of the establishment** while the **animals** are undergoing observation for a specified length of time and, if appropriate, testing or treatment.~~

SEROCONVERSION

means either the change from a seronegative to a seropositive state ~~condition~~ of an **animal**, demonstrated by a serological test specific for the antigen, or a four-fold or more rise in antibody titre in paired sera of an animal, sampled at an appropriate interval, ~~demonstrated by an ordinal test specific for the antigen~~.

SWILL

means food scraps or food waste, that contain or have been in contact with **animal products**, and ~~which~~ may be used as **feed**.

TRANSIT COUNTRY

means a country through which **commodities** destined for ~~another country~~ **an importing country** are transported or in which they make a stopover ~~is made at a border post~~.

VEHICLE/VESSEL/MEANS OF TRANSPORT

~~means any means of conveyance including any land vehicle, a train, truck, trailer, aircraft or ship/vessel that is used for carrying transporting animals **commodities**.~~

CHAPTER 1.3.

DISEASES, INFECTIONS AND INFESTATIONS LISTED BY WOA

[...]

Article 1.3.1.

The following are included within the category of diseases, *infections* and *infestations* of multiple species:

- Anthrax
- ~~Crimean-Congo hemorrhagic fever~~
- Heartwater
- Infection with Aujeszky's disease virus
- Infection with bluetongue virus
- Infection with *Brucella abortus*, *Brucella melitensis* and *Brucella suis*
- Infection with *Coxiella burnetii* (Q fever)
- Infection with Crimean-Congo haemorrhagic fever virus
- Infection with *Echinococcus granulosus*
- Infection with *Echinococcus multilocularis*
- Infection with epizootic hemorrhagic disease virus
- Infection with foot and mouth disease virus
- Infection with *Francisella tularensis* (Tularemia)
- Infection with *Leishmania* spp. (Leishmaniosis)
- Infection with *Mycobacterium tuberculosis* complex
- Infection with Nipah virus
- Infection with rabies virus
- Infection with Rift Valley fever virus
- Infection with rinderpest virus
- Infection with *Trichinella* spp.
- Infection with *Trypanosoma brucei*, *Trypanosoma congolense*, *Trypanosoma simiae* and *Trypanosoma vivax*
- Infection with *Trypanosoma evansi* (Surra)

- Infestation with *Chrysomya bezziana* (Old World screwworm)
- Infestation with *Cochliomyia hominivorax* (New World screwworm)
- Japanese encephalitis
- Paratuberculosis
- **Tularemia**
- West Nile fever.

[...]

Article 1.3.3.

The following are included within the category of diseases and *infections* of aves:

- Avian chlamydiosis
- Avian infectious bronchitis
- Avian infectious laryngotracheitis
- Duck virus hepatitis
- Fowl typhoid
- Infection of birds other than *poultry*, including *wild* birds, with influenza A viruses of high pathogenicity
- Infection of domestic and *captive wild* birds with low pathogenicity avian influenza viruses having proven natural transmission to humans associated with severe consequences
- Infection with avian metapneumovirus (Turkey rhinotracheitis and swollen head syndrome of chickens)
- Infection with high pathogenicity avian influenza viruses
- Infection with *Mycoplasma gallisepticum* (Avian mycoplasmosis)
- Infection with *Mycoplasma synoviae* (Avian mycoplasmosis)
- Infection with Newcastle disease virus
- Infectious bursal disease (Gumboro disease)
- Pullorum disease
- ~~Turkey rhinotracheitis.~~

[...]

Article 1.3.7.

The following are included within the category of diseases and *infections* of caprinae:

- Caprine arthritis/encephalitis
- Contagious agalactia
- Contagious caprine pleuropneumonia

-
- Infection with *Chlamydia abortus* (Enzootic abortion of ewes, ovine chlamydiosis)
 - Infection with peste des petits ruminants virus
 - Infection with *Theileria lestoquardi*, *Theileria luwenshuni* and *Theileria uilenbergi*
 - Maedi–visna
 - ~~Nairobi sheep disease~~
 - Ovine epididymitis (*Brucella ovis*)
 - Salmonellosis (*S. abortusovis*)
 - Scrapie
 - Sheep pox and goat pox.

[...]

SECTION 4.

DISEASE PREVENTION AND CONTROL

CHAPTER 4.X.

BIOSECURITY

Article 4.X.1.

Introduction

Biosecurity is the cornerstone of animal health programmes and as such should be implemented to prevent and control diseases in *populations*. In addition to reducing the risk of disease, the expected benefits of *biosecurity* include a reduced ~~need for use of~~ veterinary medicinal products; reduced *killing* of *animals* for disease control purposes; reduced economic losses; protection of livelihoods; ~~assurance of sustainability of~~ improved and sustainable animal production; improved animal welfare; improved food security and food safety; promotion of animal, human and environmental health; ~~and assurance of safe trade and business continuity.~~

Article 4.X.2.

Purpose and scope

This chapter provides general principles and recommendations to allow for a consistent approach that could be applied to implement *biosecurity* for a *population* or *subpopulation* irrespective of the settings or scale, such as at ~~farm production or non-production establishment, herd/flock, compartment, zone, or country, zone, compartment, herd/flock, farm or non-production establishment level.~~

The purpose of this chapter is to provide guidance to the *Veterinary Authority* and other relevant actors, as described in Article 4.X.4., on the principles, implementation, monitoring and evaluation of *biosecurity* to support disease prevention and control programmes. The chapter applies to *animals*, their gatherings and husbandry systems, to all components of animal keeping, ~~and transport and processing,~~ and to the interface between domesticated *animals*, wildlife, humans ~~and wildlife and the environment.~~

More specifically, this chapter aims to:

- describe the general guiding principles of *biosecurity*;
- identify the roles and responsibilities of the different actors in *biosecurity*;
- describe the potential sources of pathogenic agents and the pathways involved in their introduction into and transmission within the population; ~~for entry of pathogenic agents into a population and the exposure of animals and factors for the transmission of pathogenic agents;~~
- describe the components of *biosecurity*;
- provide guidance on the design, application, monitoring, evaluation and training with regards to *biosecurity* and *biosecurity plans*.

This chapter should be read in conjunction with other relevant chapters in Section 3 'Quality of Veterinary Services', Section 4 'Disease prevention and control' and Section 5 'Trade measures, import/export procedures and veterinary certification'.

The chapter does not apply to laboratories, ~~where a~~ Approaches to laboratory biosecurity are addressed in the *Terrestrial Manual*.

Article 4.X.3.

General guiding principles ~~provisions~~ principles

The specific ~~desired~~ objectives of *biosecurity* should be defined. To achieve ~~the~~ these objectives of *biosecurity*, the following should be considered:

- 1) The *population* for which *biosecurity* is to be implemented, including its management, environmental and epidemiological context and size and its *animal health status*.
- 2) The identification of the ~~hazards~~ pathogenic agents of concern and from where and how they may be introduced, and how they may be ~~the pathogenic agents may be introduced, established and spread within~~ in and spread from the population.
- 3) The factors and frequency of events that influence the introduction, establishment and spread of pathogenic agents.
- 4) Scientific evidence to assess the risk.
- 5) ~~and~~ Proportionality and social acceptance ~~of~~ to the measures to manage the risk.
- 6) ~~5) Sustainability, adaptability, and monitoring~~ of measures.
- 7) ~~6) Human behaviour~~ to maximise compliance and vulnerabilities.
- 7) ~~Evaluation of compliance built into the day-to-day operations.~~
- 8) Socio-economic impacts of *biosecurity*.
- 9) Impacts of measures on other *populations* and the environment.
- 10) Development of a *biosecurity plan* that supports ~~promotes~~ consistent implementation of *biosecurity*.
- 11) Engagement with, training and awareness of, and communication with, all actors involved in *biosecurity*.

These ~~principles~~ general principles ~~provisions of~~ *biosecurity* apply to any type of activity involving animals (intensive, extensive, commercial or non-production); ~~only the measures comprising the~~ *biosecurity* should be adapted to the situations settings and to the availability of resources.

Article 4.X.4.

Roles and responsibilities

The roles and responsibilities of different actors in *biosecurity* should be clearly defined and communicated ~~with consideration made and may vary depending on~~ to the population and level of application context (e.g. such as establishment, compartment, zone, or country country, zone, compartment, establishment level), the scale and type of operations and existing potential public-private partnerships. Implementation of *biosecurity* requires adequate financial and human resources, and engagement, and collaboration and communication amongst all actors involved.

- 12) **Veterinary Authority** or other relevant *Competent Authorities* should be responsible for the development and oversight of ~~policy on and~~ legislative frameworks and general policies for *biosecurity*. These ~~policies~~ should include the relative contribution and roles of *veterinarians* and *veterinary paraprofessionals* in both the private and public sectors, promote and provide guidance for the implementation of *biosecurity*. When required ~~For for international trade purposes~~, the *Veterinary Authority* should have an active role in ~~enforcement~~, oversight, and verification of *biosecurity* and *biosecurity plans*.

42) Veterinary Services should execute and implement policies and legislation on *biosecurity* under the supervision of the *Veterinary Authority* or other relevant *Competent Authorities*.

23) Veterinarians and veterinary paraprofessionals and other relevant advisors should give advice on *biosecurity* and the *biosecurity plans to all relevant actors*. This advice should be aligned with the policies and legislation, where available.

34) ~~Animal Breeders~~breeders, owners, managers, keepers, and transporters, feed producers and other relevant actors are responsible for developing, implementing and monitoring *biosecurity* and the *biosecurity plan* and should seek advice from *veterinarians, veterinary paraprofessionals* or other relevant advisors.

45) Training entities should provide training in *biosecurity* for relevant actors. Coordination between the *Veterinary Authority*, other relevant *Competent Authorities*, the *veterinary statutory body* and veterinary educational institutions may be required to ensure *biosecurity* training delivered to *veterinarians, veterinary paraprofessionals* and other relevant advisors meets relevant standards, especially the recommendations of Article 4.X.9.

56) Farmer associations, veterinary and ~~para-veterinary~~veterinary paraprofessional associations, and other relevant associations should advocate and promote *biosecurity* among their members, and may become directly involved in leading, and overseeing and providing training for the biosecurity planning and implementation by their members.

Article 4.X.5.

Potential sources of pathogenic agents

Pathogenic agents can ~~be spread through from~~ different sources, which should be identified and considered when implementing *biosecurity* and developing a *biosecurity plan*. ~~The main Potential sources of pathogenic agents to be considered include:~~

- 1) live animals,
- 2) *germinal products*,
- 3) animal secretions and excretions,
- 4) *animal products*,
- 5) dead *animals* and parts thereof and afterbirth materials,
- 6) arthropods such as mosquitoes, midges, flies, lice, ~~or ticks or beetles~~,
- 7) fomites such as peoples' clothing, and boots/footwear, ~~vehicles~~ means of transport, containers, crates, bedding, or farm equipment,
- 8) *feed* and *feed ingredients* ~~including such as~~ manufactured feed, forage, grazing pastures and swill,
- 9) water, soil-and air,
- 10) *biological products*,
- 11) humans.

Article 4.X.6.

Transmission pathways

Transmission of pathogenic agents can occur either through *animal-to-animal* contact without an intermediate (direct transmission), or through an intermediate such as fomites, air, water, *feed*, *animal products*, *germinal products*, *biological products*, vectors, humans and the relevant animal environment (indirect transmission).

Transmission pathways of pathogenic agents should be assessed based on scientific evidence and considered when implementing *biosecurity* or developing a *biosecurity plan*. Transmission pathways are not mutually exclusive and include:

- 1) ~~Vertical transmission~~ transmission from parents to offspring *in ovo*, *in utero* or during birth ("vertical transmission").
- 2) ~~Horizontal transmission from one animal to another that is not vertical.~~
- 3) Iatrogenic transmission.
- 34) Sexual transmission through reproductive secretions such as semen and vaginal fluids or transmitted directly between surfaces in contact during mating.
- 45) Vector-borne transmission via *vectors* including blood-feeding arthropods such as mosquitoes, flies, ticks, fleas and lice. *Vectors* may be mechanical with no biological association between the *vector* and pathogenic agent or biological where the pathogenic agent undergoes ~~a~~ multiplication or ~~a~~ developmental change within the *vector*, necessary for survival, transmission or host *infection*.
- 56) Droplets or airborne transmission of pathogenic agents through via particles of multiple sizes suspended in the air, inhaled or deposited on mucosal surfaces (e.g. respiratory tract or conjunctiva). Pathogenic agents may travel in particles of multiple sizes (droplets and droplet nuclei) that remain suspended in the air or deposited on surfaces. Airborne transmission may occur over include short or long distances (which may be referred to as aerosol transmission or wind-borne transmission, respectively).
- 6)7) Transmission through fomites, germinal products, animal products and biological products. Transmission via water, feed, animal products and fomites.
- 7) Transmission through skin, the digestive tract (ingestion), or other mucosal surfaces, or breaches in the skin.

The relative importance of the different transmission pathways will vary depending on factors such as the epidemiological characteristics of pathogenic agents of concern, animal hosts, population structure, management practices and environmental conditions.

Article 4.X.7.

Components of biosecurity

Biosecurity can be applied to any type of *population*. The components of *biosecurity* focus on reducing the likelihood risk of transmission of pathogenic agents through interactions with elements outside the *population* (external *biosecurity*) and on reducing risk—the likelihood of transmission of pathogenic agents within the *population* (internal *biosecurity*). The components of *biosecurity* aim at avoiding or breaking the transmission pathways described in Article 4.X.6. All relevant components of *biosecurity* should be applied to address all potential sources of pathogenic agents of concern, transmission pathways as well as unexpected events, and may vary according to the *population*.

1. Components of external biosecurity may include the following:
 - a) Introduction of *animals*, *animal products* and *germinal products* into a *population* should be limited to the extent necessary ~~minimised~~ and if undertaken, the *animal health status* of the source *population* should be assessed.
 - b) ~~Whenever~~ Before *animals of unknown or different animal health status* are ~~newly~~ introduced into the *population*, they should go through a monitored isolation period of sufficient length, during which measures such as tests or treatments may be implemented to reduce ~~mitigate~~ the risk-likelihood of transmission of pathogenic agents.
 - c) Contact between *populations* of unknown or different *animal health status* should be avoided through segregation using managerial measures, physical or natural barriers.

- d) Human access to the *population* should be controlled. When humans come in contact with *animals*, they should take measures to ~~reduce~~mitigate the ~~risk~~likelihood of bi-directional transmission of pathogenic agents, ~~which includes as a minimum wearing dedicated clothing and footwear, and hand hygiene. When humans come in contact sequentially with different populations subsequently, the order and timing of the visits should be organised to minimise the likelihood of bi-directional transmission.~~
- e) Equipment and clothing used to handle or care for *animals* should not be shared between different *populations*. If shared, equipment and clothing should undergo cleaning and *disinfection* at least before each use and after use.
- f) ~~Transport vehicles~~Means of transport and containers in contact with *animals* or their *animal products* should undergo cleaning and *disinfection* at least before each use and after use.
- g) *Animal products*, faeces, manure, bedding or other waste materials should be handled, stored and disposed of in a way to ~~mitigate~~minimise the spread of pathogenic agents. Special care should be taken to avoid contact with or attraction of other animals and arthropods.
- h) Dead *animals* and parts thereof should be handled, stored and disposed of in a way to ~~mitigate~~minimise the spread of pathogenic agents and to avoid contact with or attraction of other *animals* and arthropods.
- i) *Feed* should be produced in accordance with Chapter 6.4. and should be, stored and transported in dedicated equipment to minimise the contact with potential sources of pathogenic agents. Feeding of untreated swill should be avoided.
- j) Water should originate from low-risk sources, be stored and delivered in a way to minimise contact with potential sources of pathogenic agents, or be treated to remove or inactivate pathogenic agents. The safety of the water ~~and feed~~ should be checked regularly.
- k) Contacts between the *population* and other animals including pets, birds, rodents, ~~insects, and other wildlife, as well as arthropods, or pests~~ should be ~~minimised~~avoided by selecting an appropriate sites and through using engineering, mechanical or chemical control.
- l) To ~~prevent~~minimise airborne transmission of pathogenic agents, sufficient distance or physical barriers between *populations* and ~~possible~~potential sources of pathogenic agents should be considered. In some circumstances, air treatments might be considered.
- m) When cleaning and *disinfection* or other measures are not feasible or effectiveness is undetermined, an additional period may be applied to avoid of no contact between a population to be introduced and potential sources of pathogenic agents (e.g. humans, buildings, ~~vehicles~~means of transport, containers, equipment, materials, pastures) ~~and the population may be applied.~~ The effectiveness of this measure will depend on the specific circumstances and should be verified.

2. Components of internal biosecurity may include the following:

- a) Sick *animals* should be detected, isolated, and their condition diagnosed to prevent other *animals* from being exposed. Treatments should be administered in a way that safely to avoid iatrogenic transmission.
- b) All-in all-out management should be applied, as appropriate, to all *animals* kept in the same space including cleaning and *disinfection* of the space between consecutive groups of *animals*.
- c) Stocking densities that result in ~~impaired health through~~ increased transmission rates, which and may cause higher virulence of pathogenic agents, or increased susceptibility to *infections*, should be avoided.
- d) Within the *population*, *units* with different characteristics impacting disease risk should be kept separately.

- e) When the management of the *population* involves contact with different *units*, the workflow should be organised from the lowest to the highest risk of *infection*, considering transmission of pathogenic agents and susceptibility of the *units*. When moving between the *units*, measures to mitigate transmission of pathogenic agents should be applied.
- f) Cleaning and *disinfection* of the equipment and surfaces should be applied between consecutive groups of *animals*.

Article 4.X.8.

Biosecurity plan

The aim of a *biosecurity plan* is to organise, structure and document *biosecurity* including its evaluation. A *biosecurity plan* promotes consistent implementation of *biosecurity*, while remaining based on scientific knowledge and field experience. scientifically justifiable, and it should balance the objectives and intended benefits with the practicality, cost, regulatory requirements and should include necessary provisions for its maintenance and continuous improvement. The aim of a *biosecurity plan* is to organise, structure and document *biosecurity* including its evaluation.

The *biosecurity plan* should include the following sections:

a) Purpose and scope

This section should provide an overview of the plan, its purpose and scope. In addition, it should outline the goals and objectives of the plan, as well as the *population* characteristics, including animal husbandry systems, and epidemiological context.

b) Roles and responsibilities

Design, implementation, and monitoring is a shared responsibility. Therefore, it is essential to identify and describe the roles and responsibilities of all actors, as well as the chain of command, to ensure for ensuring adherence and compliance with *biosecurity*.

c) Identification of pathogenic agents, sources and transmission pathways

In addition to the identification of the potential pathogenic agents of concern, this section should include their potential sources and transmission pathways.

d) Description of biosecurity

This section should describe the relevant components of *biosecurity* in accordance with Article 4.X.7. including corrective actions in response to biosecurity breaches.

It should also include relevant response procedures for emergencies.

e) Surveillance of pathogenic agents

The *biosecurity plan* should include the procedures for surveillance for early detection ~~to detect the presence of~~ pathogenic agents of concern, in accordance with Chapter 1.4.

f) Communication and reporting

This section should outline the procedures for communicating information about the *biosecurity plan* to all relevant actors. It should also include procedures for reporting incidents and sharing information with relevant authorities.

g) Training and education

This section should outline the training and education needs and identify programmes to ensure all relevant actors are aware of the *biosecurity plan* and clearly understand their roles and responsibilities to implement and maintain the *biosecurity* and the consequences of non-compliance.

h) Supporting documents

This section should outline the standard operating procedures (~~SOPs~~), checklists, and record-keeping templates which describe routine management processes and ensure that responsibilities and duties are consistently fulfilled and documented. It should also include relevant training materials for all actors involved in the implementation of the *biosecurity plan*.

i) Evaluation and continuous improvement

This section should describe the procedures for monitoring and evaluation of the *biosecurity plan* and its implementation in accordance with Article 4.X.10. Biosecurity incidents and breaches in *biosecurity*, as well as corrective actions taken, should be documented. The *biosecurity plan* should be reviewed and updated regularly to ensure its relevance and effectiveness.

Article 4.X.9.

Training and awareness

1. Training

Regular training on *biosecurity* should be undertaken according to the needs identified and should include all relevant actors. Training should be provided by those with sufficient qualifications and experience. The training should be in line with legislative and policy frameworks. Such training may include:

- Principles of *biosecurity*,
- Sources of pathogenic agents, transmission pathways and relevant factors to susceptibility,
- Components and implementation of *biosecurity*, ~~including emergency planning and response,~~
- Monitoring and evaluation of *biosecurity*,
- Purpose, development and implementation of a *biosecurity plan*,
- Competency-based training requirements should be identified and documented for each actor. The training achieved should be recorded and monitored to ensure the required level of competencies are obtained or maintained.

2. Awareness

All relevant actors described in Article 4.X.4. and the general public, when applicable, should be made aware of the importance of *biosecurity* (and the *biosecurity plan* if appropriate) at strategic places (e.g. *border inspection posts*, farm entrances, *markets*, *veterinary clinics*) and times (e.g. disease *outbreaks*, changes in the epidemiological situation) by effective tailored communication. Raising awareness may be the responsibility of the *Veterinary Authority*, other relevant *Competent Authorities*, or *Veterinary Services*, ~~or~~ *Producers*, ~~or~~ and other relevant actors may also be responsible depending on the context and extent of the *risk*.

Article 4.X.10.

Evaluation and continuous improvement

The implementation of *biosecurity*, the compliance with the *biosecurity plan* and the effectiveness of implemented measures should be subjected to evaluation for continuous improvement.

- 1) The evaluation of implementation should be based on predefined scope and criteria, taking into consideration the expected scale of the operation and the characteristics of the *population* concerned. This will determine at which level of responsibility the evaluation should be conducted, and at which frequency. The frequency should be adapted to changing circumstances such as new *animal health status*, newly identified pathogenic agents or changes in epidemiological situation, previous evaluations,

changes in production or changes in the biosecurity plan. The evaluation should determine the level of implementation of *biosecurity*, through collected evidence that may include documentation of procedures, other routine records, monitoring technologies, onsite audits as well as interviews with personnel. Based on these findings, the evaluation may allow the establishment of a risk-based *biosecurity* score as a whole or for each measure.

- 2) Compliance with the *biosecurity plan* should be evaluated routinely or following a change in production type, the epidemiological situation, or other significant changes that may affect the compliance. Documented evidence of compliance should be collected routinely and be provided for any evaluation. The evaluation of compliance with the *biosecurity plan* should be executed preferably by an independent party, in accordance with the policies and legislation, where available.
 - 3) The effectiveness of the *biosecurity plan* should be evaluated routinely or following a change in production type, epidemiological situation, or other significant change, to ensure the *biosecurity plan* is complete, fit for purpose and up to date. The evaluation should be based on animal health or performance data. The outcomes of the evaluations should be communicated to all relevant actors and should inform if the plan needs to be modified, and which risk mitigation or corrective actions are needed so that the *biosecurity plan* can be updated accordingly.
-

CHAPTER 5.4.

**MEASURES AND PROCEDURES APPLICABLE IN
TO THE EXPORTATION OF COMMODITIES**

Article 5.4.1.

Purpose and scope

This chapter provides general principles for measures and procedures that are applicable ~~in to the~~ exportation of *commodities* to prevent the spread of pathogenic agents through *international trade of commodities, commercial or non-commercial*, without creating unjustified trade restrictions, covering from the facilities of origin (such as an establishment, slaughterhouse/abattoir, semen collection centre) to the *point of exit*.

For the purposes of this chapter, 'Veterinary Authority' and 'Competent Authorities' refer to the 'Veterinary Authority' and 'Competent Authorities' of the exporting country unless otherwise specified.

For the purposes of this chapter, 'operator' means any natural or legal entity or person responsible for export of commodities subject to the provisions of this chapter.

This chapter provides *exporting countries* with recommendations on measures and procedures, and the roles and responsibilities of their the Veterinary Authority, or other relevant Competent Authorities, and of operators, business operators any natural or legal entity or person responsible for export of commodities subject to the provisions of this chapter (hereafter 'operator'), in addition to responsibilities that are described in Article 5.1.3. This chapter provides guidance to ensure the quality and ~~performance implementation~~ of official controls for exportation.

While this This chapter applies to all *commodities*; some recommendations are specifically addressed to specificcertain of these *commodities*.

Article 5.4.2.

General considerations

The *Veterinary Authority of the exporting country* ~~should ensure that make ensure operators are aware of the importing country requirements, if they are available to the Veterinary Authority in accordance with Chapters 5.1. and 5.2. In addition, the Veterinary Authority should make operators aware of the processes required to meet the conditions of the international veterinary certificate including the importing country requirements, including all information required for the agreed international veterinary certificate, in accordance with Article 5.1.1. and Chapter 5.3., are available to exporters.~~

The *Veterinary Authority of the exporting country* ~~should be responsible for the implementation performance of official controls in coordination with other relevant Competent Authorities in accordance with veterinary legislation to ensure that exported commodities can be traded safely and meet the requirements of the importing country requirements. Its-Their legal mandate and responsibilities of the Veterinary Authority and other relevant Competent Authorities, as described in Article 3.4.5. and 3.4.13., should include the export official controls activities at any all steps in the export process and the opportunity to request from the operator exporter any necessary information. Where appropriate, the Veterinary Authority and-or other relevant Competent Authorities may delegate certain tasks in accordance with point 2 of Article 3.4.5. Adequate human, technical, physical and financial resources should be available in the exporting country for the Veterinary Services to allow those effectively implement official controls to be undertaken effectively and to properly apply the certification obligations and procedures laid down in Chapters 5.1. and 5.2., in accordance with the quality principles described in Article Chapter 3.2.2.~~

The *Veterinary Authority* should cooperate closely with all relevant authorities, including the customs authority and other law enforcement authorities of the exporting country dealing with exports to ensure that official controls are implemented~~performed~~ effectively, and to protect to maintain the status compliance of the commodities with importing country requirements without creating unjustified barriers to trade. This cooperation should also cover actions to prevent and combat fraud or illegal pathways.

The *Veterinary Authority* should have procedures, as applicable, for certification of the *animal health status* of the herd/flock, compartment, zone, or country, zone, compartment, or herd/flock as well as of the disease situation in *establishments* and other premises and communicate with the operator-exporter regarding any additional documentary evidence that may be required to support such certification.

The *Veterinary Authority* ~~in the exporting country~~ should ensure that the applicable certified *animal health status* of the herd/flock, compartment, zone, or country, zone, compartment, or herds/flock or animals, is based on appropriate *surveillance* and reporting in accordance with Chapter 1.4.

The *Veterinary Authority* or other relevant Competent Authorities ~~in the exporting country~~ should have procedures for registration and approval of *establishments* of origin, where applicable, and other facilities used for production and handling of consignments, to comply with the agreed-international veterinary certificate. Operators should not hinder access by the *Veterinary Authority* to the *commodities*, the premises where they are located and the means by which they are transported of transport. During official controls, operators should assist and cooperate with the *Veterinary Authority Services* and make available all relevant information concerning the consignment.

The *Veterinary Authority* should have procedures in place for the international veterinary certification of sanitary conditions of individual animals.

The *Veterinary Authority* ~~of the exporting country~~ should ensure that appropriate identification of *commodities* is in place to support traceability offer the consignment to comply with its the agreed-international veterinary certificate. *Animal identification* should be in accordance with Chapter 4.2. and Chapter 4.3.

Upon request from the *Veterinary Authority* of the *importing country* or from the *Veterinary Authority* of a the transit country, the *Veterinary Authority* ~~of the exporting country~~ should provide additional information on the process to ensure compliance with the conditions included in the agreed-international veterinary certificate, and undertake investigation and reporting, and give reasonable access for audit in case of repeated non-compliant consignments jeopardising the safety of trade. The *Veterinary Authority* ~~of the exporting country~~ should take ensure that the appropriate and necessary preventive measures to ensure that the status of the commodities remain compliant is not jeopardised before and during transport to the point of exit. The exporting country- It should suspend the export of a *commodity* when there is reason to believe that it may present a risk to for animal health or and public health or that if it does not comply with the agreed-international veterinary certificate.

The *Veterinary Authority* ~~of the exporting country~~ should promptly communicate to the *Veterinary Authority* of the *importing country*, and of any transit country, any change of or situation, such as a change of the animal health status, that may affect its capacity to fulfil-certify the conditions of the agreed-international veterinary certificate.

The *Veterinary Authority* ~~of the exporting country~~ should also inform without delay the *Veterinary Authority* of the *importing country*, and, where necessary, the *transit country* where necessary, of in the event that a particular issue such as the occurrence of a listed disease or a other disease referred to in the importing country requirements or any other relevant issues which may affects the compliance status of a commodity which has already left the exporting country. This information should be part of the relevant emergency response plan developed in accordance with Chapter 4.19.

In case of animals, operators should ensure that animal welfare is maintained throughout the export process in accordance with Section 7 as relevant.

The *Veterinary Authority* ~~of the exporting country~~ should carry out collaborative activities with other relevant Competent Authorities, customs, and other law enforcement authorities, and operators, and with *Veterinary Authorities* in other countries, to control the risk posed by the illegal or informal cross-border movement of commodities, e.g. i.e. the international movement of commodities done in a way that avoids official controls intentionally (illegal) or that may be unregulated but may present risks (informal) to expressly and intentionally avoid official controls.

General principles applicable to procedures for official controls for exportation

1. Preparation for exportation

~~Operators~~Exporters should ~~announce~~ inform the *Veterinary Authority* of their intention to the export to the *Veterinary Authority* sufficiently in advance as to allow for meet these conditions of the *agreed international veterinary certificate* and the administrative requirements of the *exporting, transit and importing countries to be met*.

~~Operators~~Exporters should provide to the *Veterinary Authority* ~~the~~as required details of the consignment. The *Veterinary Authority* should outline to the ~~operator~~exporter the procedures, standards and timeframe for preparation of the consignment, and the documentary evidence required to demonstrate compliance with these requirements. Where relevant, the *Veterinary Authority* should identify eligible bodies or officers for the implementationperformance and certification of procedures specified in the *agreed international veterinary certificate*. Operators should also provide information relevant to safe handling of consignment, including any treatments that may pose risks to personnel.

The ~~operator~~exporter and the *Veterinary Authority* should coordinate the implementation, and its documentation, of the conditions of the ~~agreed~~*international veterinary certificate*. Implementation of these conditions and its documentation should be in accordance with the procedures and standards communicated by the *Veterinary Authority of the exporting country* and will form the basis upon which the *Official Veterinarian* will issue the *international veterinary certificate* for the consignment.

The *Veterinary Authority* should ensure that the facilities and operational procedures required for isolation of *animals or processing of products* comply with the conditions of the ~~agreed~~*international veterinary certificate*, which may including include registration, approval, and inspection, in accordance with ~~Chapters 4.6., 4.7. and 5.7. or other~~relevant chapters of the *Terrestrial Code*.

Testing of *commodities* required to fulfil the conditions of the ~~agreed~~*international veterinary certificate* should be in accordance with Article 3.2.10. and with the *Terrestrial Manual*. The *Veterinary Authority* should define and communicate to the ~~operator~~exporter the procedures for sample collection, identification and submission, the list of ~~approved~~*laboratories* and the *approved* diagnostic tests.

The *Veterinary Authority* should define and communicate to the ~~operator~~exporter the procedures for *vaccination* and treatment if required to fulfil the conditions of the ~~agreed~~*international veterinary certificate*. The ~~operator~~exporter should arrange for *vaccination* or treatment of *animals in line with these conditions*, noting timeframes relevant to the scheduled date of exportation. When animals require vaccination and or treatment, of animals should use veterinary medicinal products registered or allowed approved for use in the exporting country should be used., in line with the conditions of the ~~agreed~~*international veterinary certificate*.

The *Veterinary Authority* should define and communicate to the ~~operator~~exporter the standards and procedures for *disinfection of* and disinsection ~~disinsection~~ elimination of arthropod vectors from of vehicles/vessels of the means of transport and containers in accordance with Chapter 4.14., if required to fulfil the conditions of the ~~agreed~~*international veterinary certificate*.

In the case of animals. ~~The~~ ~~operator~~exporter should also be able to provide to the *Veterinary Authority* a journey travel transport plan from the *point of exit* in the *exporting country* to the *point of unloading* in the *importing country*. In the case of animals, it should be in accordance with ~~Chapters 7.2., 7.3. or 7.4.~~Section 7, and in compliance with the *importing country requirements* as relevant.

2. Procedures of exportation

a) Verification and certification

The ~~operator~~~~exporter~~ should cooperate with the *Veterinary Authority* to demonstrate that the conditions of the ~~agreed~~*international veterinary certificate* have been met and that the consignment is eligible for certification and export. The ~~operator~~~~exporter~~ should provide all documentary evidence of compliance with the ~~importing country requirements~~*conditions of the agreed and the international veterinary certificate* as required by the *Veterinary Authority*, including ~~an~~ import permit where appropriate. There should be clear traceability and linkage, at every stage of preparation of ~~animals and animal product~~*commodities*, to the final consignment presented for export, as relevant to fulfil the conditions of the ~~agreed~~*international veterinary certificate*.

The *Official Veterinarian* should review the preparation of the export consignment to confirm that ~~commodities~~ ~~animals and animal products~~ have been clearly identified at every stage of their preparation, that the consignment complies with the conditions of the ~~agreed~~*international veterinary certificate* and is in accordance with Chapters 5.1. and 5.2. of the *Terrestrial Code*. The *Official Veterinarian* should also review ~~all transport arrangements~~ ~~the journey travel plan~~ for the consignments ~~of animals~~ to ensure ~~it they support maintenance~~ compliance with the ~~importing country requirements~~ and relevant national regulations which may include the ~~animal welfare recommendations in Section 7. of the commodity's status and animal welfare.~~

Once satisfied that preparations and ~~journey travel plan~~~~transport arrangements~~ are appropriate and that the consignment is eligible for certification and export, the *Official Veterinarian* should issue the *international veterinary certificate*.

b) Domestic transportation of commodities

The *Veterinary Authority* should collaborate with other relevant authorities and stakeholders to ensure that management of the consignment ~~pre-export before~~ and during transport ~~to the point of exit~~ is consistent with ~~agreed~~*established* processes and standards.

The ~~operator~~~~exporter~~ should ensure that the assembly, *loading* and crating of ~~animals or other commodities~~ is appropriate to ~~maintain compliance with the importing country requirements~~*preserving the status and animal welfare of the consignment from the place of shipment*, including adequate ~~disinfection of and disinsection~~ ~~disinsection~~ ~~elimination of arthropod vectors of from~~ of the ~~vehicle/vessel~~*means of transport* and container.

The *Veterinary Authority* ~~in the exporting country~~ may require health and welfare inspection of consignments of *animals* at the *point of exit*, which includes the possibility to deny permission to export if concerns are identified.

Article 5.4.4.

Specific recommendations depending on commodities

1. Animals

~~In the case of animals, the Veterinary Authority should ensure that animal welfare is maintained throughout the whole process of exportation, in accordance with Chapters 7.1., 7.2., 7.3. and 7.4. as relevant.~~

The ~~operator~~~~exporter~~ should ensure that ~~vehicles/vessels~~*means of transport* used for transportation of *animals* throughout the ~~whole export process of exportation~~ undergo adequate *disinfection and disinsection*, and that measures are implemented to prevent and control vermin such as rodents, ~~or arthropods~~. These measures should be applied before every *loading of animals*. ~~Vehicles/vessels~~*Means of transport* should contain only *animals* ~~meeting the same sanitary requirements of the same health status~~ ~~except where effectively adequately separated to prevent disease transmission.~~

Containers should be either new or cleansed and disinfected before every *loading of animals*, in accordance with Chapter 4.14., ~~or be for single use~~

The *Veterinary Authority* should ensure that, before leaving the *exporting country*, consignments of *animals* ~~should be~~ subjected to a visual examination, at an appropriate place and time according to the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country. It should be ensured that, from the time of this visual examination inspection until the time of leaving the *exporting country*, the *animals* in the consignment are not in contact with other *animals* of a different health status.

The *Veterinary Authority* ~~in the exporting country~~ may require welfare inspection of consignments of *animals* at the *point of exit*. Such inspections should be supported by *veterinary legislation*, which should also ascribe authority to deny permission to export if *animal welfare requirements, in accordance with Section 7* ~~concerns are not met~~ identified.

2. Germinal products

Consignments of *germinal products* should be packed, dispatched, and transported in a way that preserves the viability and integrity of the products.

Consignments of *hatching eggs* should be dispatched from parental flocks establishments or hatcheries that meet the conditions of the ~~agreed-international veterinary certificate~~. *Containers* should be either new or cleaned and disinfected before every use, in accordance with Chapter 4.14.

Cryogenic tanks for semen, oocytes or, embryos should be dispatched from *semen collection centres* or *collection centres* that meet the conditions of the ~~agreed-international veterinary certificate~~. They should be single-use cryogenic tanks or be cleaned and disinfected before use in accordance with Chapter 4.14. and use new liquid nitrogen.

Consignments of semen, oocytes or, embryos, should be identified in accordance with the relevant recommendations of Chapters 4.6. to 4.11.

The *Veterinary Authority* should ensure that, before leaving the *exporting country*, consignments of *germinal products* ~~be~~ subjected to a visual examination and documentary check and cryogenic tanks for semen, oocytes or, embryos ~~be~~ sealed and marked, according to the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country.

3. Animal products

Containers used for transporting *animal products* should be suitable for the type of product, protect the *animal products* from damage or contamination, and fulfil the conditions of the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country.

The *Veterinary Authority* should ensure that adequate measures are taken to clean and, where necessary after cleaning, to disinfect before use, *containers* and *means of transportation* in accordance with Chapter 4.14., particularly when conveying or transporting unpacked materials.

The *Veterinary Authority* should ensure that, before leaving the *exporting country*, consignments of *animal products* ~~should be~~ subjected to a visual examination and documentary check, according to the procedures of the exporting country and the agreed-international veterinary certificate and the requirements of the exporting country.

Article 5.4.5.

Emergency pPlanning for unexpected events

~~The *Veterinary Authority* should develop a plan to address the occurrence within the exporting country after the commodities have been exported, of a listed disease or a disease referred to in the importing country requirements, which may have impacted the status of the exported commodities. The *Veterinary Authority* should be guided by importing country requirements in implementing the plan.~~

The *Veterinary Authority* should ensure that the operator ~~exporter~~ develops and documents a plan to address emergencies-unexpected events which may impact the compliance status of the commodities with importing country requirements and animal welfare recommendations in Chapter 7.1. and chapters in Section 7 relevant

to transport, being exported, failure of transport arrangements, The plan should address concerns such as deviation from the *journey plan* for *animals*, incidents compromising the sanitary conditions or other characteristics of the *commodities* including those captured described in the *international veterinary certificate*, failure to reach the *transit or importing country*, or rejection of the consignment by them ~~transit or importing country~~. The emergency plan may be generic or specific to each type of consignment, ~~and should focus on preserving the status of the consignment and animal welfare in accordance with Chapters 7.2., 7.3. and 7.4.~~

The emergency plan should identify responsibility for development and communication of alternative transport arrangements when necessary. The relevant *Competent Authority* in the exporting, transit and importing countries should be consulted as appropriate by the operator regarding revised transport arrangements to assess the implications for the compliance status of the commodities with importing country requirements and animal welfare recommendations. The *Veterinary Authority* in the ~~exporting country~~ should be consulted on alternative transport arrangements for consignments of *animals* to ensure that *animal welfare* is preserved.

~~The emergency plan should include procedures for managing exported consignments that fail to reach the designated transit or importing countries or are rejected by them.~~

CHAPTER 5.5.

MEASURES AND PROCEDURES APPLICABLE TO
THE TRANSIT OF COMMODITIES

Article 5.5.1.

Purpose and scope

This chapter provides general principles for measures and procedures that are applicable to prevent the spread of pathogenic agents through international trade, commercial or non-commercial, without creating unjustified trade restrictions, when *commodities* destined for another country are either making a stopover in, or transported through a *transit country*, covering from the *point of entry* to the *point of exit*.

For the purposes of this chapter, 'Veterinary Authority' and 'Competent Authorities' refer to the 'Veterinary Authority' and 'Competent Authorities' of the transit country unless otherwise specified.

For the purposes of this chapter, 'operator' means any natural or legal entity or person responsible for transit of commodities subject to the provisions of this chapter.

This chapter provides *transit countries* with recommendations on measures and procedures, and the roles and responsibilities of their *Veterinary Authority*, and other relevant Competent Authorities and of operators ~~any natural or legal entity or person responsible for transit of commodities subject to the provisions of this chapter (hereafter 'operator')~~. An international movement of *commodities* may be considered a 'transit' if *commodities* are transported from an *exporting country* through a *transit country* to an *importing country*. The transit period should not exceed the time necessary for transport and logistics, and commodities and all relevant conditions as stated described in the certificate issued by the *exporting country* should remain unchanged. Otherwise the operation movement should be interpreted as an importation and exportation.

This chapter provides guidance to ensure the quality and implementation of official controls for transit.

Article 5.5.2.

General considerations

The *Veterinary Authority* and other relevant *Competent Authorities* ~~of the transit country~~ should ensure that *transit country* requirements and procedures, including a list of the *border inspection posts* designated for the transit of *commodities*, are made available to operators and to the *Veterinary Authority* of the *exporting country*.

A *transit country* may require adequate advance notice or approval regarding the date of entry into and exit from its territory of *commodities*, stating the type of *commodity*, species, quantity, *means of transport* and the *point of entry* or *border inspection post*, route, holding locations and *point of exit* to be used.

Operators should be aware of the *transit country* requirements and procedures before shipment, which may include announcing to the Veterinary Authority or other relevant Competent Authorities ~~of the transit country~~ the arrival of consignments at the *point of entry*. Operators should ensure that *commodities* are presented for official controls, including the original official certificates or documents, or digital equivalents, in accordance with *transit country* requirements, and that requirements and procedures defined by the *Competent Authorities* ~~of the transit country~~ are met.

Operators should ensure that the *commodities* are separated from any other commodities in the *transit country* not meeting the same sanitary requirements, that all relevant conditions as stated in the certification issued by the *exporting country* remain unchanged, and that the Veterinary Authorities of the transit country and the importing country are informed of any unforeseen unloading of *commodities* in the *transit country* ~~is informed to the Veterinary Authorities of the transit country and the importing country~~.

In the case of *animals*, operators should ensure that *animal welfare* is maintained throughout the transit process, in accordance with Section 7 as relevant.

Article 5.5.3.

General principles applicable to procedures for official controls for transit

The *Veterinary Authority* ~~and/or~~ other relevant *Competent Authorities* should implement official inspection, with appropriate frequency, based on *risk assessment* and ~~with appropriate frequency~~ to ensure compliance with the *transit country* requirements. ~~By way of derogation, the The Veterinary Authority may exempt from inspection safe commodities or commodities posing a negligible risk and for which inspection is not considered necessary.~~

A *transit country* may refuse ~~not accept~~ the transit of *commodities* not complying with its requirements.

The *Veterinary Authority* ~~and/or~~ other relevant *Competent Authorities* should ensure that conditions included in the *international veterinary certificate at origin* are maintained during official controls, stopover, storage and transport, that *biosecurity* is applied to prevent transmission of pathogenic agents throughout the transit process and that unnecessary delays are avoided. They should also ensure *animal welfare* is maintained during *transit* in accordance with Section 7. Original documentation intended for the *importing country* should remain with the consignment.

Article 5.5.4.

Planning for the unexpected events

The *Veterinary Authority* ~~and/or~~ other relevant *Competent Authorities* should ensure that the operator develops and documents a plan to address unexpected events which may ~~impact compromise~~ the compliance of the transited *commodities* with the requirements of the *transit country* or the *importing country*. The plan may be generic, or specific to each *type of* consignment, and should focus on preserving the sanitary conditions of the consignment, and preventing the introduction to the *transit or the importing country* of a *listed disease* or a disease referred to in the *transit or the importing country* requirements, and The plan should also focus on ensuring *animal welfare* recommendations in Chapter 7.1. and chapters of Section 7 relevant to transport are addressed. The plan should identify responsibilities and include procedures for *commodities* not complying with the *transit or the importing country* requirements.

Article 5.5.5.

General recommendations on measures to address identified informal or illegal movement of commodities at border inspection posts

To control the *risks* posed by informal or illegal cross-border movement at *border inspection posts*, the *Veterinary Authority* ~~and/or~~ other relevant *Competent Authorities* should coordinate and cooperate with the customs or relevant law enforcement authority as described in Articles s 5.4.2. and 5.6.8.

CHAPTER 5.6.

MEASURES AND PROCEDURES APPLICABLE
INTO THE IMPORTATION OF COMMODITIES

Article 5.6.1.

Purpose and scope

This chapter provides general principles for measures and procedures that are applicable to in the importation of commodities to prevent the spread of pathogenic agents through international trade of commodities, commercial or non-commercial, without creating unjustified trade restrictions, covering from the time of arrival at the point of entry border of in the importing country until clearance of commodities.

For the purposes of this chapter, 'Veterinary Authority' and 'Competent Authorities' refer to the 'Veterinary Authority' and 'Competent Authorities' of the importing country unless otherwise specified.

For the purposes of this chapter, 'operator' means any natural or legal entity or person responsible for transit import of commodities subject to the provisions of this chapter.

This chapter provides importing countries with recommendations on measures and procedures, and the roles and responsibilities of the Veterinary Authority, and other relevant Competent Authorities, and of operators, any natural or legal entity or person responsible for import of commodities subject to the provisions of this chapter business operators (hereafter 'operator'), in addition to responsibilities that are described in Article 5.1.2. This chapter provides guidance to ensure the quality and implementation performance of official controls for importation. This chapter not only covers legal importation, including non-commercial movements of commodities accompanying persons, but also provides general recommendations for illegal or informal entry of commodities.

The animal health status of the importing country or zone is not affected by the presence of disease or infection in imported animals in a quarantine centre or at a border inspection post.

Article 5.6.2.

General considerations

The Veterinary Authority and other relevant Competent Authorities of the importing country should ensure that the importing country requirements, which may be included in international veterinary certificates, and as well as up-to-date information relevant to the import procedures, including a list of the border inspection posts designated for the import and transit of those commodities, are made available to operators and to the exporting countries. Operators should collaborate to ensure the documentation complies with the importing country's requirements.

The Veterinary Authority and other relevant Competent Authorities of the importing country should be responsible for the performance implementation of official controls in accordance with veterinary legislation to ensure that imported commodities can be safely imported. They should also ensure animal welfare is maintained in accordance with Section 7 as relevant. Its legal mandate and responsibilities of the Veterinary Authority and other relevant Competent Authorities, as described in Articles 3.4.5. and 3.4.13., should include the import official controls activities at any all steps of the import process and the possibility to request from the operator importer any necessary information. Where appropriate, the Veterinary Authority or other relevant Competent Authorities may delegate certain tasks in accordance with point 2 of Article 3.4.5. Adequate human, technical, physical and financial resources should be available in the importing country for the Veterinary Services to effectively implement perform official controls inspection in accordance with the quality principles described in Article Chapter 3.2.2.

An *importing country* may require adequate advance notice or approval regarding the date of entry of commodities into its territory ~~of commodities~~, stating the type of *commodity*, species, quantity, means of transport and the *border inspection post* to be used.

~~The Veterinary Authority or other Competent Authorities when relevant, should perform~~ Official inspections ~~should be implemented, with appropriate frequency, in accordance with Article 3.2.12. regularly, based on a risk assessment basis and with appropriate frequency to ensure compliance with the importing country requirements. By way of derogation, the Veterinary Authority or other relevant Competent Authorities may exempt from the inspection, safe commodities or commodities posing a negligible risk and for which inspection is not considered necessary.~~

Biosecurity should be applied to prevent transmission of pathogenic agents from *commodities* throughout the import process.

An *importing country* may prohibit the ~~introduction entry~~ into its territory of a consignment of *commodities* not complying with the *importing country* requirements.

~~Operators~~ Importers should be aware of the *importing country* requirements and import procedure before the importation and ~~inform~~ announce, in advance, to the Veterinary Authority or other relevant Competent Authorities of the arrival of consignments at the *border inspection post*, in accordance with *importing country* requirements. ~~Operators~~ Importers should ensure that *commodities* are presented for official controls inspection at the *border inspection post*, together with the original ~~official~~ international veterinary certificates or documents, or digital equivalents, which are required to accompany the consignments.

In case of *animals*, ~~operators~~ importers should ensure that *animal welfare* is maintained throughout the ~~whole import process of importation~~, in accordance with ~~Chapters 7.1., 7.2., 7.3. and 7.4.~~ Section 7 as relevant.

The ~~Veterinary Authority of the importing country~~ should carry out collaborative activities with other relevant Competent Authorities, customs, ~~and other law enforcement authorities~~, and operators, and with Veterinary Authorities in other countries, to control the risk posed by ~~the illegal or informal cross-border movement of commodities, i.e. e.g. international movement of commodities done in a way that avoids official controls intentionally (illegal) or that may be unregulated but may still present risks (informal). to expressly and intentionally avoid official controls.~~

Article 5.6.3.

General principles applicable to procedures for import official controls for importation

The Veterinary Authority ~~and/or~~ other relevant Competent Authorities should ~~take control of the imported commodities to decide~~ determine whether ~~or not~~ the consignment complies with the *importing country* requirements.

~~Import~~ Official controls should be ~~performed~~ implemented at an appropriate place which might include a *border inspection post*, a point of entry, *quarantine centre*, the place of destination, or premises of the operator responsible for the consignment. The consignment should remain under the control of the Veterinary Authority or other relevant Competent Authorities until formal clearance and release.

In case of emergency, ships and aircrafts may be granted access to a port or airport ~~which that are~~ not their intended destination. In those cases, they should be subjected to the animal health and animal welfare measures which the Veterinary Authority or other relevant Competent Authorities may consider necessary based on the potential risk.

1. Official inspection

Where official inspections of *commodities* are ~~performed~~ implemented, they should always include a documentary check and, depending on the risk to human health, ~~and animal health and/or animal welfare~~, should also include identity checks and physical inspection checks. When the ~~Veterinary Authority or other Competent Authorities~~ Services needs to have full access to the consignment for the purpose of identity checks or physical inspection, consignments should be partially or fully unloaded from the means of transport.

a) Documentary check

A documentary check should be ~~implemented~~ performed on all consignments presented for official ~~controls inspection~~ to ensure that they meet the *importing country* requirements.

A ~~D~~documentary check should include examination of the *international veterinary certificate*, and possibly of laboratory reports or other documents, including those of a commercial nature, which are required to ~~accompany~~ match the consignment.

When ~~implementing~~ performing a documentary check, the *Veterinary Authority* or other ~~Competent Authorities~~ Services should inspect the required documents, in original or their digital equivalents as agreed between the *importing* and *exporting country*, to ensure that:

- i) the *international veterinary certificate* has been issued by the *Official Veterinarian* of the *exporting country*; complies with relevant principles set out in Article 5.2.3. and corresponds as relevant to the model ~~established~~ established by the *importing country* or agreed between the *exporting* and *importing country* for that commodity and intended use, based on Chapters 5.10. to 5.13.; and
- ii) the information contained in the checked documents complies with the *importing country* requirements.

b) Identity check

An identity check should be ~~implemented~~ performed upon arrival of the consignment at the point of ~~entry inspection~~, as a visual inspection to verify that the content and the labelling of a consignment, including the identification of *commodities*, seals and means of transport, correspond to the information declared in the *international veterinary certificate* and accompanying documents.

The frequency of identity checks, the quantity of *commodities* to be inspected as well as the criteria for ~~sampling-selection for checking~~ should be determined by the *Veterinary Authority* or other relevant ~~Competent Authorities of the *importing country*~~ based on *risk assessment*.

c) Physical inspection

i) To verify compliance with importing country requirements and physical integrity. ~~P~~physical inspection should include, as appropriate:

i) clinical examination of an *animal*s for evidence of transmissible diseases and *animal welfare* issues

ii) and physical checks of *animal products* and *germinal products*.

iii) and, as appropriate, checks on packaging, seals, or and and labelling.

iv) checks on the means of transport, labelling and temperature records,

v) the sampling for analysis, testing or diagnosis, and

vi) any other checks required by the *Veterinary Authority* or other relevant *Competent Authorities* to verify compliance with the *importing country* requirements.

ii) The frequency of physical inspection, the quantity of *commodities* to be inspected as well as the criteria for sampling-selection for physical inspection should be determined by the *Veterinary Authority* or other relevant *Competent Authorities of the *importing country** based on *risk assessment*, and considering the following:-

i) For animals:

~~The Veterinary Authority or other Competent Authorities of the importing country should determine the number of animals to be clinically examined~~ should be determined in accordance with the overall number of *animals* in the consignment and the declared purpose of the animals, ~~which it may be increased if the physical checks carried out have not been satisfactory.~~

~~In some cases, such as~~ For animals that are not required to be identified individually and animals considered to be dangerous, clinical examination ~~should~~ could consist of observation of the state of health and behaviour of the entire group or of a representative number of *animals*.

~~If the clinical examination reveals an anomaly, a~~ more thorough clinical examination investigation may be carried out, including sampling and testing, where appropriate especially if the clinical examination reveals an anomaly.

ii) For germinal products:

~~The Veterinary Authority or other Competent Authorities should carry out~~ Physical checks of the consignment should be carried out to verify the compliance of labelling and the transport conditions with *importing country* requirements, including, when relevant, temperature records ~~when relevant~~ and the integrity of the seals, packaging material and cryogenic tanks.

~~The Veterinary Authority or other Competent Authorities of the importing country should determine the number of items to be checked, which may be increased if the checks carried out have not been satisfactory.~~

~~The Veterinary Authority or other Competent Authorities may carry out physical checks to verify that the labelling complies with importing country requirements.~~

Physical inspection may include laboratory testing of the *germinal products*.

If the physical checks reveal an anomaly, a more thorough inspection may be carried out.

iii) For animal products:

~~The Veterinary Authority or other Competent Authorities should carry out~~ Physical checks of the consignment should be carried out to verify the compliance of labelling and the transport conditions with *importing country* requirements, including temperature records when relevant and the integrity of the packaging material and seals.

~~The Veterinary Authority or other Competent Authorities may carry out physical checks to verify that the labelling complies with importing country requirements.~~

Physical inspection may include sensory examination and laboratory testing of the *animal products*.

If the physical checks reveal an anomaly, a more thorough inspection may be carried out.

2. Sampling and testing

Sampling and testing of imported *commodities* ~~with a view to checking compliance with the health importing country requirements laid down in the international veterinary certificate,~~ may be implemented ~~performed~~ following a risk-based sampling plan or upon suspicion of non-compliance resulting from the documentary, identity or physical checks of *commodities*, ~~without creating unjustified barriers to trade.~~ Testing should be implemented ~~performed~~ in an approved laboratory.

The *Veterinary Authority* or other relevant Competent Authorities may develop a risk-based sampling plan for imported consignments, that should specify the percentage of consignments to be sampled, taking into account the animal health status of the importing and exporting country, the species concerned, the nature and declared purpose of the *commodities*, the number of incoming consignments and the results of previous sampling.

Where no immediate danger to animal health or public health is suspected from *commodities* sampled in accordance with a sampling plan, a consignment may be released before the results of laboratory tests are available. A traceability mechanism to recall *commodities* system should be in place to recall *commodities* if needed.

3. Sanitary measures at import

To meet the *importing country* requirements, in addition to the *sanitary measures* implemented in the *exporting countries*, the *Veterinary Authority* or other relevant *Competent Authorities* of *importing country* may require *sanitary measures* to be implemented at importation before release of the *commodities* from official controls. Measures may include disinfection of and disinsection of ~~disinsection elimination of arthropod vectors from~~ *vehicles/vessels/means of transport* and *containers* used in the transportation and *unloading of commodities*, in accordance with Chapter 4.14.

In the case of *animals*, measures may include *vaccination*, testing, treatment or isolation. In the case of other *commodities*, measures may include a holding period or the application of physical or chemical treatment.

4. Release of consignments

Based on the ~~implemented~~ performed import official controls implemented, the *Veterinary Authority* or other relevant *Competent Authorities* of *importing countries* should decide whether the consignment complies with the *importing country* requirements.

When the decision is made that the consignment complies with the *importing country* requirements and has been cleared for release, the *Veterinary Authority* or other relevant *Competent Authorities* should notify the ~~operator/importer~~ and the information should be made available to the customs authorities.

Article 5.6.4.

Further action for non-compliant commodities

Commodities identified as non-compliant based on the ~~implemented~~ performed import official controls implemented should not be released by the *Veterinary Authority* or other relevant *Competent Authorities* and should be ~~isolated~~ detained under appropriate conditions including isolation for *animals*, pending further decision ~~by the *Competent Authority*~~.

Depending on the type of *commodity* and the *risk* the *commodity* represents to animal health, human health and animal health, and the environment, or for due to animal welfare reasons, the *Veterinary Authority* or other relevant *Competent Authorities*, should identify the options for the disposition of the *commodities* and notify the ~~operator/importer~~. Disposition of *commodities* may include:

- a) ~~re-dispatching~~ re-shipping the *commodity* back to the *exporting country* or another country, with the agreement, where appropriate, of the receiving *Competent Authority*;
- b) subjecting the *commodity* to treatment or to other risk mitigation measures necessary to allow importation;
- c) *killing* and disposal of *animals*, or destruction-disposal of other *commodities*.

Any action applied to consignments of *animals* should comply with ~~Chapters 7.1. and 7.6~~ the relevant provisions of Section 7.

The *Veterinary Authority* or other relevant *Competent Authorities* of the *importing country* should notify any decision and reasons to refuse entry of a *commodity* to the customs authorities and the *Veterinary Authority* are encouraged to communicate it to the *Veterinary Authority* of the *exporting country*. Where appropriate, the *Veterinary Authority* of the *exporting country* should be given the opportunity to explain the situation in an attempt to have the consignment released.

Following decisions taken in relation to non-compliant *commodities*, the *Veterinary Authority* or other *relevant Competent Authorities* should supervise the effective disposition-disposal of the *commodities* and apply measures to prevent the introduction into the country of *commodities* which have been refused import, and the reuse of the *international veterinary certificate* that accompanied the consignment.

The *Veterinary Authority* or other relevant *Competent Authority* of the *importing country* should inform the *exporting country* and the *transit country* where necessary, of any the occurrence case of a *listed disease* or other disease referred to in the *importing country requirements* in a consignment of *animals*.

Article 5.6.5.

EmergencyypPlanning for unexpected events

~~The *Veterinary Authority* or other *Competent Authorities* of the *importing country* should develop a plan to address the occurrence, within the *exporting country* after the *commodities* have been exported or within the *transit country* after the *commodities* have transited, of a *listed disease* or a disease referred to in the *importing country requirements* which may have impacted the status of the exported *commodities*.~~

~~The *Veterinary Authority* or other *Competent Authorities* may also develop a plan to address the occurrence of a *listed disease*, or a disease referred to in the *importing country requirements*, within the *importing country* before the *animals* have been released.~~

The *Veterinary Authority* or and other *relevant Competent Authorities* should ensure that the operatorimporter develops and documents a plan to address unexpected events emergencies which may impact the compliancestatus of the commodities with importing country requirementsbeing imported, and non-compliant commodities described in Article 5.6.4. The emergency plan may be generic, or specific to each type of consignment, and should focus on preventing the introduction to the *importing country* of a *listed disease* or a disease referred to in the *importing country requirements*, and on animal welfare recommendations in Chapter 7.1. and chapters of accordance with Section 7 relevant to transport Chapters 7.2., 7.3. and 7.4. The emergency plan should identify responsibility and include procedures for actions taken for non-compliant *commodities* described in Article 5.6.4.

Article 5.6.6.

General recommendations applicable to ~~vehicles/vessels~~means of transport and containers that transported infected animals

~~*Vehicles/vessels*~~Means of transport and *containers* that transported *animals* found to be infected with a pathogenic agent of a *listed disease* or a disease referred to in the *importing country requirements* should be considered as contaminated, and the *Veterinary Authority* or other *relevant Competent Authorities* should apply the following measures as appropriate to the risk:

- a) treatment or safe disposal of the litter, forage and any other potentially contaminated material, by its removal from the ~~*vehicles/vessels*~~means of transport and *containers* for immediate transportation to an establishment assigned in advance, where the animal health measures required by the *importing country* should be strictly applied;
- b) *disinfection* of all parts of the ~~*vehicles/vessels*~~means of transport and *containers* which were used in the transport, feeding, watering, moving and *unloading* of the *animals*, as well as all baggage of travelling attendants, in accordance with Chapter 4.14.;
- c) ~~disinsection~~disinsection elimination of arthropod vectors from of vehicles/vessels of means of transport and *containers* in case of vector borne diseases.

Article 5.6.7.

General principles applicable to disposal of international catering waste

International catering waste that may contain or may have been in contact with animal products, or other forms of untreatedincluding swill, is are considered a high-risk category of product and should therefore be subject to strict controls to minimise the risk of introduction of pathogenic agents.

The *Veterinary Authority* or other relevant Competent Authorities should ensure that ~~all all high risk~~ international catering waste entering the country from the international means of transport is handled, collected and disposed of in a way to minimise the risk of introduction of pathogenic agents.

Article 5.6.8.

General recommendations on measures to address identified informal or illegal movement of commodities at border inspection posts

To control the *risks* posed by informal or illegal cross-border movement at *border inspection posts*, the *Veterinary Authority* ~~or and~~ other relevant law enforcement Competent Authorities should coordinate and cooperate closely with all relevant authorities, including the customs authority and other law enforcement authorities to ensure that the official controls inspection of for commodities entering the country are is implement performed in accordance with the rules of this chapter and national legislation, including when fraud is suspected.

For that purpose, the *Veterinary Authority* ~~or and~~ other relevant Competent Authorities should ensure the timely exchange with all relevant authorities, including the customs and other relevant law enforcement authorities authority, including via electronic means, of relevant information and decisions made relevant to the organisation and conduct of their respective activities for commodities entering the country. The *Veterinary Authority* ~~or and~~ other relevant Competent Authorities should collaborate with all relevant authorities, including the customs and other relevant law enforcement authorities authority to ensure immediate notification reporting to the *Veterinary Authority* or other relevant Competent Authorities of if of circumstances where a declaration is submitted to the customs authority for a consignment of those categories of commodities that should be subject to official inspection control but with no evidence of demonstrating that the required an official inspection control having been was conducted.

The *Veterinary Authority* ~~and/or~~ other relevant Competent Authorities, in collaboration with all relevant authorities, including the customs authority and other relevant law enforcement authorities, should have practical arrangements in place to ensure the implementation of the measures described in Article 5.6.4. in case of detection of illegal cross-border movement of *commodities* at a *border inspection post*.

Article 5.6.9.

General recommendations on measures to address identified informal or illegal movement of commodities outside border inspection posts

To effectively control the *risks* posed by the informal or illegal cross-border movement of *commodities* outside of *border inspection posts*, the *Veterinary Authority*, in collaboration with ~~or~~ other relevant Competent Authorities should:

- 1) coordinate with border authorities (police, customs, transport, immigration) to provide technical support for identification of informal or illegal cross border movement of *commodities*;
 - 2) develop and implement practical mechanisms to address informal or illegal cross border movement of *commodities* and implementation thereof in close collaboration with border authorities.
-

CHAPTER 5.7.

**BORDER INSPECTION POSTS
AND QUARANTINE CENTRES**

Article 5.7.1.

Purpose and scope

This chapter provides recommendations on *border inspection posts* and *quarantine centres* to support effective implementation of measures and procedures applicable to the exportation, transit and importation of *commodities*, in order to prevent the spread of pathogenic agents through international trade, of commodities commercial or non-commercial, without creating unjustified trade restrictions.

Quarantine centres may be used for isolation of *animals* either pre-exportation in accordance with disease-specific chapters in the *Terrestrial Code* or post-arrival. The *Veterinary Authority* or-and other relevant *Competent Authorities* should ensure that the application of *biosecurity* at *quarantine centres* is appropriate to the type of isolation being undertaken, and effectively mitigates risks in accordance with disease-specific chapters of the *Terrestrial Code* (pre-export isolation) or via *risk analysis* (post-arrival quarantine).

Border inspection posts are meant to keep *commodities* contained under adequate *biosecurity* until inspections are complete and decisions are taken on their destination.

Article 5.7.2.

General considerations

Appropriate legislation should be in place, in accordance with Chapter 3.4., to define the facilities, the resourcing and operation of *border inspection posts* and *quarantine centres*, and for their approval.

Material and financial resources should be available at *border inspection posts* and *quarantine centres* as necessary to undertake the relevant functions of the facility while managing official controls, *biosecurity*, health and safety risks and *animal welfare* associated with the type and volume of *commodities* presented for inspection.

Appropriate administration systems should be available to personnel at *border inspection posts* and *quarantine centres* as necessary for the functions of the facility, including record keeping and information and communication technology, to support decision-making and communication.

Biosecurity consistent with Chapter 4.X. is critical to fulfil the functions of *border inspection posts* and *quarantine centres*.

The *Veterinary Authority* and-or other relevant *Competent Authorities* should ensure that:

- Operations at *border inspection posts* and *quarantine centres* are supported by sufficient authorised personnel who are operating under the principles of Chapter 3.2., appropriately qualified with access to regular training, consistent with the intended use and the type and quantity of *commodities* presented.
- Operational details for *border inspection posts* and *quarantine centres* are made available to operators described in Chapters 5.4., 5.5. or 5.6., including the intended use and the categories of *commodities* for which they are designated, exact locations, contact details, hours of operation, booking requirements and costs.
- Standard Operating Procedures (SOPs) are available to personnel at *border inspection posts* and *quarantine centres* describing the procedures undertaken there. Auditable records documenting the performance of these procedures should be kept, including the maintenance of *biosecurity*. Records should include the results of official controls, regular *surveillance* and *monitoring* in the facilities and the surrounding areas.

- *Border inspection posts and quarantine centres* have access to *laboratories* and other *approved* service providers with SOPs as necessary to support the implementation of official controls and the measures described in Chapters 5.4., 5.5. and 5.6. consistent with Article 3.2.6.

Article 5.7.3.

Cooperation with other agencies

The *Veterinary Authority* ~~or and~~ other relevant *Competent Authorities* should engage with other ~~governmental authorities agencies~~ with responsibilities at international borders in the design and operation of *border inspection posts and quarantine centres*, to ensure that official inspection and clearance of transit or import consignments is streamlined where possible. Co-use of facilities and equipment at international borders with other authorities could be considered as long as it does not hinder ~~normal~~ operations and measures described in this chapter. Key principles of the World Trade Organization (WTO) Trade Facilitation Agreement should be considered to facilitate importation and transit of *commodities*.

Article 5.7.4.

Requirements for a border inspection post

Design and operation of a *border inspection post* should be based on *risk analysis* and *biosecurity* including the following:

- 1) Separation between public areas and restricted areas for inspection of consignments.
- 2) Perimeter security of restricted areas to prevent entry of unauthorised people and *means of transport*, and unwanted animals, with access control for entry and exit of authorised personnel and *means of transport*.
- 3) Facilities and equipment suitable for the type and volume of *commodities* presented, necessary for implementation of the official control procedures described in Article 5.6.3, including secure unloading and loading, inspection, sampling and storage or detention of *commodities*, including adequate lighting and temperature control with surfaces appropriate for cleaning and *disinfection*.
- 4) Facilities and equipment for cleaning, ~~and disinfection~~ and disinsection ~~elimination of arthropod vectors of means of transport and containers~~ that have been used in transportation of *commodities*, consistent with Article 5.6.6.
- 5) Waste management for restricted areas with storage facilities as necessary, for solid and liquid waste ~~and, including discarded feed, rejected consignments, dead animals and used bedding,~~ with access and secure transportation to facilities for treatment of waste.
- 6) Operational procedures SOPs for cleaning and disinfection, management of non-compliant, sick or dead animals, waste management, and control of rodents and potential vectors.

Article 5.7.5.

Additional requirements for a border inspection post for animals

In addition to the principles described in Article 5.7.4., a *border inspection post* for consignments of *animals* should be designed and operate in accordance with *animal welfare* principles in Section 7 and should specifically include the following:

- 1) Separate access to restricted animal inspection areas via road infrastructure, to minimise delays.
- 2) Facilities and equipment necessary for the management of consignments of *animals* according to Article 5.6.3, including containment, feeding, watering, restraint and inspection, consistent with the type, age and number of *animals* presented.
- 3) Facilities for temporarily holding *animals*, with adequate housing or restraint mechanisms, space, light, ventilation and separation as appropriate between consignments, ~~and species or treated and untreated animals.~~
- 4) Separate facilities to isolate non-compliant or sick animals.

- 5) Facilities and equipment for the management of **non-compliant**, sick or dead animals, ~~Animal animal waste management for dead animals, discarded feed, solid and liquid waste and used bedding.~~

Article 5.7.6.

Facilities involved in official inspection other than the border inspection post

When the *Veterinary Authority* or other relevant *Competent Authority* defines that official inspection could be implemented at an appropriate place other than a *border inspection post*, the facilities involved should be *approved* following the principles outlined in Articles 5.7.4. and 5.7.5., and the consignment should remain under *biosecurity* and the control of the *Veterinary Authority* or other relevant *Competent Authorities* until formal clearance.

Article 5.7.7.

Requirements for a quarantine centre

Design and operation of a *quarantine centre* should be based on consideration of the following:

- 1) The disease situation of the country, *zone* or area surrounding the *quarantine centre*.
- 2) Location of facilities at a distance from other *establishments*, sufficient to avoid transmission of diseases of concern, taking into account relevant risk factors.
- 3) Site topography, to minimise disease risks associated with the flow of contaminated water.
- 4) Perimeter security to prevent entry of unauthorised people and *means of transport*, and unwanted animals.
- 5) Controls, including sanitary requirements, for entry and exit of authorised personnel, and the facilities necessary to apply these controls including changing rooms and showers. Controls for exit of authorised personnel may not be necessary for the isolation of *animals* before exportation or clearance.
- 6) Controls, including sanitary requirements, for entry and exit of *means of transport* and equipment, including veterinary instruments and supplies, and the facilities necessary to apply these controls. ~~Controls for exit of *means of transport* and equipment may not be necessary for the isolation of *animals* before exportation or clearance.~~
- 7) Controls for entry of supplies, including the sources, sanitary status and entry process for *feed* and bedding, and facilities necessary to handle and store these supplies.
- 8) Facilities and equipment for cleaning and *disinfection*, ~~and removal of arthropod vectors disinsection,~~ including and control of waste and effluent, for *means of transport* and *containers* that have been used in transportation of import consignments of *animals*.
- 9) ~~Waste management.~~ In the case of isolation of *animals* after arrival, waste management should be in accordance with a *biosecurity plan* including storage facilities as necessary, for solid and liquid waste, including discarded *feed*, rejected consignments, dead *animals* and used bedding, with access and secure transportation to facilities for treatment of waste.
- 10) Facilities and equipment for the containment and management of consignments of *animals*, including as appropriate to the animal species separation between consignments, unloading and loading, housing, feeding, watering, yards, restraint and handling, isolation, *vector* control, and for undertaking interventions required by *risk analysis* and or relevant disease-specific chapters of the *Terrestrial Code*, including sample collection, testing, *vaccination*, treatment and veterinary inspection.
- 11) Equipment for cleaning, and disinfection and disinsection ~~removal of arthropod vectors~~ in the facility between consignments of *animals*.
- 12) SOPs Operational procedures for cleaning and disinfection, management of **non-compliant**, sick or dead animals, waste management, and control of rodents and potential vectors.
- 13) Separate facilities to isolate **non-compliant** or sick animals.

A *quarantine centre* for isolation of *animals* before exportation should be used to address the specific requirements in disease-specific chapters of the *Terrestrial Code*. Unless specified in those chapters or importing country requirements, isolation of *animals* before exportation may be performed in other approved facilities.

Article 5.7.8.

Planning for unexpected events

The management of consignments at *border inspection posts* and *quarantine centres* that have failed clearance and have thus been refused transit or import is covered in Chapters 5.4. to 5.6.

The *Veterinary Authority* ~~or and~~ other relevant *Competent Authorities* should ensure that plans are available to personnel at *border inspection posts* and *quarantine centres* that support responses to foreseeable but uncommon events. The plans should address communication, *biosecurity*, health and safety, and *animal welfare* in each instance, and may cover:

- Unexpected arrival of *commodities*.
 - Evidence of a *listed disease* or a disease included in the *transit* or *importing country* requirements in a consignment of imported or transiting *animals* at a *border inspection post* or *quarantine centre*.
 - Veterinary emergency in *animals* at a *border inspection post* or undergoing post-arrival isolation in a *quarantine centre*.
 - Escape of *animals* or unwanted entry of animals.
 - Evidence of *animal products* presenting a risk to animal or public health.
 - Natural disasters and interruption of critical services threatening the operation of the *border inspection post* or *quarantine centre*.
-

CHAPTER 7.5.

ANIMAL WELFARE DURING SLAUGHTER

[...]

Article 7.5.30.

Electrical water-bath stunning for poultry

1. Animal welfare concerns

In electrical water-bath *stunning* poultry are inverted and shackled by the legs from a shackle line. The bird's head has direct contact with the water-bath, and an electric current is passed from the water through the bird to the leg shackle. *Hazards* that may prevent effective electrical *stunning* are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency).

Hazards that increase the likelihood of animals experiencing pre-stun shocks are: poor handling at shackling, inappropriate line speed, physical contact between birds, incorrect angle of entry ramp, entry ramp wetted by charged water, incorrect water-bath height, and shallow immersion.

Factors affecting individual bird resistance include the resistance between the shackle and the leg (leg/shackle interface), shackling on top of a severed foot, shackling by one leg, poor shackle position, incorrect shackle size, dry shackles, scale on the shackle surface, and keratinised skin on the legs (e.g. older birds).

Where ~~insufficient~~ ~~inappropriate~~ electrical *stunning* parameters (intensity-current, voltage and frequency, and exposure time) are used, conscious animals are at risk of being electro-immobilised or paralysed causing *pain* and suffering.

2. Animal-based and other measures

Multiple indicators should be used to determine whether a stun is effective and the animal is unconscious. Animal-based measures of an effective stun are: tonic-clonic seizures; apnoea; and absence of corneal or palpebral reflex.

Animal-based measures of ineffective stun or recovery of consciousness are: vocalisation; spontaneous blinking; righting reflex; presence of corneal or palpebral reflex; rhythmic breathing; spontaneous swallowing; and head shaking.

3. Recommendations

The height of the water-bath stunner should be adjusted so that the birds' heads are completely immersed in the water. Avoid distractions such as people walking under the birds because this can cause birds to pull up.

Personnel should watch for short or stunted birds as these birds will not be able to make contact with the water and will not be stunned. These birds should be stunned in the slaughter line (e.g. penetrative captive bolt) or removed and euthanised.

The rail of the shackle line should run smoothly. Sudden movement such as jolts, drops or sharp curves in the line may cause birds to flap and avoid the stunner.

To minimise any disturbance to birds during shackling, where shackles are wet to improve conductivity, they should be wetted only prior to birds' legs being placed in them.

Pre-stun shocks should be avoided and can be reduced by having a smooth shackle line and entry to the water-bath and by adjusting the water level of the bath to minimise overflow.

In the case of ineffective *stunning* or recovery, animals should be re-stunned using a backup system or be killed immediately. Ineffective *stunning* or return to consciousness should be systematically recorded and the cause of the failure identified and rectified.

Stunning equipment should be used, cleaned, maintained and stored following the manufacturer's recommendations.

Constant current stunners should be preferred to constant voltage stunners because the former ensure that the minimum current is provided to the animals independently from their impedance.

Regular calibration of the equipment according to the manufacturer's procedure is recommended. Effectiveness of the *stunning* should be monitored regularly.

Slaughterhouses/abattoirs should have standard operating procedures that define key operating parameters or follow the manufacturer's recommendations for *stunning*, such as:

- water level, salinity and temperature;
- number of birds in the water-bath;
- contact between water and head, as well as between the legs and the leg shackle;
- electrical parameters (current intensity [A], waveform type [AC and DC], voltage [V] and frequency [Hz]);
- visual or auditory warning system to alert the operator to proper or improper function, such as a device that monitors and displays voltage and applied current.

~~Ensure an optimum~~ The combination of intensity current, voltage and frequency (for AC and pulsed DC), of current and exposure time during electrical water-bath *stunning* practices, ~~to maximise~~ should ensure the effectiveness of *stunning*. In general ~~Lower~~ frequencies ensure an effective stunning, while ~~Higher~~ frequencies provide the lowest probability of a successful stun even at the highest intensity current. Parameters may be validated when the outcome of effectively stunned birds is demonstrated to be met.

Hazards to *animal welfare* such as inversion of conscious birds, pre-stun shocks, and variability in electrical current delivered to each bird are inherent risks of electrical water-bath *stunning*. Thus, alternative *stunning* systems which avoid these associated *hazards* should be preferred.

4. Species-specific recommendations

Effective electrical parameters should be based on scientific evidence for different species of birds.

Effective electrical parameters should be based on scientific data with field evidence on the welfare outcomes for different types and conditions of animals in accordance with point 5 of Article 7.1.4.

~~For water-bath stunning depending on the frequency, minimum recommended parameters~~ minimum intensities current per frequency are recommended for the following and species are:

- For frequency below 200 Hz:
 - 100 mA for chicken,
 - 250 mA for turkeys,
 - 130 mA for ducks and geese,
 - 45 mA for quails.

- For frequency from 200 to 400 Hz:
 - 150 mA for chicken,
 - 400 mA for turkeys.
- For frequency from 400-600 Hz:
 - 200 mA for chicken,
 - 400 mA for turkeys.

Birds should receive the current for at least 4 seconds.

For ducks, geese and quails should not be stunned at frequencies higher than 200 Hz will not achieve effective stunning and therefore are not recommended. [under study].

For chickens and turkeys should not be stunned at frequencies higher than 600 Hz will not achieve effective stunning and therefore are not recommended. [under study].

[...]

CHAPTER 8.8.

INFECTION WITH FOOT AND MOUTH DISEASE VIRUS

[...]

Article 8.8.3.

Country or zone free from FMD where vaccination is not practised

A country or *zone* may be considered free from FMD where *vaccination* is not practised when the relevant provisions in point 2 of Article 1.4.6. have been complied with, and when within the country or *zone* for at least the past 12 months:

- 1) there has been no case of *infection* with FMDV;
- 2) the *Veterinary Authority* has current knowledge of, and authority over, all *herds* of domestic and *captive wild* susceptible animals in the country or *zone*;
- 3) the *Veterinary Authority* has current knowledge of the distribution and habitat of *wild* and *feral* susceptible animals in the country or *zone*;
- 4) appropriate *surveillance* has been implemented in accordance with:
 - a) point 2 b) of Article 1.4.6. where historical freedom can be demonstrated; or
 - b) Articles 8.8.43. to 8.8.45. where historical freedom cannot be demonstrated, which includes the detection of clinical signs of FMD and demonstrates:
 - i) no *infection* with FMDV in unvaccinated animals;
 - ii) no transmission of FMDV in previously vaccinated animals;
- 5) measures to prevent the introduction of the *infection* have been in place; in particular, the importations or movements of *commodities* into the country or *zone* have been carried out in accordance with this chapter ~~and or~~ other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis'. Unless otherwise specified in this chapter, movements of *commodities* within a country between *zones* of different *animal health status* should comply with the same requirements as for importation;
- 6) *vaccination* against FMD is prohibited and the prohibition has been effectively implemented and supervised.

The country or *zone* will be included in the list of countries or *zones* free from FMD, where *vaccination* is not practised in accordance with Chapter 1.6.

Retention on the list requires annual reconfirmation of compliance with all points above and provisions under point 4 of Article 1.4.6. Documented evidence should be resubmitted annually for all points above. Any changes in the epidemiological situation or other significant events should be notified to WOA in accordance with Chapter 1.1.

Provided the conditions of point 4 are fulfilled, the status of a country or *zone* will not be affected by applying official emergency *vaccination* to susceptible animals in zoological collections in the face of a FMD threat identified by the *Veterinary Authorities*, provided that the following conditions are met:

- the zoological collection has the primary purpose of exhibiting animals or preserving rare species, has been identified, including the boundaries of the facility, and is included in the country's contingency plan for FMD;
- appropriate *biosecurity* is in place, including effective separation from other susceptible domestic *populations* or *wildlife*;
- the susceptible animals are identified as belonging to the collection and any movements can be traced;
- the vaccine used complies with the standards described in the *Terrestrial Manual*;
- *vaccination* is conducted under the supervision of the *Veterinary Authority*;
- the zoological collection is placed under *surveillance* for at least 12 months after *vaccination*.

A country or *zone* free from FMD where *vaccination* is not practised may maintain its free status despite an incursion of African buffaloes from a neighbouring infected country or *zone* provided that it is demonstrated that the provisions in this article continue to be met and documented evidence has been submitted to and accepted by WOA. H.

Article 8.8.4.

Country or zone free from FMD where vaccination is practised

A country or *zone* may be considered free from FMD where *vaccination* is practised when the relevant provisions in point 2 of Article 1.4.6. have been complied with, and when within the country or *zone*:

- 1) for at least the past 12 months:
 - a) there has been no transmission of FMDV;
 - b) there has been no case of infection with FMDV;
 - c) the *Veterinary Authority* has current knowledge of, and authority over, all *herds* of domestic and *captive wild* susceptible animals in the country or *zone*;
 - d) the *Veterinary Authority* has current knowledge of the distribution and habitat of *wild* and *feral* susceptible animals in the country or *zone*;
 - e) compulsory systematic *vaccination* in the target *population* has been carried out to achieve adequate *vaccination* coverage and population immunity; based on the epidemiology of FMD in the country or *zone*, the target *population* should be defined in accordance with Chapter 4.18.;
 - f) *vaccination* has been carried out following appropriate vaccine strain selection;
 - g) measures to prevent the introduction of *infection* have been in place; in particular, the importations or movements of *commodities* into the country or *zone* have been carried out in accordance with this chapter ~~and/or~~ other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';
- 2) for the past 24 months:

appropriate *surveillance* has been implemented in accordance with Articles 8.8.43. to 8.8.45. and demonstrates points 1 a) and 1 b) above.

The country or *zone* will be included in the list of countries or *zones* free from FMD where *vaccination* is practised in accordance with Chapter 1.6. Retention on the list requires annual reconfirmation of compliance with all points above and relevant provisions under point 4 of Article 1.4.6. Documented evidence should be resubmitted annually for all points above. Any changes in the epidemiological situation or other significant events should be notified to WOA. H. in accordance with Chapter 1.1.

[...]

Article 8.8.8.

Country or zone infected with FMDV

A country or *zone* shall be considered as infected with FMDV when the conditions in points 1 to 6 of Article 8.8.3 or points 1 and 2 of 8.8.4 ~~requirements for acceptance as a country or zone free from FMD either where vaccination is not practised or where vaccination is practised are not fulfilled~~met.

[...]

CHAPTER 15.2.

INFECTION WITH CLASSICAL SWINE FEVER VIRUS

[...]

Article 15.2.3.

Country or zone free from CSF

A country or *zone* may be considered free from CSF when the relevant provisions in point 2 of Article 1.4.6. have been complied with, and when within the proposed free country or *zone* for at least the past 12 months:

- 1) there has been no *case of infection* with CSFV in domestic and *captive wild* pigs;
- 2) the *Veterinary Authority* has current knowledge of, and authority over, all domestic and *captive wild* pig *herds* in the country or *zone*;
- 3) the *Veterinary Authority* has current knowledge of the distribution, habitat and indication of disease occurrence through passive *surveillance* of *wild* and *feral* pigs in the country or *zone*;
- 4) appropriate *surveillance* has been implemented in accordance with:
 - a) point 2 b) of Article 1.4.6. where historical freedom can be demonstrated; or
 - b) Articles 15.2.28. to 15.2.33. where historical freedom cannot be demonstrated;
- 5) measures to prevent the introduction of the *infection* have been in place: in particular, the importations or movements of *commodities* into the country or *zone* have been carried out in accordance with this chapter ~~and or~~ other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';
- 6) no *vaccination* against CSF has been carried out in domestic and *captive wild* pigs unless there are means, validated according to Chapter 3.8.3. of the *Terrestrial Manual*, of distinguishing between vaccinated and infected pigs;
- 7) if relevant, the domestic and *captive wild* pig populations have been separated by appropriate *biosecurity*, effectively implemented and supervised, from the *wild* and *feral* pig populations, based on the assessed likelihood of spread of the disease within the *wild* and *feral* pig populations and *surveillance* in accordance with Article 15.2.33.

The country or *zone* will be included in the list of countries or *zones* free from CSF in accordance with Chapter 1.6.

Retention on the list requires annual reconfirmation of compliance with all points above and relevant provisions under point 4 of Article 1.4.6. Documented evidence should be resubmitted annually for points 1 to 5 above. Any changes in the epidemiological situation or other significant events should be notified to WOA in accordance with Chapter 1.1.

[...]

Article 15.2.5.

Country or zone infected with CSFV

A country or *zone* is considered as infected with CSFV when the conditions in points 1 to 7 of Article 15.2.3. requirements for acceptance as a free country or *zone* are not fulfilled met.

[...]

CHAPTER 8.20.

**INFECTION WITH FRANCISELLA TULARENSIS
(TULAREMIA)**

Article 8.20.1.

General provisions

The aim of this chapter is to mitigate the animal health and public health risks posed by tularemia. While a wide variety of mammals, including humans, and some birds are known to be susceptible, have been reported to be infected, but tularemia is primarily a vector-borne disease of the orders Lagomorpha and Rodentia.

For the purposes of the *Terrestrial Code*, tularemia is defined as an *infection* of lagomorphs and rodents (hereafter 'animal hosts') with *Francisella tularensis* subsp. *tularensis* or *Francisella tularensis* subsp. *holarctica*.

Hereafter '*Francisella tularensis*' is used to collectively refer to both *Francisella tularensis* subsp. *tularensis* and *Francisella tularensis* subsp. *holarctica*.

The following defines the occurrence of *infection* with *Francisella tularensis*:

- 1) *Francisella tularensis* has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid or antigen specific to *Francisella tularensis* has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with *infection* with *Francisella tularensis*; or epidemiologically linked to a confirmed or suspected case or a human infected with *Francisella tularensis*, or giving cause for suspicion of association or contact with *Francisella tularensis*; or
- 3) seroconversion specific to *Francisella tularensis* has been detected in an animal host; or
- 4) antibodies specific to *Francisella tularensis* have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with *infection* with *Francisella tularensis*, or epidemiologically linked to a confirmed or suspected case or a human infected with *Francisella tularensis*, or giving cause for suspicion of previous association or contact with *Francisella tularensis*.

For the purposes of the *Terrestrial Code*, the *incubation period* for tularemia (in hares, genus *Lepus*) shall be 15 days.

Standards for diagnosis diagnostic tests, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Article 8.20.2.

Tularemia-free country Country or zone free from tularemia

A country or zone may be considered free from tularemia when:

- 1) the *infection* has been notifiable in the entire country it has been shown that tularemia has not been present for at least the past two years;
- 2) either:
 - a) the country or zone is historically free as described in point 2) b) of Article 1.4.6.; or

- b) ~~for at least the past two years, specific surveillance in accordance with Chapter 1.4. has been in place in the entire country or zone, and there has been no case in the country or zone for at least the past two years; and when bacteriological or serological surveys in previously infected zones have given negative results.~~
- 3) ~~appropriate biosecurity and sanitary measures to prevent the introduction of infection have been in place; in particular, the importations or movements of animal hosts and other commodities into the country or zone have been carried out in accordance with this chapter or other relevant chapters of the Terrestrial Code, including Chapter 2.1. 'Import risk analysis':.~~

Article 8.20.2.bis

Recovery of free status

~~Should a case of infection with *Francisella tularensis* occur in a previously free country or zone, its status may be recovered in accordance with Article 8.20.2 one year after the disinfection and disinsection of the last affected establishment, provided that in the entire country or zone, specific surveillance in accordance with Chapter 1.4. has been carried out and has demonstrated the absence of any case of infection with *Francisella tularensis*.~~

~~Otherwise, Article 8.20.2. applies.~~

Article 8.20.3.

Tularemia infected zone ~~Country or zone infected with *Francisella tularensis*~~

~~A country or zone should be considered as infected with *Francisella tularensis* when the conditions for freedom from tularemia are not met fulfilled tularemia until:~~

- 1) ~~at least one year has elapsed after the last case has been confirmed;~~

~~AND~~

- 2) ~~a bacteriological survey on ticks within the infected zone has given negative results; or regular serological testing of hares and rabbits from that zone have given negative results.~~

Article 8.20.4.

Trade in commodities

~~Veterinary Authorities of tularemia free countries may prohibit importation or transit through their territory, from countries considered infected with tularemia, of live hares.~~

Article 8.20.54.

Recommendations for importation of hares from countries considered infected with *Francisella tularensis* ~~tularemia~~

For live hares

~~Veterinary Authorities of importing countries should require the presentation of an international veterinary certificate attesting that the animals:~~

- 1) ~~showed no clinical sign of tularemia on the day of shipment;~~
- 12) ~~dower~~ not come from a zone kept in an tularemia-infected with *Francisella tularensis*.zone;
- 23) ~~have been were~~ treated against ectoparasites arthropod vectors upon entry into the quarantine centre; and
- 34) ~~were kept in a quarantine station centre for the at least 15 days prior to shipment and during this period the animals showed no clinical signs of infection with *Francisella tularensis*.~~

CHAPTER 8.X.

INFECTION WITH CRIMEAN-CONGO HAEMORRHAGIC FEVER VIRUS

Article 8.X.1.

General provisions

Crimean-Congo haemorrhagic fever (CCHF) is a zoonotic disease, resulting in severe illness or death in humans. It is caused by a tick-borne virus (CCHFV) that can infect, in general subclinically, a wide variety of vertebrate animals, in general causing no clinical signs in animals.; ~~some~~ Some of them these animals playing a significant role in the amplification and virus transmission of the virus to humans.

The aim of this chapter is to mitigate the animal health and public health risks posed by CCHF.

For the purposes of the *Terrestrial Code*, ~~Crimean-Congo haemorrhagic fever-CCHF~~ is defined as an *infection* of ruminants, dromedary camels and ostriches (hereafter 'animal hosts') with Crimean-Congo haemorrhagic fever virus ~~Crimean-Congo haemorrhagic fever virus (CCHFV)~~.

The following defines the occurrence of *infection* with CCHFV:

- 1) CCHFV has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid specific to CCHFV has been detected in a sample from an animal host epidemiologically linked to a confirmed or suspected case, or to a human infected with CCHFV, or giving cause for suspicion of previous association ~~or contact~~ with or exposure to CCHFV; or
- 3) antibodies specific to CCHFV have been detected in a sample from an animal host epidemiologically linked to a confirmed or suspected case, or to a human infected with CCHFV, or giving cause for suspicion of previous association ~~or contact~~ with or exposure to CCHFV.

Standards for diagnosis and information on the epidemiology are described in the *Terrestrial Manual*.

CHAPTER 10.X.

INFECTION WITH AVIAN METAPNEUMOVIRUS (TURKEY RHINOTRACHEITIS AND SWOLLEN HEAD SYNDROME OF CHICKENS)

Article 10.X.1.

General provisions

For the purposes of the *Terrestrial Code*, *infection* with avian metapneumovirus is defined as an *infection* of *poultry* with avian metapneumovirus.

The following defines the occurrence of *infection* with avian metapneumovirus:

- 1) Avian metapneumovirus, excluding vaccine strains, has been isolated and identified as such in a sample from *poultry*; or
- 2) nucleic acid specific to avian metapneumovirus, which is not the consequence of *vaccination*, has been detected in a sample from *poultry* showing clinical signs or pathological lesions consistent with *infection* with avian metapneumovirus or is epidemiologically linked to a confirmed or suspected case; or
- 3) seroconversion specific to avian metapneumovirus, which is not the consequence of *vaccination*, has been detected in *poultry*; or
- 4) antibodies specific to avian metapneumovirus, which are not the consequence of *vaccination*, have been detected in a sample from *poultry* showing clinical signs or pathological lesions consistent with *infection* with avian metapneumovirus, or epidemiologically linked to a confirmed or suspected case.

Standards for diagnosis and vaccines, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

USER'S GUIDE

A. Introduction

- 1) The WOA *Terrestrial Animal Health Code* (hereafter referred to as the *Terrestrial Code*) establishes standards intended for the improvement of terrestrial animal health and welfare and veterinary public health worldwide. The purpose of this guide is to advise the *Veterinary Authorities* of WOA Member Countries on how to use the *Terrestrial Code*.
- 2) *Veterinary Authorities* should use the standards in the *Terrestrial Code* notably ~~to set up to plan and implement~~ measures providing for early detection, internal reporting, notification, control or eradication of pathogenic agents, including zoonotic ones, in terrestrial *animals* (i.e. mammals, birds, reptiles and bees) and preventing their spread via *international trade* in commodities, which includes animals and animal products, while avoiding unjustified sanitary barriers to trade. These measures may include the establishment and recognition of *animal health status* applied to countries, *zones*, *compartments* or *herds/flocks*.
- 3) The WOA *Manual of Diagnostic tests and vaccines for terrestrial animals* (hereafter referred to as the *Terrestrial Manual*) is a reference document to be read in conjunction with the *Terrestrial Code*. It provides technical standards on diagnosis and vaccines, as well as detailed epidemiological information for relevant diseases.
- 4) Notification of listed diseases and emerging diseases and related measures taken is a mandatory requirement for Member Countries. Other recommendations may be adapted to each Member Country's specific conditions, such as animal production or animal health situation, and domestic regulations.
- 5) Although only notification of listed diseases and emerging diseases as described in the *Terrestrial Code* is compulsory (hence the use of the term 'shall'), membership to WOA implies a general commitment to apply its standards (hence the use of the term 'should').
- 6) While the *Terrestrial Code* standards provide recommendations to be implemented, they do not prescribe a defined implementation process. This means that the standards should be adapted and incorporated into national laws, regulations or other official documents, thereby providing a basis for *Veterinary Authority* and other *Competent Authorities* to develop prevention and control measures. In practice, the way international standards are integrated into domestic legislations depends on each Member Country's legal system, disease status, and capacity, resulting in diverse implementation methods among Member Countries.
- 7) The *Terrestrial Code* provides standards that deliver essential sanitary information and technical guidance to its Member Countries, including for the negotiation and agreement of science-based import requirements, as reflected in international veterinary certification. All sections of the *Terrestrial Code* contribute together to support Member Countries in the safe trade of *commodities* and the improvement of animal health and welfare globally.
- 8) Member Countries may apply different measures than those recommended by specific standards in the *Terrestrial Code*. Regarding sanitary measures for international trade, such measures should be scientifically justified, as recognised by WTO's Sanitary and Phytosanitary (SPS) Agreement. The *Terrestrial Code* provides methodologies for risk analysis to support this.
- 39) WOA standards ~~comprise recommendations that are based on the most recent scientific and technical evidence—information.~~ Correctly applied, they protect animal health and welfare and veterinary public health during production of and trade in *commodities*, and in ~~activities involving the use of animals.~~

410) The absence of chapters, articles or specific recommendations on particular pathogenic agents, surveillance strategies, *animal health status* or trade in *commodities* does not preclude the application of appropriate *sanitary measures* by the *Veterinary Authorities*, provided they are based on *risk analyses* conducted in accordance with the *Terrestrial Code*.

544) The year that a chapter was first adopted and the year of its last revision are noted at the end of each chapter.

612) The complete text of the *Terrestrial Code* is available on the WOAHP website and individual chapters may be downloaded from: <https://www.woah.org/>. Additional guidelines relevant to the application of certain aspects of the *Terrestrial Code* may also be available on the WOAHP website.

B. *Terrestrial Code* content

1) Key terms and expressions that are used in more than one chapter and require precise interpretation for the purposes of the *Terrestrial Code* are defined in the Glossary, in the case where common dictionary definitions are not deemed to be adequate. The reader should be aware of the definitions given in the Glossary when reading and using the *Terrestrial Code*. Defined terms appear in italics, except in titles of chapters or articles. In the on-line version of the *Terrestrial Code*, a hyperlink leads to the relevant definition. In the *Terrestrial Code*, the term 'or' is used in the inclusive sense, meaning that it can be one, the other or both, except where 'or' is preceded by 'either'.

1bis) The expression 'for the purposes of the *Terrestrial Code*' appears throughout the *Terrestrial Code*, including at the beginning of the Glossary and in chapters where diseases or their occurrences (cases), or other related terms, are defined. It means that those terms should be used as defined throughout the *Terrestrial Code*, notably for notification.

2) The term "(under study)" is found in some rare instances, with reference to an article or part of an article. This means that this part of the text has not been adopted by the World Assembly of Delegates and the particular provisions are thus not part of the *Terrestrial Code*, while they continue to be the subject of specific work, until they are amended or deleted.

3) The standards in the chapters of Section 1 are designed for the implementation of measures for the diagnosis, *surveillance* and *notification* of diseases, *infections* and *infestations*. The standards include procedures for *notification* to WOAHP and procedures for the recognition of the *animal health status* of a country, *zone* or *compartment*. Section 1 thus provides transparency to trading partners through WOAHP notification on their respective animal health status for *listed diseases*. This is fundamental baseline information for setting risk-based import requirements.

4) The standards in the chapters of Section 2 are designed to guide an the importing country in conducting import *risk analysis*, in particular in the absence of WOAHP recommendations on particular pathogenic agents or *commodities* to inform sanitary requirements and certification. The *importing country* should also use these standards to justify import measures which are more stringent than different to existing WOAHP standards. Section 2 also provides principles and guidance on *safe commodity criteria*.

5) The standards in the chapters of Section 3 are designed for the establishment, maintenance and strengthening evaluation of *Veterinary Services*, and the evaluation of their quality, including *veterinary legislation* and communication. These standards are intended to assist the *Veterinary Services* and *Veterinary Authority* of Member Countries to meet their objectives of improving terrestrial animal health and welfare and veterinary public health, as well as to They also assist Member Countries to establish and maintain confidence in their *animal health status*, their ability to deliver *international veterinary certificates* and the related capacity to meet import requirements as well as to provide operational assurances for trade.

6) The standards in the chapters of Section 4 are designed for the implementation of measures for the prevention and control of pathogenic agents within Member Countries' territories. Measures in this section include notably *animal identification*, traceability, zoning, compartmentalisation, disposal of dead *animals*, *disinfection*, disinsection, *biosecurity*, and general hygiene precautions, *vaccination* and *disease official control programmes*. Some chapters address the specific *sanitary measures* to be applied for the collection and processing of semen and embryos of *animals*. Standards in Section 4 reflect detailed information and capabilities including for *safe trade*.

- 7) The standards in the chapters of Section 5 are designed for the implementation of general *sanitary measures* for international trade. They address veterinary certification and the measures applicable at each stage of the trade process by the *exporting, transit and importing countries*. They also include recommendations for Member Countries to discuss and establish bilaterally agreed sanitary measures and international veterinary certificates, as well as define equivalence of sanitary measures. A range of model veterinary certificates is provided to facilitate consistent documentation in *international trade*.
- 8) The standards in the chapters of Section 6 are designed for the implementation of preventive measures in animal production and processing systems. ~~These measures are intended~~ to assist Member Countries in meeting their veterinary public health objectives. They include ante- and post-mortem inspection, control of hazards in *feed, biosecurity* at the animal production level, and the control of antimicrobial resistance in *animals*. Standards in Section 6 also provide recommendations that may be applicable to the international trade of non-human primates and other commodities such as food and feed.
- 9) The standards in the chapters of Section 7 are designed for the implementation of *animal welfare* measures. The standards cover production, transport, and *slaughter or killing of animals*, as well as the *animal welfare* aspects of free-roaming dog population control, working equids, and the use of *animals* in research and education. Detailed parameters provided in some recommendations are meant to guide Member Countries in choosing those that are most suitable to their situation.
- 10) The standards in each of the chapters of Sections 8 to 16, i.e. disease-specific chapters, are designed to inform of the occurrence of WOA *listed diseases* and to prevent the pathogenic agents of those listed diseases from being introduced into an *importing country*, from spreading within a country or having harmful consequences, while facilitating safe international trade of commodities, based on the relative animal health status of their country, *zone or compartment* of origin, or as a *safe commodity*. Some chapters include specific measures for surveillance and to prevent and control the *infections and infestations* of global concern. Sections 8 to 16 relate to the categories of diseases, *infections and infestations* of multiple species, Apinae, Aves, Bovinae, Equidae, Leporidae, Caprinae, Suidae and Camelidae respectively. Although WOA aims to include a chapter for each WOA *listed disease*, not all WOA *listed diseases* have been covered yet by a specific chapter. This is work in progress, depending on available scientific knowledge, and as prioritised the priorities set by Member Countries the World Assembly of Delegates.
- 11) A disease-specific chapter covers some or all of the following components:
 - Chapter title and number;
 - An introductory article, including a brief description of the disease, its context and the aim of the chapter, the definition for the purposes of the Terrestrial Code of the disease and the animal hosts, which play a significant role in the epidemiology of the disease, and the definition of its occurrence ('case definition'); the introductory article may also include the setting of incubation, infective period, and other aspects of the disease and its consequences in terms of surveillance, animal health status and trade;
 - An Article on safe commodities;
 - Articles on provisions for *animal health status* applied to countries, *zones, compartments*, ~~or~~ herds/flocks, apiaries or other subpopulations;
 - Articles on recommendations for safe trade of *commodities*;
 - Articles on inactivation of the pathogenic agents present in specific *animal products*, materials or fomites; ~~and~~
 - Articles on *surveillance* of the disease; and
 - Articles on the prevention and control of diseases including containment and protection zones.

Not all disease-specific chapters include all these components and some chapters may include only one article on the definition of occurrence for the purpose of *notification* to WOA. Each chapter includes only those provisions considered, at the time of adoption, relevant to address WOA Members' needs with regards to the specific disease; and that are supported by sound scientific and technical knowledge.

The recommendations in these chapters that are related to *international trade* assume that the pathogenic agent is either not present in the *importing country* or is the subject of a control or eradication programme. The *sanitary measures* recommended in the standards take into account the nature of the moved or traded *commodity*, the *animal health status* of the *exporting country*, *zone* or *compartment* of origin, and the *risk* mitigation measures applicable to each *commodity*.

C. Specific issues

1) Notification

Chapter 1.1. describes Member Countries' obligations under Organic Statutes of the Office International des Epizooties. Listed diseases, as defined and described in their relevant disease-specific chapters, and emerging diseases, as prescribed in Chapter 1.1., are compulsorily notifiable, either immediately or routinely every six months depending on the disease situation. Member Countries are encouraged to also provide information to WOA on other animal health events of epidemiological significance, notably findings of pathogenic agents that do not comply with case definitions of the *listed diseases*.

Chapter 1.2. describes the criteria for the inclusion of a disease, *infection* or *infestation* in the WOA List and Chapter 1.3. gives the current list. *Listed diseases* are divided into categories based on the animal hosts. Recommendations for animal health surveillance in Chapter 1.4. are essential for early detection.

2) Diagnostic tests and vaccines

It is recommended that specified diagnostic tests and vaccines in *Terrestrial Code* chapters be used with a reference to the relevant section in the ~~WOA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals~~ (hereafter referred to as the *Terrestrial Manual*). Experts responsible for facilities used for disease diagnosis and vaccine production should be fully conversant with the standards in the *Terrestrial Manual*.

3) Freedom from a disease, infection or infestation

Article 1.4.6. provides general principles for declaring a country or *zone* free from a disease, *infection* or *infestation* ~~and which~~ may be complemented by specific requirements in the *listed disease-specific chapters, including for some diseases for which an official status is granted by WOA.* Chapter 1.6. describes the procedures for free status recognition and self-declaration.

4) Prevention and control

Chapters 4.4. and 4.5. describe the measures that should be implemented to establish *zones* and *compartments*. Zoning and compartmentalisation are important tools to prevent and control diseases and to facilitate safe trade.

Chapters 4.6. to 4.12. describe the measures which should be implemented during collection and processing of semen and embryos of animals, including micromanipulation and cloning, in order to prevent animal health *risks*, especially when trading these *commodities*. Although the measures relate principally to WOA *listed diseases* or *infections*, general standards apply to all infectious disease *risks*. Moreover, in Chapter 4.8. diseases that are not listed are marked as such but are included for the information of Member Countries.

Chapter 4.15. addresses the specific issue of the prevention and control of bee diseases and some of its trade implications. This chapter should be read in conjunction with the specific bee disease chapters in Section 9.

Chapters 4.18. and 4.19 related to vaccination and disease control are applicable in endemic or epidemic situations, as well as in free countries or zones experiencing emergence or reemergence of diseases, or at increased risk of disease introduction. Chapters 4.13. and 4.14. related to the disposal of dead animals and to disinfection and disinsection are essential recommendations for complementary measures to control and eradicate diseases.

Chapter 6.5. is designed for the implementation of general *biosecurity* measures in intensive *poultry* production. Chapters 6.6., 6.13. and 6.14. provide recommendations for some specific prevention and control plans for the unlisted foodborne pathogenic agent *Salmonella* in poultry, bovine and pig production systems as part of the *Veterinary Services* mission to prevent, eliminate or control food safety *hazards* in animal production.

Chapter 6.12. deals specifically with the zoonotic risk associated with the movements of non-human primates and gives standards for certification, transportation and import conditions for these *animals*.

5) International Trade requirements

a) Generalities

Veterinary Authority should implement sanitary measures at the borders of their countries, in order to prevent the introduction of listed diseases, especially when the country or a zone of the country is free or when official control measures are being applied against those diseases. The general measures to be applied are described in Section 5 of the *Terrestrial Code*.

~~*Sanitary measures related to international trade should be based on WOAHS standards. A Member Country may authorise the importation of animals or animal products into its territory under conditions different from those recommended by the Terrestrial Code. To scientifically justify more stringent measures, the importing country should conduct a risk analysis in accordance with WOAHS standards, as described in Chapter 2.1. Members of the WTO should refer to the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).*~~

Chapters 5.1. to 5.3. describe the general obligations and ~~ethical~~ responsibilities of *importing* and *exporting countries* in *international trade*. *Veterinary Authorities* and all *veterinarians* directly involved in *international trade* should be familiar with these chapters. Chapter 5.3. also describes the principles of equivalence of measures, the process of negotiation of bilaterally agreed measures, and the WOAHS informal procedure for dispute mediation. Chapters 5.4. to 5.7. describe the measures to implement at export, transit, and import of commodities. They are an essential pillar of prevention of international spread of animal diseases.

b) Safe commodities

WOAH aims to include an article listing the *commodities* that are considered safe for trade without the need for *risk* mitigation measures specifically directed against a particular *listed disease, infection or infestation*, regardless of the status of the country or *zone* of origin for the agent in question, at the beginning of each *listed disease*-specific chapter in Sections 8 to 16. ~~This is work in progress and some chapters do not yet contain articles listing safe commodities.~~ When a list of *safe commodities* is present in a chapter, *importing countries* should not apply trade restrictions to such *commodities* with respect to the agent in question. The safety of those *safe commodities* should be considered both when trading as well as for disease control regarding domestic movements. Chapter 2.2. describes the criteria for inclusion of a *commodity* in the list of *safe commodities* of a disease-specific chapter.

~~6)c)~~ International veterinary certificates

An *international veterinary certificate* is an official document that the *Veterinary Authority* of an *exporting country* issues in accordance with Chapters 5.1. and 5.2. It lists animal health requirements and, where appropriate, public health requirements for the exported *commodity*. The quality of the *exporting country's Veterinary Services* is essential in providing assurances to trading partners regarding the safety of exported *animals* and products. This includes the *Veterinary Authority's* ethical approach to the provision of veterinary certificates and their history in meeting their notification obligations.

International veterinary certificates underpin *international trade* and provide assurances to the *importing country* regarding the health status of the *animals* and products imported. The measures prescribed should take into account the *animal health status* of both *exporting* and *importing countries*, and *zones, herds/flocks* or *compartments* within them, and be based upon the standards in the *Terrestrial Code*.

The following steps should be taken when drafting *international veterinary certificates*:

- a) i) identify the diseases, *infections* or *infestations* from which the *importing country* is justified in seeking protection because of its own health status. *Importing countries* should not impose measures in regard to diseases that occur in their own territory but that are not subject to *official control programmes*;
- b) ii) for *commodities* capable of transmitting these diseases, *infections* or *infestations* through *international trade*, the *importing country* should apply the relevant articles in the *listed disease*-specific chapters. The application of the articles should be adapted to the *animal health status* of the country, *zone, compartment* or *herd/flock* of origin. Such status should be established according to Article 1.4.6. except when articles of the relevant *listed disease* chapter specify otherwise;
- c) iii) when preparing *international veterinary certificates*, the *importing country* should endeavour to use terms and expressions in accordance with the definitions given in the Glossary. *International veterinary certificates* should be kept as simple as possible and should be clearly worded, to avoid misunderstanding of the *importing country's* requirements;
- d) iv) Chapters 5.10. to 5.13. provide, as further guidance to Member Countries, model certificates that should be used as a baseline.

7)d) Guidance notes for importers and exporters

It is recommended that *Veterinary Authorities* prepare “guidance notes” to assist importers and exporters understand trade requirements. These notes should identify and explain the trade conditions, including the measures to be applied before and after export and during transport and unloading, and the relevant legal obligations and operational procedures. The guidance notes should advise on all details to be included in the health certification accompanying the consignment to its destination. Exporters should also be reminded of the International Air Transport Association rules governing air transport of *animals* and *animal products*.

[...]

GLOSSARY

ANIMAL HEALTH STATUS

means the status of a country, ~~zone, or a compartment, herd, flock, apiary or other subpopulation~~ with respect to an ~~animal disease~~ infection or infestation in accordance with the criteria listed in the relevant disease-specific chapter or Chapter 1.4. of the *Terrestrial Code*.

ANIMAL HOST

means an animal whose infection or infestation with the pathogenic agent of a listed disease plays a significant role in the epidemiology of the disease and defines a case requiring notification.

CONTAINMENT ZONE

means an infected zone, defined within a previously free country or zone, ~~which includes all suspected or confirmed cases that are epidemiologically linked and~~ where movement control, *biosecurity* and *sanitary measures* are applied to prevent the spread of, and to eradicate, the *infection or infestation*.

FREE ZONE

means a zone in which the absence of a specific *infection or infestation* in an ~~animal subpopulation~~ has been demonstrated in accordance with the relevant requirements of the *Terrestrial Code*.

NOTIFIABLE DISEASE

means a disease, infection or infestation ~~listed by the Veterinary Authority, and that, as soon as detected or suspected, should be brought to the attention of~~ reported to the *Veterinary Authority*, in accordance with national regulations.

NOTIFICATION

means the procedure by which:

- a. the *Veterinary Authority* of a Member Country informs the *Headquarters*,
- b. the *Headquarters* inform the *Veterinary Authority* ~~Authorities~~ of Member Countries,

of the occurrence or presence of listed diseases, ~~infection or infestation or emerging diseases~~ in accordance with Chapter 1.1.

POULTRY

means all birds reared or kept in captivity for the production of ~~any commercial animal products~~ commodities or for breeding for this purpose, and fighting cocks used for any purpose, ~~and all birds used for restocking supplies of game or for breeding for this purpose, until they are released from captivity.~~

~~Birds that are kept in a single household, the products of which are used within the same household exclusively, are not considered poultry, provided that they have no direct or indirect contact with poultry or poultry facilities.~~

Birds that are kept in captivity for other reasons, including those that are kept for shows, racing, exhibitions, zoological collections and competitions, and for breeding or selling for these purposes, as well as pet birds, are ~~not considered poultry, provided that they have no direct or indirect contact with poultry or poultry facilities.~~

PROTECTION ZONE

means a zone where specific *biosecurity* and *sanitary measures* are implemented in response to an increased risk of disease introduction to prevent the entry and spread of a pathogenic agent into a free country or zone, ~~from a neighbouring country or zone of a different animal health status.~~

ZONE

means a ~~part of a country~~ geographical area defined by the *Veterinary Authority*, containing an ~~animal population or subpopulation~~ with a specific *animal health status* with respect to an *infection* or *infestation* or specific animal health management measures for the purposes of *international trade* or *disease prevention or control*.

CHAPTER 1.1.

NOTIFICATION OF DISEASES AND PROVISION OF EPIDEMIOLOGICAL INFORMATION

Article 1.1.1.

For the purposes of the *Terrestrial Code* and in terms of Articles 5, 9 and 10 of the Organic Statutes of the Office International des Epizooties, Member Countries shall recognise the right of the *Headquarters* to communicate directly with the *Veterinary Authority* of its territory or territories.

All *notifications* and all information sent by WOAHP to the *Veterinary Authority* shall be regarded as having been sent to the country concerned and all *notifications* and all information sent to WOAHP by the *Veterinary Authority* shall be regarded as having been sent by the country concerned.

Article 1.1.2.

- 1) Member Countries shall make available to other Member Countries, through WOAHP, whatever information is necessary to minimise the spread and impact of important animal diseases, and their pathogenic agents, and to assist in achieving better worldwide control of these diseases.
- 2) To achieve this, Member Countries shall comply with the *notification* requirements specified in Articles 1.1.3. and 1.1.4.
- 3) For the purposes of this chapter, an “event” means a single *outbreak* or a group of epidemiologically related *outbreaks* of a given *listed disease* or *emerging disease* that is the subject of a *notification*. An event is specific to a pathogenic agent and strain type, subtype and variant, ~~when appropriate as relevant~~, and includes all related *outbreaks* reported from the time of the initial *notification* through to the final report. Reports of an event include susceptible species, animal hosts, the number and geographical distribution of affected animals and *epidemiological units*.
- 4) To assist in the clear and concise exchange of information, notification reports shall conform as closely as possible to the WOAHP disease reporting format.
- 5) ~~The occurrence of a case of infection of an animal host with detection of the pathogenic agent of a listed disease in an animal should be reported~~ shall be reported, even in the absence of clinical signs. Recognising that scientific knowledge concerning the relationship between diseases and their pathogenic agents is constantly developing and that the presence of a pathogenic agent does not necessarily imply the presence of a disease, Member Countries shall ensure, through their notification reports, that they comply with ~~the spirit and intention of point 1 above~~.
- 6) In addition to notifying ~~new findings~~ events in accordance with Articles 1.1.3. and 1.1.4., Member Countries shall also provide information on the measures taken to prevent the spread of listed diseases and emerging diseases. Information shall include *biosecurity* and *sanitary measures*, including vaccination and restrictions applied to the movement of commodities ~~animals, animal products, biological products and other miscellaneous objects~~ fomites which could ~~by their nature be~~ responsible for the transmission of diseases. In the case of diseases transmitted by *vectors*, the measures taken against such *vectors* shall also be ~~specified~~ described.
- 7) The Headquarters shall communicate to Veterinary Authorities all notifications received and other relevant information.

Article 1.1.3.

Notification of listed diseases

Veterinary Authorities shall, under the responsibility of the Delegate, send to the *Headquarters*:

- 1) in accordance with Chapter 1.3. and relevant provisions the definition of the *listed disease* and its occurrence in the disease-specific chapters, *notification*, through the World Animal Health Information System (WAHIS) ~~or by fax or email~~ by electronic correspondence under the authority of the Delegate within 24 hours of the confirmation, of any of the following events:
 - a) first occurrence of a *listed disease* in a country, a *zone* or a *compartment*;
 - b) recurrence of an eradicated *listed disease* in a country, a *zone* or a *compartment* following the final report that declared the last event ended;
 - c) first occurrence of a *listed disease* ~~due to a new strain-type, subtype or variant of the~~ a pathogenic agent previously absent of a listed disease in a country, a *zone* or a *compartment*;
 - d) recurrence of a listed disease due to an eradicated ~~strain-type, subtype or variant of the~~ a pathogenic agent ~~of a listed disease~~ in a country, a *zone* or a *compartment* following the final report that declared the last event ended;
 - e) a sudden and unexpected change in the geographical distribution or increase in incidence ~~or virulence of, or morbidity or mortality, or the occurrence in a previously unaffected animal host caused by, the pathogenic agent~~ of a *listed disease* present within a country, a *zone* or a *compartment*;
 - f) ~~occurrence of a listed disease in an unusual host species;~~
- 2) ~~Weekly~~ reports subsequent to a *notification* under point 1 above, to provide further information on the evolution of the event which justified the *notification*. These reports ~~should~~ shall continue until either the *listed disease* has been eradicated or is considered the situation has become sufficiently stable which means its incidence, morbidity, mortality and spread have stabilised. In the latter situation, that six-monthly reporting under point 3 will ~~shall~~ satisfy the obligation of the Member Country. For each event notified and in both situations (eradication or stabilisation), a final report ~~should~~ shall be submitted;
- 3) ~~Six-monthly~~ reports on the absence or presence and evolution of *listed diseases* and information of epidemiological significance to other Member Countries;
- 4) ~~Annual~~ reports concerning any other information of significance to other Member Countries.

Article 1.1.4.

Notification of emerging diseases

Veterinary Authorities shall, under the responsibility of the Delegate, send to the *Headquarters*:

- 1) a *notification* through WAHIS or by electronic correspondence under the authority of the Delegate ~~fax or email~~, when an *emerging disease* has been detected in a country, ~~a zone or a compartment~~;
- 2) ~~periodic~~ at least monthly reports subsequent to a *notification* of an *emerging disease*:
 - a) ~~for the time necessary to have reasonable certainty demonstrate that:~~
 - i) the *infection* or *infestation* has been eradicated; or
 - ii) ~~the situation has become stable; its incidence, morbidity, mortality and spread have stabilised; in this situation, information shall continue to be sent through the six-monthly reports.~~

OR

- b) ~~until sufficient scientific information is available to determine whether it meets the criteria for inclusion in the WOAHS list as described in Chapter 1.2.;~~
- 3) a final report once point 2 a) or 2 b) above has been complied with.

The requirement for notification of *emerging disease* will continue until sufficient scientific information is available to determine whether it meets the criteria for inclusion in the WOAHS list as described in Chapter 1.2.

Article 1.1.5.

Other important animal health information

- 4) Although Member Countries are only required to notify *listed diseases* and *emerging diseases*, they are encouraged to provide WOAHS with other important animal health information such as findings of pathogenic agents of *listed diseases* in susceptible species not listed as animal hosts, findings of types, subtypes or variants of pathogenic agents of *listed diseases* that are not included in the definition of the disease, and findings of non-listed diseases of interest to Member Countries.
- 2) ~~The Headquarters shall communicate by email or through the interface of WAHIS to Veterinary Authorities all notifications received as provided in Articles 1.1.2. to 1.1.4. and other relevant information.~~
-

CHAPTER 1.6.

**~~PROCEDURES FOR OFFICIAL RECOGNITION OF
AN ANIMAL HEALTH STATUS, ENDORSEMENT OF
AN OFFICIAL CONTROL PROGRAMME, AND
PUBLICATION OF A SELF-DECLARATION OF
ANIMAL HEALTH STATUS, BY WOA~~**

Article 1.6.1.

Application for official recognition of an animal health status and endorsement of an official control programme by WOA

A Member Country may request:

- 1) official recognition of an animal health status by WOA of:
 - a) freedom of a country or zone from African horse sickness (AHS);
 - b) risk status of a country or zone with regard to bovine spongiform encephalopathy (BSE);
 - c) freedom of a country or zone from classical swine fever (CSF);
 - d) freedom of a country or zone from contagious bovine pleuropneumonia (CBPP);
 - e) freedom of a country or zone from foot and mouth disease (FMD), where vaccination is either practised or not practised;
 - f) freedom of a country or zone from peste des petits ruminants (PPR);
- 2) endorsement by WOA of:
 - a) an official control programme for CBPP;
 - b) an official control programme for FMD;
 - c) an official control programme for PPR;
 - d) an official control programme for dog-mediated rabies.

WOA does not grant official recognition of an animal health status or endorsement of an official control programme for diseases other than those listed under points 1 and 2 above.

The Member Country should present documentation setting out the compliance of their *Veterinary Services* with the provisions of Chapters 1.1. 'Notification of diseases and provision of epidemiological information', 1.4. 'Animal health surveillance', 2.1. 'Import risk analysis', 3.2. 'Quality of Veterinary Services', 3.3. 'Evaluation of Veterinary Services' and 4.4. 'Zoning and compartmentalisation' of the *Terrestrial Code*, when relevant, and with the provisions of the relevant disease-specific chapters in the *Terrestrial Code* and the *Terrestrial Manual*.

When requesting official recognition of an animal health status or endorsement by WOA of an *official control programme*, the Member Country should follow the relevant Standard Operating Procedures (available on the WOA website) and submit to WOA a dossier providing the information requested in the following chapters (as appropriate): 1.7. (for AHS), 1.8. (for BSE), 1.9. (for CSF), 1.10. (for CBPP), 1.11. (for FMD) or 1.12. (for PPR).

~~The WOA framework for the official recognition of animal health status, the endorsement of official control programmes, and their maintenance is described in relevant Resolutions adopted by the World Assembly of WOA Delegates.~~

The country or the *zone* will be included in the relevant lists of official *animal health status* or endorsed *official control programmes* only after the evidence submitted has been assessed by experts and the Resolutions listing the country or the zone have been adopted by the World Assembly of WOA Delegates.

When a Member Country requests official recognition of *animal health status* for a *zone*, the geographical boundaries of the proposed *zone* should be clearly defined. When applying for recognition of a free *zone* that is adjacent to another *zone* of the same status, it should be stated whether the new *zone* is being merged or kept separate. If the proposed *zone* remains separate, details should be provided of the control of the movement of relevant *commodities* between the *zones* ~~in accordance with Chapter 4.4.~~

The overall objective of the WOA endorsed *official control programmes* is for Member Countries to progressively improve their animal health situation and eventually attain official recognition of *animal health status* or in the case of dog-mediated rabies to make a self-declaration as a free country or *zone*. The *official control programme* should be applicable to the entire country even if certain measures are directed towards defined *zones*.

Article 1.6.2.

Maintenance, suspension and recovery of official recognition of an animal health status and endorsement of an official control programme by WOA

Retention on the lists of countries and *zones* having an official *animal health status* or of countries having an endorsed *official control programme* requires that ~~the information in relevant chapters be re-submitted annually and confirming that the~~ epidemiological situation has not changed, and that the conditions described in the relevant chapters continue to be met ~~changes in the epidemiological situation or other significant events be notified to WOA in accordance with the requirements in Chapter 1.1.~~

Changes in the epidemiological situation or other significant events shall be notified to WOA in accordance with Chapter 1.1.

The occurrence of the relevant *listed diseases* or failure to meet ~~Non-compliance with the requirements other conditions for the maintenance of animal health status due to the occurrence of the relevant *listed diseases* or non-compliance with surveillance or prevention measures,~~ results in the suspension of that status.

Within 24 months of suspension, except otherwise stated in the disease-specific chapter, a Member Country may apply for the recovery of a previously recognised status, by submitting evidence that following the provisions for recovery of animal health status of the relevant disease-specific chapter are met or that any other reasons for suspension have been addressed. The recovery of the status depends on the outcome of the assessment of the evidence.

When the status has not been recovered within the specified period of its suspension, it is withdrawn and the Member Country should reapply following the procedure for the application for official recognition of *animal health status*.

~~WOA may withdraw the~~ The endorsement of an official control programme may be withdrawn if there is evidence of:

- non-compliance with the timelines or performance indicators of the programme; or

- significant problems with the quality of the *Veterinary Services* as described in Section 3 of the *Terrestrial Code*; or
- an increase in the *incidence* or distribution of the disease that cannot be addressed by the programme.

Article 1.6.3.

Publication by WOA of a self-declaration of animal health status by a Member Country

A Member Country may make a self-declaration of freedom of a country, *zone* or *compartment* from a *WOAH listed disease* or another animal disease, *infection* or *infestation*. ~~For listed diseases, The the~~ The Member Country ~~should~~ may inform WOA of the claimed status and request publication by WOA of the self-declaration *of listed disease freedom* to inform WOA Member Countries.

A Member Country requesting the publication of a self-declaration should follow the Standard Operating Procedure (available on the WOA website) for submission of a self-declaration of *animal health status* and provide documented information on its compliance with the relevant chapters of the *Terrestrial Code*, including:

- evidence that the *infection* or *infestation* is a *notifiable disease* in the entire country;
- history of absence or eradication of the *infection* or *infestation* in the country, *zone* or *compartment*;
- *surveillance* including an *early warning system* for all relevant species in the country, *zone* or *compartment*;
- measures implemented to maintain freedom in the country, *zone* or *compartment*.

The self-declaration may be published only after all the information provided has been received and *screened by Headquarters* ~~administrative and technical screening has been performed by WOA~~. Publication does not imply endorsement of the claim of freedom by WOA ~~and does not reflect the official opinion of WOA~~. Responsibility for the accuracy of the information contained in a self-declaration lies entirely with the WOA Delegate of the Member Country concerned.

Except when otherwise provided for in the *listed disease*-specific chapter, an *outbreak* in a ~~Member Country country~~, a *zone* or a *compartment* having a self-declared free status results in the loss of ~~this the self-declared free status~~. A Member Country wishing to reclaim a lost free status should submit a new self-declaration following the procedure described in this article.

WOA does not publish self-declarations for *listed diseases* *mentioned* in point 1 of Article 1.6.1.

Article 1.6.4.

Specific provisions

The *animal health status* of a *country* or *zone* is not affected by:

- the presence of the pathogenic agent in an imported *animal product* at a *border inspection post*;
- the presence of the disease, *infection*, or *infestation* in imported animals in a *quarantine centre*;
- the importation or the presence of the pathogenic agent, or of *commodities* or organisms carrying the *pathogenic agent*, in a *laboratory* or other *approved facilities* with appropriate laboratory biosafety and laboratory biosecurity in accordance with Article 5.8.5. and the *Terrestrial Manual*.

This should be supported by evidence of compliance with *Chapters 5.5. to 5.7. of the Terrestrial Code* and all other relevant standards of the *Terrestrial Code* and *Terrestrial Manual*.

CHAPTER 3.X.

EMERGENCY MANAGEMENT

Article 3.X.1.

Introduction

Emergency management is the organisation, coordination, and management of responsibilities and resources to address emergencies. It requires proactive preparedness ~~efforts~~ to ensure capabilities and capacities are in place to ~~prevent emergencies from becoming overwhelming~~ minimise the consequences of emergency events, protect the health and welfare of animals and humans and support rapid recovery from emergencies. Emergency management requires regular training, practice through exercises and scenario planning.

Sudden, escalating or unexpected events can lead to emergency situations that can affect animal *populations*, negatively impacting animal health, *animal welfare*, livelihoods, ~~economies~~ communities, food security, and veterinary public health, often with serious societal ~~and economic~~ and environmental consequences.

The *Veterinary Authority* and *Veterinary Services* are the main actors in the management and of the response to animal health emergencies. This includes requiring animal disease prevention, preparedness, early detection, and response and recovery control, and maintaining or restoring disease freedom, as well as the protection of *animal welfare*. They may also be called upon to support emergency responses led by other authorities for events caused by hazards beyond animal diseases, such as zoonotic or food safety emergencies led by public health authorities or natural disasters led by relevant agencies.

Whether leading the response or not, the *Veterinary Authority* and *Veterinary Services* should be prepared to act swiftly and coordinate with other sectors and stakeholders, contributing their technical expertise, capabilities and capacities, ~~under a whole-of-government approach.~~ Contributions to responses led by other authorities or agencies should be explored and practiced through being part of relevant intersectoral exercises. All relevant public and private stakeholders should fulfil key roles in the management of emergencies under a One Health approach.

Emergency management builds resilience by clarifying priorities and strengthening systems. Investing in adaptable capabilities is cost-effective in reducing the overall impact and cost of emergencies and requires sustained and consistent funding and resourcing rather than intermittent or reactive support.

Article 3.X.2.

Purpose and scope

This chapter provides recommendations for preparing for and managing emergencies arising from any hazard, whether natural or artificial, accidental or deliberate, that affects animal health, *animal welfare* or veterinary public health. The chapter addresses key components of emergency management, including prevention, preparedness, detection, response and recovery. Its main objectives are to:

- 1) Guide Members in developing emergency management structures, processes and supporting systems ~~within a whole-of-government framework;~~
- 2) Define essential capacities and capabilities required to respond effectively;
- 3) Emphasise the need for sustainable resourcing to increase the resilience of *Veterinary Services*;
- 4) Advocate for planning, training and simulation exercises to improve readiness for emergencies;
- 5) Encourage a commitment to continuous improvement in emergency management.

This chapter may be applied to all emergencies involving *Veterinary Services* and *animals*, including *wildlife*. This chapter takes an all-hazards approach and can be applied to biological as well as chemical or physical hazards, which may arise from technological, environmental (geological, hydrological, meteorological), or even societal causes.

Article 3.X.3.

Definitions

For the purposes of this chapter, the following definitions apply:

'Hazard' means a natural or human-induced process or phenomenon with the potential to negatively affect animal health, animal welfare or veterinary public health.

'Event' means the manifestation of a hazard at a particular place and time, which has consequences on the animal health, or animal welfare of animals or veterinary public health.

'Risk' means the likelihood of an event and the likely magnitude of its consequences.

'Emergency' means a state triggered by an event that creates significant disruption, requiring immediate and coordinated extraordinary measures due to its scale, complexity, or likelihood of further impact.

'Whole-of-government approach' means the coordinated and collaborative action of multiple public administrations, institutions, bodies and agencies to address complex cross-cutting issues. This approach may include extraordinary mandates.

'Incident management system' (IMS) means an emergency response coordination mechanism that brings together people, resources, and specific systems and tools, enabling effective collaboration between sectors to support interoperability, situational awareness and efficient decision-making.

Article 3.X.4.

General Principles

Beyond the recommendations of Chapters 3.1. and Chapter 3.2., *Veterinary Authorities* and other *Competent Authorities*, *Veterinary Services* and relevant stakeholders, should follow these principles in the implementation of emergency management:

1. General organisation and framework

The *Veterinary Authority* and other relevant *Competent Authorities* should provide leadership, advocacy and expertise in the prevention, preparedness, and response and recovery for animal disease emergencies, and for any animal health and *animal welfare* aspects of other emergencies. Legislation on emergency management, consistent with Chapter 3.4., should clearly define lead and supporting agencies, rules for emergency declaration and related extraordinary powers and resourcing to enable effective emergency management actions.

Veterinary Services should be integrated within national emergency management plans, resourcing and frameworks, and engage in multisectoral coordination across public and private sectors.

The *Veterinary Authority* and the *Veterinary Services* should prepare for emergencies where they may be expected to provide a supporting role in a response led by another governmental authority, such as managing the *animal welfare* impacts of major fires, floods, storms or other natural or human-made disasters.

Formal networks and partnerships with identified stakeholders, such as between government agencies, including the law enforcement, police or defence, representatives of industry, and civil society, and international organisations should be developed to enhance coordination and collective capacity. Formal agreements, such as memoranda of understanding (MoUs), can may support this coordination by defining roles and responsibilities, establishing communication protocols, and promoting joint action prior to, during and after an emergency.

Essential functions of both public and private sectors should be maintained as much as possible for ongoing delivery during emergencies, notably to minimise disruptions. Efforts should be made to identify and engage the private sector in emergency preparedness and response activities during peace time, ~~prior to and alerts and during~~ emergencies.

2. Data and information management

Decision-making should be supported by robust data systems, ~~with the sharing of~~ integrating relevant data from animal health, public health, environment and other sectors. ~~Early warning systems, supported~~ for animal health supported by surveillance in accordance with Chapter 1.4., and risk indicators are crucial to trigger and adjust emergency responses. ~~Identification of Establishments and animal~~ identification and traceability databases should be maintained, and kept up-to date and accessible for all actions in emergency management, particularly for the tracing of *animal* locations and movements. Information may be required from other *Competent Authorities* such as data on *wildlife populations* and ecosystems.

3. Effective communication

In order to ensure clear, consistent and timely communication and awareness ~~before~~, during and after emergencies, to correctly inform stakeholders, to counter misinformation and disinformation and to promote transparency while maintaining public trust, *Veterinary Authorities* should establish internal and external communication protocols following the principles of Chapter 3.5 on communication. The internal communication protocols should address measures to ensure the flow of information to facilitate efficient management of the emergency. The external communication protocols should address communication with Veterinary Authorities of the other countries likely to be affected by the emergency.

4. Human, physical and financial resources

The Veterinary Authority and other relevant Competent Authorities should ensure that trained personnel are available for all components of emergency management. This includes maintaining core staff with defined roles in case of emergency, employing subject matter experts as well as establishing mechanisms for swift mobilisation and surge capacity of personnel, including veterinary paraprofessionals, private veterinarians or other private sector support e.g. private veterinarians or veterinary paraprofessionals. Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect. The physical and mental wellbeing of emergency management personnel should be prioritised through health, safety and psychosocial support measures, and adequate staff rotations. ~~Consideration should be given to arrangements to mobilise international personnel in emergencies that require additional surge capacity, and the role of relevant International Organisations in this respect.~~ The Competent Authorities should have the regulatory oversight, the power or the knowledge, of the mechanisms for Veterinary Services to access financial and physical resources in an emergency response.

Veterinary Services should have the capability to quickly access extraordinary financial resources and the necessary physical resources to respond to emergencies. This includes having adequate pre-purchased equipment, such as roadblocks, sampling materials, personal protective equipment or disinfectants, ~~pre-purchased, and e~~Contingency funding arrangements should be in place to support operational costs, ~~as well as and mechanisms for compensation or recovery, as appropriate.~~

5. Continuous improvement and learning

Emergency management components should be regularly monitored, tested, evaluated and updated through training, simulation exercises and learning from real events. Lessons should be identified through after-action reviews.

The Veterinary Authority and other relevant Competent Authorities should also learn from approaches in other sectors both at the national and international levels.

6. Accountability

Competent Authorities should maintain records of decisions, actions and resource use to ensure transparency, support emergency-related inquiries and to demonstrate responsibility to stakeholders, ~~financial~~ government financial agencies, and donors.

Article 3.X.5.

Prevention

While not all emergencies can be prevented, prevention in emergency management aims at avoiding or reducing the likelihood of the occurrence of events that may trigger emergencies, or ~~mitigate~~ mitigating their impact so that they do not trigger emergencies.

Routine prevention activities should be integrated into day-to-day operations such as import controls, *biosecurity*, traceability, zoning and compartmentalisation, as well as *vaccination* programmes, as appropriate. Key elements of prevention include, for events caused by animal diseases, the application of the recommendations in Section 4 and Section 5.

In addition, the Veterinary Authority and other relevant *Competent Authorities* should take into consideration the following principles:

- 1) Prevention actions and measures are based on risk assessments considering all relevant hazards and sectors. Import risk analysis, such as described in Chapter 2.1., aims to prevent the introduction of diseases into a country, potentially causing animal health emergencies. In this context, risk communication should be implemented, including through timely messaging with stakeholders across public and private sectors. Raising awareness on *biosecurity*, *surveillance* and the recognition of such diseases contributes to early detection and reduced spread of disease, minimising the scale and impact of the event.
- 2) *Risk analysis* should be supported by foresight and intelligence, where risk factors are monitored and understood as well as emerging trends, to enable the early identification of hazards and the relevant adjustments to prevention strategies, before escalation occurs.
- 3) Prevention activities should be adequately funded, supported and implemented by both public and private sector stakeholders. The Veterinary Authority and other relevant *Competent Authorities* should encourage the private sector to cooperate and contribute to prevention, e.g. through public-private partnerships.

Article 3.X.6.

Preparedness

Emergency preparedness is the ability of the Veterinary Authority and other relevant *Competent Authorities* and relevant stakeholders to anticipate, plan for and implement the best and fastest possible response to emergencies, in order to minimise their scale and impact and hasten recovery. It is a continuous cycle of planning, equipping, training, and exercising and should be supported by political commitment, dedicated funding and resourcing as well as inter-institutional coordination mechanisms. Preparedness should be scalable and flexible to address a range of hazards and events. In addition to the relevant recommendations in Chapter 4.19., the following should be considered when applying an all-hazards approach to preparedness for emergencies:

1. Legal framework

Legislation should be developed and maintained in accordance with Chapter 3.4., and as part of preparedness efforts, it should:

- a) Define mandates, powers, roles and responsibilities of the Veterinary Authority and other relevant *Competent Authorities* in emergencies, clarify the chain of command, including for emergency declarations, planning and decision making, and of other relevant sectors and stakeholders for implementation and support;

- b) Provide powers to Competent Authorities to implement necessary and proportionate emergency measures, including declaring the state of emergency, as well as procuring and allocating resources and ensuring compliance through enforcing required measures;
- c) Contain provisions to account for temporary fast-tracking of decision making, policies or procedures during emergencies such as for quarantine, killing, enhanced surveillance and testing of animals, emergency registration of vaccine and expedited procurement of resources;
- d) Support intersectoral collaboration ~~such as through MoUs~~;
- e) Provide legal protection (including safety and protection from liability and potential aggression) for individuals and organisations involved in emergency management;
- f) Ensure funding ~~for~~ sufficient to allow for the execution of relevant elements of emergency management, ~~covering both~~ including operational cost and consideration for payment of compensation, while facilitating rapid access and use. Fair and timely ~~C~~ompensation of stakeholders for losses can promote both early warning and compliance.

2. Planning

- a) Preparedness ~~planning~~ plans should be based on risk analysis of different scenarios and apply to all components of emergency management. They ~~it~~ should:
 - i) Be supported by legislation and operational frameworks;
 - ii) Include the development of written emergency preparedness plans and emergency response plans (also known as 'contingency plans') that address a range of potential hazards, define animal health or *animal welfare* emergencies and describe what should be done prior to and during an emergency. The plans should be supported by detailed standard operating procedures;
 - iii) Ensure that emergency response plans define an emergency response coordination mechanism, such as an incident management system (IMS), establishing a clear chain of command, at all administrative levels, including persons for decision making ~~persons~~, communication flows and accountability.
 - iiii) Include a framework for cooperation between the Competent Authorities, Veterinary Services and other stakeholders. All stakeholders should have their roles and responsibilities defined and understood. This should include detailed guidance on interoperability, accountability, and coordination;
 - iv) Recognise the role and responsibilities of the private sector in preparedness and continuity of business;
 - v) Be regularly reviewed and updated, incorporating lessons identified through real events and simulation exercises;
 - vi) Identify the technical expertise necessary to support decision-making and operational activities during emergencies;
 - vii) Ensure that laboratories are able to scale up when required during an emergency;
 - viii) Describe the deactivation process of emergency response including the scaling down of logistics and decommissioning of facilities, equipment and personnel.
- b) Preparedness planning should also include development of a recovery plan that is integrated into national emergency management arrangements. A recovery plan should:
 - i) Clearly define the objectives and timeline for recovery efforts;

- ii) Establish the chain of command, roles and responsibilities and identify key partners for the delivery of recovery activities;
- iii) Promote intersectoral communication and coordination throughout the implementation of recovery activities;
- iv) Describe funding mechanisms and the prioritisation and coordination of recovery resources;
- v) Define arrangements for community support as appropriate;
- vi) Incorporate risk management mitigation strategies, ~~whereif~~ relevant, including surveillance and prevention measures ~~cautious when restocking with surveillance and prevention measures.~~

3. Equipping

Preparedness requires that the Veterinary Authority, other relevant Competent Authorities and relevant stakeholders ensures the availability of appropriate equipment and supplies relevant to their respective role to implement emergency response plans. Equipping should:

- a) Be based on resource mapping and risk prioritisation for different scenarios;
- b) Include pre-established procurement, contracting and logistics systems adaptable to emergency conditions;
- c) Leverage both public and private capacities and have pre-existing arrangements in place;
- ed) Establish networks and arrangements with relevant laboratories and suppliers for the provision of vaccines, including through vaccine banks, and other veterinary medicinal products.

4. Training and exercising

A comprehensive training and exercise programme should be in place to ensure personnel have the competencies and capabilities required to respond effectively to emergencies as well as to identify gaps in emergency management efforts. This should include:

- a) Regular, multidisciplinary training involving all relevant sectors ~~and stakeholders~~;
- b) Simulation exercises conducted at appropriate intervals and levels, addressing key priority hazards and crucial aspects of emergency management. Besides emergency response activities, all mechanisms of coordination within or between authorities and sectors, including for *early warning systems*, should be tested in simulation exercises;
- c) Exercises may also involve other Member Countries, regional and international partners;
- d) Evaluation of exercises through after-action reviews and the identification of lessons to inform future preparedness efforts.

Article 3.X.7.

Detection

Detection in the framework of emergency management is the process of the timely identification and analysis of the occurrence of events that might trigger an emergency, requiring action by the Veterinary Authority, Competent Authorities and other relevant authorities and stakeholders.

Members should put in place *early warning systems*, as described in Chapter 1.4. and adapted to all types of events and based on early detection, to enable timely decision-making and implementation of control measures to mitigate the impact of the event. *Early warning systems*, should include *surveillance*, intelligence and rapid exchange of information, in order to determine if emergency response is required, based on pre-existing criteria. Detection activities, such as animal health *surveillance* as described in Chapter 1.4., should be a continuous process that maintains a sufficient state of readiness.

The development and maintenance of early warning systems are vital for emergency management. ~~The earlier an event is detected and reported as quickly as possible to the relevant Competent Authorities (and in case of listed diseases or emerging diseases to the Veterinary Authorities in accordance with Chapter 1.1.), the sooner and more effective appropriate actions can be taken, reducing the overall impacts of the event.~~

Early warning systems should be organised within coordination and collaboration among the relevant public administrations, institutions, bodies and agencies ~~a whole-of-government approach~~.

Raising awareness and maintaining a strong reporting chain linking field-level operations to the *Veterinary Authority* and other relevant *Competent Authorities* is critical. ~~Veterinary Services~~ They should provide continuous education and outreach to enhance recognition of events that could trigger an emergency.

Diagnostic laboratories are a key element of early detection and *early warning systems*. They should have a scalable testing capacity and be able to operate as a network to collectively increase testing capacity by sharing competences and workload. Agreements and protocols for sending samples to another country should be established beforehand (in accordance with Chapter 5.8.).

~~Some laboratories should also play a role in controlling, approving and registering veterinary medicinal products, including vaccines, especially for emergency vaccination.~~

For events that may be detected by a *Competent Authority* other than the *Veterinary Authority*, such as extreme weather events or infrastructure failures, there should be a pre-agreed mechanism for the timely reporting and exchange of information.

Article 3.X.8.

Response

Emergency response is the series of coordinated actions taken to manage an event that triggers an emergency. These actions should be described in principle in the emergency response plans, and be adapted to the event's nature, scale and complexity. Depending on the emergency, the *Veterinary Authority* may lead the response or operate under the coordination of another *Competent Authority* or other relevant authorities. The *Veterinary Authority* may also coordinate closely with *Veterinary Authorities* or other *Competent Authorities* of neighbouring or other countries.

Activation of the response is based on the ~~continuous~~ assessment of risk and the evaluation of the situation. The response plan should identify priorities, decision-making timelines and procedures for maintaining continuity of business. It should remain flexible and be regularly reviewed as new information becomes available.

An emergency response coordination mechanism, such as an IMS, should be activated as appropriate to coordinate the response. This mechanism should be interoperable across *Competent Authorities* and other relevant authorities ~~to support a whole-of-government response~~. Key components of a coordinated response include:

- 1) Leadership and coordination: A chain of command should be established to ensure decision-making responsibilities are clear at all levels. Emergency operation centres (EOCs) may be set up to collocate dedicated staff and resources, depending on the scale of the emergency, for IMS to operate as effectively as possible. Remote EOCs (or some roles within an EOC) should be able to function effectively in circumstances where response staff are geographically remote from each other. Liaison functions should be set up to maintain coordination between the Veterinary Authority, other relevant Competent Authorities and with other relevant sectors and stakeholders. These functions should allow regularly scheduled briefings and timely information sharing, including for the development of common messaging.
- 2) Planning: The lead government agency ~~Competent Authority~~ should continuously collect and analyse data relevant to the emergency to support timely decision making and to guide response activities. This includes rapid risk assessments, situation reports, ongoing epidemiological analysis and real time response planning adapted to the existing generic response plan. This information should be disseminated to relevant stakeholders as appropriate.

- 3) Operations: Operational activities are undertaken as per the strategic and tactical decisions of the response, based on the preparedness plan and the response plan. Field activities should be coordinated and *means of transport* and other operational resources should be secured.
- 4) Logistics: Logistics should be scalable to meet the needs of the emergency response and should be planned, although they ~~always~~ should always be adapted to the objectives of the response and the field reality. Consideration should be given to sourcing essential services and materials through partnerships with other sectors, including the private sector.
- 5) Public information: External communication and awareness activities should be timely, tailored, coordinated, and if needed unified, across involved sectors to ensure consistency and avoid confusion. Designated spokespersons should be identified and communicate clear, accurate information to stakeholders using appropriate channels. Communications should be rapid and consistent to avoid information voids that can foster misinformation and disinformation.
- 6) Finance and administration: Emergency funding should be easily accessible, and adaptable to the changing scale and scope of response activities. Rapid procurement and contracting systems should be ready to be used under a state of emergency. Arrangements for compensation of stakeholders or other financial support, including insurance contract services, may be necessary depending on the nature of the emergency.
- 7) Surveillance: Although focused on response activities, emergency management ~~at the time of~~ during an emergency requires regular review and updating of detection measures based on reassessed risks. This includes the strengthening of ~~targeted~~ surveillance, the performance of epidemiological investigations and the raising of awareness among relevant stakeholders. These activities should support the adaptation of the response plan including decisions to intensify or reduce certain measures, such as movement restrictions.

~~Different types of emergencies may require different types of response activities, which may include:~~

~~a) For animal disease emergencies:~~

~~Zoning in accordance with Chapter 4.4.;~~

~~Stamping-out (including ensuring *animal welfare* at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures;~~

~~Emergency vaccination in accordance with Chapter 4.18.;~~

~~Carcass disposal in accordance with Chapter 4.13.;~~

~~Cleansing and *disinfection* of premises, equipment and vehicles in accordance with chapter 4.14.;~~

~~Vector control or management of *wildlife* reservoirs, as appropriate and justified;~~

~~All these measures should take into account relevant *biosecurity* recommendations in accordance with Chapter 4.X.~~

~~b) For veterinary public health emergencies, such as a food safety emergency, providing relevant support by investigating, tracing and managing any animal food products or animal sources.~~

~~c) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of *animal welfare* in accordance with Chapter 7.1., including:~~

~~—— Humane euthanasia of badly injured or otherwise suffering animals;~~

~~—— Animal rescue and relocation;~~

~~—— Provisions of temporary shelters;~~

— Ensuring feed, water and veterinary care for displaced animals.

a) ~~In case of suspicion of deliberate event:~~

~~Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.~~

78) Human resources

- a) Personnel dedicated to response activities should have been trained and briefed on their roles as per the preparedness plan, but on the spot training should be considered, including health, safety and conduct rules, and the nature and impacts of the specific emergency that is managed. During response operations, physical and psychological safety of responders as well as producers other involved stakeholders should be prioritised.
- b) Mobilisation of personnel should consider the regular activities of *Veterinary Services* and that these have to continue during the response. However, the range of expertise needed across all levels of the response should be made available as per the response plan, including access to subject matter experts. Health, including mental health, well-being and safety of personnel and affected communities should be prioritised.

89) Documentation should be maintained throughout the response including records of decisions. A dedicated monitoring and evaluation team should identify lessons during the response and implement real-time improvements if necessary. Records should also be ~~also~~ kept to reassess and, if necessary, adapt the preparedness plan for future emergencies. Records are also required for audits and for accountability.

910) Response is deactivated when a *risk assessment* supports it and tasks can be conducted under business as usual. Deactivation should also include the scaling down of logistical operations and reallocation of usable response resources.

Different types of emergencies may require different types of response activities. This may include the following activities depending on events, which are not mutually exclusive:

a) For animal disease emergencies:

- Zoning in accordance with Chapter 4.4.:

- Movement restrictions:

- Stamping-out (including ensuring *animal welfare* at the time of killing, in accordance with Chapter 7.6) and other measures as described in Chapter 4.19.; Law Enforcement Authorities may be required to support enforcement of these measures:

- Emergency vaccination in accordance with Chapter 4.18.:

- Carcass disposal in accordance with Chapter 4.13.:

- Cleaning and *disinfection* of premises, equipment and vehicles in accordance with Chapter 4.14.:

- *Vector* control or management of *wildlife* reservoirs, as appropriate and justified;

- All these measures should take into account relevant *biosecurity* recommendations in accordance with Chapter 4.X.

b) For veterinary public health emergencies, such as a food safety emergency or zoonotic disease *outbreak*, providing relevant support by investigating, tracing and managing any animal food products or animal sources.

c) For other types of emergencies, caused by hazards that arise from technological, environmental (geological, hydrological, meteorological), or societal causes, protection of *animal welfare* in accordance with Chapter 7.1., including:

- Humane euthanasia of badly injured or otherwise suffering animals;
- Animal rescue and relocation;
- Provisions of temporary shelters;
- Ensuring feed, water and veterinary care for displaced animals.

d) In case of suspicion of deliberate event:

Engagement of the relevant law enforcement authorities to conduct joint investigations and risk assessments.

Article 3.X.9.

Recovery

Recovery is the set of actions required to support affected communities, industries and animal *populations*, restore livelihoods and habitats and to rebuild infrastructure, and to reduce long-term emergency impacts. It generally begins when emergency response activities cease, however some efforts may start in some areas while response continues in others.

Recovery involves impact assessment, restoring services and rebuilding systems including veterinary infrastructure, if necessary, with the view to returning to an effective level of functioning~~pre-emergency~~ continuity of business. The lead government agency~~Competent Authority for recovery~~ may differ from the one ~~leading in charge of the~~ response.

For emergencies caused by outbreaks of ~~listed~~ animal diseases, recovery may include steps to return to the *animal health status* prior to the event. Member Countries seeking official recognition of listed disease freedom or self-declaration of *animal health status* should follow the relevant provisions of Chapter 1.4. on animal health surveillance, Chapter 1.6. on animal health status, and the relevant disease-specific chapters.

During recovery, the *Competent Authority* should:

- 1) liaise and collaborate with affected industries and stakeholders to determine their needs and deliver appropriate recovery support.
- 42) Provide guidance on compensation, where appropriate, available financial assistance and access to counselling and support services.
- 23) Monitor resource availability and assess progress against recovery objectives.
- 34) Define and agree on an endpoint for recovery, based on regular reviews of the situation including availability of resources. Stakeholders should be informed of the recovery timeline.
- 45) Ensure transparency through regular reporting to national, regional and international stakeholders, and to WOA, as appropriate.

An after-action review of the whole event management (prevention, preparedness, detection, response, recovery) should be conducted to identify lessons for improving future emergency preparedness and response. A final report should be prepared and disseminated to relevant stakeholders. Where appropriate, the Veterinary Authority and other relevant *Competent Authorities* should share lessons with other sectors and stakeholders, including at international level.

CHAPTER 4.4.

DEFINING, ESTABLISHING AND MAINTAINING
SUBPOPULATIONS OF ANIMALS

Article 4.4.1.

General provisions

There may be benefits to a Member Country in defining, establishing and maintaining *subpopulations* of animals within its territory for the purposes of disease prevention, control, eradication or *international trade*. *Subpopulations* may be defined by natural or artificial geographical barriers, by the application of *biosecurity* management or both.

The establishment and maintenance of such *subpopulations* should be based on the epidemiology of the disease(s) of concern, including the role and presence of competent *vectors* and susceptible *wildlife*, environmental factors, animal production systems and rely on the application of *biosecurity*, *surveillance*, animal traceability, movement controls and *sanitary measures*.

Zoning (described in Chapter 4.Y.) and compartmentalisation (described in Chapter 4.5.) are two different methods to establish and maintain *subpopulations* and countries may use either or both methods to manage *risks* associated with diseases. The essential difference between these two methods is that zoning applies to an animal *subpopulation* defined primarily on a geographical basis, whereas compartmentalisation applies to an animal *subpopulation* defined primarily at the level of *establishments* by management and husbandry practices related to *biosecurity*. However, spatial aspects and *biosecurity* management play important roles in the application of both concepts.

The purpose of this chapter is to outline the main principles for defining, establishing and maintaining *subpopulations* of *animals* using zoning or compartmentalisation for disease prevention, control, eradication or *international trade*. Member Countries may consider the use of either option or both, depending on their animal health situation, the intended purpose, and the capacities of the *Veterinary Authority* and the private sector, as well as any other relevant factors. Member Countries may wish to define *subpopulations* using methods other than zoning or compartmentalisation, such as *vaccination* or husbandry practices, among others.

Article 4.4.2.

Principles for defining, establishing and maintaining animal subpopulations

The *Veterinary Authority* of a Member Country that is establishing *zones* or *compartments* within its territory should clearly define the *subpopulation* in accordance with the recommendations in the relevant chapters of the *Terrestrial Code*, including those on *surveillance*, *animal identification* and *animal traceability*, *vaccination* and on *official control programmes*. The *Veterinary Authority* should communicate through official channels up-to-date information on *zones* and *compartments*.

The *Veterinary Authority* should ensure that sufficient resources are available to establish and maintain a *zone* or *compartment*. These include the human and financial resources and the technical capability of the *Veterinary Services* and of the relevant industry and production system (especially in the case of a *compartment*), including for *surveillance*, diagnosis and, when appropriate, *vaccination*, treatment and protection against *vectors*.

The existence of an *animal identification system* is a prerequisite for the establishment and maintenance of a *subpopulation* within a *zone* or *compartment*. *Biosecurity* and *surveillance* are also essential and should be developed through active cooperation between the private sector and the public sector.

Supervision of the measures necessary to maintain *zones* and *compartments* should be carried out by the *Veterinary Authority*. These measures may include movement controls, *biosecurity*, *surveillance*, laboratory testing, *vaccination* and record-keeping.

The *Veterinary Services*, including *laboratories*, should operate in accordance with Chapters 3.2. and 3.4., to provide confidence in the integrity of the *zone* or *compartment*. The final authority over the *zone* or *compartment*, for the purposes of domestic and *international trade*, lies with the *Veterinary Authority*.

Unless otherwise specified in the disease-specific chapters, the type, number and duration of *zones* or *compartments* to be established are at the discretion of a Member Country.

CHAPTER 4.Y.

APPLICATION OF ZONING

Article 4.Y.1.

Purpose and scope

The purpose of this chapter is to provide recommendations to Member Countries on the application of zoning to establish and maintain distinct animal *subpopulations* with a specific *animal health status* within their territory. Zoning applies to *subpopulations* defined primarily on a geographical basis, separated by natural, artificial, or administrative boundaries and supported by appropriate *surveillance*, *biosecurity* and *sanitary measures*. These recommendations should be applied in conjunction with the relevant disease-specific chapters of the *Terrestrial Code*.

While establishing and maintaining disease freedom throughout an entire territory of the country is the ultimate goal, zoning may provide a practical and effective approach when country freedom is difficult to achieve (by eradication) or maintain (by prevention). As a principle, when a *zone* is established in a country, the rest of the country automatically becomes another *zone*.

Member Countries may apply zoning for different purposes:

- to separate existing infected areas from free areas,
- to allow a progressive approach to achieve country or *zone* freedom from a specific disease,
- to control or eradicate a specific disease following one or more outbreaks within their previously free territory,
- to prevent the introduction and spread of disease, *infection* or *infestation* in response to heightened *risk*,
- to limit the impact of a potential disease incursion to a single *zone* by establishing multiple *free zones*,
- to establish or maintain safe domestic or *international trade*,
- other reasons as determined by the *Veterinary Authority*.

Article 4.Y.2.

Principles for defining and establishing a *zone*

The following principles apply when Member Countries define and establish a *zone*, and should be defined in *veterinary legislation*:

1. Geographical limits

The selection and extent of a *zone* should be dependent on the characteristics or situation of the disease, production system and territory in question and adapted to the prevailing or evolving epidemiological situation. Its boundaries should be defined either on the basis of administrative

borders, predefined sizes of areas, such as a specified radius around *outbreaks*, or on the basis of the geographical information system (GIS), while taking into account natural or artificial barriers. The geographical limits of a *zone* should be clearly established by the *Veterinary Authority* and communicated through official channels.

2. Epidemiological separation

Animal *subpopulations* within the *zone* should be demonstrably separated from those in other *zones*. Measures used to establish and maintain this separation—including movement controls, spatial separation, *biosecurity*, *sanitary measures* and management of fomites, *vectors* and *wildlife*—should be appropriate to the epidemiology and the situation of the disease.

3. Biosecurity and sanitary measures

Biosecurity in accordance with Chapter 4.X., *sanitary measures* and other recommendations from disease-specific chapters appropriate to the *zone* should be applied to prevent the entry, establishment and spread of the disease, *infection* or *infestation* of concern.

4. Animal identification and traceability

Relevant *commodities* associated with the *zone* should be identifiable and their movements traceable. An effective animal identification and traceability system in accordance with Chapters 4.2. and 4.3. is a prerequisite for establishing and maintaining *zones*.

5. Surveillance

Surveillance should be tailored to the purpose of the *zone* and be conducted in accordance with Chapters 1.4, 1.5. and relevant disease-specific chapters.

The *Veterinary Authority* should clearly outline the objectives of zoning and the control measures implemented in order to reach these objectives. Member Countries may establish various types of *zones* that may coexist within the same country or *zone*. *Zones* may change from one type to another as the epidemiological situation and control objectives change, provided that the recommendations in this chapter and in the relevant disease-specific chapters are respected. This chapter describes different types of *zones* that can be established by Member Countries. However, other types of *zones* may be established as necessary.

Where disease occurrence spans across borders or occurs near borders of countries, *Veterinary Authorities* are encouraged to coordinate and cooperate to implement appropriate measures on each side of the border.

Article 4.Y.3.

Roles and responsibilities

Defining, establishing and maintaining *zones* requires the coordinated actions of the *Veterinary Authority*, and relevant private-sector stakeholders. Roles and responsibilities include:

1. Veterinary Authority

The *Veterinary Authority* has the final responsibility for defining, establishing, maintaining and adapting *zones*. Establishment of the *zone* includes:

- defining and officially communicating the boundaries of the *zone* and the measures to be applied in the *zone* including movement controls;

- implementing the supervision, inspection, and certification procedures required to establish and maintain the integrity of the *zone*;
- approving and overseeing *biosecurity* and contingency plans, *sanitary measures* and movement control procedures;
- ensuring the availability of sufficient human, financial, and technical resources to implement *surveillance*, diagnostics, and if relevant, *vaccination* or *vector* control;
- ensuring that *Veterinary Services* including *laboratories* operate in accordance with Chapters 3.2 and 3.4;
- verifying compliance with *zone* requirements by conducting and auditing *surveillance*, laboratory testing, reporting and certification;
- regularly coordinate and consult with stakeholders to monitor the effectiveness of zoning.
- maintaining documentation and records supporting the *animal health status* of the *zone*;
- collaborating with private operators for the definition of the *zone* and to ensure *biosecurity*, movement control, and reporting obligations are met.

2. Private stakeholders

The production sector, including farms, enterprises, and other relevant operators should participate in defining a *zone*, communicate relevant information and comply with *zone* requirements established by the *Veterinary Authority*.

Article 4.Y.4.

Free zone

A *free zone* may be established to reflect the *animal health status* of one or more *subpopulations* within the *zone*.

Depending on the prevailing or historical epidemiological situation, and except where historical freedom can be demonstrated in accordance with Article 1.4.6. point 2(b), the attainment or maintenance of freedom from a specific *infection* or *infestation* requires past or ongoing specific *surveillance* (and, if relevant, *vector surveillance*) conducted in accordance with Chapter 1.4. and the other relevant chapters of the *Terrestrial Code*.

The establishment and maintenance of a *free zone* requires appropriate *biosecurity* and *sanitary measures*, within the *zone* and at its boundaries.

So long as ongoing *surveillance* demonstrates the absence of the specific *infection* or *infestation*, and the other conditions for its definition and establishment continue to be met, and in accordance with the disease-specific chapter requirements, the *zone* maintains its freedom. This includes disease incursions where these are promptly and effectively managed by the setting up of *infected zone(s)* as described in Article 4.Y.6., except as otherwise stated in the disease-specific chapters.

Veterinary Authorities may establish *free zones* with the objective of preventing the introduction of pathogenic agents or limiting the occurrence of diseases or *infections* or *infestations* to specific areas within their territories and thus the consequences of such *outbreaks*. *Veterinary Authorities* should clearly define the boundaries of such *zones* taking into account epidemiological factors such as proximity to infected neighbouring areas, presence of *wildlife* and *vectors*, movements of *commodities*, fomites or production methods. The disease prevention measures to be applied in the *zone* should be clearly defined and effectively communicated by the *Veterinary Authority*.

A country may establish multiple *free zones* for the same disease. The general considerations in Articles 4.Y.2. and 4.Y.3., as well as the measures included in disease-specific chapters should be applied in each individual *zone*.

Temporary *zones*, such as equine disease free *zones*, may be established in a country or *zone* by the *Veterinary Authority* for the hosting of international events with the goal to prevent possible disease transmission between temporarily imported and resident *subpopulations* where the control and *eradication* of some or all relevant diseases is not feasible or achievable in the entire territory of the country or *zone*.

Article 4.Y.5.

Protection zone

A *protection zone* may be established within a free country or *free zone* to protect it from an identified increased risk of disease entry. To achieve this objective, the general considerations in Articles 4.Y.2. and 4.Y.3., *biosecurity* measures should include intensified movement controls, animal identification and animal traceability to ensure that animals in the *protection zone* are clearly distinguishable from other *populations*. One or more *protection zones* may be established.

Intensified *surveillance* in accordance with Chapter 1.4 and the relevant disease-specific chapter should be implemented in the *protection zone* and the rest of the *zone* or country, including any relevant *vectors* or *wildlife*.

If the *animal health status* of an established *protection zone* changes to infected owing to the occurrence of a *case* in that *protection zone*, the *animal health status* of the rest of the country or *zone* is not affected, provided the measures in place prevent the spread of disease, *infection* or *infestation*.

The *animal health status* of the *protection zone* will not be affected due to *vaccination*, unless otherwise specified in the relevant disease-specific chapters of the *Terrestrial Code*.

Article 4.Y.6.

Infected zone

An *infected zone* may be established to reflect the *animal health status* of one or more *subpopulations* within the *zone*.

An *infected zone* in which an *infection* or *infestation* has been confirmed may be:

1. a *zone* of a country where the disease, *infection* or *infestation* has been present, while other *zones* of the country may be free; or
2. a *zone* of a previously free country or *zone*, in which the *infection* or *infestation* was introduced, while the rest of the country or *zone* remains free.

In both cases, measures should be applied in the *infected zone(s)* to prevent the spread of the disease, *infection* or *infestation* between *zones*. The *infection* or *infestation* within the *infected zone(s)* may be managed in different ways, including measures:

- aiming at short term *eradication*,
- progressively reducing the size or number of *infected zone(s)* and if possible achieving *eradication*,
- maintaining the boundaries of the *infected zone(s)* and if necessary adapting them to the evolving epidemiological situation.

To gain or recover free status of an *infected zone*, Member Countries should follow the recommendations in the relevant chapters of the *Terrestrial Code*.

Article 4.Y.7.

Containment zone

In the event of *outbreaks* in a country or *zone* previously free from a disease, one or more *containment zones*, which include all *outbreaks*, may be established to eradicate the disease and minimise the impact on the rest of the country or *zone*.

Establishment of *containment zone(s)* requires:

- appropriate control and traceability of movement of *commodities* upon declaration of suspicion of the specified disease;
- epidemiological investigation (trace-back, trace-forward) after confirmation of *infection* or *infestation*, demonstrating that the *outbreaks* are all contained within the defined boundaries of the *containment zone(s)*;
- an effective emergency control strategy aimed at eradicating the disease;
- increased awareness and targeted *surveillance* in accordance with Chapter 1.4. in the rest of the country or *zone*, demonstrating no occurrence of *infection* or *infestation*;

Management of *containment zone(s)* may include reinforced movement control including standstill, *stamping-out policy*, *vaccination*, reinforced *surveillance* in the *zone*, establishment of an inner *zone* with *outbreaks* and an outer *zone* without *outbreaks*.

SECTION 5

~~TRADE MEASURES, IMPORT/EXPORT PROCEDURES
AND VETERINARY CERTIFICATION~~RECOMMENDATIONS FOR INTERNATIONAL
VETERINARY CERTIFICATION AND EXPORT AND
IMPORT PROCEDURES

CHAPTER 5.X.

INTRODUCTION TO RECOMMENDATIONS FOR
INTERNATIONAL VETERINARY CERTIFICATION AND
EXPORT AND IMPORT PROCEDURES

Article 5.X.1.

Section 5 'Recommendations for international veterinary certification and export and import procedures' provides recommendations on how Members' *Veterinary Authorities* ensure the safety of *international trade*, i.e. transboundary movements of *commodities*, through official operational assurances including through international veterinary certification and border controls, applicable to exporting, transit and importing countries. As a pillar of WOA's mandate to improve animal health worldwide, this is a core responsibility of *Veterinary Services* of WOA Member Countries.

Section 5 covers obligations and procedures for international veterinary certification; border operational measures including communication, roles and responsibilities (for *Veterinary Authorities* and other relevant *Competent Authorities*, as well as for operators), documentation, transportation, planning for unexpected events, and inspections as applicable to exporting, transit and importing countries. Section 5 also covers recommendations for the operation of border inspection posts and *quarantine centres*, as well as detailed recommendations and models for the import and veterinary certification of a range of both general and specific *commodities*.

Article 5.X.2.

Export consignments of relevant *commodities* should be accompanied by an *international veterinary certificate* issued by the *Veterinary Authority* of the exporting country. This certificate provides assurances to the importing country regarding disease status and the safety of the *commodities* imported and lists the animal health and veterinary public health requirements for the exported *commodity*. To maximise harmonisation of

the sanitary aspects of international trade, *Veterinary Authorities* should base their import requirements on WOAHA standards and import *risk analysis* in accordance with Chapter 2.1. The agreed certificate with its importing requirements is the final result of sanitary negotiations between trading partners, whereby confidence in the exporting (or transit) country veterinary signature on the certificate attests to the performance or verification of the *sanitary measures* listed as required by the importing (or transit) country. Border checks that match imported *commodities* to the correct, signed *international veterinary certificate* before release are a key operational assurance measure to facilitate safe trade.

Article 5.X.3.

Effective implementation of the Section 5 standards for safe trade in *commodities* requires cooperation and communication between multiple actors including the *Veterinary Authorities*, other *Competent Authorities* and the private sector operators, and in each of the exporting, transit and importing countries. It is important that the *Veterinary Services* collaborate closely with other border agencies such as customs or police to manage the risks from informal or illegal trade in *commodities*. For the purpose of Section 5, operators are defined as “any natural or legal entity or person responsible for the export, transit or import of *commodities* subject to the provisions of the respective chapters”.

Article 5.X.4.

The *Terrestrial Code* provides standards that deliver essential sanitary information, recommendations and technical guidance to Member Countries for the determination and agreement of science-based import requirements, as reflected in certification. As per provisions of the different Sections of the *Terrestrial Code*, this includes providing: transparency through WOAHA notification of *listed disease* and *animal health status*; guidance on science-based import *risk analysis* and *safe commodities*; recommendations on quality of *Veterinary Services* including to give confidence in certification; guidance on *animal welfare* including for trade in live animals; and recommendations by listed disease for the safe trade of various *commodities*.

DRAFT CHAPTER 7.2

ANIMAL WELFARE DURING TRANSPORT

Article 7.2.1.

Introduction

Ensuring good *animal welfare* during transport is ethically important and economically beneficial. This contributes to improved animal production and performance, a reduction in the use of *veterinary medicinal products*, improved food safety, and consequently enhanced economic returns. The implementation of *animal welfare* measures contributes to the improvement of *animal handlers'* wellbeing, health and safety.

When incorporating these guidelines into national regulatory frameworks, consideration should be given to factors including geographical and climatic conditions, *means of transport*, type of production system, and species-specific requirements.

Journeys may involve different *means of transport* from the point of origin to the point of destination. Accordingly, consideration should be given to *journey* preparation, fitness to transport, and land transport to and from the airport or seaport.

Article 7.2.2.

Purpose and Scope

This chapter provides guidance on good *animal welfare* practice during transport. It also identifies *hazards* to *animal welfare* during transport. It provides animal-based measures to assess the level of welfare and recommends remedial and corrective actions to be applied when necessary.

This chapter applies to national and international transport by land, water, and on foot of the following domesticated *animals*, cattle, buffaloes, camels, sheep, goats, pigs, poultry, and equines. It may be largely applicable to some other animals, e.g. deer, other camelids, and ratites, in the context of a commercial activity.

Specific air transport guidance can be found in the International Air Transport Association (IATA) Live Animals Regulations (LAR).

Wildlife may need different conditions. The guidance for the transport of these species can be found at the Convention on International Trade of Endangered Species (CITES) guidelines for land and sea transport.

Article 7.2.3.

Definitions

For the purpose of this chapter:

ASSEMBLY CENTRE

means any place where animals from different sources are temporarily collected to form a consignment to be sold or redirected to other site(s) (e.g. auction markets, sale barns, and facilities holding animals for an abattoir).

CONTINGENCY PLAN

means a plan outlining the steps to be taken to address unexpected events that may occur during the journey, including emergencies, that could put *animal welfare* at risk.

JOURNEY ORGANISER

means a person or company responsible for ensuring the planning and the necessary logistical arrangements for the entire *journey* are made in advance, including those necessary to safeguard the animals' welfare. This can be an exporter or importer, transporter, freight forwarder, owner, *animal handler*, or driver.

ROLL-ON ROLL-OFF VESSEL

means a vessel with facilities to enable road or rail vehicles to be driven on and off the vessel.

REST STOP

means a *resting point*, where animals are unloaded from the vehicle into an intermediary facility in order to prevent the animals from suffering and exhaustion.

TRANSPORT PROCESS

means the period that includes the planning and preparation of the *journey*, the *journey* itself, and the post-*journey* period.

TRANSPORTER

means any person or company transporting animals on its own account or on behalf of a third party.

Article 7.2.4.

Hazards to animal welfare

A wide variety of *hazards* have an impact on *animal welfare* during the different stages of animal transport. [EFSA, 2022].

These *hazards* can have negative impacts on the welfare of the animals, such as injuries, *distress*, morbidity and mortality, that can be assessed through animal-based measures. In the absence of feasible animal-based measures, resource-based and management-based measures may be used instead.

Hazards to *animal welfare* can be minimised by appropriate design, maintenance, and use of premises, facilities, and *means of transport*; appropriate choice of equipment; good planning, coordination, monitoring, handling, and transport practices; and proper training and competency of personnel.

Common *hazards* that can negatively impact *animal welfare* throughout all stages of the *journey* include:

- a) selection and transport of unfit or compromised animals;
- b) exposure to a novel environment;
- c) mixing of unfamiliar and different categories of animals;
- d) inappropriate animal handling or restraint;
- e) inadequate provision of feed and water;
- f) inappropriate design or maintenance of facilities or *means of transport*;
- g) inappropriate *space allowance*;
- h) poor driving or piloting;
- i) exposure to unfavourable microclimatic and environmental conditions;
- j) poor ventilation and air quality;

- k) exposure to excessive noise or vibration;
- l) insufficient number or duration of rest periods;
- m) prolonged *journey* times;
- n) inappropriate road quality or rough water conditions.

Hazards specific to a particular stage of the *journey* are provided in the articles that follow.

Article 7.2.5.

Measures to assess animal welfare during transport

The welfare of animals during transport should be assessed using animal-, resource- or management-based measures. The routine use of feasible animal-based measures is recommended, and the appropriate thresholds should be adapted to the different conditions in which animals are transported.

The *Competent Authority* should collect data on the business operators involved in the transport of animals to define target and threshold values for the purpose of implementing the provisions of this chapter. It is recommended that target values or thresholds for animal-based measures be based on current scientific evidence and appropriate national, sectoral, or regional standards. Whatever the basis of the measure, if welfare outcomes are unsatisfactory, Members should consider and implement the necessary changes to resources or management to improve the welfare outcomes.

If the set threshold of an animal-based measure is exceeded, an investigation should be launched, and corrective actions should be taken.

Animal-based measures that can be used to assess *animal welfare* throughout the journey are provided in the relevant articles of this chapter.

Animal-, resource-, and management-based measures specific to a particular stage of the *journey* are provided in the articles that follow.

Article 7.2.6.

Training and competence of personnel

All personnel responsible for animals have a crucial role to play in ensuring good *animal welfare* during transport. Their training should emphasise the importance of *animal welfare* and their responsibility in contributing to *animal welfare* during transport.

Competencies may be gained through a combination of practical experience and regular formal training. These competencies should be assessed by the *Competent Authority* or by an independent body recognised by the *Competent Authority*, and written evidence of competence should be provided, with limited period of validity.

The training should cover subjects that include the following, in respect of the species and category of animals [CHAR, 2023]:

- a) relevant *Competent Authorities* and applicable transport regulations, and associated documentation requirements;
- b) animal behaviour, physiology and in particular drinking and feeding needs, and the concept of stress;
- c) the welfare-related requirements of different animal species and categories for the selection of suitable and safe *means of transport*;
- d) assessment of animals' fitness for transport of the animals (their ability to withstand the rigors of transport);

- e) animal handling, restraint and space requirements and methods for the loading, confinement, transport and unloading of animals;
- f) identifying and managing risk factors for animals during a *journey*, such as long-distance transport, adverse weather, and animal-associated factors such as pregnancy, very young or old, and lack of body covering;
- g) the relevant contingency plan including management of injured or sick animals;
- h) effective monitoring of animals during loading, confinement, transport and unloading;
- i) general disease prevention procedures, including cleaning and disinfection.

Article 7.2.7.

Responsibilities of persons involved in the journey

General considerations

Once the decision to transport the animals has been made, the welfare of the animals during their *journey* is a very important consideration and is the joint responsibility of all authorities and people involved. These responsibilities are described in more detail in this article.

A *journey* should not commence until all relevant documentation listed in Article 7.2.10 has been accepted by the *Competent Authority* at the point of departure and destination, including the transit countries, where applicable.

1. Competent Authorities

The responsibilities of *Competent Authorities* include:

- a) establishing minimum standards for *animal welfare* during transport, including requirements for inspection of animals for the fitness of transport during the journey and appropriate certification and record keeping;
- b) setting standards for facilities, *means of transport* and *containers* for the transport of animals;
- c) setting standards for the competence of farm managers, *animal handlers*, transporters, drivers, pilots, masters and managers of facilities in relevant issues in *animal welfare*;
- d) ensuring that *Competent Authority* staff receive appropriate and ongoing training for their role(s) in enforcing in *animal welfare* standards during transport;
- e) ensuring that all stakeholders relevant to the journey are informed of relevant *animal welfare* issues;
- f) implementing of the standards, including through accreditation or interaction with other organisations;
- g) ensuring that sufficient and competent staff are available to implement and enforce *animal welfare* standards during transport;
- h) monitoring and evaluating the effectiveness of *animal welfare* standards;
- i) monitoring and evaluating the use of *veterinary medicinal products*;
- j) giving animal consignments priority at border inspection posts to avoid unnecessary delay;
- k) taking actions in the event of a refusal to allow the completion of the *journey* in accordance with Article 7.2.25;
- l) being prepared to work with the transporter and all relevant personnel to resolve any emergency situation arising during a *journey*;

- m) communicating with other relevant *Competent Authorities*, including those in exporting, transit or importing countries, before, during, or after the *journey* regarding *animal welfare* jurisdiction and responsibilities, and any situation that may represent significant risk to *animal welfare*.

2. Journey organisers

The *Journey* organisers, as defined in this chapter, should be responsible for scheduling and further logistical aspects of the *journey*.

Their other responsibilities may include:

- a) ensuring that all other persons involved in the *journey* are clearly aware of the whole *journey*, and are each assigned to their respective responsibilities in advance so that it is clear who is responsible for the tasks listed in this article, throughout the entire *journey*;
- b) ensuring the availability of suitable facilities at the start and at the end of the *journey* for the assembly, loading, transport, unloading and holding of animals, including facilities for any rest stops, transfers and *resting points* during the *journey* and emergency planning;
- c) ensuring suitable *means of transport* and *containers* with adequate space and ventilation according to the species to be transported;
- d) ensuring the presence of sufficient and competent staff during loading and unloading operations;
- e) ensuring that all necessary administrative arrangements and *animal health* precautions are made in advance to minimise the duration of the *journey* and manage the most common *animal welfare* and *animal health* risks;
- f) providing information to the *Competent Authority* regarding any emergency during the *journey*;
- g) ensuring that a contingency plan is in place for the *journey* with a clear indication of the roles of the different actors through the entire *journey* (e.g. watering or feeding).

3. Farm or other animal facility managers

The farm or other animal facility managers should be responsible for:

- a) communication with the *journey* organiser when applicable;
- b) assessing and advising on the health, welfare and fitness for transport of the animals, and segregation of animals into compatible groups in preparation for the *journey*;
- c) ensuring compliance with any required veterinary or other certification;
- d) the presence of an adequate number of competent *animal handlers* for the species being transported during the loading and/or unloading, including catchers for poultry and rabbits;
- e) ensuring that loading and unloading facilities are well maintained and appropriate for the species;
- f) ensuring that the appropriate equipment, emergency procedures, necessary veterinary care and veterinary assistance as appropriate for the species and the *journey*.

4. Animal handlers

Animal handlers should be responsible for:

- a) the welfare of the animals while in their care during transport;
- b) appropriate handling and care of the animals during the *journey*;
- c) taking prompt action to address any potential *animal welfare* or *animal health* issues;

- d) identifying animals that may unfit for transport and report concerns promptly.

5. Managers of intermediary facilities

Managers of intermediary facilities (facilities that temporarily house animals during a *journey* such as assembly centres, airport facilities, quarantine centre, border inspection posts, resting points, or markets) should be responsible for:

- a) providing suitable premises for *loading and unloading*;
- b) providing species-specific suitable facilities for accommodating the animals, which provide sufficient space, protection from adverse weather conditions, bedding when required, and proper ventilation;
- c) providing suitable and accessible water and *feed* when required;
- d) the health, welfare and fitness for transport of the animals, and segregation of animals into compatible groups in preparation for further transport;
- e) providing an adequate number of competent *animal handlers* to load, unload, drive and hold animals in a manner that causes minimum stress and injury;
- f) minimising opportunities for disease transmission;
- g) having in place a contingency plan and any necessary resources;
- h) providing veterinary care when required;
- i) providing competent staff to allow the emergency *killing* of animals when required;
- j) ensuring proper rest times and minimal delay during stops;
- k) ensuring sufficient space for all animals to lie down at the same time at resting points;
- l) ensuring the keeping of the applicable records as required.

6. Transporters

The responsibilities of transporters in ensuring the safe transport of animals include, but are not limited to:

- a) ensuring suitable and safe *means of transport* for the species and categories of animals being transported;
- b) ensuring *containers* are suitable;
- c) ensuring the health, welfare, and verifying the fitness for transport of the animals, and segregation of animals into compatible groups in preparation for the *journey*;
- d) ensuring trained staff to handle and transport animals properly;
- e) complying with local regulations regarding animal transport;
- f) ensuring the safe transport of the animals;
- g) monitoring the animals and the environment throughout the *journey*;
- h) addressing the specific needs of different types of animals during the *journey*;
- i) ensuring the availability of a contingency plan;
- j) ensuring the proper cleaning and disinfection of the *means of transport* and/or *containers* as required;

- k) complying with international regulations and standards regarding animal transport;
- l) keeping and communicating all records as required by Competent Authority.

7. Drivers

The responsibilities of drivers include:

- a) complying with local and international regulations and standards regarding animal transport;
- b) ensuring the fitness for transport of the animals;
- c) making decisions to protect the welfare of the animals according to the *journey* and contingency plan, including decision making on routes to avoid poor roads, escape bad weather such as storms at sea, or undertake rest stops or break stops as required.

8. Master of the vessel and pilot of the aircraft

- a) the Master or pilot should be responsible for making decisions to protect the welfare of the animals according to the contingency plan.
- b) making decisions to protect the welfare of the animals according to the *journey* and contingency plan, including decision making to escape bad weather such as storms at sea or air.

Article 7.2.8.

Contingency plan

All stakeholders involved in the *journey* should ensure that a contingency plan is in place for every *journey*. In the case of repeated routine *journeys*, the same contingency plan may be used, provided all contact details are up to date. In the case of multiple pick-ups or drop-offs, a single plan that is sufficient for unexpected events is required per *journey* to cover the whole *journey*.

Transporters and other personnel involved in the *journey* should be aware of potential risks and be familiar with the contingency plan so that they can respond in an appropriate and timely manner in the event of an emergency. Existing contingency plans should be reviewed and updated regularly. Plans may vary according to the type of transport, species and category of animal, animal type, climactic conditions, and the nature and duration of the *journey*. The key to creating an effective contingency plan anticipates events that could occur and identifies in advance the actions to be taken to address each situation.

Examples of unexpected events to consider when outlining appropriate actions or responses include, but are not limited to:

- a) natural disasters;
- b) extreme weather events;
- c) road closures, detours, or unexpected construction (causing delays);
- d) transport accidents;
- e) changes to the planned destination (e.g., due to plant shutdown, consignment refusal, border crossing delay);
- f) the *journey* taking longer than expected, or delays in loading or unloading;
- g) mechanical breakdown or equipment failure;
- h) sudden illness or incapacity of the transport operator;

- i) animals becoming unfit for transport during *journey*; animals becoming fearful or aggressive during transport;
- j) animals requiring euthanasia;
- k) contamination of feed or water;
- l) disease outbreaks;
- m) loss or escape of animals;
- n) mass animal casualties;
- o) rejection of the consignment on arrival or at the *border inspection post*.

The contingency plan should outline the actions to be taken to reduce or mitigate avoidable harm or suffering to animals in the event of an emergency.

Examples of factors to consider when outlining appropriate actions or responses to an emergency include, but are not limited to:

- a) contact details of the *Competent Authorities*;
- b) for international transport, the contact details of a National contact point on long distance transportation;
- c) contact details for emergency services in the transport region(s);
- d) alternate route(s) to avoid prolonged stops in the event of accidents, road closures or extended delays;
- e) location or contact details of repair services (*means of transport* and equipment);
- f) location or contact details of alternate *means of transport*;
- g) location of emergency holding areas for animals (e.g., auctions or other *slaughterhouses/abattoirs*);
- h) location of emergency feed and water sources;
- i) planned route to keep the vehicle moving in the event of delays, where mechanical ventilation isn't available or operational.

Article 7.2.9.

Planning the journey

Proper *journey* planning is essential to minimise suffering and to facilitate a smooth transport process.

Comprehensive planning is key to minimising the *risk* of injury or undue suffering during or after a *journey* [FAWAC, 2007].

Planning should ensure the following in advance of the *journey*:

- a) selection of appropriate *means of transport* to the species and categories of animals;
- b) coordination of the different stages of the *journey* to prevent avoidable delays;
- c) documentation to accompany the *animals* in accordance with the requirements of the transit and destination countries;
- d) the selection of the best route, considering weather conditions and species-specific requirements;
- e) appropriate preparation of the *animals* for the *journey*;

- f) appropriate loading and unloading facilities;
- g) arrangements for bedding, resting, feeding and watering the *animals* during the *journey* as required;
- h) selection of trained or experienced personnel to handle or drive the *animals*;
- i) provision of appropriate conditions in the animal's compartment during the *journey*;
- j) contingency planning;
- k) implementation of biosecurity measures to minimise the *risk* of disease transmission;
- l) availability of intermediary facilities or rest stops, according to the estimated needs for rest stops.

The use of tranquillisers or other medications should not be a routine practice when transporting animals. Such drugs should be limited to situations where a specific issue has been identified and should be used only under veterinary supervision, in accordance with applicable regulations and manufacturer's instructions.

Where animals need to adapt to a novel diet or a new method of feed or water supply for a long-distance *journey*, an adequate adaptation period should be provided before transport begins. Animals that are unable to adapt should not be transported.

Article 7.2.10.

Documentation

Documentation plays an important role in facilitating adequate planning and control of animal transport, particularly for complex *journeys* [Animal Transport Guides Project, 2017]. Animals should not be loaded until the documentation required, according to national legislation or international requirements is complete. For international transport this should include an *international veterinary certificate* issued by the Veterinary Authority. The documentation required for a *journey* may vary depending on its length, complexity and *animal welfare* risk.

Agreements covering sanitary and trade aspects should include provisions addressing the responsibilities and actions in the event of rejection of any animal consignments, with proper consideration to the welfare of the animals.

The documentation accompanying the consignment may include, as appropriate:

- a) confirmation of acceptance of the consignment by the *Competent Authorities* at the destination;
- b) a *journey* travel plan, including the date, time and place of *loading*, *unloading* and any *resting points*;
- c) number and type of animals;
- d) additional veterinary certification, sanitary requirements and other customs documentation, when required;
- e) proof of competencies of the person(s) responsible for the welfare of the animals during transport;
- f) *animal identification* to allow *animal traceability* to the premises of departure and, where possible, to the premises of origin;
- g) details of any animals considered at particular *risk* of compromised welfare during transport;
- h) documentation of the location of any planned rest stops, and access to *feed* and water;

- i) for multiple day *journeys*, a daily record of inspection and all relevant events, including morbidity and mortality and actions taken, Veterinary Medicine Products provided, feed and water offered and estimates of consumption, climatic conditions, rest stops, travel time and distance, mechanical failure of the *means of transport* and delays due to other causes;
- j) a contingency plan;
- k) written procedures for the care of animals, established prior to the *journey*, defining the requirements to be met, the responsibilities of the parties involved, the monitoring to be carried out and the corrective measures to be taken. These procedures should cover, at a minimum the environment, feeding and watering when applicable, bedding management, animal treatment and humane killing.

Article 7.2.11.

Journey duration and requirements for water, feed and rest

The welfare impact of animal transport is complex, involving multiple stressors, many of which increase together with *journey* duration [EFSA, 2022].

When determining the *journey* duration, the main consideration is how long the animals can be without feed, water and rest, without compromising their welfare.

Requirements for feed, water and rest depend on the species and animals' category (e.g. pregnant animals, unweaned animals, lactating animals, end of career animals and other categories (see Article 7.2.13) of animals, their physiological condition, environmental conditions, the distance to be travelled (length of the *journey*), and the ability to provide feed and water through the *journey*.

Longer *journeys* increase risks to *animal welfare*; therefore, all necessary arrangements should be made in advance to minimise *journey* duration and meet the animals' needs throughout the *journey*. *Journey* duration should be adapted to the needs of the species and categories of animals. Moreover, feed, water and rest should be provided at appropriate intervals according to the species and categories of animals and *journey* duration.

Provisions applicable to shorter *journeys* may differ from those of longer *journeys*, particularly regarding the need for feed, water and rest.

For longer *journeys*, rest stops may alleviate travel-related stress.

1) *Animal welfare concerns*

Potential welfare concerns associated with *journey* duration include:

- a) prolonged hunger and thirst;
- b) heat or cold stress;
- c) injuries and other transport-related diseases (e.g., respiratory disorders);
- d) reduced ability to rest due to *journey* duration;
- e) lack of adequate and accessible equipment to feed and water the animals;
- f) poor maintenance of feed and water equipment;
- g) insufficient number of *animal handlers* to provide feed and water;
- h) insufficient space to rest, drink and eat during the *journey*.

2) Animal-based measures

Animal-based measures that may be used to assess welfare during transport include:

- a) signs of thirst, dehydration and hunger;
- b) injuries;
- c) nasal and ocular discharge;
- d) dull and unresponsive *animals*;
- e) aggressive behaviour;
- f) morbidity and mortality;
- g) signs of fatigue and exhaustion;
- h) feed and water intake;
- i) access to feeder, drinkers and bedding;
- j) signs of heat or cold stress.

3) Recommendations

Journeys should be kept as short as possible and be adapted to the animal species' and categories' needs for feed, water and rest. Animals should be transported without delay and using the most direct route to the place of destination.

Journey duration should be estimated carefully and should include regular scheduled rest stops or breaks stops, as well as any transfer from the *means of transport*. Depending on the *journey* duration, animals should be unloaded, rested, fed and watered in appropriate facilities. Such rest stops should allow for checking the fitness for transport of the animals, checking and cleaning the *means of transport*, and supplying the animals with sufficient feed and water until the next stage of the *journey*.

Taking into account the species, age and condition of the transported animals, they should be provided with:

- a) feed of an appropriate type and quantity to prevent hunger;
- b) prolonged fasting should be avoided;
- c) rest that is appropriate for their species, age and condition in order to prevent them from experiencing exhaustion.

Animals should be monitored throughout the *journey* for signs of hunger, thirst and exhaustion. Water should not be withdrawn until immediately prior to loading and should be offered at intervals appropriate to the species and category of the animals and their needs. In periods of high heat, while it should be sufficient, water should be provided carefully and gradually to avoid water intoxication (hyponatremia due to overhydration).

When water is required during the *journey*, vehicles should have water tanks with an adequate capacity for the number of animals transported and the duration of the *journeys*.

4) Species-specific recommendations or means of transport-specific recommendations

- a) Day-old chicks should arrive at the destination within 72 hours after hatching.
- a) Monogastric animals should be fed and watered more frequently than ruminants due to their digestive physiology.

- b) When feed is withdrawn before transport for food safety purposes for poultry and pigs, it should be for the shortest time possible.
- c) Feed and water should not be withdrawn prior to longer-distance transport of cattle, sheep, goats, camels and horses.
- d) Lactating animals will have a higher water requirement and should be watered more frequently.
- e) Unweaned animals should be transported with the dam, or if they are travelling alone, they should be fed with milk replacer frequently, depending on the species and age.
- f) Pigs, poultry, dairy cows, sheep and goats normally lie down during transport; thus, they should be provided with enough space to allow all animals to lie down without lying on top of each other.
- g) During the *journey*, camelids should be restrained in a manner that allows natural movement and does not forced them in a sitting position to prevent discomfort, injury and exhaustion.

Article 7.2.12.

Fitness for transport

Correct assessment of the fitness for transport of animals before departure is essential to ensuring their welfare during *transport*. Animals that are not fit for transport should not be loaded.

During a *journey*, *animals* may be exposed to conditions that may compromise their welfare. Selecting *animals* that are in suitable condition for the transport is therefore critical to minimise these risks.

1) Animal Welfare Concerns

Failures in the assessment of the fitness for transport of animals can arise as a result of:

- a) failure to identify animals that are unfit prior to departure;
- b) failure to adjust travel conditions to meet the species' or category's needs, or to account for prevailing weather conditions;
- c) failure to recognise animals that have become unfit during transport.

2) Animal-Based Measures

Indicators that could be used to assess the fitness for transport of animals before *loading* and during the *journey* may include:

- a) severe injuries and lameness;
- b) severe bleeding;
- c) coughing, nasal and ocular discharge;
- d) diarrhoea;
- e) poor body condition;
- f) aggressive behaviour;
- g) vocalisation indicative of *distress*;
- h) non-ambulatory animals;
- i) signs of heat or cold stress (e.g., panting, sweating, excessive salivation, huddling, or shivering);

- j) prolapse;
- k) presence of pregnant animals in the final 20% of their gestation period at the time of arrival at the final destination for transport by water.

3) Recommendations

Before loading, each animal should be inspected by a veterinarian or *animal handler* or driver to assess its fitness for transport. Animals should be assessed using the measures mentioned in point 2).

Animals that are unfit to travel include, but may not be limited to:

- a) those animals that would be the final 10% of their gestation period for transport by land, or in their final 20% of their gestation period for transport by water;
- b) animals that are unable to stand unaided and bear weight on each leg;
- c) animals that cannot be moved without causing them additional suffering;
- d) animals with severe prolapse;
- e) newborns with an unhealed navel;
- f) females travelling without their offspring which have given birth within the previous 48 hours;
- g) animals that are hobbled to aid in the treatment of an injury;
- h) those injured during handling in preparation for crating;
- i) those that are sick, injured, weak, disabled, or fatigued;
- j) those that are emaciated.

If an *animal* is deemed unfit to travel or becomes unfit during transport, the person in charge (e.g. *veterinarian*, *animal handler*, driver) should take immediate measures to avoid unnecessary suffering. These may include treatment on the spot, transport to a veterinary facility for treatment or killing the animal according to Chapter 7.6. Animal welfare at the time of killing for purposes other than slaughter.

Animals that are vulnerable leading to a reduced ability to cope with demands of transport, and those that are at particular risk of suffering poor welfare during transport and that may require special conditions (e.g., modified such as in the design of facilities or *means of transport*, or additional *journey* requirements such as additional bedding, extra space, or segregation or increased monitoring) and additional attention during transport may include:

- a) obese animals;
- b) unweaned or young animals;
- c) excitable or aggressive animals;
- d) animals with little prior contact with humans;
- e) females in heavy lactation;
- f) females transported with their nursing offspring;
- g) animals with minor lameness affecting their balance;
- h) animals with a history of exposure to stressors or diseases, infections or infestations prior to transport;

- i) animals with unhealed wounds from recent surgical procedures (e.g., dehorning).

4) Species or means of transport-specific recommendations

- a) Domestic birds showing poor feather cover should not be transported.
- b) During cool and cold weather, wet birds should not be transported because they are not able to maintain their body temperature.
- c) Stressed pigs should only be transported once they have completely recovered.
- d) Pregnant animals that would be in the final 20% of their gestation period at the planned time of unloading at the place of destination should not be transported by water.

Article 7.2.13.

Selection of compatible groups

Animals may experience significant stress when removed from their accustomed social group and placed in another group [EFSA (2022) Welfare of cattle during transport].

1) Animal welfare concerns

Mixing unfamiliar cattle, pigs, sheep, or goats from different social groups before or during *transport* can pose a significant *risk* of threatening and fighting behaviour [Consortium of the Animal Transport Guides Project, 2017] leading to fear, *pain*, injuries, inability to rest, and fatigue. Repeated regrouping of *animals* before and during *transport* may lead to abnormal behaviour and affect *animals'* metabolism and immune systems [EFSA (2022) Welfare of cattle during transport].

2) Animal-based measures

Animal-based measures that may assist in selecting or assessing and reselecting, group compatibility include:

- a) aggressive behaviour observed prior to transport, taking into account species, breed, sex, temperament and purpose of use;
- b) presence of horns capable of causing injury;
- c) skin lesions due to fighting;
- d) animal vocalisation indicative of *distress*;
- e) injured or non-ambulatory animals;
- f) animals failing to settle;
- g) fatigue and exhaustion;
- h) mortality;
- i) tail or ear biting in pigs.

3) Recommendations

- a) Animals should be transported in small compatible groups that are accustomed to each other, to prevent fighting and aggressive behaviour.
- b) Where it is envisaged that unfamiliar animals are to be grouped and transported in the same compartments, they should be as similar in species, size, sex, category, and age. Grouping should be carried out as far in advance of the transport as possible, and ideally these groups would be maintained throughout the entire *journey* to reduce stress.

- c) Aggressive animals should be separated from other animals to prevent injury or fear in the *means of transport* and in *resting points* and assembly centres.
 - d) Animals with horns long enough to cause injury should only be transported in groups if they have been reared together and are accustomed to each other. In general, horned animals should not be transported in a group.
 - e) Sexually mature males should not be placed with females, except in cases where males and females are accustomed to one another and where separation would cause *distress*.
 - f) Tied and untied animals should be transported in separate compartments.
 - g) Planning should, where possible, allow animals to remain in the same small groups when unloaded at *resting points* and reloaded back for onward transport.
 - h) Avoiding or mitigating additional stressors (e.g. poor handling, heat or cold, lack of space, hunger, thirst or sensory overstimulation) may reduce group-related stress where animals are not fully compatible.
 - i) *Animal handlers* should be trained to recognise signs of group incompatibility and animal behaviour should be monitored during transport with adjustments made as necessary.
- 4) Species-specific or means of transport-specific recommendations

When grouping animals, species-specific social and behavioural needs should be considered.

Article 7.2.14.

Handling

Handling includes, but is not limited to, capture, restraint, movement, inspection, and other related procedures such as identification, weighing, or sampling. Handling may be manual, mechanical (e.g., performed using automated equipment or systems), or the combination of both.

This Article should be read in conjunction with relevant Articles of Chapter 7.5 Animal welfare during slaughter.

1) Animal welfare concerns

Inappropriate handling may expose animals to welfare risks, including fear, *pain*, injury, exhaustion and *distress*. Factors that may contribute to compromised welfare during handling include:

- a) use of inexperienced or untrained *animal handlers*;
- b) sudden intrusion into the animals' flight zone or incorrect positioning of *animal handlers* in relation to their visual field (e.g., approaching from directly behind or in front of the point of balance);
- c) inappropriate use of physical force, goads, and other handling aids;
- d) excessive shouting or noise;
- e) inappropriate handling or restraint;
- f) poor design or maintenance of handling facilities;
- g) poor design of *means of transport* that prevents adequate monitoring and handling;
- h) insufficient number of *animal handlers*;
- i) animals with limited prior exposure to human contact;

- j) lack of, or inappropriate, monitoring of handling during the *journey*.

2) Animal-based and other measures

Animal-based measures that may be used to assess welfare during handling include:

- a) animals baulking, running, slipping or falling;
- b) frequency of aggressive behaviour towards *animal handlers* (e.g. rearing, kicking, or biting);
- c) frequency of avoidance behaviour, including refusal to move forward or moving away from the *animal handler*;
- d) mounting, piling, or overlaying of animals;
- e) vocalisation indicative of *distress*;
- f) signs of respiratory distress;
- g) bruised carcasses and compromised meat quality parameters;
- h) injuries to animals or *animal handlers*;
- i) mortality.

Other measures include:

- a) inadequate facilities;
- b) inappropriate *animal handler* behaviour, including the misuse of handling equipment;
- c) evidence of insufficient *animal handler* training or competence;
- d) absence of records relating to equipment servicing or maintenance;
- e) excessive time taken for loading or unloading.

3) Recommendations

- a) *Animal handlers* should be properly trained in non-coercive methods and tools to move animals. They should not use violent means to move animals, or hurry animals and should avoid shouting, kicking, or use other means likely to cause *distress*, fear, or *pain*.
- b) *Animal handlers* should not stand between an animal and where they want to move to, as this may cause the animal to baulk. *Animal handlers* should make use of the flight distance and the animal's point of balance, located at the shoulder, positioning themselves behind it to encourage forward movement and in front of it to encourage backward movement.
- c) Animals should be handled calmly, as they are more easily led or driven than if they are excited, and should be moved in small groups, as this decreases fear and makes use of their natural tendency to follow other animals.
- d) Mechanical handling aids should be used so as to encourage and direct movement of the animals without causing *distress*, fear, or *pain*. Preferred mechanical aids include panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), plastic bags, and rattles.
- e) Electric goads should not be used or should be used only as a last resort to move animals provided that the animal is able to move forward freely (e.g. no obstacles or other animals) and is not injured. Their use should be limited to low-voltage goads applied to the hindquarters of adult pigs and large ruminants only, and never to sensitive areas (eyes, mouth, ears, ano-genital region, udders, or belly). Electric goads should not be used on equids, camelids, ratites, sheep and goats, pregnant animals, calves, or piglets.

Shocks should not be used repeatedly even if the animal fails to respond and should not last longer than one second.

- f) The use of well-trained dogs and leader sheep to help with the movement of cattle and sheep is acceptable but should be minimised.
- g) Animals should not be forced to move faster than their normal walking pace to minimise injury from crowding, slipping, or falling.
- h) Animals should not be grasped, lifted or restrained in a manner that causes *pain*, suffering and injury (e.g. bruising, fractures, dislocations).
- i) Ramps or lifts should be used when the vehicle and the unloading dock are not of the same height. Ramps and lifts should be positioned so that the animals can be handled safely, their gradient should not be so steep as to prevent animals from moving, and solid side barriers should be in place. There should be no gap between the vehicle and unloading dock.
- j) The design of the facilities should promote the natural movements of animals and, as far as possible, minimise human interaction.
- k) Handling and restraining systems should be appropriate for the species being transported.
- l) Assembly, loading, and unloading facilities, including ramps, should be fit for the species being transported.
- m) The design of the *means of transport* should allow monitoring of the animals during transport.
- n) During flights, *animal handlers* or grooms should have access to monitor the animals in the cargo hold.
- o) During *journeys by water*, *animal handlers* should have access to animals to inspect and take care of them.

4) Species-specific recommendations

- a) Horses, Dromedary and Bactrian camels [Le Meur et al. 2024] should be previously trained for loading, transport and unloading using positive reinforcement training or habituation.
- b) Sheep should never be lifted by the wool.
- c) Sheep, llamas, alpacas, guanacos, and vicuña should be moved in a manner that is in keeping with their gregarious tendencies. Animals may become agitated if singled out for attention and will strive to rejoin the others.
- d) Pigs should be moved calmly, using boards or paddles, maintaining appropriate group sizes, and minimising noise and sudden movements.
- e) Birds should not be picked up by their head, neck, one wing, or tail feathers. Catching should be carried out by skilled *animal handlers*, and every attempt should be made to minimise stress and fear reactions and injury. Birds should be in an upright position after being placed in the *container*, and the *container* should be handled, moved, and securely positioned on vehicles in a manner that minimises injuries and stress to the birds.
- f) Rabbits should be removed from the husbandry cages individually by holding and lifting by the neck (scruff) by one hand, with support of the body with the other hand [European Commission 2017].

Loading and unloading

Loading and unloading are stressful for animals during transport, as they are moved through unfamiliar environments and subjected to increased handling. Proper handling and well-designed facilities are key to minimising risks during these stages.

This Article should also be read in conjunction with relevant Articles of Chapter 7.5 Animal welfare during slaughter.

1) Animal welfare concerns

Animals may be exposed to several *hazards* to *animal welfare* during loading and unloading, including but not limited to:

- a) inadequate loading and unloading facilities, ramps or operations;
- b) improper planning of loading and unloading operations;
- c) improper handling of the animals;
- d) exposure to extreme weather conditions;
- e) inadequate ventilation and lighting;
- f) delays or rushing at loading and unloading;
- g) inadequate supply of water, feed and bedding;
- h) repeated loading and unloading on the same *journey*.

2) Animal-based and other measures

Animal-based measures that may be used to assess welfare during loading and unloading include:

- a) baulking, mounting, piling, or overlaying of animals;
- b) vocalisations indicative of *distress*;
- c) signs of respiratory distress;
- d) bruised carcasses and compromised meat quality parameters;
- e) injuries to animals or *animal handlers*;
- f) morbidity and mortality.

Other measures include:

- a) poor design and maintenance of loading and unloading facilities;
- b) inappropriate gradient of ramps inside and outside of the *means of transport*;
- c) excessive use of handling aids;
- d) excessive time taken for loading or unloading.

3) Recommendations

- a) Animals should be moved using handling techniques that take into account their species-specific behaviour.
- b) Loading and unloading operations should be carefully planned in advance, to minimise delays, rushing and unnecessary handling.
- c) Animals should be loaded and unloaded promptly. This is facilitated by scheduling the arrival and departure of the animals to ensure that there are sufficient personnel and adequate space in loading and unloading facilities and *means of transport*.
- d) Loading and unloading should be supervised or conducted by sufficient numbers of competent *animal handlers*. The animals should be loaded and unloaded quietly and without unnecessary noise, harassment, or force.
- e) Animals that are likely to cause injury or *distress* to other animals should be kept separate prior to and during loading into transport *containers*. This includes animals known to be aggressive, with horns, antlers, or tusks.
- f) During extreme weather conditions, consideration should be given to rescheduling the loading or unloading of animals.
- g) The facilities for loading and unloading, including the collecting area, races and loading ramps, should be designed and constructed to account for the needs and abilities of the animals with regard to dimensions, slopes, surfaces, turns, absence of sharp projections, flooring, etc.
- h) Loading and unloading facilities should be illuminated to allow the animals to be observed by *animal handlers*.
- i) Loading and unloading facilities should have non-slip flooring to facilitate safe movement of animals.
- j) Recommendations for ventilation during loading, unloading, and the *journey* are provided in Article 7.2.20.
- k) Animals should only be loaded if they comply with the sanitary and customs requirements of the transit and importing countries.
- l) Animals should only be loaded in *means of transport* that are clean, disinfected, and fit for purpose.

4) Species-specific recommendations or means of transport-specific recommendations

- a) Horses, Dromedary and Bactrian camels should be previously trained for loading and transport and unloading using positive reinforcement training or habituation. [Dai et al, 2029, 2020, 2025; Masebo et al. In revision].
- b) Horses should not be tied with loose head restraints, ensuring that their heads do not remain in an elevated or restricted position, as this increases the risk of respiratory disorders. [Takahashi et al, 2025, Padalino et al., 2018].
- c) Vessels should carry suitable equipment for loading and unloading. It is advisable to have a backup ramp on board of the vessel in case of failure if the main ramp breaks down. The vessel ramps used for loading and unloading should be compatible with the handling, loading and unloading equipment or facilities at the seaports.

Environmental conditions

Environmental management is required to ensure that animals are not exposed to conditions that represent a risk for their welfare during transport. The environment within the *means of transport* can be affected by multiple factors, including ambient temperature and humidity, solar radiation, precipitation and storms or other extreme weather events, design of the *means of transport*, stocking density, bedding material, and airflow. Transporters should ensure that each animal in the load has adequate protection from adverse environmental conditions during transport, loading, unloading, and at rest stops.

1) Animal welfare concerns

Animals may be exposed to *animal welfare hazards* due to exposure to extreme weather conditions and inadequate environmental management, including:

- a) fluctuations or extremes in temperature, humidity or ammonia levels within the *means of transport*;
- b) exposure to wind chill on a moving *means of transport*;
- c) exposure to the elements resulting in wet animals;
- d) the absence of forced ventilation or climate control in a stationary *means of transport*;
- e) exposure to high wind, wave motion or air turbulence;
- f) exposure to volatile materials, such as vehicle fumes, carbon dioxide, and ammonia;
- g) exposure to dust and airborne debris;
- h) inappropriate or non-functional fans, openings, or other means of ventilation.

2) Animal-based and other measures

Animal-based measures that may be used to assess the impact of environmental conditions include:

- a) signs of heat stress such as panting, open-mouth breathing, sweating, excessive salivation, or skin discoloration (e.g. in pigs);
- b) signs of cold stress such as shivering, hunching, cold extremities, huddling or piling;
- c) frostbite;
- d) instability or recumbency of animals, such as from bad roads, storms at sea or air turbulence;
- e) injured, non-ambulatory, or fatigued animals;
- f) morbidity and mortality.

Other measures relevant to environmental management include:

- a) availability and adequacy of environmental protection, including from extreme weather;
- b) air quality within the *means of transport* including ammonia levels;
- c) air temperature, relative humidity and ammonia level;
- d) presence and functioning of appropriate ventilation equipment;
- e) space allowance;

f) temperatures within the *means of transport*;

g) loading and unloading area free of ice.

3) Recommendations

- a) Transporters should consider the external temperatures and the weather conditions, as well as the available protections and load characteristics, before undertaking a *journey* and plan the *journey* accordingly.
- b) Transporters should monitor changing weather conditions and internal temperature during the *journey* and adjust the weather protection equipment or environmental controls as required.
- c) The *means of transport* should have methods of environmental protection or control that are suitable for the whole *journey*, as vehicles may pass through different climate zones and weather conditions during one *journey*.
- d) During extreme temperatures, transporters should minimise the time that the vehicle remains stationary.
- e) The *means of transport* should be equipped with systems to monitor internal temperature and humidity during the *journey*, particularly in the highest-risk areas within the *means of transport*.
- f) Upon arrival, and before unloading at the destination, appropriate environmental conditions should be maintained through the use of ventilation, shade, shelters, and covers.
- g) Transporters should know the weather protection requirements of the species they are transporting, as well as their species-specific ideal temperature range, and plan the *journey* and *journey* conditions accordingly.
- h) The rest stops facilities should have methods of environmental protection or control that are suitable for the different climate zones and weather conditions during one *journey*.
- i) To prevent suffering due to excessive heat and humidity, transporters should consider:
 - loading at night, and transporting during cooler periods of day or at night;
 - driving animals around to provide passive ventilation to the animals if waiting to unload;
 - during breaks, parking vehicles at right angles to the wind to allow airflow amongst animals, opening and closing ventilation apertures, and possibly parking under shade;
 - installing fans to provide active ventilation to animals;
 - providing the animals access water to drink;
 - using sprinklers or misters where appropriate (if humidity is low);
 - increasing the space allowance to improve better thermoregulation;
 - removing manure deposits when possible.
- j) For longer *journeys*, the *means of transport* may be equipped with forced ventilation and other systems to monitor and regulate the microclimatic conditions within the load.
- k) To prevent suffering due to extreme cold weather, transporters should consider:
 - utilising weather protection equipment on transport vehicles (e.g. winter boards, bedding, tarps), and adjusting ventilation openings;
 - prioritising the sides and rear of the vehicle and trailer when adding environmental protection and in vehicle design, as this is where cold air and precipitation will be worse;

- avoiding loading during the coldest part of the day;
- providing additional room to allow animals to move away from the sides of the vehicle;
- avoiding overcrowding, as animals can easily become too warm, causing them to sweat, which will lead to condensation and wet animals;
- parking vehicles at an angle to protect the animals from the prevailing winds and precipitation.

4) Species-specific recommendations or means of transport-specific recommendations

- a) Pigs are especially vulnerable to heat and cold stress and may require misters/sprinklers for cooling in low humidity. For pigs transported by road, the use of bedding should be limited in warm or hot weather.
- b) The following animals are known to be vulnerable to cold stress, and depending on the design of the conveyance, may require additional winter protection to reduce exposure to the cold: pigs, shorn sheep, dairy cows, calves and birds.
- c) Birds should be kept dry during the loading process, especially in colder weather. Wet birds should not be transported in colder conditions and additional protection should be provided if birds become wet during loading or transport.
- d) In the open decks of livestock vessels and roll-on–roll-off vessels, the animals should be protected from adverse weather.
- e) Animals transported in crates (poultry, rabbits) are more susceptible to heat and cold stress and require extra considerations and monitoring during transport.
- f) Routes should be selected or adjusted to consider avoidance of adverse weather or other events such as fires or floods for land *journeys*, or storms for sea and air *journeys*.

Article 7.2.17.

Space allowance

Sufficient space allowance is a critical factor aspect to ensure the welfare of animals during transport, as this directly impacts the animals' capacity to maintain balance, rest, and thermoregulate. Space allowance for each animal should be calculated taking into account the species' and categories' specific needs as well, factors such as the prevailing climatic conditions, *journey* duration, the *means of transport*, and the size and type of the *container*.

1) Animal welfare concerns

Animals may be exposed to several *animal welfare hazards* due to inappropriate space allowance, including:

- a) inadequate space for animals to lie down, stand up and move freely;
- b) inadequate headroom;
- c) failure to adjust space allowance to account for weather conditions;
- d) failure to adjust space allowance to account for species-specific thermoregulatory needs.

2) Animal-based and other measures

Animal-based measures that may be used to assess adequacy of space allowance include:

- a) signs of fatigue and exhaustion;
- b) behaviours indicative of thirst and hunger;

- c) feed and water intake;
- d) frequency of falls and loss of balance events;
- e) signs of heat stress;
- f) injuries or bruising;
- g) abnormal head position or inability to adopt natural posture;
- h) inability to lie down or stand up during transport;
- i) mounting, piling or overlaying of animals;
- j) mortality;
- k) signs of respiratory distress.

Other measures include:

- a) floor space measurement per animal;
- b) overhead height measured from the highest point of the tallest animal;
- c) air temperature, relative humidity and presence of noxious gases.

3) Recommendations

- a) Space allowance should be determined based on multiple factors including facility design, ventilation, air temperature and humidity, waste accumulation, group composition, the need to provide feed, water and rest during travel, the *means of transport*, and the duration of the *journey*.
- b) The number of animals that can be transported on a *means of transport* or in a *container* should be determined before loading.
- c) Animals should be transported with enough space to maintain balance and maintain their preferred position, including being able to lie down or stand up, and they should be able to adjust their body position to protect themselves from other forms of harm.
- d) Adequate space should be allowed for animals to access drinkers and feeders.
- e) Adequate overhead height should be provided so that each animal can be able to assume its natural standing position (or sitting position for poultry) without touching the ceiling, and there should be sufficient headroom to allow adequate airflow over the animals to ensure comfort and minimise injuries. Headroom should be increased in hot/humid conditions.
- f) When animals lie down, they should all be able to adopt a normal lying posture, without being on top of one another, and allow necessary thermoregulation.
- g) Minimum space allowances should be based on current scientific evidence and appropriate regional, national or sectoral standards.
- h) Space allowances should be adjusted in both hot and cold conditions. Depending on vehicle design, the space allowance may should be adjusted in extremely or low ambient temperatures to allow adequate thermoregulation.
- i) Fixtures and fittings within the *means of transport* or *containers* should be taken into account when calculating the actual available space. If the walls, ceiling, or floor have protrusions or internal ramps that project into the animal compartment, the space thus occupied should not be included in the calculation of space allocated to the animals. If any such protrusions could cause injury to animals, that part of the *means of transport* or *container* should be covered, or separated and not used for animal transport.

- j) Space allowance should be adjusted for vulnerable animals, (e.g. cull dairy cows, fully-feathered poultry, end-of-lay hens, and animals with physiological conditions such as advanced pregnancy, recent parturition, or illnesses or injuries that do not render them unfit for transport). In general, longer *journeys* require a higher allocation of space per animal than short *journeys*.

4) Species-specific recommendations or means of transport-specific recommendations

Cattle:

Horned *animals* may require at least 10% more space, as horns can cause bruising.

Sheep and goats:

Space should be adapted to the presence of horns or wool.

Pigs:

Pigs are more vulnerable to heat stress and the effects of humidity than most other farm *animals* [EFSA (2022) Welfare of pigs during transport] and close attention should be paid to ensuring adequate space and ventilation during transport, and particularly when the *vehicle* is loaded but not moving.

Horses:

When horses are transported in individual stalls, space is primarily determined by the correct placement of the partitions rather than the floor area as such. [Consortium of the Animal Transport Guides Project. (2017) Guide to good practices for the transport of horses destined for slaughter.] Horses should have enough space to balance, put their head down at the level of the withers, urinate and thermoregulate.

Unhandled horses should be transported in a small group composed of compatible *animals* [EFSA (2022). Welfare of equidae during transport].

Poultry:

Birds should have enough space that they can all sit on the floor of the *container* at the same time. The height of the *container* should allow birds to sit in a natural position without touching the ceiling.

Some categories of poultry, such as fully feathered pullets and end-of-lay hens, may require more space.

Rabbits:

Rabbits should have enough space that they can all sit on the floor of the *container* at the same time. The height of the *container* should allow rabbits to sit with their ears extended in a comfortable position. [EFSA 2022 - Welfare of domestic birds and rabbits transported in containers]

For long *journeys* or *journeys* in hot, humid conditions where rabbits need to stretch out in recumbency, increases of space by 10% to 20% may be appropriate. [EFSA 2022 - Welfare of domestic birds and rabbits transported in containers].

Article 7.2.18.

Condition of the means of transport

The design and maintenance of the *means of transport* should ensure the safety and good welfare of the animals.

1) Animal welfare concerns

Animals may be exposed to several *hazards* to *animal welfare* as a result of improper conditions of the *means of transport*, including but not limited to:

- a) improper design and maintenance of the *means of transport*, e.g. the presence of gaps, corrugated patterns and steps;
- b) inadequate structure of the *means of transport* (e.g., sharp protrusions, sharp angles, open sides, short sides);
- c) slippery and rough floor surfaces;
- d) insufficient deck height;
- e) inadequate penning and partitions between compartments;
- f) poor vehicle suspension;
- g) lack or insufficient bedding material;
- h) inadequate lighting;
- i) poorly designed drinking devices, too few drinking devices, or devices designed for other species or age categories;
- j) lack of proper ventilation and heating systems.

2) Animal-based measures

- a) injuries or bruising
- b) signs of heat stress (e.g. panting, open-mouth breathing, sweating, excessive salivation, or skin discoloration (pigs));
- c) signs of cold stress (e.g. huddling, shivering, hunched posture, cold extremities);
- d) animals slipping and falling;
- e) posture changes;
- f) signs of fatigue or exhaustion e.g. inability to walk or move, unsteadiness, swaying, resting the head on partitions or other animals;
- g) latency to stand up after a falling event;
- h) respiration rate;
- i) nasal and ocular discharge.

3) Recommendations

The design of the *means of transport* should be appropriate for the species, size, category and weight of the animals to be transported and should be designed, constructed, maintained and used in such a way to:

- a) avoid injury and suffering of the animals;
- b) ensure the safety of animals, prevent animals escaping or falling out, and be able to withstand the stress of movements;
- c) provide protection from adverse weather conditions;
- d) provide sufficient lighting to allow inspection and care of the animals during transport, with additional lighting where necessary during the loading and unloading of the animals at night;

- e) provide access to the animals for inspection and cared for during the *journey*;
- f) ensure good mechanical and structural condition;
- g) avoid injury to drivers and *animal handlers* while carrying out their responsibilities.
- h) vehicles should be designed so that the faeces or urine from animals on upper levels do not soil animals on lower levels, nor their feed and water. This condition is not applicable for poultry.

4) Species-specific recommendations or means of transport-specific recommendations

Species -specific

Ruminants, pigs and equidae:

- On vehicles with lifting platforms and upper floors, these structures should have safety barriers to prevent animals from falling or escaping while being loaded or unloaded.
- Horses should not be transported in multi-deck vehicles.

Poultry and rabbits:

- Solid, safe, undamaged and clean *containers* should be used. Whenever *containers* get damaged, they should be repaired or replaced.
- The floor of *containers* should prevent birds from slipping and faeces from building up.
- During the *journey*, *containers* should be properly secured to prevent movement, falling down and disturbance of birds and rabbits.
- Side covers should be used in case of cold weather to protect all the animals and especially for birds at the back of the vehicle, which are more exposed to cold.
- For day-old chicks, the vehicles should have temperature and, if available, humidity sensors.

Transport-specific recommendations

Transport by land:

- Vehicles should be visibly marked to indicate the presence of live animals, including specific marking for wild or dangerous animals.
- Vehicles should be equipped with movable partitions that allow the creation of separate compartments whenever needed. Partitions should be strong enough to withstand the weight of the animals, prevent injury, and prevent negative interactions between neighbouring animals.
- Partitions should be designed for quick and straightforward operation and should be placed in a way to avoid animals getting trapped or to impair ventilation.
- Vehicles should have appropriate suspension systems, to reduce vibration and the stress of the animals.
- Poor driving or piloting should be avoided.
- Poor quality of roads being traversed should be considering minimising *animal welfare* consequences.
- When appropriate, suitable and dry bedding should be added to vehicle floors to assist absorption of urine and faeces, minimise slipping by animals, promote animal comfort and resting, and protect animals from adverse weather conditions.

- Vehicles should allow easy and effective cleaning and disinfection in order to minimise the likelihood of the spread of infectious disease during transport and maintain optimal conditions within the means of transport.
- The buildup of faeces and urine should be prevented during a *journey*.

Transport by water:

Livestock vessels

- All the pens or compartments where animals are transported should be clearly identified.
- A vessel floor plan with the available surfaces for the animals in each pen should be present on board.
- Strength for pen rails and decks should be appropriate to the transported animals.
- The side walls of the pens should be designed to prevent animal escape, without compromising their access to feeders and drinkers.
- Vessels should have effective ventilation to meet variations in climate and the thermoregulatory needs of the animal species being transported, even when the vessel is stationary.
- The decks of the vessels should be equipped with a forced ventilation system with sufficient capacity for adequate air exchange.
- The ventilation system should guarantee a minimum of air flow in each pen. Airflow should be monitored in multiple locations.
- There should be additional fans as well as parts to fix existing fans in the event of a breakdown.
- On each deck there should be equipment to measure temperature, humidity and gases such as ammonia in the high-risk areas.
- Vessels should be equipped with water tanks and water production systems that have the capacity to store or produce the amount of water needed for the species, type and number of animals, as well as the maximum *journey* duration, plus at least 3 days' spare supply of water.
- Animals should have easy access to an adequate and sufficient number of drinkers to provide a continuous freshwater supply to each pen. Alternative pumping equipment should be available to ensure water supply in the event of failure of the primary pumping system.
- Vessels should carry from the time of departure sufficient feed to cover the minimum daily feed for the intended *journey* plus at least three days' spare supply of feed.
- Suitable bedding, such as straw or sawdust, should be added in an appropriate quantity to the vessel floors to assist absorption of urine and faeces, minimise slipping, injuries, abrasions, lameness and faecal coating, as well as protect animals from adverse weather conditions.
- The bedding material should be monitored routinely (at least daily) to ensure consistency and depth is appropriate to mitigate risks to the health or welfare of the livestock.
- Feed and bedding should be stowed in a way to ensure protection from fire hazards and seawater and not impair the ventilation.
- The drainage system should be of appropriate capacity to drain fluids from pens and decks under all conditions. Drainpipes and channels should collect the fluids in wells or tanks from where sewage can be discharged by means of pumps or ejectors. Alternative pumping equipment should be available to ensure drainage in the event of failure of the primary pumping system.

- On the animal pens, sufficient passageway and ramp lighting should be provided to allow the animals to see the feeders and drinkers, *animal handlers* to inspect and take care of the animals, and the proper movement of the animals.
- Emergency lighting should be available in case of a failure of the main electrical installation, and sufficient portable lighting should be provided to allow the attendant adequate inspection and care of the animals.
- A firefighting system should be appropriately installed in all livestock areas, and fire equipment within the livestock areas should comply with the most recent International Convention for the Safety of Life at Sea (SOLAS) standards regarding fire protection, fire detection and fire extinction.
- The ventilation, lighting, fresh water supply and production and drainage systems used for livestock should be equipped with a monitoring, control and alarm system in the wheelhouse.
- A primary source of power should be sufficient to supply continuous power for the ventilation, lighting, freshwater production and supply, and drainage system. A secondary source of power should be sufficient to replace the primary source of power for a continuous period of three days.
- The ramp used for loading and unloading animals on the vessel should have sidewalks to allow the easy handling of the animals and protect people during the loading operations.
- Special attention should be given to the effect of the sea tides on the ramp inclination in order not to impair the movement of the animals and the ramp safety.
- The vessel should have enough hospital pens in each deck to separate animals that need special attention or treatment.
- The vessel should have on board *veterinary medicinal products* and veterinary equipment to treat the animals and an appropriate means of killing the animals in case of need in accordance with Chapter 7.6, that is sufficient and suitable for the species and number of livestock carried. Any equipment that is not in good working condition should be repaired or replaced before departure.
- *Veterinary medicinal products* and veterinary equipment should be stored and used according to any applicable veterinary directions and/or manufacturers' recommendations.

Roll On-Roll Off vessels

- When vehicles are carried on board ferries, facilities for adequately securing them should be present.
- On enclosed decks, the vessel should be equipped with an appropriate forced ventilation system, an alarm system, and an adequate secondary source of power in case of failure.

Transport by air

- Live animals should not be loaded with any other cargo that adversely affects the health and welfare of the animals (e.g. causing them *pain*, suffering and harm).
- Live animals should not be loaded or transported in the immediate vicinity of heated or frozen *containers*. They should be loaded separately from other animals or cargo that have different temperature requirements.
- *Containers* with animals should be placed on the aircraft in such a way as not to compromise ventilation.
- In cargo holds where animals are transported, it should be ensured that the environmental conditions are appropriate for the species and type of animals being transported.

Containers

- *Containers* in which animals are transported should be visibly marked, indicating the presence of live animals and with a sign indicating the top of the *container* (Regulation 1/2005).

- During transport and handling, *containers* should be kept in an upright position.
- *Containers* should be secured so as to prevent displacement due to the movement of the *means of transport*.

Article 7.2.19.

Intermediate facilities

Journeys often involve stops in intermediate facilities such as assembly centres, resting points, markets, auctions, airport and seaport facilities, quarantine, or border posts. Breaks during *journeys* allow animals to recover from the stress and associated welfare consequences of transit.

1) Animal welfare concerns

Animals may be exposed to several welfare *hazards* while at intermediate facilities, including:

- a) loading and unloading operations;
- b) inappropriate animal handling;
- c) use of unfamiliar and inappropriate water and feeding devices;
- d) insufficient resting intervals and duration;
- e) poorly designed or maintained facilities;
- f) poor biosecurity and exposure to pathogenic agents;
- g) exposure to extreme weather;
- h) delays in loading and unloading;
- i) prolonged interval between milking for lactating animals;
- j) variation in microclimatic conditions;
- k) exposure to noxious gases and excessive noise (e.g. facilities at airports);
- l) availability of equipment to euthanize animals;
- m) mixing of unfamiliar groups and different categories of animals;
- n) exposure to a novel environment.

2) Animal-based and other measures

Animal-based measures:

- a) injuries;
- b) vocalisations indicative of *distress*;
- c) mortality;
- d) animals slipping or falling;
- e) overcrowding;
- f) signs of heat or cold stress.

Other measures:

- a) poor condition of the facilities (e.g. presence of sharp or protruding objects, areas where animals can get trapped, non-slip flooring, unloading/loading ramps);
- b) access to euthanasia equipment;
- c) use of inappropriate handling techniques such as use of goads, yelling, hitting, and striking animals;
- d) access to sufficient amount of potable water for all animals;
- e) access to sufficient and appropriate feed for all animals;
- f) environmental protection (shelter, shade, wind protection, bedding, mud);
- g) evidence of training of the personnel handling animals.

3) Recommendations

- a) Facilities should be able to schedule the arrival and departures for efficient unloading and loading of animals and to ensure there is enough room for accommodating all animals arriving at the facilities.
- b) The loading and unloading of animals should be kept to a minimum and implemented in accordance with Article 7.2.15.
- c) Facilities should be designed for the species and category of animals that will use them.
- d) Facilities should provide feeding, watering and, when relevant, milking devices that correspond to the needs of the animals that will utilize the facilities.
- e) Staff should be competent and trained to handle animals in accordance with Article 7.2.14.
- f) Facilities should ensure protection from adverse weather conditions in accordance with Article 7.2.16.
- g) Facilities should allow for separation of animals from different consignments and categories and ones that are incompatible by nature.
- h) All facilities should be maintained and repaired as needed to prevent injury and entrapment.
- i) The facility should have access to equipment or methods suitable for euthanising all types of animals.
- j) Facilities should provide have access to safe feed and water in accordance with Article 7.2.11.
- k) Facilities should allow for easy cleaning and disinfection and have access to the equipment required to clean them.
- l) Facilities should have a biosecurity plan in place to mitigate the risk of the spread of disease.

4) Species-specific recommendations for intermediate facilities:

The intermediate facilities should allow for feeding of unweaned animals with milk or milk replacer at regular intervals.

Transport on foot (transhumance)

In many parts of the world, animals are often moved on foot. This can be an everyday activity for pastoral animals or can be seasonal, when animals are moved from one pasture to another, which may be in spring and summer (i.e. transhumance), or it can also be a way for animals to be moved for selling or slaughter purposes where other means of transport are not available.

Irrespective of the purpose or the frequency of these movements, the welfare of those animals moved on foot should be protected.

1) Animal Welfare Concerns

Animals may be exposed to several *hazards to animal welfare* when moving on foot, including:

- a) failure to identify fitness for transport and consequently allowing unfit animals to walk over long distances;
- b) exposure to extreme weather conditions;
- c) fatigue or exhaustion;
- d) difficult or challenging terrain;
- e) lack of feed or water access over long distances;
- f) inappropriate feeding, resting and milking facilities;
- g) lack of veterinary care due to remote locations;
- h) predation;
- i) inappropriate use of *veterinary medicinal products*;
- j) prolonged *journey* duration;
- k) inappropriate handling;
- l) failure to identify animals that become unfit during transport;
- m) animals being overloaded with cargo.

2) Animal-Based and Other Measures

Animal-based measures include:

- a) *distress* vocalisation;
- b) signs of heat or cold stress;
- c) signs of fatigue or exhaustion;
- d) thirst and hunger behaviours;
- e) feed and water intake;
- f) poor body condition or signs of dehydration;
- g) falling frequency and balance loss events;
- h) lameness, injuries or bruising;
- i) morbidity or mortality.

Other measures include:

- a) availability of food and water;
- b) distance walked;
- c) presence of shelter, feeders and drinkers along the route.

3) Recommendations

- a) The *journey* should be planned to provide access to feed, water and shelter in accordance with Articles 7.2.11 and 7.2.16..
- b) The *journey* duration should be kept to a minimum depending on the species-specific ability to walk and carry goods.
- c) Only fit animals should be moved, and vulnerable animals that may have a reduced ability to cope with the stressors of transport should not be allowed to be moved on foot.
- d) Milking devices should be available along the route to correspond to the needs of the animals.
- e) Animals should be monitored regularly for fatigue, *distress* and injuries.
- f) Measures should be in place to protect animals from predators.

Article 7.2.21.

Actions in the event of a refusal to allow the completion of the journey on an international transport journey

The welfare of the animals should be the first consideration in the event of a refusal to import.

When animals have been refused import for reasons other than sanitary, the *Veterinary Authority* of the importing country should communicate officially without delay the reasons for their refusal to the *Veterinary Authority* of the exporting country and transit countries. The *Veterinary Authority* of the importing country should make available suitable isolation facilities to allow the *unloading* of animals from a *means of transport* and their secure holding under official control and considering their welfare, pending resolution of the situation. In the event that the animals cannot be unloaded and remain on the *means of transport*:

- a) the *Veterinary Authority* of the importing country should allow providing the *means of transport* with water, feed and appropriate care of the animals, as necessary.
 - b) the *Veterinary Authorities* of the exporting and importing countries should make contact with all the involved parties to take immediate action to solve the emergency through the contingency plan designed for this purpose.
 - c) ensuring proper animal care, taking immediate action through a contingency plan, and establish a communication mechanism among the relevant authorities to coordinate an appropriate solution to the importation rejection.
 - d) if no timely solution is found and the welfare of the animals can no longer be ensured, animals should be killed without delay in accordance with Chapter 7.6. Killing of animals for purposes other than slaughter.
-

References

- CHAR (Canada Health of Animals Regulations). (2023) Part XII. Transport of Animals. Published by the Minister of Justice at the following address: <http://laws-lois.justice.gc.ca>
- Consortium of the Animal Transport Guides Project. (2017-rev1; revision May 2018). Guide to good practices for the transport of cattle. Available from: <https://op.europa.eu/en/publication-detail/-/publication/f452d88b-7ebd-11ea-aea8-01aa75ed71a1/language-en>
- Consortium of the Animal Transport Guides Project. (2017-rev1; revision May 2018). Guide to good practices for the transport of horses destined for slaughter. Available from: https://food.ec.europa.eu/document/download/5b6c685e-fd01-4b08-bd74-76a9e8092c8b_en?filename=aw_awp_transport-guides_equine_transport-good-practices_en.pdf
- Consortium of the Animal Transport Guides Project. (2017-rev1; revision May 2018). Guide to good practices for the transport of sheep. Available from: https://food.ec.europa.eu/document/download/1145d52d-3673-457c-821a-f2bc91869549_en?filename=aw_awp_transport-guides_sheep_transport-good-practices_en.pdf
- Consortium of the Animal Transport Guides Project (2017-rev1). Revision May 2018 'Guide to good practices for the transport of pigs: Available from: https://food.ec.europa.eu/document/download/74387586-9cf4-44f2-a6bf-1d897f12a8c8_en?filename=aw_awp_transport-guides_good-practices-pigs_en.pdf
- Dai, F., Dalla Costa, A., Bonfanti, L., Caucchi, C., Di Martino, G., Lucarelli, R.,... & Minero, M. (2019). Positive reinforcement-based training for self-loading of meat horses reduces loading time and stress-related behavior. *Frontiers in Veterinary Science*, 6, 350.
- Dai, F., Mazzola, S., Cannas, S., Heinzl, E. U. L., Padalino, B., Minero, M., & Dalla Costa, E. (2020). Habituation to transport helps reducing stress-related behavior in donkeys during loading. *Frontiers in Veterinary Science*, 7, 593138.
- Dai, F., Toson, M., Bertotto, D., Dalla Costa, A., Heinzl, E. U. L., Lega, F.,... & Di Martino, G. (2025). Transportation to the Slaughterhouse: Can Training Reduce the Stress Response in Horses?. *Veterinary Sciences*, 12(6), 547.
- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). (2022). Welfare of cattle during transport. *EFSA Journal* 2022;20(9):7442, 121 pp. Available from: <https://doi.org/10.2903/j.efsa.2022.7442>
- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). (2022). Welfare of domestic birds and rabbits transported in containers. *EFSA Journal* 2022;20(9):7441, 188 pp. Available from: <https://doi.org/10.2903/j.efsa.2022.7441>
- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). (2022). Welfare of equidae during transport. *EFSA Journal* 2022;20(9):7444, 113 pp. Available from: <https://doi.org/10.2903/j.efsa.2022.7444>
- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). (2022). Welfare of pigs during transport. *EFSA Journal* 2022;20(9):7445, 108 pp. Available from: <https://doi.org/10.2903/j.efsa.2022.7445>
- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). (2022). Welfare of small ruminants during transport. *EFSA Journal* 2022;20(9):7404, 101 pp. Available from: <https://doi.org/10.2903/j.efsa.2022.7404>
- FAWAC (Farm Animal Welfare Advisory Council). (2007). Best practice for the welfare of animals during transport. Available from: <http://www.fawac.ie/media/fawac/content/publications/animalwelfare/BestPracticeWelfareAnimalsTransport.pdf>
- Fisher A, Matthews L. (2001) The social behaviour of sheep. In: Keeling LJ and Gonyou HW (ed.). *Social Behaviour in Farm Animals*. CABI International, Wallingford, Oxfordshire, UK, pp. 211–245.
- Jones T, Waitt C, Dawkins M. (2010) Sheep lose balance, slip and fall less when loosely packed in transit where they stand close to but not touching their neighbours. *Applied Animal Behaviour Science*, Volume 123, Issues 1–2, 2010, pp 16-23, Available from: <https://doi.org/10.1016/j.applanim.2009.12.006>

Masebo, NT, Padalino B, How to apply positive reinforcement-based training for self-loading and self-unloading in dromedary camels, JOVE, in revision

Petherick JC and Phillips CJC, (2009). Space allowances for confined livestock and their determination from allometric principles. *Applied Animal Behaviour Science*, 117, 1–12. Available from: <https://doi.org/10.1016/j.applanim.2008.09.008>

SCAHAW (Scientific Committee on Animal Health and Animal Welfare), 2002. The welfare of animals during transport. European Commission, Report of the Scientific Committee on Animal Health and Animal Welfare. 130 pp. Available from: https://food.ec.europa.eu/horizontal-topics/expert-groups/scientific-committees/scientific-committee-animal-health-and-animal-welfare-archive_en

CHAPTER 7.6.

ANIMAL WELFARE AT THE TIME OF KILLING FOR PURPOSES OTHER THAN SLAUGHTER

Article 7.6.1.

Introduction

Animals are killed for a variety of reasons, including those that may not make their transport for slaughter or the safe use of their products possible. Such reasons may include for contagious disease control, in cases where their welfare may be compromised due to of natural or man-made human-made disasters, when they are otherwise suffering from disease or injuries, for animal population control or for economic reasons. It is important to consider ensure that consider optimise their animal welfare concerns are managed during such killing for purposes other than slaughter this process within the practical constraint of the situation.

Article 7.6.2.

Scope

This chapter identifies hazards to animal welfare during killing for purposes other than slaughter and provides recommendations for the appropriate procedures for such killing. It provides animal-based and other measures to assess the level of welfare during the process and recommends appropriate remedial actions to be applied.

This chapter applies to the killing of domestic and captive wild ruminants, equids, birds, pigs, rabbits, camelids and mustelids for all purposes, except for slaughter which is covered by Chapter 7.5. Animal welfare during slaughter mammals and birds (hereafter animals). The number of animals killed is situation-dependent and may range from an individual to a large-scale population.

Killing of reptiles is covered by Chapter 7.14. Killing of reptiles for their skin, meat and other products and killing of dogs for population management is are covered by Chapter 7.7. Dog population management and Killing of animals used in research and education is covered by Chapter 7.8. The numbers of animals killed is situation dependent and could range from an individual to a large scale population.

This chapter should be read in conjunction with the guiding principles for *animal welfare* provided in Chapter 7.1.

Article 7.6.3.

General principles for the operations regarding the killing of animals

The decision as to whether to kill animals due to compromised welfare should not be delayed if there is any risk to the welfare of those animals. The recommendations in this Chapter are based on the premise that a decision to kill the animals has been made and they address the need to ensure ensure that consider the animal welfare concerns are managed prior to and during the killing process and until of the animals are dead of the animals until they are dead.

During decision making and prior to killing the animals, appropriate husbandry, especially supply of feed and water and thermal comfort, should be maintained until the animals are killed. Medical care should be provided if needed in situations where there is an unavoidable delay before killing if needed.

Advanced planning for various scenarios, including adverse events and large scale killing, should clearly identify operational procedures and responsibilities.

For large scale killing, specific planning and preparedness should be in place.

The decision as to whether to kill animals should not be delayed if their welfare is compromised. The decision maker should be clearly identified beforehand to ensure there is no delay in decision making is not delayed.

All personnel involved in the killing of animals should have the relevant skills and competencies, acquired through training or experience.

As necessary, operational procedures The selected method and associated operational procedures should be evidence-based adapted to the species and specific circumstances in the affected locations or on the premises and they should address, apart from animal welfare, resources requirements the cost, the effectiveness, and the speed of implementation of the method, operators' safety and mental health, biosecurity and environmental aspects relevant to the species.

During decision making and prior to killing the animals, normal husbandry, especially supply of feed and water, should be maintained until the animals are killed.

Animals might be killed on site or moved to a dedicated place for killing. The handling and movement of animals should be minimised and carried out in accordance with the recommendations described below.

When restraint is required Animal restraint it should be sufficient to facilitate effective killing, and in accordance with animal welfare and operator safety requirements. When restraint is required, and killing should follow without minimal delay. The type and size of restraint deployed should be appropriate for the age, size and species of animal to be killed. When herding or corralling is applied, a low-stress method using appropriate apparatus to facilitate the safe and effective killing of animals should be used.

Wherever possible the witnessing of killing animals and dead animals by other animals should be avoided.

Killing methods used should result in immediate death or loss of consciousness lasting until death. When loss of consciousness is not immediate, induction of unconsciousness should involve as little aversion as possible and should not cause avoidable distress, fear and pain. A backup procedure method should be available and used to kill the animal immediately if the first method does not result in death or unconsciousness within the expected time frame.

Young animals should be killed before older animals on which they are dependent to reduce potential distress.

Planning should take into account the order in which animals are killed. Where possible higher risk or vulnerable animals should be killed as a matter of priority, which may include:

- groups with symptomatic animals showing signs of disease.
- animals suffering the highest levels of pain or injury.
- animals that are unable to obtain access feed or water.
- animals that have compromised housing or are without shelter.
- young [REF] or unweaned animals that should be killed before older animals on which they are dependent.
- potentially dangerous or aggressive animals, such as bulls, sows with litters, or boars.
- animals in the late stage of pregnancy or in parturition, and
- animals in-utero may should need to be humanely killed following the killing of the dam if the amniotic sac is ruptured and foetal viability is apparent.

For disease control purposes and for biosecurity considerations, infected animals should be killed first, followed by in-contact animals, and then remaining animals.

There should be continuous monitoring of the operational procedures and corrective actions to ensure they are consistently effective regarding animal welfare, operator safety and mental health and, biosecurity and environmental aspects.

When large scale or disease control, the killing operational operations procedures are concluded, there should be a debriefing session or written report describing the practices adopted and their effect on animal welfare, operator safety and welfare wellbeing, biosecurity and environment, responsible personnel including any recommendations for improvement.

Article 7.6.4.

Organisational structure for the operations regarding the of large scale killing or killing for disease control of animals

Plans for large scale killing or killing for disease control should contain details of responsibilities, management structure, contact details, disease control strategies, operational procedures and necessary equipment and resources. Animal welfare considerations should always be addressed as a priority in these plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the killing of animals is available.

The personnel responsible for the handling, moving, restraining and killing the animals should follow the recommendations of this chapter.

In case of disease control or other large scale killing, Operational activities should be led by the Competent authority Authority who has the authority to ensure the required animal welfare and biosecurity standards are met. In situations that do not necessarily involve the Competent Authority, the personnel responsible should follow the recommendations of this chapter.

The Competent authority Authority should nominate a responsible agent for all activities across one or more affected locations or premises who should be supported by coordinators for planning operations and logistics to facilitate efficient operations.

The nominated responsible agent of the Competent authority should provide overall guidance to personnel and logistic support for operations at all affected locations or premises to ensure consistency in adherence to the *Terrestrial Code's animal welfare* and animal health recommendations.

A specialist field team, led by a team leader answerable to the nominated responsible agent nominated by the Competent Authority, should be deployed to work on each affected location or premises. In some situations, When needed, personnel may be required to fulfil more than one function. Each team should contain a competent veterinarian or have access to veterinary advice at all times.

Emergency plans should be in place and contain details of responsibilities, management structure, disease control strategies, operational procedures and necessary equipment and resources. Animal welfare considerations should always be addressed in these emergency plans. The plans should include a strategy to ensure that an adequate number of personnel competent in the killing of animals is available.

Depopulation under disease control emergency plans should be performed under the supervision of The Competent Authority should address any animal welfare issues that may result from standstill or any other animal movement restrictions. This may involve welfare killing resulting from overcrowding or lack of access to feed or water.

In considering the *animal welfare* issues associated with *killing* animals, the key personnel, their responsibilities, and competencies required are described in Article 7.6.5.

Whenever animals are killed, for emergency or disease control purposes, the country's Competent Authority should be involved to protect animal welfare and biosecurity. In other situations that do not necessarily involve the Competent Authority, the personnel responsible should follow the recommendations of this chapter.

Article 7.6.5.

Responsibilities, training and competencies of the specialist team for the operations regarding the mass-killing operations of animals

All personnel have a crucial role to play in ensuring good animal welfare conditions through to leading up to and during the killing process and through to death. Training for all personnel should emphasise the importance of animal welfare and their responsibility in contributing to the welfare of the animals. Individuals may play more than one role or alternate roles as required.

Competencies may be gained through a combination of formal training and practical experience. These competencies should be assessed, when relevant, by the Competent Authority or by an independent body recognised by the Competent Authority

1. Team leader

a) Responsibilities

- i) plan overall operations on affected location or premises;
- ii) determine, ~~and~~ address ~~and monitor~~ requirements for *animal welfare*, operator safety and *biosecurity*;
- iii) organise and manage team of people to facilitate *killing* of the relevant animals on the location or premises in accordance with national regulations and these recommendations;
- ~~(iii)iv)~~ determine logistics required;
- ~~v)~~ ~~monitor operations to ensure animal welfare, operator safety and biosecurity requirements are met;~~
- ~~vi)~~ seek and use veterinary advice;
- ~~vii)~~ report upwards on progress and problems;
- viii) provide a written report ~~or debrief~~ at the conclusion of the *killing* operation, describing the practices adopted and their effect on *animal welfare*, operator safety, efficacy of *biosecurity* and environmental impact.

b) Training and cCompetencies

- i) ~~knowledge~~ understanding of and experience with relevant animal husbandry practices;
- ii) ~~knowledge~~ understanding of animal welfare, impact of, different killing methods, and the details, planning and implementation of the killing operation, and the underpinning behavioural, anatomical and physiological processes involved in the killing operation;
- iii) leadership and ability to skills to manage all activities on the location or premises ~~and deliver outcomes on time;~~
- iv) awareness of psychological effects on farmer, team members or person(s) in charge of animals [AVMA, 2019], and general public;
- ~~iv) v)~~ awareness of fatigue effects on those carrying out repeated killing of large numbers of animals and on the effectiveness of the procedure [AVMA, 2019];
- ~~iv) vi)~~ ability to communicate effectively with different audiences communication skills;
- ~~vi) vii)~~ capacity to evaluate the environmental impacts caused by their operation.

2. Veterinarian

a) Responsibilities

- i) advise on ~~determine~~ and supervise the implementation of the most appropriate *killing* method to ensure that animals are killed with minimal without avoidable pain and distress minimising pain, fear and suffering;
- ii) determine and implement any necessary ~~the~~ additional requirements for *animal welfare*, including the order of *killing*;
- iii) ensure that confirmation of the *death* of the animals is carried out by competent persons as soon as possible at appropriate times after the *killing* procedure;

- iv) minimise the risk of disease spread within and from the location or premises through the supervision of *biosecurity*;
 - v) ~~continuously monitor~~ ensuring ensure *animal welfare* and *biosecurity* during the killing process;
 - vi) collaborate with the team leader on the written report or debrief at the conclusion of the *killing*.
- b) Training and cCompetencies
- i) understanding of ability to assess animal welfare and ability to assess it;
 - ii) Understanding knowledge of especially the effectiveness of the killing process and the ability to correct any deficiencies;
 - iii) knowledge of the different killing methods and their impacts on animal welfare, and the underlying anatomy, physiological and behavioural processes involved in the killing operation.
 - iv) ability to assess *biosecurity* risks.
3. Animal handlers
- a) Responsibilities
- i) review on-site facilities in terms of their for appropriateness;
 - ii) design temporary animal handling facilities, when required;
 - iii) move and restrain animals;
 - iv) report *animal welfare* and *biosecurity* issues to the *veterinarian*.
- b) Training and cCompetencies
- i) understand the species-specific behavioural patterns of the animals they are working with and the underlying principles and techniques for carrying out the required tasks including restraint.
 - ii) animal handling in emergency situations and in close confinement is required; capable to of identifying signs of distress, fear, and pain and to take preventive and corrective actions;
 - iii) understanding of *biosecurity*.
4. Personnel in charge of killing animals
- a) Responsibilities
- i) *killing* of the animals using an appropriate method;
 - ii) when applicable confirm the unconsciousness of the animals;
 - iii) confirm the death of the animals.
- b) Training and cCompetencies
- i) Safely and correctly use and maintenance of relevant equipment;
 - ii) Operate familiarity with the techniques of restraining and killing equipment for the species involved;
 - iii) knowledge ability to assess effective killing, to recognize signs of recovery of consciousness, and the skill to take immediate corrective action.
5. Personnel in charge of disposal of dead animals

- a) Responsibilities
 - i) ~~An ensuring efficient dead animal disposal so that (to ensure killing operations are not hindered) should be ensured~~
 - ii) ~~understanding of biosecurity and ensuring compliance with Chapter 4.13~~
 - b) ~~Training and Competencies~~
 - i) ~~The personnel should be competent to safely use and maintain available equipment and apply techniques for the species involved.;~~
 - ii) ~~Recognise signs of life.~~
5. Breeder, owner, farmer or keeper or manager
- a) Responsibilities
 - i) assist when requested.
 - b) Training and Competencies
 - i) specific knowledge of ~~his/her~~ the animals that are they are responsible for and their environment premises.

Article 7.6.6.

Considerations in the planning of the operations regarding the mass large scale killing of animals

Many activities will need are to be conducted on affected locations or premises, including the *killing* of animals. The team leader should develop a plan and prepare for large scale killing of animals on the location or premises which should include consideration of:

- a) minimising handling, restraint and movement of animals;
- b) *killing* the animals on the affected locations or premises; however, there may be circumstances where the animals may need to be are moved to another location for *killing*; when the *killing* is conducted at a *slaughterhouse/abattoir*, the recommendations in Chapter 7.5. should be followed;
- c) the species, number, age and size of animals to be killed, and the order of *killing* them, ensuring animals at higher risk of suffering or spreading disease are prioritized in the order of killing;
- d) killing methods, and their resource requirements of killing the animals, and their cost;
- e) available resources, funding, including cost, staff numbers, required competencies and training needs, and any other practical elements;
- f) description of the process and criteria to assessment of state of unconsciousness and signs of life and confirmation of death;
- g) housing, husbandry, location of the animals as well as accessibility of ~~the farm~~ or the place they are situated;
- h) the availability and effectiveness of equipment needed for *killing* of the animals, as well as the time necessary to kill the required number of animals using such methods;
- i) the availability on the locations or premises of facilities that will be used to assist with the *killing*, and the necessity of any additional facilities;
- j) potential *biosecurity* and environmental impact of the operations;
- k) the health and safety of personnel conducting the *killing*;
- l) ~~any legal issues that may be involved, for example where restricted veterinary drugs may be used, or where the process may impact on the environment~~;

- m) the presence of other nearby premises holding animals;
- n) possibilities for removal and disposal of dead animals.

The plan should ensure minimise the negative animal welfare impacts of at the time of killing by taking into account the different phases of the procedures to be applied for killing including handling, restraint, killing method, confirmation of death and backup methods.

Competences and skills of the personnel handling and killing animals should be included in the operational plan.

Article 7.6.7.

Hazards to animal welfare

For the purpose of this chapter, *hazards to animal welfare* means a factor with the potential to adversely affect animal welfare.

When killing animals, they may be exposed to different *hazards to animal welfare* hazards including improper restraining restraint, rough handling, forced movement, absence of or improper design of premises, inadequate construction and maintenance of premises, witnessing other animals being killed, dying or dead, improper use of equipment, adverse weather conditions, unexpected loud noise and ineffective potentially aversive or ineffective killing methods.

Exposure to multiple hazards to animal welfare can have a negative cumulative effect on the animals animal welfare [Moberg and Mench, 2000].

Hazards to animal welfare can be minimised by appropriate design of premises, handling and restraint, and choice of equipment, and method of killing method and through good management, training and competency of personnel.

Article 7.6.8.

Measures to assess animal welfare at the time of killing for purposes other than slaughter

Hazards to aAnimal welfare at the time of killing for purposes other than slaughter should be assessed using animal-based measures. However, consideration should be given to the resources provided as well as the design and management of the method.

Measures to assess welfare during handling and restraint in Chapter 7.5 are applicable to this chapter.

These aAnimal-based measures should be routinely used in the monitoring of the state of consciousness and death, with the most appropriate to be used in relation based on to the killing method applied and resources available.

1. The following animal-based measures can be useful indicators of animal welfare. These measures can be considered as tools to monitor the effectiveness of the loss of consciousness and confirmation of death efficiency of design and management, given that they can affect animal welfare. It may be useful to use mMultiple indicators should be used to determine effectiveness of the method.

a) Immediate collapse

Effective stunning loss Loss of consciousness can be recognised from the immediate loss of posture leading to collapse of the animal. Ineffectively stunned Conscious animals, on the other hand, will fail to collapse or will attempt to regain posture after collapse. Some ineffectively stunned animals, may occur, for example, if captive bolt shooting position is wrong or electrically immobilised animals lose posture, but remain conscious. The absence of immediate collapse is always indicative of consciousness.

b) Tonic-clonic seizures

Effective ~~electrical and in some cases captive bolt methods stunning often~~ result in the presence of tonic-clonic seizures. Tonic seizures can be recognised by an arched back and rigidly flexed legs under the body and will last for several seconds. It is followed by clonic seizures lasting for seconds and manifested as leg kicking or paddling. The absence of tonic-clonic seizures may be indicative of consciousness [Van der Wal, 1971].

a) Righting reflex [Atkinson et al, 2013; Terlow et al, 2016]

~~The righting reflex refers to any reflex that tends to bring the body into its normal upright position. Ineffectively For example effectively stunned killed animals and those recovering consciousness will not attempt to raise their heads or shake their heads after stunning, which is referred to as righting reflex.~~

c) Absence of rhythmic breathing [Atkinson et al, 2013; Kamenik et al, 2019, Vecerek et al, 2020]

Effective ~~stunning killing~~ will result in ~~immediate~~ onset of apnoea (absence of breathing). ~~Ineffectively stunned killed animals and those recovering consciousness will start rhythmic breathe breathing in a pattern commonly referred to as rhythmic breathing,~~ which may begin as gagging and lead to respiratory cycles of ~~inspiration inhalation~~ and ~~expiration exhalation~~. Breathing can be recognised from the regular flank, ~~abdominal,~~ and/or mouth and nostril movements. ~~Recovery of Bbreathing, if not visible through these movements, can also be checked by holding a small mirror in front of the nostrils or mouth and checking for condensation to look for the appearance of condensation due to expiration exhalation of moist air. Rhythmic breathing is not to be confused with agonal breaths.~~

d) Corneal reflex:

The corneal reflex is elicited by touching or tapping the cornea ~~and checking for a blink response, which will be absent in effectively killed animals. Ineffectively stunned Conscious animals and those recovering consciousness will blink in response to the stimulus. Effectively stunned killed and stuck (bled) animals show the absence of the corneal reflex during any key stage. On the other hand, ineffectively or poorly stunned animals and those recovering consciousness prior to sticking or during bleeding are expected to show the presence of the corneal reflex at any key stage. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid.~~

e) Palpebral reflex

The palpebral reflex is elicited by touching or tapping a finger on the inner/outer eye canthus or eyelashes ~~and checking for a blink response, which will be absent in effectively killed animals. Correctly stunned animals will not show a palpebral reflex. Ineffectively stunned Conscious animals and those recovering consciousness will blink in response to the stimulus at any key stage. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid. Effectively killed animals will not show a palpebral reflex.~~

f) Eye movement

Eye movements and the position of the eyeball can be recognised from close examination of eyes after stunning. ~~Conscious animals and those recovering consciousness will show eye movements. Correctly stunned Effectively killed animals will show fixed eyes, and this can be recognised from wide open and glassy eyes with clearly visible iris/cornea in the middle. Eyeballs may be obscured in some animals owing to rotation into the eye socket following effective stunning. Ineffectively stunned Conscious animals and those recovering consciousness will show eye movements [EFSA AHAW Panel, 2013, Kamenik et al, 2019]~~

2. The following animal-based measures can be used as indicators of consciousness, ~~but their absence does not necessarily but are not sensible to~~ indicate unconsciousness. Therefore, they can be used in addition to the previously mentioned animal-based measures:

b) Response to painful stimuli

Poor stunning can be recognised from the response to painful stimulus. The absence of response to a painful stimulus indicates unconsciousness following stunning. [Terlow et al, 2016; Kamenik et al, 2018]

a)-b) Spontaneous blinking

Conscious animals may show spontaneous blinking resulting from and therefore this sign can be used to recognise ineffective stunning-killing or recovery of consciousness after stunning. However, not all the conscious animals may show spontaneous blinking. Spontaneous blinking can be used as an indicator at all key stages of monitoring. It is worth noting that placement of electrical stunning tongs (electrodes) over the eyes of animals may render this indicator invalid. [Gregory et al, 2007; Terlouw et al, 2016, Kamenik et al, 2018]

b)-c) Vocalisation

Vocalisation indicates consciousness but is expected only in conscious animals and can be used as an indicator in all key stages of monitoring. However, not all conscious animals will vocalise, and hence the absence of vocalisation does not always mean that the animal is unconscious. [Atkinson et al, 2013; Kamenik et al., 2018]

c) Righting reflex [Atkinson et al, 2013; Terlow et al, 2016]

The righting reflex refers to any reflex that tends to bring restore the body into its normal upright position. Ineffectively For example effectively stunned killed animals and those recovering consciousness will not attempt to raise their heads or shake their heads after stunning, which is referred to as a lack of righting reflex, animals that are effectively stunned or killed, as well as animals recovering consciousness, will not attempt to raise or shake their heads after stunning; such movements are indicators of the righting reflex.

3. The A combination of the following animal-based measures can be used as the confirmation to confirm death of death before carcass disposal:

a) Muscle tone

Immediately after killing, dead animals will lose muscle tone, which can be recognized from the completely relaxed head, legs, floppy ears, or drooping wings relaxed tongue and relaxed jaws.

a) Heartbeat

Onset of death leads to permanent loss of heartbeat, which can be ascertained physically by using a stethoscope or by heart or arterial palpation (checking for a pulse), where possible. [Vogel et al., 2011] A pulse can be checked in suitable animals by a skilled operator commonly using a finger held lightly at the jugular (neck) or femoral (groin) area but is more difficult and less reliable compared to use of a stethoscope.

b) Dilated pupils

Fixed and dilated pupils (mydriasis) are an indication of death.

Article 7.6.9.

Handling of animals

Handling is the process of preparation of the animals for killing, and may include moving them to the killing point. Handling and moving can be stressful to animals, especially when they are isolated out of their primary home area or from their group. [Gavinelli et al. ,2014].

1. Animal welfare concerns

Exposure to novel environments circumstances (e.g. noise, lighting, flooring, smell) may cause fear and reluctance to move, or turning back. Poorly designed facilities and inappropriate handling (e.g. inappropriate use of electrical goads, kicking, hitting with a stick), catching, herding and restraining animals, will cause *distress*, fear and *pain*.

2. Animal-based and other measures:

- a) animals slipping, falling and piling up;
- b) animals turning around or moving backwards, attempting to escape or reluctant to move;
- c) animals vocalising;
- d) animals that collide with facility structures;
- e) animals with broken or otherwise injured limbs;
- f) animals that are unable to move by themselves due to reasons other than broken or injured limbs;
- g) use of force by personnel;
- h) inappropriate use of electrical goads driving handling aids.

3. Recommendations

The Design of the facilities should promote the natural movements of animals, and, as far as possible, minimise human animal interaction.

Floor should be clean, dry and not slippery.

Raceways should be well lit so that animals can see where they are going.

The design of raceways should minimise distractions that may cause animals to stop, baulk or turn back (e.g. shadows, changes in flooring, moving objects, loud or sudden noises).

Animals that are injured, sick or unable to rise require immediate action and, when necessary, emergency *killing* should be performed without moving them and without delay. Animals should not be dragged, nor should they be lifted or handled in a way that might cause further *pain* and suffering or exacerbate injuries.

Personnel should be calm and patient, assisting animals to move using a soft voice and slow movements.

Animals should be moved in groups as this decreases fear and makes use of their natural tendency to follow other animals.

Handling aids such as panels or flags should be used in a manner to encourage and direct movement of the animals without causing *distress*, fear or *pain*.

Electric goads should not be used, except in extremely rare circumstances where the safety of human handlers or other animals is at risk and there is no other option routinely, but only when other measures have been ineffective, or the animal has no injury or other condition and there is room for the animal to move forward.

Only low-voltage goads should be applied to the hindquarters of adult pigs and large ruminants, and never to sensitive areas such as the eyes, mouth, ears, ano-genital region, udders or belly. Such instruments should not be used on equids, camelids, ratites, sheep and goats, pregnant animals or on calves or piglets. Shocks should not be used repeatedly if the animal fails to respond and should not last longer than one second.

The manual lifting of animals should be avoided; if it is necessary, animals should not be grasped or lifted in a manner which causes *pain* or suffering and physical damage (e.g. bruising, fractures, dislocations).

Animals should not be forced to move at a speed greater than their normal walking pace to minimise injury through slipping or falling.

Killing methods

The following killing methods are globally available and in use. The main purpose of this part of the chapter is to provide information as guidance with the appropriate selection of killing methods for particular situations, and ensure that where killing methods are in use that they are undertaken in a manner that ensures that optimises consider animal welfare concerns are managed.

For each killing method the suitable animal species, a description of the killing method and its use in animal those species, animal welfare concerns, identification of animal-based and other welfare measures, recommendations for effective use to optimise ensure consider welfare, and any species-specific recommendations are presented in Articles 7.6.11. to 7.6.32.

Standard operating procedures should be in place that define key operating parameters and follow the manufacturer's recommendations for stunning or and killing.

For the purposes of this chapter:

A primary killing method is intended to cause death as a standalone procedure. While it should be sufficient on its own, a backup or alternative method may be required if the primary method fails to result in rapid death.

A secondary killing method is used as a the final step of a two-stage process. It is applied after the animal has already been rendered unconscious by an initial stunning method. The secondary method is considered a terminal procedure. While it should be sufficient on its own to cause rapid death of an animal, a backup or alternative method may be required if the method fails to result in rapid death it fails to do so.

The killing methods covered are divided into two broad categories. Manual, individual killing methods which involve a human operator or operators manually performing a killing procedure on individual animals (Articles 7.6.11. to 7.6.22.); and automated large scale killing methods which involve automated procedures for large scale killing of many animals either sequentially (e.g. water baths) or simultaneously (e.g. atmospheric modification) (Articles 7.6.23. to 7.6.32).

Firearms

The method is suitable for all species covered by this chapter.

Firearms that fire free projectiles such as a shotgun, rifle, or handgun can provide a quick and effective primary killing method for killing when used properly. They require minimal or no restraint of the animals and can be used to kill from a distance by properly trained and competent marksmen or markswomen markspersons.

A firearm can be used from long range and may be aimed to penetrate the skull or soft tissue at the top of the neck of the animals (high neck shot) and to cause irreversible concussion and resulting in immediate death. and should only be used by properly trained and competent marksmen. The firearm may also be aimed to penetrate the thoracic cavity and heart causing respiratory and heart failure and death. Firearms should only be used by properly trained, and where applicable, licensed competent markspersons.

1. Animal welfare concerns

This method has the potential for non-lethal wounding of the target animal and lethal or non-lethal wounding of non-target animals. This may occur because of inappropriate cartridge, calibre or type of bullet or incorrect shooting position.

2. Animal-based and other measures

Animal-based measures of an effective shot include [HSA, 2016b]:

- a) immediate collapse;
- b) apnoea;

c) carcass appearance (tonic or relaxed);

~~d) duration of convulsions~~

d) absence of eye movement;

e) ~~fixed and dilated pupils; glazed expression~~

f) absence of corneal reflex.

Other measures:

a) ~~percentage of missed shots.~~

3. Recommendations

~~The method is suitable for all species covered by this chapter~~

Firearms and ammunition should be selected based on the species and the distance to shoot the animals, ~~and the skill and familiarity level of the operator.~~ The correct cartridge, calibre and type of bullet for the different species age and size should be used. Firearms should be properly maintained.

~~Firearms are suitable for killing agitated animals in open spaces.~~

Firearms should not be used if trying to preserve ~~brain~~ tissue in the area targeted for diagnosis of diseases or when leakage of body fluids may present a biosecurity risk.

Training is essential for ensuring effective killing with firearms. This training ~~must~~ should include approaches that ensure skilled ~~marksmanship~~ markspersonship; an understanding of safety principles, animal anatomy, animal behaviour; animal handling; use of appropriate combinations of firearms and bullets for the intended purpose; and appropriate judgment under field conditions.

At short range, the ~~marksman or markswoman~~ marksperson should ensure that the animal is not moving and in the correct position to enable accurate targeting and the range should be as short as possible (5–50 cm for a shotgun) but the barrel should not be in contact with the head or other part of the animals.

Animals that are not killed by the initial shot, should be re-shot or killed by a backup method immediately.

~~The method is suitable for all species covered by this chapter.~~

4. Species-specific recommendations

None identified.

Article 7.6.12.

Penetrating captive bolt

The method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits and captive wild animals.

The aim of this method is to produce a state of unconsciousness and cause severe damage to the brain by the impact and penetration of a captive bolt using a mechanical device. The captive bolt should be positioned on the skull to penetrate the cortex and mid-brain of the animal. The force of impact and the physical damage caused by the passage of the bolt should result in immediate unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death; however, a secondary intervention killing method such as pithing, bleeding or lethal injection may be required and if so should be performed as soon as possible after the shot to ensure the death of the animal.

A penetrating captive bolt is fired from a gun device powered by either compressed air or a blank cartridge, designed to fire a retractable metal bolt into the animal's cranium. The bolt should be recessed into the body of the pistol to get the proper velocity required to penetrate the skull of the animal.

1. Animal welfare concerns

An incorrect shooting position caused by poor restraint or incorrect captive bolt parameters (not hitting the skull with sufficient force) may leave the animal conscious, will mis-stun the animal, leaving it conscious and leading to serious wounds and consequently distress, fear and pain.

Regaining of consciousness before death due to delay in applying the secondary intervention killing method.

2. Animal-based and other measures

Animal-based measures of an effective shot include:

- a) immediate collapse;
- b) apnoea;
- c) tonic seizures;
- d) absence of eye movement;
- e) absence of corneal reflex;
- f) absence of palpebral reflex;
- g) absence of righting reflex;
- h) loss of muscle tone.

3. Recommendations

The method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits and captive wild animals.

For cartridge powered and compressed air guns devices, the bolt velocity, cartridge power load and the length of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer.

Captive bolt guns devices should be frequently cleaned and maintained in good working condition. Regular check-up (e.g. daily during ongoing use) of the bolt velocity is recommended for effective stunning, operator safety, and improved animal welfare.

More than one gun device may be necessary to avoid overheating with repeated use, and a back-up gun device should be available in the event of an ineffective shot.

Animals should be restrained and the operator should ensure that the head of the animal is accessible. The method is difficult to apply in agitated animals.

Proper positioning of the captive bolt equipment is required as incorrect positioning causes inefficient stunning leading to pain and distress in animals.

Animal-based measures should be monitored continuously after application until *death* to ensure the absence of brain stem reflexes.

Suitable training and experience of operators in the application of captive bolt pistol, ergonomics and workload conditions should be considered for reducing fatigue in operators.

Penetrating captive bolt should not be used if preservation of brain tissue for diagnosis of diseases is needed or when leakage of body fluids may present a biosecurity risk.

The secondary killing method intervention should be performed without delay immediately after the shot to ensure the death of the animal.

The method is suitable for equids, camelids, cattle, sheep, goats, pigs, poultry, ratites, rabbits and captive wild animals.

4. Species-specific recommendations

The size of the skulls and the thickness of the skull bones should be taken into account when selecting parameters such as bolt diameter, bolt length and cartridge power in penetrative captive bolt stunning. It is essential to follow the manufacturer's recommendations for regarding the most appropriate cartridges for different animals. If where there is doubt, a more powerful charge should be used.

Heavily horned animals should be stunned with penetrative captive bolt in the occipital position using a heavy-duty contact fired captive bolt gun directed forward at the nose.

In new world camelids and hornless sheep and goats, the device should be placed at the crown position (highest point on the head) aiming downward to the base of the jaw [AVMA, 2020].

In turkeys the placement of the device should be directly on the midline of the skull and at the highest/widest point of the head with the captive bolt aimed directly down toward the brain.

In chickens (and poultry with comb development) the placement should be directly behind the comb and on the midline of the skull with the captive bolt aimed directly down.

In ratites a device with a short penetrating bolt and the smallest charge appropriate for poultry or rabbits should be applied to the top of the head at the midpoint of an imaginary line between the outer "ear" openings.

Article 7.6.13.

Pithing

Pithing is not a standalone killing or stunning method, it's it is a secondary killing method of killing animals which have that should be use after whereby been stunned by a penetrating captive bolt has been applied, without immediate death. Therefore it is suitable for the same species as the penetrating captive bolt.

Pithing physically disrupts the central nervous system by the insertion of a flexible rod. The rod can be inserted caudally through the brain stem and spinal cord following stunning by the application of a penetrative captive bolt or cranially through the spinal cord and brain stem following decapitation. Pithing can be used as a primary killing method for animals which have been stunned by a penetrating captive bolt, without immediate death or as a secondary method to ensure rapid death.

1. Animal welfare concerns

Since pithing is not a primary killing method, but rather an adjunct secondary method, it doesn't does not have any welfare concerns of its own. However, it shares the welfare concerns of the primary method of killing or stunning.

Animals should be checked for unconsciousness before pithing takes place.

2. Animal-based and other measures

Absence of brain stem reflexes and other muscle movements (following initial violent muscle contractions) can be used to confirm successful pithing.

a) absence of breathing.

b) absence of corneal or palpebral reflex.

c) fixed and dilated pupils.

d) absence of muscle tone.

e) absence of heartbeat.

Heartbeat may continue for several minutes after effective pithing.

3. Recommendations

Pithing is an adjunct secondary killing method that can be used in conjunction with penetrative captive bolt stunning application or decapitation to ensure that an the animal does not regain consciousness before it dies, is dead (in the case of penetrative captive bolt stunning) or that an animal is no longer conscious (in the case of decapitation).

Pithing should not be used if trying to preserve when preserving brain tissue for diagnosis of diseases diagnosis or when leakage of body fluids may present pose a biosecurity risk.

4. Species-specific recommendations

The pithing rod selected must should be of a suitable size to be able to fit within the spinal canal of the animal.

Article 7.6.14.

Non-penetrating captive bolt ~~followed by a secondary killing method~~

This method is suitable for turkeys, chickens, ratites, rabbits, lambs, calves, goat kids and piglet

Non-penetrating captive bolt have has a 'mushroom headed bolt' which impacts the skull but does not enter the brain. It administers a blow to the animal's skull of sufficient force to render the animal immediately unconscious. The gun device should be placed on the front of the skull to deliver a percussive blow which produces instantaneous unconsciousness. A secondary intervention such as bleeding, cervical dislocation or lethal injection should be performed without delay after the shot to ensure the death of the animal. Physical damage to the brain caused by the bolt may result in death; however, a secondary intervention killing method such as bleeding or lethal injection may be required and should be performed carried out as soon as possible.

1. Animal welfare concerns

An incorrect shooting impact position or incorrect captive bolt parameters (not hitting the skull with sufficient force) will mis-stun fail to induce unconsciousness the animal, leaving it conscious and leading to serious wounds injuries and consequently distress, fear and pain.

Regaining of consciousness before death due to delay in applying the secondary intervention killing method.

2. Animal-based and other measures

Animal-based measures of an effective shot impact include:

- a) immediate collapse;
- b) apnoea;
- c) tonic seizures;
- d) absence of eye movement;
- e) absence of corneal reflex;
- f) absence of palpebral reflex;
- g) absence of righting reflex.

3. Recommendations

This method is suitable for turkeys, chickens, ratites, rabbits, lambs, calves, goat kids and piglets.

For cartridge powered and compressed air ~~guns-devices~~, the velocity and diameter of the bolt should be appropriate to the species and type of animal, in accordance with the recommendations of the manufacturer.

Non-penetrating captive bolt ~~guns-devices~~ should be frequently cleaned and maintained in good working condition. Regular check-up of the bolt velocity is ~~recommended-necessary~~ for effective stunning, operator safety, and improved animal welfare.

More than one ~~gun device~~ may be necessary to avoid overheating.

~~And a~~ back-up ~~gun device of a different kind~~ should be available in the event of an ineffective ~~shot impact~~.

Animals should be ~~adequately~~ restrained and the operator should ensure that the head of the animal is accessible. ~~The method is difficult to apply in agitated animals.~~

Proper positioning of the non-penetrating captive bolt equipment is required as incorrect positioning of the captive bolt causes inefficient stunning leading to pain and distress in animals.

Animal-based measures should be monitored continuously after application until death to ensure the absence of brain stem reflexes.

Suitable training and experience of operators in the application of non-penetrating captive bolt ~~pistol device~~ and ergonomics and workload conditions should be considered for reducing fatigue in operators.

The secondary ~~intervention killing method~~ should be performed ~~without delay immediately~~ after the shot to ensure the death of the animal.

~~This methods is suitable for turkeys, chickens, ratites, rabbits, lambs and goats kids (approximately up to 4.5 kg) and piglets (approximately up to 10.9 kg).~~

4. Species-specific recommendations

In turkeys the placement of the device should be directly on the midline of the skull and at the highest/widest point of the head with the captive bolt aimed directly down toward the brain.

In chickens (and poultry with comb development) the placement should be directly behind the comb and on the midline of the skull with the captive bolt aimed directly down.

In ratites a device with the ~~smallest~~ charge appropriate for poultry or rabbits should be applied to the top of the head at the midpoint of an imaginary line between the outer “ear” openings.

In rabbits the device should be placed in the ~~center centre~~ of the forehead, with the barrel in front of the ears and behind the eyes. ~~The device should be discharged twice in rapid succession at the pressure recommended for the age and size of the rabbit.~~

In lambs and goats kids ~~up to approximately 4.5 kg~~ the preferred shooting position is with the muzzle of the non-penetrating captive bolt on the midline behind the poll (e.g., between the ears) with the chin tucked into the neck.

In piglets, ~~a~~ non-penetrative captive bolt provides immediate and irreversible loss of consciousness and brain death ~~in piglets up to 10.9 kg~~ with a single application on the frontal-parietal position [Grist et al., 2017, 2018a].

Article 7.6.15.

Bleeding

~~This method can be applied in all species covered by this chapter.~~

Bleeding is a method of *killing* animals through the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to cerebral ischaemia and *death*. ~~Due to welfare and biosecurity concerns, it is not a preferred method where other options are available.~~

1. Animal welfare concerns

The process of *bleeding* **requires** **causes** significant tissue trauma and **this may will** be painful if the animal has not been rendered unconscious prior to the procedure [Gibson et al. 2009]. Consciousness may persist for periods of up to 20 or 60 seconds **or much longer in some instances** (depending on species) following blood vessel transection [Johnson et al. 2015]. Animals may experience fear, pain and *distress* during this period.

2. Animal-based and other measures

Animal-based and other measures that indicate loss of consciousness include all the following:

- a)** absence of muscle tone;
- b)** absence of corneal or palpebral reflex;
- c)** absence of rhythmic breathing.

Unconsciousness should be reassessed until death is confirmed. In addition, cessation of bleeding after a continuous and rapid blood flow can be used as an indicator of death.

3. Recommendations

This method can be applied in all species covered by this chapter.

Bleeding should only be used as a last resort in animals that are not already unconscious or can be rendered unconscious prior to severance of the blood vessels.

4. Species-specific recommendations

None identified.

Article 7.6.16.

Lethal injection

This method is most suitable for killing small numbers of dogs, cats, cattle, sheep, goats, pigs, equids, poultry, captive wildlife, but it can be used in all species.

Lethal injection is a **kill** **method** **procedure** that involves injecting one or more drugs into an animal to cause **rapid** death.

The animal is injected intravenously with a lethal dose of anaesthetic drugs and may also receive an initial injection of a sedative. In practice, barbiturates in combination with other drugs are commonly used. They induce a smooth transition from consciousness to unconsciousness and death by causing depression of the central nervous system and respiratory centres in the brain leading to cardiac arrest (Shearer, 2018).

The preferred route of administration is intravenous (HSA 18; AVMA, 2020), but in some cases it may be given **via other routes according to the manufacturers' instructions (e.g. intramuscularly, intracardially or intraperitoneally).**

1. Animal welfare concerns

If routes of administration are inappropriate, consciousness may not be lost rapidly before death, causing pain **and** fear **and distress**.

If doses of administration are **not correct inadequate** (sub-lethal), consciousness may not be lost rapidly **and the animal may not die before death**, causing **pain**, fear **and distress**.

Some combinations of drug type and route of administration may be painful and should only be used in unconscious animals.

During rapid injection, some drugs may cause pain, irritation and paralysis, which can cause the suppression of respiration while the animal is still conscious [EFSA, 2004].

Intracardiac administration can be extremely painful if penetration of the heart is not successful on the first attempt (EFSA, 2004).

Lethal injection for conscious animals requires restraint, which can cause distress.

Personnel lacking appropriate training and skills, or personnel suffering fatigue, or fractious animals unable to be properly restrained, may cause ineffective administration and be detrimental to animal welfare (Søren et al., 2020).

2. Animal-based and other measures

Each animal should be examined carefully to confirm loss of consciousness and death:

- a) Loss of posture,
- b) absence of rhythmic breathing,
- c) absence of heart beat auscultation,
- d) absence of corneal or palpebral reflex,
- e) vocalization
- e) fixed and dilated pupils
- f) and eyes movements.
- g) absence of brain stem reflexes.

3. Recommendations

This method can be applied in all species covered by this chapter.

The animal should may be sedated before the lethal injection to minimize minimise stress, if required.

Lethal injection should only be performed by a qualified veterinarian or under their direct supervision.

Personnel performing this method should be trained and knowledgeable in anaesthetic techniques and injectable techniques.

Personnel should be trained to use appropriate presentation handling and restraining of the animal techniques and skilled intravenous administration to avoid extravasation of the drug and to use the correct dose according to the species and the animal live weight.

Personnel should be trained to use appropriate restraint in case it is necessary.

Intravenous administration is preferred, but intraperitoneal or intramuscular administration may be appropriate, especially if the agent is non-irritating.

The intracardiac route may be used in previously anesthetized or very small animals only.

Examine individual animals. Animals should be examined for signs of consciousness or life and a backup killing method apply applied a secondary killing method as a corrective measure, by giving a lethal injection of an anaesthetic drug if they are conscious or a lethal substance to kill them in case they are still alive but unconscious [AVMA, 2020].

The carcass of an animal that has been killed by lethal injection has to be disposed of properly and cannot be used for human or animal consumption or where there may be a risk of this occurring of human or animal consumption because of the residual toxicity harmfulness of the used drugs.

4. Species-specific recommendations

None identified.

The method is suitable for killing individual or small numbers of dogs, cats, cattle, sheep, goats, pigs, equids and poultry, but it can be used in all species.

In some species like cattle, restraint may be necessary prior to injection, if possible, to allow effective administration.

Venous access can be difficult in very small or young animals or animals with low blood pressure taking considerable veterinary skill and experience.

Article 7.6.17.

Cervical dislocation

The method is suitable for small birds, poultry, mice, rats and rabbits [Walsh, 2017], and should preferably be used in unconscious animals.

Manual or mechanical cervical dislocation comprises stretching and dislocating twisting the neck, resulting in the separation-trauma to the of spinal cord from the brain and death from cerebral anoxia due to cessation of breathing or blood supply to the brain [AVMA, 2020].

1. Animal welfare concerns

Cervical dislocation even with separation of the spinal cord may fail to produce immediate loss of consciousness and in this case animals may die due to asphyxiation [Gregory and Wotton, 1990; Martin et al 2020].

For heavy rats and rabbits, the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult.

2. Animal-based and other measures

Animal-based measures of an effective application of cervical dislocation are signs of death.

a) absence of breathing;

b) absence of corneal and palpebral reflex;

c) fixed and dilated pupils;

d) absence of heart beat;

e) loss of muscle tone.

3. Recommendations

The method is suitable for small birds, poultry, mice, rats and rabbits [Walsh, 2017].

Only Preferably to be used in unconscious animals.

Consistent results when performing manual cervical dislocation requires strength and skill so team members should be rested regularly to avoid fatigue and ensure consistently reliable results.

Mechanical cervical dislocation is preferred to manual as is more reliable and less prone to failure.

Cervical dislocation should not involve by crushing of vertebrae and spinal cord should not be used.

Animals should be monitored continuously until death to ensure the absence of brain stem reflexes.

~~The method is suitable for small birds, poultry, mice, rats and rabbits.~~

4. Species-specific recommendations

~~For heavy rats and rabbits, the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult and therefore should be undertaken by skilled and experienced operator.~~

Manual cervical dislocation is applicable in birds weighing up to 3 kg and in rats up to 200 g

Mechanical cervical dislocation is applicable in birds weighing up to 5 kg.

~~None identified~~

Article 7.6.18.

Decapitation

~~This method can be used as a last resort for small mammals, such as rodents, as well as poultry.~~

Decapitation using a guillotine or knife results in death by cerebral ischaemia. ~~Due to welfare and biosecurity concerns, it is not a preferred method where other options are available.~~

1. Animal welfare concerns

The process of decapitation requires significant tissue trauma and this may be painful if the animal has not been rendered unconscious prior to the procedure [Kongara et al. 2014]. There is evidence that decapitation may not itself cause immediate loss of consciousness, which [Bates 2010] may persist in decapitated animals for as long as 30 seconds [Mikeska and Klemm 1975].

2. Animal-based and other measures

Successful decapitation completely separates the head from the rest of the body and can be confirmed by visual inspection.

3. Recommendations

Decapitation should only be used as a last resort in animals that are ~~not~~ already unconscious or can be rendered unconscious prior to decapitation.

~~Equipment used for decapitation should be of sufficient construction and sharpness to complete the procedure quickly and without undue force.~~

4. Species-specific recommendations

~~Equipment used for decapitation should be of sufficient construction and sharpness to complete the procedure quickly and without undue force.~~

~~None identified.~~

Article 7.6.19.

Electrical — two-stage application

~~This method is suitable for cattle, sheep, goats and pigs.~~

~~This method is suitable for chickens, turkeys, ducks, geese and rabbits when followed by a suitable secondary intervention killing method, such as bleeding.~~

A two-stage application of low frequency electric current (50 Hz) ~~comprises firstly is~~ an application of current to the head by scissor-type tongs that spans the brain, immediately followed by ~~either an the~~ application of ~~the~~ tongs across the chest in a position that spans the heart ~~or another secondary intervention killing method.~~

The application of sufficient electric current to the head will induce 'tonic-clonic' ~~epilepsy seizures~~ and unconsciousness. Once the animal is unconscious, the second stage will induce ventricular fibrillation (cardiac arrest) resulting in death.

1. Animal welfare concerns

The main *hazards* preventing effective electrical stunning and killing are: incorrect electrode placement, poor contact, electrical arcing, ~~high contact resistance caused by hair or dirt on the animal's surface, too short inadequate~~ exposure time, ~~and inappropriate~~ electrical parameters (low voltage/current or high frequency) ~~and high contact resistance caused by wool, hair, a dirty or corroded electrode or dirt on the animal's surface.~~

The second stage should only be applied to unconscious animals ~~to prevent unacceptable levels of pain.~~

2. Animal-based and other measures

Before the application of the second stage, unconsciousness should be assessed with the following animal-based measures: ~~immediately collapse, tonic-clonic seizures; apnoea; absence of corneal or palpebral reflex.~~

a) ~~immediate collapse;~~

b) ~~tonic-clonic seizures;~~

c) ~~apnoea;~~

d) ~~absence of corneal or palpebral reflex.~~

~~Animal-based measures of ineffective stun or recovery of consciousness are: vocalisation; spontaneous blinking; righting reflex; presence of corneal or palpebral reflex; rhythmic breathing; spontaneous swallowing and head shaking.~~

After the application of the second stage, death should be assessed with the following animal-based measures: ~~absence of muscle tone, apnoea, absence of corneal reflex, dilated pupils and absence of heartbeat.~~

a) ~~absence of muscle tone;~~

b) ~~apnoea;~~

c) ~~absence of corneal reflex;~~

db) ~~fixed and dilated pupils; and~~

ec) ~~absence of heartbeat.~~

3. Recommendations

~~This method is suitable for cattle, sheep, goats and pigs.~~

~~This method is suitable for chickens, turkeys, ducks, geese and rabbits when followed by a suitable secondary intervention killing method, such as bleeding.~~

Two team members are recommended, the first to apply the electrodes and the second to manipulate the position of the animal to allow the second application to be made.

Animals should be ~~restrained contained~~, at a minimum free-standing in a pen.

The tongs should be of the correct design and size for the animal.

~~Immediately following application to the head, a~~ stunning current should be applied in a position that spans the brain ~~for a minimum of 3 seconds~~ long enough to induce unconsciousness; ~~immediately following the application to the head, and a~~ After ensuring that the animal is unconscious, the electrodes should be transferred to a position that spans the heart and the electrodes applied for long enough to induce cardiac arrest ~~a minimum of 3 seconds~~.

Electrodes should be applied firmly for the intended duration of time with pressure not released until the stun is complete.

Animals should be monitored continuously after stunning until death to ensure the absence of brain stem reflexes until death.

Electrodes should be in good condition and cleaned regularly during and after use, to enable optimum electrical contact to be maintained.

The wool or hair should be entirely dry; if wet the electricity may flow (shunt) through the wet wool or hair rather than contacting the skin and passing through the brain or body.

Wetting the ~~bare skin (not wool or hair) application area~~ electrodes with water (especially salted water) can increase electrical contact.

Ineffective application of the first stage of the method should be followed by a backup method or the repetition of the first stage.

The method is suitable for calves, sheep and goats, and pigs.

4. Species-specific recommendations

Effective electrical parameters should be determined based on scientific data on regarding the welfare outcomes for different types of animals, in accordance with point 5 of Article 7.1.4. ~~Effective electrical parameters should be determined based on scientific evidence for different types of animals.~~

For electrical stunning of the head, minimum parameters are recommended for the following species:

- 1.5 25 A for bovines-cattle,
- 1.3 A for pigs,
- 1.8 A for sows and boars,
- 1.0 A for small ruminants.

Good placement of the tongs can be difficult on animals with horns and on sheep with woolly heads. Using electrodes with pins or with wet pins for woolly animals would help to overcome the problem. Alternatively, the wool ~~should~~ may be removed from the area where the electrodes will be positioned on the animal.

Article 7.6.20.

Head to body electrical killing

This method is suitable for cattle, sheep, goats and pigs.

Head-to-body electrical killing (electrocution) comprises the single application of sufficient electrical current to the head and ~~back-body~~, to simultaneously stun the animal and fibrillate the heart, resulting in cardiac arrest and death. ~~Provided sufficient current is applied in a position that spans both the brain and heart at the same time, the animal will not recover consciousness.~~

1. Animal welfare concerns

The main *hazards* preventing effective electrical killing are: incorrect electrode placement, poor contact, dirty or corroded electrode, electrical arcing, high contact resistance caused by hair or dirt on the animal surface, ~~too short~~ insufficient exposure time and inappropriate electrical parameters (low voltage/current or high frequency).

2. Animal-based and other measures

~~Effective head to body electrical killing is characterise by tonic seizures during exposure to the method. After the exposure animals may have clonic seizures.~~

After application death should be assessed with the following animal-based measures: ~~absence of muscle tone, apnoea, absence of corneal reflex, dilated pupils and absence of heartbeat~~

a) ~~tonic-clonic seizures;~~

b) ~~absence of muscle tone;~~

c) ~~apnoea;~~

d) ~~absence of corneal reflex;~~

e) ~~fixed and dilated pupils;~~

f) ~~absence of heartbeat.~~

~~Animal based measures of ineffective electrical killing are: absence of tonic-clonic seizures, presence of rhythmic breathing, presence of corneal or palpebral reflex or vocalisation.~~

3. Recommendations

~~This method is suitable for cattle, sheep, goats and pigs.~~

Animals should be ~~restrained contained~~ to avoid movement that can lead to interrupted contact with the electrodes.

The device should be of the correct design and size for the animal.

~~A current should be applied in a position that spans the brain and the heart for long enough to induce unconsciousness and cardiac arrest.~~

~~A current should be applied in a position that spans the brain and the heart at the same time, continuously for a minimum of 3 seconds.~~

~~The device should be applied firmly for the intended duration of time and pressure not released until the stun is complete.~~

Animals should be monitored continuously ~~after stunning~~ until death ~~is confirmed.~~ ~~to ensure the absence of brain stem reflexes.~~

Electrodes should be in good condition and cleaned regularly during and after use, to enable optimum electrical contact to be maintained.

The wool or hair should be entirely dry; if they are wet, the electricity may flow (shunt) through the wet wool or hair rather than through the brain or body.

~~Wetting the electrodes with water (especially salted water) can increase electrical contact. Wetting the bare skin application area with water (especially salted water) can also increase electrical contact.~~

Ineffective application ~~of the first stage~~ of the method should be followed ~~ed~~ by a backup method or the repetition of the first stage.

~~The method is suitable for sheep and goats, and pigs.~~

4. Species-specific recommendations

Effective electrical parameters should be determined based on scientific evidence for different types of animals.

For head ~~-to~~ body ~~stunning~~ ~~electrical killing~~, minimum parameters are recommended for the following species:

- 1.3 A for pigs,
- 1.8 A for sows and boars,
- 1.0 A for sheep and goats.

Article 7.6.21.

Head only electrical stunning followed by a secondary killing method

Comprises the single application of sufficient electrical current to the head of the animal in a position that spans the brain, causing unconsciousness; this needs to be followed by a killing method such as cervical dislocation or bleeding.

1. Animal welfare concerns

The main hazards preventing effective electrical stunning are: inappropriate handling, inversion when applicable, incorrect electrode placement, poor contact, dirty or corroded electrode, electrical arcing, high contact resistance caused by hair or feathers or dirt on the animal surface and inappropriate electrical parameters (low voltage/current or high frequency).

An additional hazard could occur when second intervention doesn't kill the animal.

2. Animal based and other measures

Multiple indicators should be used to determine whether a stun is effective and the animal is unconscious.

Animal based measures of an effective stun are: tonic-clonic seizures; apnoea; absence of corneal or palpebral reflex.

Animal based measures of an ineffective stun or recovery of consciousness or for ineffective killing are: vocalisation; spontaneous blinking; righting reflex; presence of corneal or palpebral reflex; rhythmic breathing.

3. Recommendations

Animals should be stunned as soon as they are restrained.

In the case of ineffective stunning or recovery, animals should be re-stunned using a backup system or be killed immediately. Ineffective stunning or return to consciousness should be systematically recorded and the cause of the failure identified and rectified.

Stunning equipment should be used, cleaned, maintained and stored following the manufacturer's recommendations.

Constant current stunners ensure that the minimum current is provided to the animal independently from individual impedance and should always be preferred to constant voltage stunners.

Regular calibration of the equipment according to the manufacturer's procedure is recommended.

For the killing methods to be used after stun refer to Articles 7.6.X and 7.6.X.

This method is suitable for chickens, turkeys, ducks, geese and rabbits.

4. Species specific recommendations

For head only stunning, minimum parameters are recommended for the following species:

- 240 mA for hens and broiler chicken,

- 400 mA for turkeys,
- 600 mA for geese and ducks,
- 400 mA for rabbits.

Article 7.6. 212.

Water-bath killing

Electrocution leading to death can be achieved by drawing inverted and shackled poultry through an electrified water-bath. Electrical contact is made between the water and earthed shackle and, when sufficient current with a (50 Hz AC) waveform is applied, poultry will be simultaneously stunned and killed.

1. Animal welfare concerns

In electrical water-bath killing, inverting and shackling conscious poultry by the legs can cause stress, pain, distress and fear.

Hazards that increase the likelihood of animals experiencing pre-stun shocks are: poor handling at shackling, inappropriate line speed, physical contact between birds, incorrect angle of the entry ramp, the entry ramp wetted by charged water, incorrect water-bath height, and shallow immersion.

Hazards that may prevent effective electrical killing are: lack of contact between head and water, differences in individual bird resistance, improper system grounding, pre-stun shocks due to wings contacting water before the head, and the use of inappropriate electrical parameters (low voltage/current or high frequency) or too short insufficient exposure time.

Factors affecting individual bird resistance include the resistance between the shackle and the leg (leg/shackle interface), shackling on top of a severed foot, shackling by one leg, poor shackle position, incorrect shackle size, dry shackles, scale on the shackle surface, and keratinised skin on the legs (e.g. older birds).

Where insufficient electrical killing parameters are used, conscious animals are at risk of being electro-immobilised or paralysed causing pain and suffering.

2. Animal-based and other measures

Multiple indicators should be used to determine whether killing is effective.

Animal-based measures of an effective electrocution are: absence of muscle tone; apnoea; and absence of corneal or palpebral reflex; absence of vocalisation and absence of righting reflex.

a) loss of muscle tone;

b) absence of breathing;

c) absence of corneal or palpebral reflex;

d) absence of righting reflex;

e) absence of heart beat.

3. Recommendations

Poultry should be shackled by both legs. Shackles should match the species and size of the birds to guarantee a good contact.

Pre-stun shocks should be prevented and can be reduced by having a smooth shackle line and entry to the water-bath and by adjusting the water level of the bath to minimise overflow. Proper water-bath design, including a non-conductive entrance, will also help eliminate pre-stun shocks. Measures to calm

the birds or to reduce the frequency of wing flapping can be put in place such as: breast rubs, low lighting, smooth transition into the water-bath and gentle shackling such that this does not trigger wing flapping.

In multiple bird water-baths with constant voltage it is important to ensure that the number of birds in the water-bath is proportional to the intensity in the water-bath to ensure that all birds receive sufficient current to result in death kill them.

Birds that are visibly injured including with leg abnormalities, or runts-under-sized birds that may miss the water-bath, should not be shackled and instead should be killed by an alternative appropriate method.

Poultry should be submerged into the water up to the base of the wings.

A low frequency (50 Hz) current with a minimum of 400 mA per bird should be applied for a minimum of 3 seconds [EFSA, 2019].

Death should be confirmed before disposal.

In the case of ineffective killing, animals should be killed without delay immediately using a backup system killing method.

4. Species-specific recommendations

None identified.

Article 7.6.2²³.

Maceration

This method is suitable for day-old-birds and for embryonated eggs.

Maceration, utilising a mechanical apparatus with rotating blades or projections, causes immediate fragmentation and death in day-old birds and for embryonated eggs.

1. Animal welfare concerns

Pain, fear, suffocation and distress due to a slow rotation of blades or rollers, overloading and rollers set too wide.

2. Animal-based and other measures

- absence of signs of life

a) immediate fragmentation.

3. Recommendations

This method is suitable for day-old birds and for embryonated eggs.

The capacity of the apparatus (power and sharpness) should be sufficient to ensure that all day-old-birds are killed instantaneously, even if they are handled in a large numbers. The rate of introducing the birds should not allow the equipment to jam. Only purpose built equipment should be used. Equipment should be well-maintained and tested prior to killing animals.

The gap between rollers must should ensure day-old-birds' heads are crushed instantaneously leading to death [HSA, 2005].

Mechanical killing of day-old-birds should result in slurry, rather than recognisable body parts such as internal organs, legs, wings and heads, to ensure day-old-birds that were truly effectively macerated [HSA, 2005].

It is important to ensure that the speed of the equipment is appropriate for the batch size and that day-old-birds are dead when they come out of the machine.

Avoid adding more than one layer of day-old-birds at one time or in quick succession, including avoid the introduction of a batch into the macerator before previous day-old-birds are dead.

4. Species-specific recommendations

None identified.

Article 7.6.24.

Addition of anaesthetics to feed or water

An anaesthetic agent which can be mixed with *poultry* feed or water may be used to kill *poultry* in houses. Commonly used general anaesthetic agents are not intended or approved for oral use. *Poultry* which are only anaesthetised need to be killed by another method such as cervical dislocation.

1- Animal welfare concerns

Ingestion of an insufficient quantity of the drug or inappropriate drug not leading to unconsciousness. Failing to implement a secondary killing method before consciousness regained. Exposure of non-targeted animal or birds is a risk [<https://www.hsa.org.uk>]

2- Animal based and other measures

Absence of signs of life including breathing, body movement, righting reflex.

3- Recommendations

To ensure that these anaesthetics have been effectively removed from the feeding or drinking water system and that no residue is left behind that could harm the next flock, a very careful cleaning procedure is necessary. Sufficient quantities of anaesthetic need to be ingested rapidly for effective response. Intake of sufficient quantities is facilitated if the birds are fasted or water is withheld. Should be followed by immediate killing if birds are anaesthetised only.

This method is suitable for confined poultry.

4- Species specific recommendations

None identified

Article 7.6.235.

General principles of modified atmosphere killing

Modified atmosphere killing is performed by exposing animals to carbon dioxide (CO₂), inert gases or their mixtures, or reducing oxygen availability through low pressure.

This can be performed either by placing the animals in a prefilled gas container, by placing transport modules or crates containing animals in a container and introducing a gas mixture, or by the gas being introduced into the animal a poultry house, placing animals in a container and introducing a gas mixture or in the case of low atmosphere pressure killing removing air from the container.

Modified atmosphere Foam can be used as an adjunct to modified atmosphere killing methods, killing can also be administered by using gas-filled foam, medium or low density water based foam or through low atmosphere pressure (LAPS).

Article 7.6.246.

Pre-filled gas container

This method is suitable for poultry, pigs, small ruminants and fur animals.

This method is the exposure of batches of animals to high concentrations of gas in pre-filled containers which can also be waste bins, skips or bags.

In this method, animals are manually caught in small batches and ~~dropped-placed~~ into ~~the a~~ container ~~with a controlled atmosphere~~. Containers can be specially designed or modified, waste bins, skips or bags connected to gas cylinders.

The time to onset of death is related to the concentration of the gas and the duration of the exposure, i.e. lower concentration requires longer exposure [Raj and Gregory, 1990a,b].

When animals are exposed to the gas individually or in small groups in a container, the equipment used should be designed, constructed, and maintained in such a way as to avoid injury to the animals and allow them to be observed.

1. Animal welfare concerns

Manual catching and handling of animals cause ~~fear, pain due to injuries and~~ distress, especially when birds are carried in an inverted position.

If there is no immediate loss of consciousness, ~~inhalation of high concentrations of gas while conscious~~ is ~~can be~~ painful ~~(in the case of carbon dioxide)~~ and causes respiratory distress.

The time and distance animals are carried depends on the location of the gas containers on the premises and on the type and size of the housings.

Overloading may lead to compression and suffocation caused by more animals being ~~dropped-placed~~ into the container without a sufficient interval between two consequent batches of animals. In addition, each batch of animals ~~dropped placed~~ into the container will displace equal volume of gas into the atmosphere, which will result in fluctuating concentrations of gas.

~~Injection of~~ Direct exposure to cold gas ~~directly to the animals~~ causes hypothermia ~~and can be painful~~.

Verifying *death* while the animals are in the *container* is difficult.

2. Animal-based and other measures

Animal-based measures are difficult to assess due to container design and the presence of gas.

Animal-based measures of an effective kill are: ~~absence of signs of life, such as breathing, righting reflex or body movement~~.

a) ~~absence of breathing:~~

b) ~~absence of muscle tone:~~

c) ~~absence of heart beat.~~

3. Recommendations

~~This method is suitable for poultry, pigs, small ruminants and fur animals.~~

Containers should allow the required gas concentration to be maintained ~~and accurately measured~~.

Each batch of ~~birds animals placed~~ ~~dropped~~ in the containers (one layer) should be allowed sufficient time to die before adding the next batch of ~~birds animals~~ [Webster and Collett, 2012].

Containers should not be overcrowded and measures are ~~needed~~ ~~should be put in place~~ to avoid animals suffocating by climbing on top of each other.

Skilled catching teams are necessary.

~~This method is suitable for poultry and mink.~~

4. Species-specific recommendations

~~Non identified.~~

CO₂ is not effective for mink.

Article 7.6.2⁵⁷.

Gas introduced into a container

This method is suitable for poultry and pigs

In this method, the crates or modules holding birds or pigs animals are loaded into a container. Small groups of pigs may also be walked into the container. Once the animals are in the container, a chosen gas, i.e. carbon dioxide, argon, nitrogen or mixtures of these gases, are administered to displace the atmospheric air in the container to create a lethal anoxic or hypercapnic situation (EFSA, 2019).

1. Animal welfare concerns

Manual catching and handling of birds animals causes distress, especially when birds are carried in an inverted position.

There is no immediate loss of consciousness. Exposure to high concentrations of CO₂ required for killing is reported to be aversive and painful of birds and pigs (e.g. 40% or more) is reported to be aversive and painful to inhale, and therefore these animals show escape attempts (EFSA, 2019; 2020).

The lower the CO₂ concentration or higher the residual oxygen in inert gases the longer the time to induce death.

Exceeding the capacity of the equipment in terms of number of animals that can be loaded into the container with available floor space leading to overcrowding and animals climbing onto each other which results in injuries.

The time and distance animals are carried depend on the location of the gas containers on the premises and on the type and size of the housings.

Injection of cold gas directly into the animals in the container causes hypothermia and can be painful.

Verifying *death* while the animals are in the *container* is difficult.

2. Animal-based and other measures

Animal based measures related to pain, fear and respiratory distress are head shaking, laboured breathing (gasping), escape attempts and high pitched vocalisations.

Animal-based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.

a) absence of breathing.

b) absence of muscle tone:

c) absence of heart beat;

d) fixed and dilated pupils.

Animal-based measures are difficult to assess due to container design and the presence of gas.

3. Recommendations

This method is suitable for poultry and pigs

Birds Animals should be caught gently and placed in crates or modules of appropriate size and at appropriate stocking densities to allow all birds animals to sit down. Pigs should also be moved gently and in small groups into the containers.

Containers should not be overcrowded and measures are needed should be put in place to avoid animals suffocating by climbing on top of each other.

Containers should allow the required ~~CO₂ and inert gases~~ concentrations to be maintained. ~~and accurately measured.~~

Sufficient exposure time should be allowed for animals to die before the door is opened.

Each animal should be examined to ensure they are dead.

Any survivors should be killed ~~without delay~~ immediately with a backup method.

Staff ~~training~~ should be trained to acquire knowledge and skills necessary to proper calibration of equipment and monitoring of gas concentrations and relevant exposure times, to ensure that containers are fit for the purpose, gas is vaporised before injection, the rate of injection is correct and temperature inside the chamber is monitored.

~~This method is suitable for poultry and pigs.~~

4. Species-specific recommendations

CO₂ is not effective for mink.

None identified

Article 7.6. ~~268~~.

Gas introduced into the barn or whole house gassing

The method is suitable for all poultry species.

This method is the exposure of birds in their housing to an increasing gas concentration. In general, this means that the barn is equipped with gas measuring units and gas tubing for the injection of gas. The barn is closed, and ventilation and other openings are sealed. The gas is injected which results in a gradual increase of the ~~gas~~. In practice mainly CO₂ is applied as this gas is most easy to apply and the desired concentration of >45% CO₂ in the breathing air can be reached relatively quickly.

1. Animal welfare concerns

There is no immediate loss of consciousness. Inhalation of increased concentrations of gas while conscious cause fear and respiratory distress.

The induction of the gas makes noise and can lead to a fear response from the birds. Injection of cold gas directly to the animals in the house causes hypothermia and can be painful.

2. Animal-based and other measures

Animal-based measures are difficult to assess due to the presence of gas in the whole barn.

Animal-based measures of an effective kill are: absence of signs of life, such as breathing, righting reflex or body movement.

a) absence of breathing:

b) absence of muscle tone:

c) absence of heart beat:

d) fixed and dilated pupils.

Gas concentrations should be monitored and used as a proxy for animal based measures

3. Recommendations

The method is suitable for all poultry species.

The barns should be checked before starting the procedure to ensure they can be made air-tight enough for the required gas concentrations can be reached.

Staff entering the barn to prepare the gassing procedure should work calmly to minimize fear reactions from the birds.

Measures should be taken to minimise disturbance and stress associated with the release of gas into the area for example e.g. due to noise and temperature drops.

Ventilation should be shut down as quickly short as possible before starting the gas inlet.

Before removing the gas equipment but after ventilating the barn there should be a check on the effectiveness of the method.

The method is suitable for all poultry species.

4. Species-specific recommendations

None identified.

Article 7.6.29.

Water based foam

Water based foam is a low to high density foam created with air. The principle is that animals in their housing or in a confined area are covered with a blanket of foam and that the animals will die due to occlusion of the airways leading to cessation of brain and heart activity (Benson et al 2009). Due to the density, the foam will not penetrate narrow openings or mesh wire structures. This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals.

1. Animal welfare concerns

Animals do not immediately lose consciousness

Animals will experience distress as oxygen is lost from the environment.

2. Animal based and other measures

Animal based measures are difficult to assess once animals are covered in foam. Distress behaviours such as escape attempts and vocalizations (pigs) may be seen or heard.

Animal based measures of an effective kill are: absence of signs of life such as breathing, righting reflex or body movement.

3. Recommendations

The temperature of the foam is determined mainly by the temperature of the water. The temperature of water used should be between (15 and 20 °C).

The foam should be produced with foaming agents that are proven to be non-irritating and having no aversive effect.

Foam should be applied after animals are contained.

Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam.

This method should only be applied to floor-reared animals.

This method is suitable for poultry, cattle, pigs, and small ruminants.

4. Species-specific recommendations

None identified

Gas ~~infused~~ **filled** high expansion foam

This method is suitable for poultry, pigs and small ruminants.

A method for creating way to introduce a high gas concentration or to create a situation with very low **oxygen** (O_2) in containers or in buildings that are difficult to fill with gas is by using a high expansion foam filled with the gas. The most suitable gas is Nitrogen. The principle of the method is that animals are exposed to an environment of > 99% of N_2 (or other gas) and die due to **hypoxia anoxia**. The high gas concentration is achieved due to the foam being produced using a gas from a pure source instead of with air.

Animals may be kept in their housing, in a confined area or in a special chamber or box. The building, confined area or box is then filled with gas-filled foam until the box is completely filled or the animals are **well completely** covered. As the bubbles burst the animals will breathe in an atmosphere containing only the gas released from the foam with less than 1% O_2 . This very low O_2 concentration will induce a rapid loss of consciousness and death.

This method requires little human-animal interaction and has the capacity to effectively kill large numbers of animals however it does require specialized equipment.

1. Animal welfare concerns

Animals do not immediately lose consciousness

Animals ~~will~~ **may** experience **respiratory** distress as oxygen is lost from the environment.

If the bubble size is too small, foam may be inhaled resulting in airway occlusion.

Noise created by foam-generating machinery may cause fear.

2. Animal-based and other measures

Animal based measures are difficult to assess once animals are covered in foam. Distress behaviours such as escape attempts and vocalizations (pigs) may be seen or heard.

Animal-based measures of an effective kill are: ~~absence signs of life, such as breathing, righting reflex or body movement.~~

a) absence of breathing:

b) absence of muscle tone:

c) absence of heart beat:

d) fixed and dilated pupils.

3. Recommendations

This method is suitable for poultry, pigs and small ruminants.

The foam should be generated with gas from a pure source (preferable >98%).

The foam expansion ratio should be at least 300:1 and the bubble size (typically 10-15mm), should be appropriate for to the species and animals' size of the animals to ensure it does not readily enter or occlude their airways.

Care should be taken, to ~~The gas should be pre-heated to~~ avoid freezing ~~up of~~ the nozzles while the foam is generated.

The temperature of the foam is determined mainly by the temperature of the water therefore, the temperature of the water used should be between ~~15 and 20 °C~~.

The foam should be produced with a foam agents that is proven to be non-irritating and having no aversive effect.

Foam should be applied after animals are contained.

Personnel should ensure that there is sufficient time allowed for each batch of animals to die before they are removed from the foam.

This method is suitable for poultry and pigs.

4. Species-specific recommendations

None identified.

Article 7.6.2834.

Low atmosphere pressure stunning (LAPS)

The method should only be applied to chickens [Martin et al. 2020; Gent et al 2020].

In this method, the birds are placed in crates or modules into a specialised decompression chamber and are exposed to gradual decompression with a reduction of available oxygen to less than 5% [Martin et al., 2016a,b, c; Holloway and Pritchard, 2017].

When correctly applied, the LAPS procedure leads to loss of consciousness followed by death in all birds. The LAPS procedure does not induce immediate unconsciousness.

Mobile LAPS system can be used for on-farm killing.

1. Animal welfare concerns

No immediate onset of unconsciousness.

Rapid decompression and expansion of gases in the body cavity (i.e., sinuses, gut, or air sacs) can cause pain and respiratory distress. Furthermore, conscious birds might get injured from the convulsions of adjacent unconscious animals (i.e., strong wing flapping and leg paddling).

2. Animal-based and other measures

Animal- based measures of aversion:

a) escape attempts.

Animal base measures of unconsciousness: loss of posture; loss of posture; absence of movements; tonic-clonic convulsions (wing flapping)

a) loss of posture;

b) absence of movements;

c) tonic-clonic convulsions (wing flapping).

Animal-based measures of an effective kill are: absence of signs of life such as breathing, righting reflex or body movement.

a) absence of breathing;

b) absence of muscle tone;

c) absence of heart beat;

d) fixed and dilated pupils.

a) Recommendations

~~The method should only be applied to chickens [Matin et al, 2020; Gent et al 2020].~~

During the first phase, the decompression rate ~~shall~~ should not be greater than equivalent to a reduction in pressure from standard sea level atmospheric pressure 760 to 250 Torr for a period of not less than 50 seconds.

During the second phase, a minimum standard sea level atmospheric pressure of 160 Torr ~~shall~~ should be reached within the following 210 seconds.

The pressure time curve ~~shall~~ should be adjusted to ensure that all animals are irreversibly stunned within the cycle time.

The chamber should be leak tested and pressure gauges calibrated before each operational session and not less than daily during periods of use.

Low atmospheric pressure stunning equipment ~~shall~~ should be designed and built to ensure a vacuum within the chamber enabling slow gradual decompression with reduction in available oxygen and holding at minimal pressure.

The system ~~shall~~ should be equipped to measure, display and record continuously the absolute vacuum pressure, the time of exposure, the temperature, the humidity and to give a clearly visible and audible warning if the pressure deviates from the required levels. The device should be clearly visible to the personnel.

Rate of decompression, duration of exposure, ambient temperature and humidity are key parameters.

Emergency procedures associated with system failures should be put in place in accordance with the manufacturer's instructions for the use of the equipment.

~~This method is suitable for broiler chickens up to proximately 4kg liveweight.~~

b) Species-specific recommendations

~~None identified~~ Should only be used in chickens at this time.

Article 7.6.3229

Ventilation shut down with supplementation

~~Ventilation shut down with supplementation such as active heating must not be routinely used and should be regarded as a method of last resort for poultry where the risks associated with a delay in killing would outweigh the welfare outcomes associated with this method. This method must only be used as an interim measure while efforts are made to secure equipment, resources and personnel to implement more preferred methods. Ventilation shut down with supplementation such as active heating should not be routinely used and should be regarded as a method of last resort for poultry.~~

~~The method requires shutting down ventilation in animal housings that rely on the ventilation system to maintain constant temperature and air quality. It is a measure that kills animals predominantly by hyperthermia by heat stress and lack of fresh air. Active heating of the ambient air or increasing the humidity in the building during ventilation shut down is required to will shorten time to death and increase the effectiveness of the method.~~

~~This method can be effective at killing large numbers of animals with limited human animal interaction and few resources. The effective implementation of the method can be challenging based on the ambient temperature at the facility and how well the facility can be sealed. It is critical that this method be implemented thoughtfully and only in facilities that can be appropriately sealed to allow complete depopulation. This method can be effective at killing large numbers of animals with limited human animal interaction and few resources. The effective implementation of the method can be challenging based on the ambient temperature at the facility and how well the facility can be sealed.~~

1. Animal welfare concerns

The animals will experience heat stress, distress and suffering.

Time to loss of consciousness can be extended and variable based on environmental and species differences.

It can take a long time for animals to lose consciousness.

Animals will experience heat stress.

2. Animal based and other measures

Animal based measures may only be assessed via video if available.

Animal based measures of an effective kill are: of unconsciousness: Loss of posture, absence of movements.

a) absence of muscle tone

b) absence of breathing.

c) fixed and dilated pupils.

Animal based measures of an effective kill are: absence of signs of life such as breathing, righting reflex or body movement.

3. Recommendations

This method is a method of last resort that can only be applied in poultry.

Ventilation shut down with supplementation should only be used as a method of last resort.

Ventilation shut down with supplementation should achieve greater than 95% mortality in one hour and complete killing within 3 hours.

Facilities must be properly sealed. Facilities that cannot be sealed properly or have poor insulation should not be used, due to the inability to hinder airflow and maintain uniform in-house temperatures depending on the season, and prolonging even further time to loss of consciousness.

Supplemental heaters should be used to increase the temperature of the facility.

Temperatures should be monitored at various heights and locations in the facility and the temperature should exceed 120° F or 49° C within 30 minutes and be maintained at that level for at least three hours.

Humidity should be monitored at various heights and locations in the facility.

This method is a method of last resort suitable for poultry.

4. Species specific recommendations

None identified

This method can only be applied to poultry as a last resort.

References

- Atkinson, S., Velarde, A., & Algers, B. (2013). Assessment of stun quality at commercial slaughter in cattle shot with captive bolt. *Animal Welfare*, 22(4), 473-481. doi:10.7120/09627286.22.4.473
- Bates G. Humane issues surrounding decapitation reconsidered. *J Am Vet Med Assoc* 2010; 237: 1024–1026.
- CB Johnson, DJ Mellor, PH Hemsworth and AD Fisher (2015). A scientific comment on the welfare of domesticated ruminants slaughtered without stunning. *New Zealand Veterinary Journal* 63 58-65.
- Gent TC, Gebhardt-Henrich S, Schild SA, Rahman AA, Toscano MJ. Evaluation of Poultry Stunning with Low Atmospheric Pressure, Carbon Dioxide or Nitrogen Using a Single Aversion Testing Paradigm. *Animals (Basel)*. 2020 Jul 30;10(8):1308. doi: 10.3390/ani10081308. PMID: 32751528; PMCID: PMC7459835.
- Gregory NG, Lee CJ, Widdicombe JP. Depth of concussion in cattle shot by penetrating captive bolt. *Meat Sci*. 2007 Dec;77(4):499-503. doi: 10.1016/j.meatsci.2007.04.026. Epub 2007 May 13. PMID: 22061934.
- Gregory, N. G., & Wilkins, L. J. (1997). Stupefying and lethal effects of alpha chloralose in chickens. *New Zealand Journal of Agricultural Research*, 40(3), 361-364.
- Holloway PH and Pritchard DG, 2017. Effects of ambient temperature and water vapor on chamber pressure and oxygen level during low atmospheric pressure stunning of poultry. *Poultry Science*, 96, 2528–2539. <https://doi.org/10.3382/ps/pex066>
- Kamenik, J., Paral, V., Pyszko, M., & Voslarova, E. (2019). Cattle stunning with a penetrative captive bolt device: A review. *Animal Science Journal*, 90(3), 307-316. <https://doi.org/10.1111/asj.13168>.
- K Kongara, AE McIlhone, NJ Kells and CB Johnson (2014). Electroencephalographic evaluation of decapitation of the anaesthetized rat. *Laboratory Animals* 48 15.
- Martin JE, Christensen K, Vizzier-Thaxton Y, Mitchell MA and McKeegan DEF, 2016a. Behavioural, brain and cardiac responses to hypobaric hypoxia in broiler chickens. *Physiology & Behavior*, 163, 25–36. <https://doi.org/10.1016/j.physbeh.2016.04.038>
- Martin JE, Christensen K, Vizzier-Thaxton Y and McKeegan DEF, 2016b. Effects of analgesic intervention on behavioural responses to low atmospheric pressure stunning. *Animal Behaviour Science*, 180, 157–165. <https://doi.org/10.1016/j.applanim.2016.05.007>
- Martin JE, Christensen K, Vizzier-Thaxton Y and McKeegan DEF, 2016c. Effects of light on responses to low atmospheric pressure stunning in broilers. *British Poultry Science*, 57, 585–600. <https://doi.org/10.1080/00071668.2016.1201200>
- Martin JE, McKeegan DEF, Magee DL, Armour N, Pritchard DG. Pathological consequences of low atmospheric pressure stunning in broiler chickens. *Animal*. 2020 Jan;14(1):129-137. doi: 10.1017/S1751731119001411. Epub 2019 Jun 26. PMID: 31241032.
- Mikeska JA, Klemm WR. EEG evaluation of humaneness of asphyxia and decapitation euthanasia of the laboratory rat. *Lab Anim Sci* 1975; 25:175–179.
- Terlouw C, Bourguet C, Deiss V. Consciousness, unconsciousness and death in the context of slaughter. Part I. Neurobiological mechanisms underlying stunning and killing. *Meat Sci*. 2016 Aug;118:133-46. doi: 10.1016/j.meatsci.2016.03.011. Epub 2016 Mar 10. PMID: 27103547.
- TJ Gibson, CB Johnson, JC Murrell, CM Hulls, SL Mitchinson, KJ Stafford, AC Johnstone and DJ Mellor (2009). Electroencephalographic responses of calves to slaughter by ventral neck incision without prior stunning. *New Zealand Veterinary Journal* 57 77-83.
- Scientific Opinion on monitoring procedures at slaughterhouses for bovines. 2013. *EFSA Journal*, 11(12), 3460. <https://doi.org/10.2903/j.efsa.2013.3460>.
- Walsh, J.L.; Percival, A.; Turner, P.V. Efficacy of Blunt Force Trauma, a Novel Mechanical Cervical Dislocation Device, and a Non-Penetrating Captive Bolt Device for On-Farm Euthanasia of Pre-Weaned Kits, Growers, and Adult Commercial Meat Rabbits. *Animals* 2017, 7, 100. <https://doi.org/10.3390/ani7120100>

Van der Wal, P.G. (1971) Stunning procedures for pigs and their physiological consequences. Proc 2nd Int Symp Condition Meat Quality Pigs, Zeist, Pudoc, Wageningen, The Netherlands.

Vecerek, V., Kamenik, J., Voslarova, E., Vecerkova, L., Machovcova, Z., Volfova, M., & Konvalinova, J. (2020). The occurrence of reflexes and reactions in cattle following stunning with a captive bolt at the slaughterhouse. *Animal Science Journal*, 91(1), e13373. <https://doi.org/10.1111/asj.13373>

Vogel, Kurt & Badtram, G & Claus, James & Grandin, Temple & Turpin, S & Weyker, Robert & Voogd, E. (2010). Head-only followed by cardiac arrest electrical stunning is an effective alternative to head-only electrical stunning in pigs. *Journal of animal science*. 89. 1412-8. 10.2527/jas.2010-2920.

CHAPTER 8.8.

INFECTION WITH FOOT AND MOUTH DISEASE VIRUS

[...]

Article 8.8.13.

Recommendations for importation of susceptible animals from countries, zones or compartments free from FMD where vaccination is not practised

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the *animals*:

- 1) showed no clinical sign of FMD on the day of shipment;
- 2) were kept since birth or for at least the past three months in a country, *zone* or *compartment* free from FMD where *vaccination* is not practised;
- 3) if transiting an infected *zone*, were not exposed to any source of FMDV during transportation to the *place of shipment*;
- 4) ~~if previously vaccinated, comply with point 4 of Article 8.8.14.~~

[...]

Article 8.8.33bis.

Recommendations for importation of fetal bovine serum from countries or zones infected with FMDV

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that ~~this product has been subjected to:~~

- 1) Dams showed no clinical signs of *infection* with FMDV at time of *slaughter* as demonstrated by ante- and post-mortem inspection in accordance with Chapter 6.3.;
- 2) Product has been subjected to:
 - a) a test for detection of nucleic acid specific to FMDV with negative results, carried out on each batch of fetal bovine serum, followed by gamma irradiation at a dose of at least 30 kilo Gray (kGy); or
 - b) an equivalent treatment that has been demonstrated to inactivate FMDV in fetal bovine serum.
- 3) The necessary precautions were taken after collection and processing to avoid contact of fetal bovine serum with any potential source of FMDV.

[...]

CHAPTER 10.4.

INFECTION WITH HIGH PATHOGENICITY AVIAN INFLUENZA VIRUSES

Article 10.4.1.

General provisions

- 1) ~~This chapter deals with the listed disease, Poultry, other birds and a number of mammals, including humans, are susceptible to infection with high pathogenicity avian influenza A viruses of high pathogenicity.~~
- 2) For the purposes of the *Terrestrial Code*:
 - a) ~~Infection with High pathogenicity avian influenza virus means is defined as an infection of poultry (hereafter 'animal host') with by any influenza A virus that has been determined to be of as high pathogenicity in birds in accordance with the *Terrestrial Manual*.~~
 - b) ~~The following defines the An occurrence of infection with a high pathogenicity avian influenza virus:~~
 - i) ~~high pathogenicity avian influenza virus has been isolated in a sample from an animal host and identified as such is defined by the isolation and identification of the virus or~~
 - ii) ~~the detection of specific viral ribonucleic acid; with characteristics of high pathogenicity avian influenza virus in a one or more samples from an animal host poultry.~~
 - c) ~~The incubation period at the flock-level for high pathogenicity avian influenza is shall be 14 days.~~
- 3) ~~For the purposes of this chapter, 'commercial poultry' means a subpopulation of poultry reared or kept in establishments that produce commodities intended for formal domestic or international trade.~~
- 4) ~~Standards for diagnostic tests and vaccines, including pathogenicity testing, are described in the *Terrestrial Manual*.~~
- 35) ~~Although the objective of this chapter is to mitigate animal and public health risks posed by infection with high pathogenicity avian influenza viruses, other influenza A viruses of avian host origin (i.e. low pathogenicity avian influenza viruses) may have the potential to exert a negative impact on animal and public health. This chapter includes monitoring considerations for low pathogenicity avian influenza viruses because some, especially H5 and H7 subtypes, have the potential to mutate into high pathogenicity avian influenza viruses. A sudden and unexpected increase in virulence of low pathogenicity avian influenza viruses in poultry is notifiable as an emerging disease in accordance with Article 1.1.4.~~
- 6) ~~Infection of domestic and captive wild birds with low pathogenicity avian influenza viruses having proven natural transmission to humans associated with severe consequences, and infection of birds other than poultry, including wild birds, with influenza A viruses of high pathogenicity, are notifiable in accordance with Article 1.3.3. Such notifications do not affect the high pathogenicity avian influenza status of the country or zone in poultry or commercial poultry, and a Member Country should not impose bans on the international trade of poultry commodities in response to such notifications.~~

4. ~~A notification of infection of birds other than poultry, including wild birds, with influenza A viruses of high pathogenicity, or of infection of domestic or captive wild birds with low pathogenicity avian influenza viruses does not affect the high pathogenicity avian influenza status of the country or zone. A Member Country should not impose bans on the international trade of poultry commodities in response to such notifications, or to other information on the presence of any non-notifiable influenza A virus in birds.~~
5. ~~This chapter includes monitoring considerations for low pathogenicity avian influenza viruses because some, especially H5- and H7- subtypes, have the potential to mutate into high pathogenicity avian influenza viruses.~~
- 7) Information reported in accordance with Article 1.1.5. on the presence of non-notifiable influenza A virus in birds or on the presence of influenza A virus of high pathogenicity in mammals do not affect the high pathogenicity avian influenza status of the country or zone, and a Member Country should not impose bans on the international trade of poultry commodities in response to such bans.
- 68) The use of *vaccination* against avian influenza may be recommended under specific conditions. Any vaccine used should comply with the standards described in the *Terrestrial Manual*. *Vaccination* will not affect the high pathogenicity avian influenza status of a free country or zone if *surveillance* supports the absence of *infection*, in accordance with Article 10.4.28., in particular point 2. *Vaccination* can be used as an effective complementary control tool when a *stamping-out policy* alone is not sufficient. Whether to vaccinate or not should be decided by the *Veterinary Authority* on the basis of the avian influenza situation as well as the ability of the *Veterinary Services* to implement the *vaccination* strategy, as described in Chapter 4.18.
7. ~~Standards for diagnostic tests and vaccines, including pathogenicity testing, are described in the *Terrestrial Manual*.~~

[...]

Article 10.4.3.

Country or zone free from high pathogenicity avian influenza in poultry

A country or zone may be considered free from high pathogenicity avian influenza in poultry when:

- 1) *infection* with high pathogenicity avian influenza viruses is a *notifiable disease* in the entire country;
- 2) an ongoing awareness programme is in place to encourage reporting of suspicions of high pathogenicity avian influenza;
- 3) absence of *infection* with high pathogenicity avian influenza viruses, based on *surveillance*, in accordance with Chapter 1.4. and Articles 10.4.26. to 10.4.30., has been demonstrated in the country or zone for the past 12 months;
- 4) an awareness programme is in place related to avian influenza viruses *risks* and the specific *biosecurity* and management measures to address them;
- 5) *commodities* are imported in accordance with Articles 10.4.7. to 10.4.22.

Surveillance should be adapted to parts of the country or existing zones depending on historical or geographical factors, industry structure, population data and proximity to recent *outbreaks* or the use of *vaccination*.

Article 10.4.3.bis

Country or zone free from high pathogenicity avian influenza in commercial poultry

A country or zone may be considered free from high pathogenicity avian influenza in commercial poultry when the country or zone meets the conditions in points 1., 2., 4. and 5. in Article 10.4.3., and for the past 12 months:

- 1) absence of *infection* with high pathogenicity avian influenza viruses, based on *surveillance*, in accordance with Chapter 1.4. and Articles 10.4.26. to 10.4.30., has been demonstrated in commercial poultry in the country or zone;
- 2) commercial poultry in the country or zone are effectively separated from other birds, including *poultry* other than commercial poultry, and *wild* birds, by *biosecurity*, effectively implemented and supervised;
- 3) the *Veterinary Authority* has current knowledge of the distribution of all commercial poultry establishments;
- 4) in cases of occurrences of high pathogenicity avian influenza virus in *poultry* other than commercial poultry:
 - a) the *Veterinary Authority* performs an epidemiological investigation that concludes there has been no direct or indirect contact with commercial poultry or that the likelihood of exposure to commercial poultry is considered negligible;
 - b) a *stamping-out policy* is applied to all occurrences of high pathogenicity avian influenza viruses in *poultry* other than commercial poultry.

Article 10.4.4.

Compartment free from high pathogenicity avian influenza

The *establishment* of a *compartment* free from high pathogenicity avian influenza in commercial poultry, should be in accordance with relevant requirements of this chapter and the principles described in Chapters 4.4. and 4.5.

[...]

Article 10.4.6.

Recovery of free status in poultry or commercial poultry

If *infection* with high pathogenicity avian influenza virus has occurred in *poultry* in a previously free country or zone, the free status may be regained after a minimum period of 28 days (i.e. two *flock-level incubation periods*) after a *stamping-out policy* has been completed (i.e. after the *disinfection* of the last affected *establishment*), provided that *surveillance* in accordance with Articles 10.4.26. to 10.4.30., in particular point 3 of Article 10.4.28., has also been carried out during that period and has demonstrated the absence of *infection*.

If a *stamping-out policy* is not implemented, Article 10.4.3. or 10.4.3.bis applies.

[...]

CHAPTER 10.9.

INFECTION WITH NEWCASTLE VIRUS

[...]

Article 10.9.3.

Newcastle disease free country, zone or compartment

A country, *zone* or *compartment* may be considered free from ND when it has been shown that NDV *infection* in *poultry* has not been present in the country, *zone* or *compartment* for the past 12 months, based on *surveillance* in accordance with Articles 10.9.22. to 10.9.26.

If *infection* has occurred in *poultry* in a previously free country, *zone* or *compartment*, ND free status can be regained ~~three months~~42 days after a *stamping-out policy* (including *disinfection* of all affected *establishments*) is applied, providing that *surveillance* in accordance with Articles 10.9.22. to 10.9.26. has been carried out during that ~~three month~~-period.

[...]

CHAPTER 11.9.

INFECTION WITH LUMPY SKIN DISEASE VIRUS

Article 11.9.1.

General provisions

Lumpy skin disease (LSD) virus (LSDV), belonging to the genus Capripoxvirus, may infect susceptible animals ~~are~~ ~~bovines (*Bos indicus* and *B. taurus*) and water buffaloes (*Bubalus bubalis*) and certain wild ruminants, which Wild ruminants~~ do not play a significant epidemiological role.

For the purposes of the *Terrestrial Code*, lumpy skin disease (LSD) is defined as an *infection* of bovines, hereafter 'animal hosts' ~~and water buffaloes with lumpy skin disease virus (LSDV).~~

The following defines the occurrence of *infection* with LSDV:

- 1) LSDV has been isolated from a sample from ~~an animal host~~ ~~bovine or a water buffalo~~; or
- 2) antigen ~~specific to capripoxviruses~~ or nucleic acid specific to LSDV, excluding vaccine strains, has been identified in a sample from ~~a bovine or a water buffalo~~ ~~an animal host~~ showing clinical signs consistent with LSD, or epidemiologically linked to a suspected or confirmed case, or giving cause for suspicion of previous association ~~or with or exposure to~~ ~~contact with~~ LSDV; or
- 3) antibodies specific to ~~LSDV capripoxviruses~~, ~~which are not the consequence of vaccination~~, have been detected in a sample from ~~a bovine or a water buffalo~~ ~~an animal host~~ ~~buffalo~~ that either shows clinical signs consistent with LSD, or is epidemiologically linked to a suspected or confirmed case.

For the purposes of the *Terrestrial Code*, the *incubation period* for LSD shall be 28 days.

Standards for ~~diagnosis and diagnostic tests~~, and vaccines, ~~as well as and~~ information on ~~the~~ epidemiology are described in the *Terrestrial Manual*.

Article 11.9.2.

Safe commodities

When authorising import or transit of the following *commodities*, *Veterinary Authorities* should not require any LSD-related conditions regardless of the status of the animal population of the *exporting country*:

- 1) ~~pasteurised ultra-high temperature (UHT) milk, and milk products thereof;~~
- 42) skeletal muscle *meat* of animals slaughtered in an ~~approved slaughterhouse/abattoir~~ and subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results;
- 3) ~~heat-treated meat products in the hermetically sealed container with a F₀ value of 3 or above;~~
- 24) ~~casings;~~
- 35) ~~gelatine and collagen;~~
- 46) ~~tallow; rendered fat;~~
- 57) ~~processed~~ hooves and horns;
- 68) ~~extruded dry pet food;~~

79) protein meal.

Article 11.9.3.

Country or zone free from LSD

A country or a zone may be considered free from LSD when: ~~infection with LSDV is notifiable in the entire country, importation of bovines and water buffaloes and their commodities is carried out in accordance with this chapter, and either:~~

- 1) ~~LSD has been a notifiable disease in the entire country for at least the past two years;~~
- 2) ~~appropriate biosecurity and sanitary measures to prevent the introduction of infection have been in place; in particular, the importations or movements of relevant commodities into the country or zone have been carried out in accordance with this chapter or other relevant chapters of the Terrestrial Code, including Chapter 2.1. 'Import risk analysis';~~
- 3) ~~and either:~~
 - a) ~~the country or zone is historically free as described in point 2b) of Article 1.4.6.; or~~
 - b) ~~i) for at least two years, in the country or zone, a vaccination programme aiming at eradication in the target population in accordance with Chapter 4.18. has been applied using vaccines in accordance with manufacturer's instructions;~~
~~ii) vaccination has been prohibited in the country or zone, and there has been no case for 18 months since the cessation of vaccination demonstrated using a clinical, virological and serological surveillance programme in accordance with Article 11.9.15.; or~~
~~iii) vaccination has been prohibited in the country or zone, and there has been no case for 30 months since the cessation of vaccination demonstrated using an active clinical surveillance programme in accordance with Article 11.9.15.~~
~~for at least three years, vaccination has been prohibited in the country or zone and a clinical surveillance programme in accordance with Article 11.9.15. has demonstrated no occurrence of infection with LSDV; or~~
 - e) ~~for at least two years, vaccination has been prohibited in the country or zone and a clinical, virological and serological surveillance programme in accordance with Article 11.9.15. has demonstrated no occurrence of infection with LSDV.~~

In order to maintain its status, a country or zone free from LSD should:

- 1) comply with points 2) a) and b) above and vaccination continues to be prohibited;
- 2) conduct surveillance in accordance with Article 11.9.15.

A country or zone free from LSD that is adjacent to an infected country or zone should include a zone in which surveillance is conducted in accordance with Article 11.9.15.

~~A country or zone free from LSD will not lose its status as a result of introduction of seropositive or vaccinated bovines or water buffaloes or their commodities, provided they were introduced in accordance with this chapter.~~

Article 11.9.4.

Recovery of free status

- 1) When a case of LSD occurs in a country or zone previously free from LSD, one of the following waiting periods is applicable to regain free status:
 - a) when a stamping-out policy has been applied;

- i) 12~~14~~ months after the cleaning and disinfection of the last infected establishment following the slaughter or killing of the last case, or after the last vaccination if emergency vaccination has been used, whichever occurred last, and during which period clinical, virological and serological surveillance conducted in accordance with Article 11.9.15. has demonstrated no occurrence of infection with LSDV;
 - ii) 24~~26~~ months after the cleaning and disinfection of the last infected establishment following the slaughter or killing of the last case, or after the last vaccination if emergency vaccination has been used, whichever occurred last, and during which period clinical surveillance alone conducted in accordance with Article 11.9.15. has demonstrated no occurrence of infection with LSDV;
- b) when a stamping-out policy is not applied, Article 11~~9~~.9.3. applies.
- 2) When preventive vaccination is conducted in a country or zone free from LSD, in response to a threat but without the occurrence of a case of LSD, free status may be regained eight months after the last vaccination when clinical, virological and serological surveillance conducted in accordance with Article 11.9.15. has demonstrated no occurrence of infection with LSDV.

Article 11.9.5.

Recommendations for importation of bovines from countries or zones free from LSD

For bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an international veterinary certificate attesting that the animals:

- 1) showed no clinical signs of LSD on the day of shipment;
- 2) come from a country or zone free from LSD.

Article 11.9.6.

Recommendations for importation of bovines from countries or zones ~~not free from~~infected with LSDV

For bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an international veterinary certificate attesting that the animals:

- 1) showed no clinical signs of LSD on the day of shipment;
- 2) were kept since birth, or for the past 30~~60~~ days prior to shipment, in an epidemiological unit~~establishment~~ where no case of LSD occurred during that period;
- 3) either,
 - a) were vaccinated against LSD using a live attenuated vaccine according to manufacturer's instructions between 30~~60~~ days and one year prior to shipment; or
 - 4) were demonstrated to have antibodies at least 30 days after vaccination;
- 5) b) were kept in a quarantine station~~quarantine centre~~ for the 28 days prior to shipment during which time they were subjected to an agent identification test with negative results; or
- 4) were protected from vectors at all times during transportation until point of exit.

Article 11.9.7.

Recommendations for importation of semen of bovines from countries or zones free from LSD

For semen of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor animals:
 - a) showed no clinical signs of LSD on the day of collection;
 - b) were kept in a free country or zone for at least 28 days prior to collection;
- 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 11.9.8.

Recommendations for importation of semen of bovines from countries or zones ~~not free~~ infected with from LSDV

For semen of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 4) 1) the donor males:
 - a) showed no clinical signs of LSD on the day of collection and the following 28 days;
 - b) were kept for the 3060 days prior to collection in a *semen collection centre* where no case of LSD occurred during that period;
 - c) EITHER:
 - i) were vaccinated regularly against LSD using a live attenuated vaccine according to manufacturer's instructions, the first *vaccination* being administrated at least 3060 days prior to the first semen collection; and/or
 - ii) ~~were demonstrated to have antibodies against LSDV at least 30 days after vaccination;~~

OR OR

 - iii) were subjected to a serological test to detect antibodies specific to capripoxviruses ~~LSDV~~, with negative results, at least every 28 days throughout the collection period and one test 21 days after the final collection for this consignment; and/or
 - iv) iii) were subjected to agent detection by PCR conducted on blood samples collected at commencement and conclusion of, and at least every 28 days during, semen collection for this consignment, with negative results;
- 2) ~~the semen to be exported was subjected to agent detection by PCR;~~
- 3) 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 11.9.9.

Recommendations for importation of bovine embryos of bovines from countries or zones free from LSD

For embryos of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor females:
 - a) showed no clinical signs of LSD on the day of collection of the embryos;
 - b) kept for at least 28 days prior to collection in a free country or zone;
- 2) the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10., as relevant;
- 3) the semen used for the production of the embryos complied with Articles 11.9.7. and 11.9.8., as relevant.

Article 11.9.10.

Recommendations for importation of bovine embryos of bovines from countries or zones ~~not free~~infected with from LSDV

For embryos of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor females:
 - a) showed no clinical signs of LSD on the day of collection and the following 28 days;
 - b) were kept in an *establishment* where no case of LSD occurred during the 3060 days prior to collection;
 - c) EITHER:
 - i) were vaccinated regularly against LSD using a live attenuated vaccine according to manufacturer's instructions, the first vaccination being administrated at least 3060 days prior to the first collection; ~~and/or~~
 - ii) ~~were demonstrated to have antibodies against LSDV at least 30 days after vaccination; OR~~
 - iii) were subjected to a serological test to detect antibodies ~~specific~~specific to capripoxvirusesLSDV, with negative negative results, on the day of collection and at least 21 days after collection;
 - d) ~~were subjected to agent detection by PCR with negative results on a blood sample on the day of collection;~~
- 2) the semen used for the production of the embryos complied with Articles 11.9.7. and 11.9.8., as relevant;
- 3) the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10.

Article 11.9.11.

Recommendations for the importation of ~~bovine milk and~~ milk products ~~except products listed in Article 11.9.2.~~

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that ~~the milk or~~ the milk products:

- 4) ~~have been derived from animals in a country or zone free from LSD;~~

OR

- 2) ~~were subjected to pasteurisation or any combination of control measures with equivalent performance as described in the Codex Alimentarius Code of Hygienic Practice for Milk and Milk Products.~~

- 1) ~~have been derived from animals in a country or zone free from LSD; or~~

- 12) ~~originated have been derived from animals kept in establishments that which at the time of milk collection were not infected or suspected of being infected with LSDV~~~~subjected to restrictions due to LSD;~~

- 2) ~~were subjected to one of the following treatments:~~

a) ~~pasteurisation;~~

b) ~~pH maintained at less than 6 for more than one hour;~~

e) ~~any combination of control measures with equivalent performance.~~

Article 11.9.12.

Recommendations for importation of ~~meal and flour from blood,~~ meat ~~other than skeletal muscle,~~ or ~~meat products~~~~bones~~ ~~except products listed in Article 11.9.2.~~ from bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting:

- 1) that these products were derived from animals in a country or zone free from LSD; or
- 2) that
- a) the products were processed using heat treatment to a minimum internal temperature of 65°C for at least 30 minutes;
- b) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.9.13.

Recommendations for importation of hides of bovines and water buffaloes

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products were derived from animals that had been kept in a country or zone free from LSD since birth or for at least the past 28 days;

OR

- 2) these products were:
- a) derived from animals which had undergone ante- and post-mortem inspections in accordance with Chapter 6.3. with favourable results; and

- b) dry-salted or wet-salted for a period of at least 14 days prior to dispatch; or
 - c) treated for a period of at least seven days in salt (NaCl) with the addition of 2% sodium carbonate (Na_2CO_3); or
 - d) dried for a period of at least 42 days at a temperature of at least 20°C; and
- 3) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.9.14.

Recommendations for importation of other animal products ~~of animal origin from bovines and water buffaloes~~

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products were derived from animals that have been kept in a country or *zone* free from LSD since birth or for at least the past 28 days; or
- 2) these products were processed to ensure the destruction of the LSDV and the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.9.15.

Surveillance

1. General principles of surveillance

A Member Country should justify the *surveillance* strategy chosen as being adequate to detect the presence of *infection* with LSDV even in the absence of clinical signs, given the prevailing epidemiological situation in accordance with Chapter 1.4. and Chapter 1.5. and under the responsibility of the *Veterinary Authority*.

The *Veterinary Services* should implement programmes to raise awareness among farmers and workers who have day-to-day contact with livestock, as well as *veterinary paraprofessionals*, *veterinarians* and diagnosticians, who should report promptly any suspicion of LSD.

In particular Member Countries should have in place:

- a) a formal and ongoing system for detecting and investigating *cases*;
- b) a procedure for the rapid collection and transport of samples from suspected *cases* to a *laboratory* for diagnosis;
- c) a system for recording, managing and analysing diagnostic and *surveillance* data.

2. Clinical surveillance

Clinical *surveillance* is essential for detecting *cases* of *infection* with LSDV and requires the physical examination of susceptible animals.

Surveillance based on clinical inspection provides a high level of confidence of detection of disease if a sufficient number of clinically susceptible animals is examined regularly at an appropriate frequency and investigations are recorded and quantified. Clinical examination and *laboratory* testing should be pre-planned and applied using appropriate types of samples to clarify the status of suspected *cases*.

3. Virological and serological surveillance

An active programme of *surveillance* of susceptible populations to detect evidence of *infection* with LSDV is useful to establish the status of a country or *zone*. Serological and molecular testing of bovines and water buffaloes may be used to detect presence of *infection* with LSDV in naturally infected animals.

The study population used for a serological survey should be representative of the target population (population at risk) in the country or *zone* and should be restricted to susceptible unvaccinated animals. Identification of vaccinated animals may minimise interference with serological *surveillance* and assist with recovery of free status.

4. Surveillance in high-risk areas

Disease-specific enhanced surveillance in a free country or zone should be carried out over an appropriate distance from the border with an infected country or zone, based upon geography, climate, history of infection and other relevant factors. The surveillance should be carried out over a distance of at least 20 kilometres from the border with that country or zone, but a lesser distance could be acceptable if there are relevant ecological or geographical features likely to interrupt the transmission of LSDV. A country or zone free from LSD may be protected from an adjacent infected country or zone by a protection zone established and maintained in accordance with Chapter 4.4.

CHAPTER 12.11.

INFECTION WITH I-AB AND I-C VARIANTS OF VENEZUELAN EQUINE ENCEPHALITIS VIRUS (VENEZUELAN EQUINE ENCEPHALOMYELITIS)

Article 12.11.1.

General provisions

Venezuelan equine encephalomyelitis (VEE) is a *vector*-borne disease of significant importance to public health transmitted by bites of culicine mosquitoes. While multiple mammalian species including humans are susceptible, while sylvatic rodents are the reservoir.

The causal agent of the VEE comprises a complex of six antigenic subtypes (I-VI), each currently considered a separate viral species. Equids are considered amplifying hosts of I-AB and I-C variants of the virus, which are the only ones associated with epidemics in equids and humans.

For the purposes of the *Terrestrial Code*, VEE is defined as an *infection* of equids (hereafter 'animal host') with I-AB or I-C variants of Venezuelan equine encephalitis virus (hereafter 'VEEV/IABC').

The following defines the occurrence of *infection* with VEEV/IABC:

- 1) VEEV/IABC has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid specific to VEEV/IABC has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with VEE, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion of previous association with or exposure to VEEV/IABC.

For the purposes of the *Terrestrial Code*, the *incubation period* shall be seven days.

For the purposes of the *Terrestrial Code*, the *infective period* shall be seven days.

Standards for diagnosis and vaccines, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Article 12.11.2.

Safe commodities

When authorising the importation or transit of the following *commodities*, *Veterinary Authorities* should not require any VEE-related conditions regardless of the *animal health status* of the country or *zone* of origin:

- 1) *meat products*;
- 2) processed hides and skins;
- 3) processed hooves;
- 4) gelatine and collagen;
- 5) *protein meal*;
- 6) extruded dry pet food;
- 7) rendered fat.

Article 12.11.3.

Country or zone free from VEE

A country or *zone* may be considered free from VEE when:

- 1) the *infection* has been notifiable in the entire country for at least the past 24 months;
- 2) either:
 - a) the historical freedom provisions as described in point 2 b) of Article 1.4.6. are met; or
 - b) *surveillance* in accordance with Article 12.11.10. has demonstrated the absence of ~~no evidence~~ *infection* with VEEV/IABC in the country or *zone* for at least the past 24 months;
- 3) appropriate *biosecurity* and *sanitary measures* to prevent the introduction of *infection* have been in place; in particular, the importations or movements of animal hosts and their *commodities* into the country or *zone* have been carried out in accordance with this chapter or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis'.

Article 12.11.4.

Compartment free from VEE

The establishment of a *compartment* free from VEE should follow the relevant provisions laid down in Article 12.11.3. and in Chapters 4.4. and 4.5.

Animal hosts in the free *compartment* should be protected against culicine mosquitoes by the application of an effective *biosecurity* management system, other preventive measures, and measures in accordance with Article 12.11.9.

Article 12.11.5.

Country or zone infected with VEE

A country or *zone* should be considered as infected with VEE when the conditions for freedom from VEE are not met.

Article 12.11.6.

Recovery of free status

Should a case of VEE occur in a previously free country or *zone*, its status may be recovered in accordance with Article 12.11.3.

Article 12.11.7.

Recommendations for importation of equids from countries, zones or compartments free from VEE

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical signs of VEE on the day of shipment;
- 2) were kept in a country, *zone* or *compartment* free from VEE since birth or for at least the past 1490 days prior to shipment.

Recommendations for importation of equids from countries or zones infected with VEE

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical signs consistent with VEE on the day of shipment; and
- 2) either,
 - a) were vaccinated against VEEV in accordance with the manufacturer's instructions at least ~~30~~60 days prior to shipment; or
 - b) were isolated in a *vector*-protected *quarantine centre* for at least seven days prior to shipment, which is located in an area of demonstrated low *vector* activity, were subjected to a nucleic acid test at least between two to five days after entry into the *quarantine centre* with negative results, and were protected from culicine mosquito bites at all times during transportation from the *quarantine centre* to the *place of shipment* in accordance with Article 12.11.9.

Protecting equids from culicine mosquito bites

1) Vector-protected quarantine centre

The means of protection of the *quarantine centre* should at least comprise the following:

- a) appropriate physical barriers at entry and exit points, for example a double-door entry-exit system;
- b) openings of the building are *vector* screened with mesh of appropriate gauge;
- c) *vector surveillance* and *vector* control within and around the building;
- d) measures to limit or eliminate larval habitats for *vectors* in the vicinity of the *quarantine centre*, such as removal of standing water;
- e) Standard Operating Procedures for operation of the *quarantine centre* and for transport of equids to the place of *loading*.

2) During transportation

When transporting unvaccinated equids through countries or *zones* infected with VEEV/IABC, *Veterinary Authorities* should require that strategies to protect equids from culicine mosquito bites are in place, considering the local ecology of the *vector*.

a) Transport by land

Risk management strategies should include:

- i) treating animals with an *approved* repellent to prevent bites prior to and during transportation, in *means of transport* disinfected and disinfested with *approved* disinfectant and insecticide;
- ii) *loading*, transporting and *unloading* animals at times of low *vector* activity, and avoiding areas of known high *vector* activity;
- iii) ensuring *means of transport* do not stop en route during dawn or dusk, or overnight, unless the *means of transport* is *vector* protected (e.g. fitted with mosquito-proof nets);
- iv) using historical, current or modelling information on VEEV/IABC and *surveillance* for *vectors* at common stopping and offloading points to identify low risk ports and transport routes.

b) Transport by air

Prior to *loading* the equids, *containers* are sprayed with an *approved* insecticide.

Containers in which equids are being transported, and the cargo hold of the aircraft should be sprayed with an *approved* insecticide when the doors have been closed and prior to take off. All possible insect harbourage should be treated. The insecticide sprayers should be retained for inspection on arrival.

In addition, during any stopover in countries or *zones* where *infection* with VEEV/IABC occurs, prior to the opening of any aircraft door and until all doors are closed, netting of appropriate gauge impregnated with an *approved* insecticide should be placed over all *containers*.

Article 12.11.10.

Surveillance for VEE

Surveillance of VEE should be carried out in accordance with Chapter 1.4. and with the following recommendations.

- 1) The primary objective of *surveillance* for VEE, including both epizootic and enzootic variants, is to mitigate animal health and public health *risks* through early detection and rapid response. *Surveillance* enables *Veterinary Authority* to coordinate effectively and in a timely manner with public health and other relevant *Competent Authorities*, under a One Health approach to facilitate ~~facilitating~~ the exchange of information critical to protect both animal health and human health. It also supports the safe *international trade* of equids.
- 2) Equids are amplifying hosts of VEEV/IABC and key sentinel species for the presence of the VEEV epizootic variants. In some cases, they may also act as useful sentinels for enzootic variants providing valuable early warning of virus circulation in endemic regions. As such, they should be targeted by *surveillance*.
- 3) *Early warning systems* for VEE should be capable of identifying epidemic events. *Veterinary Authorities* should promote awareness campaigns to sensitise the owners and keepers of equids, *veterinarians* and the public health authorities of the disease risks.

Clinical and syndromic *surveillance* to detect signs of *infection* with VEEV/IABC in animal hosts are essential components of an *early warning system*. Clinical disease in animal hosts is characterised by fever, anorexia, and severe depression. In severe cases, it can progress to neurological signs and death. Clinical *surveillance* targeted at neurological signs in equids can provide reinforced evidence of the occurrence of an epidemic. However, clinical signs are not pathognomonic per se. Suspect cases should always be confirmed by laboratory testing, that should include sequencing and taking into account the epidemiological situation. ~~Because VEEV mutates rapidly~~ Given that other VEEV subtypes (e.g. I-E, I-D, II) have on occasion been associated with disease in equids or humans, and small genetic changes may give rise to new epizootic variants, it is important to monitor molecular and epidemiological data for changes in transmission and genetic diversity, especially in endemic lineages, to detect newly emerging epizootic strains.

- 4) Considering the epidemiological situation in association with prevailing agricultural practices (i.e., rice culture) and weather conditions favouring the emergence of a large population of mosquitoes, an epidemic of VEEV/IABC should be suspected when there is an increased number of equids showing clinical signs consistent with *infection* with VEEV/IABC or reports of infection in humans. This is especially the case for countries or *zones* where *infection* with VEEV/IABC has occurred, or countries or *zones* adjacent to a country or *zone* in which epidemics have been reported. Ecological conditions can be assessed through sharing and analysis of meteorological data, including information access through remote sensing to estimate precipitation and water levels, and especially monitoring of *vector* activity.
- 5) In epidemic situations, *surveillance* should be conducted to define the extent of the epidemic area for the purpose of disease prevention and control.
- 6) *Surveillance* for *vectors* conducted in accordance with Chapter 1.5. may be helpful in identifying *vector* activity and a situation ~~conducting~~ conducive to risk of transmission for VEEV/IABC. However, testing large numbers of mosquitoes to detect VEEV/IABC circulation is of low sensitivity and, therefore, is not recommended as a routine procedure. Rather, *animal-based surveillance* strategies are preferred to detect VEEV/IABC circulation.

CHAPTER 14.9.

INFECTION WITH SHEEPPOX VIRUS (SHEEPPOX)
AND GOATPOX VIRUS (GOATPOX)

Article 14.9.1.

General provisions

For the purposes of the *Terrestrial Code*, sheeppox or goatpox is defined as an *infection* of domestic sheep or goats, hereafter 'animal hosts', with sheeppox virus (SPPV) or goatpox virus (GTPV), belonging to the genus *Capripoxvirus*.

The following defines the occurrence of *infection* with SPPV or GTPV:

- 1) SPPV or GTPV has been isolated and identified as such in a sample from an animal host; or
- 2) nucleic acid specific to SPPV or GTPV, excluding vaccine strains, has been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion by previous association with or exposure to SPPV or GTPV; or
- 3) antigens specific to capripoxviruses, which are not the consequence of *vaccination*, ~~have~~have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion by previous association or exposure to SPPV or GTPV; or
- 4) antibodies specific to capripoxviruses, which are not the consequence of *vaccination*, have been detected in a sample from an animal host showing clinical signs or pathological lesions consistent with sheeppox or goatpox, or epidemiologically linked to a confirmed or suspected case, or giving cause for suspicion by previous association or exposure to SPPV or GTPV.

For the purposes of the *Terrestrial Code*, the *incubation period* for sheeppox and goatpox shall be 21 days.

Standards for diagnosis and vaccines, as well as information on the epidemiology, are described in the *Terrestrial Manual*.

Article 14.9.2.

Safe commodities

When authorising the importation or transit of the following *commodities*, *Veterinary Authorities* should not require any sheeppox- ~~and~~ or goatpox-related conditions regardless of the *animal health status* of the country or zone of origin:

- 1) ultra high temperature (UHT) milk;
- 42) skeletal muscle *meat* of animals slaughtered in an approved *slaughterhouse/abattoir* and subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results;
- 23) heat-treated *meat products* in a hermetically sealed container with an F_0 value of 3 or above;

~~34)~~ ~~processed~~ hooves and horns;

~~54)~~ gelatine and collagen;

~~65)~~ *protein meal*;

~~76)~~ extruded dry pet food;

8) rendered fat.

Article 14.9.3.

Country or zone free from sheeppox and goatpox

A country or *zone* may be considered free from sheeppox and goatpox when:

1) the country or *zone* is historically free as described in point 2 b) of Article 1.4.6.;

OR

2) a) *infection* with SPPV and GTPV has been a *notifiable disease* in the entire country for at least the past two years;

2) b) for at least the past two years, appropriate *biosecurity* and *sanitary measures* to prevent the introduction of *infection* have been in place; in particular, the importations or movements of animal hosts and other *commodities* into the country or *zone* have been carried out in accordance with this chapter or other relevant chapters of the *Terrestrial Code*, including Chapter 2.1. 'Import risk analysis';

~~3) *vaccination* is prohibited and no *vaccination* has taken place for at least the past eight months;~~

~~4) c) and either:~~

~~a) the country or *zone* is historically free as described in point 2 b) of Article 1.4.6.; or~~

~~ib) *vaccination* has been prohibited, and for at least two years since the cessation of *vaccination*, a clinical *surveillance* programme in accordance with Article 14.9.22. has been in place in the entire country or *zone* and there has been no *case* in the country or *zone*; or~~

~~ii) *vaccination* has been prohibited, and for at least twelve months since the cessation of *vaccination*, a clinical, virological and serological *surveillance* programme in accordance with Article 14.9.22. has been in place in the entire country or *zone* and there has been no *case* in the country or *zone*.~~

In order to maintain its status, a country or *zone* free from sheeppox and goatpox should:

1) comply with points ~~1), 2) a) and 2) b) 3)~~ above and *vaccination* continues to be prohibited;

2) conduct *surveillance* in accordance with Articles 14.9.20. and 14.9.21.

Article 14.9.4.

Compartment free from sheeppox and goatpox

The establishment of a *compartment* free from sheeppox and goatpox should follow the relevant provisions laid down in this chapter and in Chapters 4.4. and 4.5.

Animal hosts in the *compartment* should be protected against all potential transmission routes including fomite and *vector*-borne transmission by the application of an effective *biosecurity* management system.

Article 14.9.5.

Country or zone infected with SPPV and GTPV

A country or *zone* should be considered as infected with SPPV and GTPV when the conditions for freedom from sheeppox and goatpox are not met.

Article 14.9.6.

Recovery of free status of the country or zone

Should a *case* of *infection* with SPPV or GTPV occur in a previously free country or *zone*, its status may be recovered eight months after the cleaning and *disinfection* of the last infected *establishment* or the last *vaccination*, whichever occurred last, provided that:

- 1) a *stamping out policy* has been implemented;
- 2) clinical, virological and serological *surveillance* conducted in accordance with Article 14.9.22. has demonstrated the absence of *infection*.

Otherwise, Article 14.9.3. applies.

Article 14.9.7.

Recommendations for importation of domestic sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical signs of sheeppox and goatpox on the day of shipment;
- 2) were kept since birth or at least 21 days prior to shipment in the free country, *zone* or *compartment*.

Article 14.9.8.

Recommendations for importation of domestic sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the animals:

- 1) showed no clinical signs of sheeppox and goatpox on the day of shipment;
- 2) were kept since birth or in a quarantine centre for the past 42 days prior to shipment in an establishment where no case of sheeppox and goatpox occurred during that period; and
- 3) either EITHER
 - a) have not been vaccinated against sheeppox and goatpox, were kept in a quarantine centre for the 42 days prior to shipment, and were subjected to a serological test at least 35 days after entering the *quarantine centre*, with negative results;

OR

- b) were vaccinated using a live attenuated vaccine following the manufacturer's guidelines-instructions not less than 28 days prior to shipment.

Article 14.9.9.

Recommendations for importation of semen of domestic sheep and goats from countries, zones or compartments free from sheepox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor males:
 - a) showed no clinical sign of sheepox and goatpox on the day of semen collection;
 - b) were kept in a free country, *zone* or *compartment* since birth or at least 21 days prior to semen collection; and
- 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 14.9.10.

Recommendations for importation of semen of domestic sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor males:
 - a) have been kept for at least 42 days prior to semen collection in a *semen collection centre* where no case of *infection* with SPPV and GTPV was reported during that period;
 - b) showed no clinical sign of sheepox and goatpox during that period and for the following 21 days; and
- EITHER
- c) were vaccinated using a live attenuated vaccine following the manufacturer's guidelines-instructions; not less than 28 days prior to the first semen collection; ~~and~~
- OR
- d) have not been vaccinated against sheepox and goatpox; and
 - i) were subjected to a serological test to detect antibodies specific to capripoxviruses, with negative results, at least every 28 days throughout the collection period and one test 28 days after the final collection for this consignment; OR
 - ii) were subjected to an agent detection test at commencement and conclusion of, and at least every 28 days during semen collection for this consignment, with negative results;
- 2) the semen was collected, processed and stored in a *semen collection centre* in accordance with Chapters 4.6. and 4.7.

Article 14.9.11.

Recommendations for importation of oocytes or embryos of domestic sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor animals:
 - a) showed no clinical sign of sheeppox and goatpox on the day of collection;
 - b) were kept in a free country, *zone* or *compartment* since birth or at least 21 days prior to collection; and
- 2) the semen used to fertilise the oocytes complied with the conditions referred to in Article 14.9.9. or Article 14.9.10., as relevant;
- 3) the oocytes or embryos were collected, processed and stored in accordance with Chapters 4.8. and 4.10., as relevant.

Article 14.9.12.

Recommendations for importation of oocytes or embryos of domestic sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the donor animals:
 - a) have been kept for at least 42 days prior to collection, in an *establishment* where no *case* of *infection* with SPPV and GTPV was reported during that period;
 - b) showed no clinical sign of sheeppox and goatpox during that period and for the following 21 days; and

EITHER

 - c) were vaccinated using a live attenuated vaccine following the manufacturer's guidelines instructions; not less than 28 days prior to the first collection;

OR

 - d) have not been vaccinated against SPPV and GTPV and were subjected to a serological test to detect antibodies specific to capripoxviruses, with negative results, on the day of collection and at least 28 days after collection;
- 2) the semen used to fertilise the oocytes complied with the conditions referred to in Article 14.9.9. or Article 14.9.10., as relevant;
- 3) the oocytes or embryos were collected, processed and stored in accordance with Chapters 4.8. and 4.10., as relevant.

Article 14.9.13.

Recommendations for importation of fresh meat and meat products except products listed in Article 14.9.2. from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat* comes from animals which:

- 1) were kept since birth or at least 21 days prior to shipment in the free country, *zone* or *compartment*;
- 2) have been slaughtered in an approved *slaughterhouse/abattoir* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results.

Article 14.9.14.

Recommendations for importation of meat products except products listed in Article 14.9.2. from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that:

- 1) the entire consignment of *meat products* comes from animals which:
 - a) showed no clinical sign of sheeppox and goatpox within 24 hours before *slaughter*;
 - b) have been slaughtered in an approved *slaughterhouse/abattoir* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.3., with favourable results;
- 2) the *meat products* were processed using heat treatment to a minimum internal temperature of 65°C for at least 30 minutes;
- 3) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of SPPV and GTPV.

Article 14.9.15.

Recommendations for importation of milk and milk products from domestic sheep and goats except products listed in Article 14.9.2. from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that these products come from animals which have been kept in a country, *zone* or *compartment* free from sheeppox and goatpox for at least 21 days prior to milking.

Article 14.9.16.

Recommendations for importation of milk and milk products from domestic sheep and goats except products listed in Article 14.9.2. from countries or zones infected with SPPV and GTPV

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that these products:

- 1) originated from animals kept in *establishments* that at the time of *milk* collection were not infected or suspected to be infected with ~~were not subjected to restrictions due to sheeppox SPPV and goatpox GTPV;~~
- 2) were subjected to one of the following treatments:
 - a) pasteurisation;

- b) ~~pH maintained at less than 6 for more than one hour;~~
- e) any combination of ~~control~~ risk mitigation measures with an equivalent performance.

Article 14.9.17.

Recommendations for importation of ~~skins, wool and hair from~~ domestic sheep and goats from countries, zones or compartments free from sheeppox and goatpox

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that these products originated from animals that:

- 1) showed no clinical signs of sheeppox and goatpox;
- 2) were kept since birth or at least 21 days prior in a free country, *zone* or *compartment*.

Article 14.9.18.

Recommendations for importation of wool and hair from domestic sheep and goats from countries or zones infected with SPPV and GTPV

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products:
 - a) were derived from animals complying with Article 14.9.8.; or
 - b) have been washed by immersion in a water-soluble detergent with sodium hydroxide or potassium hydroxide held at 60 to 70°C for a minimum of 10 minutes;
- 2) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of SPPV and GTPV.

Article 14.9.19.

Recommendations for importation of skins from domestic sheep and goats

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

- 1) these products were derived from *animals* that had been kept in a country or *zone* free from sheeppox and goatpox since birth or for at least the past 42 days;

OR

- 2) these products were:
 - a) derived from *animals* which had undergone ante- and post-mortem inspections in accordance with Chapter 6.3. with favourable results; and
 - b) dry-salted or wet-salted for a period of at least 14 days prior to dispatch; or
 - c) treated for a period of at least seven days in salt (NaCl) with the addition of 2% sodium carbonate (Na₂CO₃); or
 - d) dried for a period of at least 42 days at a temperature of at least 20°C; and

- 3) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of SPPV and GTPV.

Article 14.9.20.

Principles of surveillance for sheeppox and goatpox

Articles 14.9.20. to 14.9.22. define the principles and provide guidance on *surveillance* for sheeppox and goatpox, complementary to Chapter 1.4. and Chapter 1.5.

The purposes of *surveillance* may be the early detection of *cases*, the measurement and gathering of data for the design of control programmes, monitoring of prevention and control programmes, or for the demonstration of freedom of *infection* in a country, *zone* or *compartment*.

Important components of the epidemiology of sheeppox and goatpox that should be considered when planning *surveillance* programmes are:

- Multiple routes of transmission including direct contact, aerosols, *vector-borne*, ~~and~~ and via fomites and from the environment;
- Skin lesions and scabs contain high viral loads which are important sources for transmission;
- The absence of carrier states, subclinical *infection*, or latent *infection*;
- A long *incubation period* of up to 21 days;
- Ability of the virus to potentially survive for months in the environment under appropriate conditions.

Article 14.9.21.

Surveillance for early warning of sheeppox and goatpox

An ongoing *surveillance* programme for sheeppox and goatpox should be in place and be designed to detect the presence of *infection* with SPPV or *infection* with GTPV in the country, *zone* or *compartment* in a timely manner.

The sheeppox and goatpox *surveillance* programme should include the following:

- 1) An *early warning system* for reporting suspected ~~animals~~ cases, in accordance with Article 1.4.5.;
- 2) Implementation, as relevant, of regular and frequent clinical inspection of animals at risk of sheeppox and goatpox that may, for instance, include animals that were imported from infected countries, animals in high-risk areas adjacent to infected countries or *zones*, or animals in or around *establishments* such as *slaughterhouses/abattoirs* or live animal markets;
- 3) Samples from suspected *cases* should be sent to a *laboratory* for confirmatory testing.

~~Veterinary Authority should develop early warning systems to detect sheeppox or goatpox, and promote awareness campaigns to inform~~ sensitise ~~veterinarians~~, owners, keepers, and other stakeholders of the domestic sheep and goat industry.

Article 14.9.22.

Surveillance for demonstrating freedom from sheeppox and goatpox

In addition to the provisions in Article 1.4.6., the following strategies may be used by Member Countries seeking to demonstrate freedom in accordance with Articles 14.9.3. and 14.9.6.

1. Clinical surveillance

Clinical *surveillance* is essential for detecting any *case* of *infection* with SPPV or GTPV and requires the physical examination of animal hosts. This should be based on a *surveillance* programme that is designed to provide a high level of confidence of detection of disease and requires a sufficient number of clinically susceptible animals to be examined regularly at an appropriate frequency and investigations recorded and quantified.

2. Serological and virological surveillance

As an addition to clinical *surveillance*, serological and virological testing of domestic sheep and goats may be used to detect the presence of *infection* with SPPV and GTPV. The study population should be representative of the target population (population at risk) in the country or *zone*.

Serological and virological *surveillance* programmes should take into account *vaccination* programmes in the region and *vaccine* strains being used. It is not possible to differentiate vaccinated and unvaccinated animals via serological methods and therefore any serological *surveillance* should be restricted to unvaccinated animals.

In some circumstances it is possible to differentiate between wild-type and vaccine strains using nucleic acid identification methods.

Article 14.9.23.

Prevention and control programmes for sheeppox and goatpox

This article describes important components of prevention and control programmes, complementary to Chapter 4.19. Important components of a prevention and control programme for sheeppox and goatpox include a combination of *biosecurity*, *stamping-out policy*, *animal traceability*, movement controls, *vaccination*, *surveillance* and *risk communication*. These programmes should be used when Member Countries wish to attain a free status from sheeppox and goatpox.

Prevention of sheeppox and goatpox relies on *biosecurity*, awareness programmes and movement controls undertaken in accordance with the *sanitary measures* recommended in this chapter. Member Countries may also apply a *vaccination* programme in accordance with Chapter 4.18. in areas of high risk. *Protection zones* in accordance with Article 4.4.6. may be established.

- *Laboratory capacity*: Member Countries are advised to have systems in place for the collection and submission of samples to a *laboratory* that performs diagnostic testing to confirm suspected *cases*.
- *Biosecurity*: SPPV and GTPV are stable for long periods of time in the environment and on fomites and therefore *biosecurity*, as well as cleaning and *disinfection* and safe disposal of dead animals, by-products and waste are important. *Biosecurity* should apply to all actors in the production chain including service providers ~~like~~ such as *veterinarians* and shearers.
- *Stamping-out policy*: a *stamping-out policy* including the *killing* of all susceptible animals in the *flock* or *epidemiological unit* is useful for the rapid control of sheeppox and goatpox. Member Countries may choose to implement a *stamping-out policy* that only involves the removal of selected animals such as clinical or in-contact animals which could assist in progressively reducing the prevalence of disease. Zoning and movement controls are important in instances where a *stamping-out policy* is applied. Compensation should be considered to facilitate compliance.
- Movement controls: movement controls of animals and *animal products* are important to stop direct and indirect transmission, in particular animals, as they present the highest risk of virus transmission. *Animal identification* in accordance with Chapter 4.2. and *animal traceability* should be in place to support the application of movement controls. Movement controls may also be applied as part of zoning in accordance with Chapter 4.4. Attention should be given to management of common grazing and transhumance practices which represent an important route of virus transmission.

-
- *Vaccination*: *vaccination* may be used to control sheeppox and goatpox in endemic areas, or in a high-risk free country or zone to prevent the introduction or spread of SPPV and GTPV or as an emergency measure in response to *outbreaks*. Any vaccine used should comply with a *vaccination* strategy as described in Chapter 4.18. Member Countries may consider having in their legal framework the provisions for emergency *vaccination* using live attenuated vaccines. Post-vaccination monitoring should be used to measure the effectiveness of *vaccination* programmes and may be done using approaches ~~like~~ such as serological methods, epidemiological methods and *vaccination* records.
 - *Vector* control: although transmission of SPPV and GTPV by *vectors* is possible, it is not the main transmission route and therefore other measures should be ~~prioritised over~~implemented prior to *vector* control measures. *Vector* control may include *vector* protection or applying insect repellents or insecticides to *establishments*.

As with all prevention and control programmes, collaboration with stakeholders is essential and *risk communication* should be designed in accordance with Chapter 2.1.

TERMINOLOGY: USE OF THE TERMS 'NOTIFY', 'NOTIFIABLE DISEASE', 'REPORT' AND 'REPORTABLE DISEASE'

Article 3.2.12.

[...]

6. regular and timely official *notification or report* to WOA, World Trade Organization, trading partners and other relevant organisations of changes in *animal* disease status, regulations and *sanitary measures* and systems, in accordance with the procedures established by these organisations, including Chapters 1.1. and 1.3.;

[...]

Article 3.4.1.

[...]

Veterinary legislation should, at a minimum, provide a basis for *Competent Authorities* to meet their obligations and the recommendations as defined in the *Terrestrial Code* and the relevant recommendations of the Codex Alimentarius Commission. It should also comply with the relevant requirements of international instruments related to the mitigation of biological threats. In addition, there is an obligation for World Trade Organization (WTO) Members under the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) to notify report to the WTO of changes in *sanitary measures*, especially changes in legislation that affect trade, and provide relevant information.

[...]

Article 4.2.1.

1. *Animal identification* and *animal traceability* are tools for addressing *animal* health (including zoonoses) and food safety issues. These tools may significantly improve the effectiveness of activities such as: the management of disease *outbreaks* and food safety incidents, *vaccination* programmes, *herd* or *flock* husbandry, zoning or compartmentalisation, *surveillance*, early warning, early response and reporting and notification systems, *animal* movement controls, inspection, certification, fair practices in trade and the utilisation of veterinary drugs, *feed* and pesticides at farm level.

[...]

Article 4.3.3.

1. Desired outcomes

Desired outcomes should be defined through consultation between the *Veterinary Authority* and interested parties, which should include those in the *animal* production and processing chain, private sector *veterinarians*, scientific research organisations and other public and private organisations. Desired outcomes may be defined in terms of any or all of the following:

a. *animal* health (e.g. disease *surveillance*, reporting and *notification*; detection and control of disease; *vaccination* programmes);

[...]

Article 4.5.7.

Emergency response and ~~notification~~ reporting

Early detection, diagnosis and ~~notification~~ reporting of notifiable diseases are critical to minimise the consequences of *outbreaks*.

In the event of suspicion of occurrence of the disease for which the *compartment* was defined, the free status of the *compartment* should be immediately suspended. If confirmed, the status of the *compartment* should be immediately revoked and *importing countries* should be ~~notified~~ reported following the provisions of Article 5.3.7.

In case of an occurrence of any infectious disease not present in accordance with the baseline *animal* health report of the *compartment* referred to in Article 4.5.4., the management of the *compartment* should ~~notify~~ report to the Veterinary Authority, and initiate a review to determine whether there has been a breach in the *biosecurity* measures. If a significant breach in *biosecurity*, even in the absence of *outbreak*, is detected, export certification as a free *compartment* should be suspended. Disease free status of the *compartment* may only be reinstated after the *compartment* has adopted the necessary measures to re-establish the original *biosecurity* level and the *Veterinary Authority* re-approves the status of the *compartment*.

[...]

Article 4.5.8.

[...]

The *Veterinary Authority* has the final authority in granting, suspending and revoking the status of a *compartment*. The *Veterinary Authority* should continuously supervise compliance with all the requirements critical to the maintenance of the *compartment* status described in this chapter and ensure that all the information is readily accessible to the *importing countries*. Any significant change should be ~~notified~~ reported to the *importing country*.

Article 4.15.5.

[...]

Bee-keepers should:

3. immediately ~~notify~~ report to the *Veterinary Authority* or other *Competent Authority* of any suspicion of a notifiable listed disease of bees in the breeding apiary and in other epidemiologically linked apiaries;

[...]

Article 5.1.4.

Responsibilities in case of an incident related to importation

1. *International trade* involves a continuing ethical responsibility. Therefore, if within the recognized *incubation periods* of the various diseases subsequent to an export taking place, the *Veterinary Authority* becomes aware of the appearance or reappearance of a disease which has been specifically included in the *international veterinary certificate*, there is an obligation for this *Veterinary Authority* to ~~notify~~ inform the *importing country*, so that the imported *commodities* may be inspected or tested and appropriate action be taken to limit the spread of the disease should it have been inadvertently introduced.

[...]

3. In case of suspicion, on reasonable grounds, that an official certificate may be fraudulent, the *Veterinary Authorities* of the *importing country* and *exporting country* should conduct an investigation. Consideration should also be given to ~~notifying~~ informing any third country that may have been implicated. All associated consignments should be kept under official control, pending the outcome of the investigation. The *Veterinary Authorities* of all countries involved should fully cooperate with the investigation. If the certificate is found to be fraudulent, every effort should be made to identify those responsible so that appropriate action can be taken in accordance with the relevant legislation.

Article 5.9.5.

[...]

8. Responsible quarantine officials should immediately ~~notify~~ report to the *Veterinary Authority* of any severe and/or unusual illnesses and deaths occurring in quarantined non-human primates.

[...]

Article 6.6.5.

[...]

8. The responsible *veterinarian* should evaluate the results of *surveillance* testing for Salmonella and supervise the implementation of appropriate control measures. These results should be available to the *veterinarian* before marketing if a veterinary certificate for *flock* Salmonella status is required. When required by the *Competent Authority*, the *veterinarian* or other person responsible for ~~notification~~ reporting should ~~notify~~ report to the *Competent Authority* if the presence of Salmonella of the relevant serotype is confirmed.

[...]

Article 7.3.6.

[...]

At the time of certification, the *veterinarian* should ~~notify~~ inform the *animal* handler or the driver of any factors affecting the fitness of *animals* to travel for a particular *journey*.

Article 7.4.4.

[...]

3. Facilities and equipment

Specific arrangements should be made to ensure that holding and loading facilities including ramps, trucks, and air-conditioning *units* are available at departure, all in transit and arrival airports. This should include identification of specific staff who are responsible and the method of contacting them, e.g. telephone number and address.

Specific ~~notification~~ reports should be given to all those responsible for providing facilities or equipment at the destination and in transit stops immediately before departure.

Containers should be loaded so as to ensure access can be made to the animals at all times.

[...]

Article 7.8.6.

[...]

4. Advice on zoonotic risks and notifiable diseases

The use of some species of *animals* poses a significant *risk* of the transmission of zoonotic disease, e.g. some nonhuman primates. The *veterinarian* should be consulted to identify sources of *animals* that minimise these *risks* and to ~~advise~~ advise on measures that may be taken in the *animal* facility to minimize the *risk* of transmission, e.g. personal protective equipment, appropriate *disinfection* procedures, air pressure differentials in *animal* holding rooms, etc. *Animals* brought into the institution may carry notifiable diseases ~~that require notification to government officials~~. It is important that the *veterinarian* be aware of, and comply with, these requirements.

[...]

Article 7.9.5.

[...]

1. b. Animal health management

[...]

Cattle at higher *risk* of disease or *distress* will require more frequent inspection by *animal handlers*. If *animal handlers* are not able to correct the causes of ill-health or *distress* or if they suspect the presence of a ~~listed~~ reportable notifiable disease they should seek advice from those having training and experience, such as *veterinarians* or other qualified advisers.

[...]

Article 7.10.4.

[...]

1. b. Animal health management, preventive medicine and veterinary treatment

[...]

If persons in charge are not able to identify the causes of diseases, ill-health or *distress*, or to correct these, or if they suspect the presence of a ~~reportable~~ notifiable disease, they should seek advice from *veterinarians* or other qualified advisers. Veterinary treatments should be prescribed by a *veterinarian*.

[...]

Article 8.1.1.

[...]

Anthrax ~~should be~~ is a notifiable disease in the ~~whole entire~~ country.

[...]

Article 8.2.2.

[...]

1. AD is a notifiable disease in the ~~whole entire~~ country, and all clinical signs suggestive of AD are subjected to field and *laboratory* investigations;

[...]

Article 8.7.3.

[...]

2. A country or a *zone* may be considered free from EHD when *infection* with EHDV is a notifiable disease in the entire country, importation of *animals* and their semen or embryos is carried out in accordance with this chapter and either:

[...]

Article 8.15.2.

[...]

- a. it has a record of regular and prompt *animal* disease ~~reporting~~ notification in accordance with Chapter 1.1.;
- b. *infection* with rabies virus is a *notifiable disease* in the entire country and any change in the epidemiological situation or relevant events are ~~reported~~ notified in accordance with Chapter 1.1.;

[...]

Article 8.15.4.

[...]

- a. it has a record of regular and prompt *animal* disease ~~reporting~~ notification in accordance with Chapter 1.1.;
- b. dog-mediated rabies is a *notifiable disease* in the entire country and any change in the epidemiological situation or relevant events are ~~reported~~ notified in accordance with Chapter 1.1.;

[...]

Article 8.15.11.

[...]

For its *official control programme* for dog-mediated rabies to be endorsed by WOA, the Member Country should:

- 1. have a record of regular and prompt *animal* disease ~~reporting~~ notification in accordance with Chapter 1.1.;

[...]

The Member Country's *official control programme* for dog-mediated rabies will be included in the list of programmes endorsed by WOA only after the submitted evidence has been accepted by WOA. Retention on the list requires an annual update on the progress of the *official control programme* and information on significant changes concerning the points above. Changes in the epidemiological situation and other significant events should be ~~reported~~ notified to WOA in accordance with Chapter 1.1.

[...]

Article 8.17.4.

[...]

However, rinderpest should still be a *notifiable disease* in the ~~whole entire~~ territory and countries are still required to carry out general *surveillance* in accordance with Chapter 1.4. to detect rinderpest should it recur and to comply with WOA notification ~~reporting~~ obligations concerning the occurrence of unusual epidemiological events in accordance with Chapter 1.1.

[...]

Article 8.19.3.

[...]

- 1. the *infection* is a *notifiable disease* in the entire country;

[...]

Article 8.23.3.

[...]

1. the *infection* is a notifiable disease in the entire country for at least the past two years;

[...]

Article 9.1.3.

[...]

2. acarapisosis is a notifiable disease in the ~~whole entire~~ country or *zone*, and all clinical signs suggestive of acarapisosis are subjected to field and *laboratory* investigations;

[...]

Article 9.2.3.

[...]

2. American foulbrood is a notifiable disease in the ~~whole entire~~ country or *zone*, and all clinical signs suggestive of American foulbrood are subjected to field and *laboratory* investigations;

[...]

Article 9.3.3.

[...]

2. European foulbrood is a notifiable disease in the ~~whole entire~~ country or *zone*, and all clinical signs suggestive of European foulbrood are subjected to field and *laboratory* investigations;

[...]

Article 9.4.3.

[...]

2. the presence of *A. tumida* is a notifiable disease in the ~~whole entire~~ country, and all signs suggestive of *A. tumida infestation* are subjected to field and *laboratory* investigations;

[...]

Article 9.5.3.

[...]

2. the presence of *Tropilaelaps* spp. is a notifiable disease in the ~~whole entire~~ country or *zone*, and all clinical signs suggestive of *Tropilaelaps* spp. *infestation* are subjected to field and *laboratory* investigations;

[...]

Article 9.6.3.

[...]

2. the presence of *Varroa* spp. is a notifiable disease in the ~~whole entire~~ country or *zone*, and all clinical signs suggestive of varroosis are subjected to field and *laboratory* investigations;

[...]

Article 10.9.2.

[...]

1. ND is a notifiable disease in the ~~whole entire~~ country, an ongoing ND awareness programme is in place, and all ~~notified reported~~ suspect occurrences of ND are subjected to field and, where applicable, *laboratory* investigations;

[...]

Article 11.7.2.

[...]

1. the disease is a notifiable disease in the entire country;

[...]

Article 11.7.3.

[...]

1. the disease is a notifiable disease in the ~~whole entire~~ country;

[...]

Article 11.8.2.

1. Qualification

[...]

a. the disease or suspicion of the disease is a notifiable disease;

[...]

Article 11.10.3.

1. A country or a *zone* may be considered free from *infection* with *Theileria* when the disease is a notifiable disease in the entire country, importation of bovines and water buffaloes and their *commodities* is carried out in accordance with this chapter, and:

[...]

Article 12.6.4.

A country, *zone* or *compartment* may be considered free from EI provided that *infection* with EIV is a notifiable disease in the ~~whole entire~~ country and it shows evidence, through an effective *surveillance* programme, planned and implemented in accordance with the general principles in Chapter 1.4., that no case of *infection* with EIV occurred in the past two years. The *surveillance* may need to be adapted to parts of the country, *zone* or *compartment* depending on historical or geographical factors, industry structure, *population* data, movements of equids within and into the country, *zone* or *compartment*, wild equine *populations* or proximity to recent *outbreaks*.

[...]

Article 14.8.3.

[...]

i. scrapie has been a notifiable disease in the entire country for at least 25 years; and

[...]