MEETING OF THE OIE TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

Virtual meeting, 7–16 & 23 September 2021

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Adopted agenda

1. Welcome from the Deputy Director General

2. Meeting with the Director General

3. Adoption of agenda

4. Cooperation with other Specialist Commissions

4.1. Scientific Commission for Animal Diseases

4.1.1. Ongoing requests for listing assessments

4.1.2. Case definition drafting: progress and next priorities

4.1.3. Progress of specific topics relevant to the Code Commission's work programme:

- Infection with rabies virus (Chapter 8.14.)
- Infection with Rift Valley fever virus (Chapter 8.15.)
- Equine piroplasmosis (Chapter 12.7.)
- Surra and dourine

4.2. Biological Standards Commission

4.2.1. Progress of specific items relevant to the Code Commission's work programme:

- Infection with Theileria in small ruminants (Chapter 14.X.)

4.3. Aquatic Animal Health Standards Commission

5. Code Commission's work programme except texts proposed for comments or adoption

5.1. Ongoing priority topics (not in order of priority)

5.1.1. Revision of Section 4 Disease prevention and control (New chapter on biosecurity and revision of Chapter 4.14. on disinfection)

5.1.2. Revision of Section 5 Trade measures, import/export procedures and veterinary certification (especially Chapters 5.4. to 5.7.)

5.1.3. Transport of animals by land, sea and air (Chapters 7.2., 7.3. and 7.4.)

5.1.4. Collection and processing of semen of animals (Chapter 4.6.)

5.1.5. Responsible and prudent use of antimicrobial agents in veterinary medicine (Chapter 6.10.)

5.1.6. Infection with Echinococcus granulosus (Articles 8.5.1. and 8.5.3.)

5.1.7. Infection with Mycobacterium tuberculosis complex (Chapter 8.11.)

5.1.8. Infection with equine influenza virus (Chapter 12.6.)

5.1.9. Scrapie (Chapter 14.8.)

5.1.10. Infection with Taenia solium (Porcine cysticercosis) (Articles 15.4.1. and 15.4.3.)

5.1.11. Harmonisation of official recognition of status by the OIE: contagious bovine pleuropneumonia (Chapter 11.5.)

5.1.12. Mers Cov

5.1.13. Leishmaniosis

5.1.14. Terminology

5.1.14.1. Use of terms ‘sanitary measure’ and ‘biosecurity’ in the *Terrestrial Code*

5.1.14.2. Use of terms ‘epizootics/epidemics’, ‘enzootic/endemic’ and ‘pandemic’

5.1.15. Pet food as safe commodities (GAPFA proposal)

5.1.16. Honey – definitions and provisions on importation

5.1.17. Framework for *Terrestrial Code* standards

5.1.18. Safe commodities SOP

5.2. New proposals / requests

5.2.1. Request from Wildlife Working Group (TBC)

5.3. Prioritisation of items in work programme

6. Follow-up of chapters recently adopted

6.1. Introduction to recommendations on Veterinary Services (Chapter 3.1.) (General Session comments + one health definition)

6.2. Veterinary legislation (Chapter 3.4.) (General Session comments)

6.3. Containment zone (Article 4.4.7.) (General Session comments + FU discussion on temporality)

6.4. Official control programmes for listed and emerging diseases (Chapter 4.19.) (General Session comments)

6.5. Infection with *Trypanosoma brucei*, *T. congolense*, *T. simiae* and *T. vivax* (Chapter 8.X.) (General Session comments)

6.6. Infestation with *Aethina tumida* (small hive beetle) (Article 9.4.5.) (General Session comments)

6.7. Infection with high pathogenicity avian influenza viruses (Chapter 10.4.) (General Session comments)

6.8. Infection with peste des petits ruminants virus (Articles 14.7.3. and 14.7.24.) (General Session comments)

6.9. Infection with classical swine fever virus (Chapter 15.2.) (General Session comments)

7. Texts circulated for comments

7.1. In February 2021 meeting report

7.1.1. Zoonoses transmissible from non-human primates (Chapter 6.12.)

7.1.2. Slaughter of animals (Chapter 7.5.)

7.1.3. Infection with rinderpest virus (Chapter 8.16.)

7.1.4. Bovine spongiform encephalopathy (Chapter 11.4.), application for official recognition by the OIE of free status for bovine spongiform encephalopathy (Chapter 1.8.) and Glossary definition for 'Protein meal'

7.2. Previously circulated

7.2.1. Glossary definitions for 'Competent Authority', 'Veterinary Authority' and 'Veterinary Services'

7.2.2. Stray dog population control (Dog population management) (Chapter 7.7.)

7.2.3. Infection with foot and mouth disease virus (Chapter 8.8.)

7.2.4. Theileriosis (Chapter 11.10.)

7.2.5. Trichomonosis (Chapter 11.11.)

7.2.6. Contagious equine metritis (Chapter 12.2.)

8. Other updates/information

8.1.1. Animal Welfare forum report

8.1.2. Antimicrobial Resistance Working Group report

8.1.3. Wildlife Working Group report

8.1.4. GBADs update for Specialist Commissions

9. Meeting review

10. Date of next meeting

WORK PROGRAMME FOR
THE TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

Chapter	Issues	Status - September 2021	
		Stage of consideration	Remarks (Month when draft text first circulated for comment /# of rounds for comment)
N.A.	Use of terms: biosecurity / sanitary measures	Circulated for comments	Noted in Sep 2021 TAHSC report (Sep 2021/1)
	Use of terms: disease / infection / infestation	Preparatory work	Refer to Feb 2020 TAHSC report
	Use of terms: animal health status	Preparatory work	Refer to Feb 2020 TAHSC report
	Use of terms: animal-based measures / measurables	Preparatory work	Refer to Feb 2021 TAHSC report
	Use of terms: enzootic / endemic / epizootic / epidemic	Preparatory work	Refer to Feb 2021 TAHSC report
	Use of terms: notify / notifiable disease / report / reportable disease	Preparatory work	Refer to Feb 2019 TAHSC report
User's guide	Revision of the Users' guide (standing item)	Standing item	
Glossary	'Competent Authority', 'Veterinary Authority' and 'Veterinary Services'	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2018/3)
	'Death', 'euthanasia', 'slaughter' and 'stunning'	Preparatory work	AHG to address Member comments (Sep 2019/2)
	'Case'	Not started	Refer to Sep 2020 TAHSC report and Feb 2020 BSC report
	'Stray dog'	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2021/1)
	New definition for 'protein meal'	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Feb 2021/2)
	New definitions for 'distress', 'pain' and 'suffering'	Preparatory work	AHG to address Member comments (Sep 2019/2)
	New definitions for 'animal products', 'product of animal origin' and 'animal by-product'	Preparatory work	Refer to Feb 2020 TAHSC report
	New definition for 'swill'	Preparatory work	Noted in Sep 2021 TAHSC report

Section 1			
1.3.	Revision of Article 1.3.2. (Theileriosis)	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2021/1)
	Listing of Infection with *T. lestoquardi*, *T. luwenshuni* and *T. uilenbergi* (Article 1.3.3.)	Preparatory work	Noted in Sep 2021 TAHSC report Refer to Feb 2020 TAHSC report
	Delisting of *Mycobacterium tuberculosis* (in *Mycobacterium tuberculosis* complex)	Expert consultation	Postponed until Feb 2022
	Delisting of West Nile fever	Preparatory work	Pending assessment by SCAD
	Delisting of Paratuberculosis	Preparatory work	Pending assessment by SCAD
1.8.	Application for official recognition by the OIE of free status for bovine spongiform encephalopathy	Circulated for comments	Noted in Sep 2021 TAHSC report (Sep 2019/4)
Section 3			
3.1., 3.2.	Introduction to recommendations on Veterinary Services (Ch 3.1.) and Quality of Veterinary Service (Ch 3.2.)	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2021/1)
3.4.	Veterinary legislation	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2021/1)
Section 4			
4.4.	Zoning and compartmentalisation	Preparatory work	Noted in Sep 2021 TAHSC report
4.6.	Collection and processing of semen of animals	Expert consultation	Noted in Sep 2021 TAHSC report
4.7.	Collection and processing of bovine, small ruminant and porcine semen	Preparatory work	Pending progress of the work on Ch 4.6.
4.8.	Collection and processing of in vivo derived embryos from livestock and equids	Not started	Pending progress of the work on Ch 4.6. and Ch 4.7.
4.9.	Collection and processing of oocytes and *in vitro* produced embryos from livestock and horses	Not started	Pending progress of the work on Ch 4.6. and Ch 4.7.
4.13.	Disposal of dead animals	Preparatory work	Noted in Sep 2021 TAHSC report
4.14.	General recommendations on disinfection and disinsection	Preparatory work	Noted in Sep 2021 TAHSC report
4.X.	New chapter on biosecurity	Preparatory work	Noted in Sep 2021 TAHSC report

Section 5			
General	Revision of Section 5 Trade measures, import/export procedures and veterinary certification (especially Chs 5.4. to 5.7.)	Preparatory work	Noted in Sep 2021 TAHSC report
5.11.	Model veterinary certificate for international movement of dogs, cats and ferrets originating from countries considered infected with rabies	Preparatory work	Pending progress of the work on Ch 8.14.
5.12.	Model passport for international movement of competition horses	Preparatory work	Pending progress of the works on Chs on horse diseases
Section 6			
6.2.	The role of the Veterinary Services in food safety systems	Not started	Pending progress of the work on Glossary definitions for 'Competent Authority', 'Veterinary Authority' and 'Veterinary Services'
6.3.	Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection	Not started	Pending progress of the work on Glossary definitions for 'Competent Authority', 'Veterinary Authority' and 'Veterinary Services'
6.10.	Responsible and prudent use of antimicrobial agents in veterinary medicine	Preparatory work	Noted in Sep 2021 TAHSC report
6.12.	Zoonoses transmissible from non-human primates	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Feb 2021/2)
Section 7			
General	Transport of animals by land, sea and air (Chs 7.2., 7.3. and 7.4.)	Preparatory work	Noted in Sep 2021 TAHSC report
7.5.	Slaughter of animals	Expert consultation	Noted in Sep 2021 TAHSC report
7.6.	Kiling of animals for disease control purposes	Preparatory work	Refer to Feb 2021 TAHSC report
7.7.	Stray dog population control (Dog population management)	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2020/2)
7.X.	New Chapter on animal welfare and laying hen production system		Under consideration

Section 8			
8.5.	Infection with *Echinococcus granulosus* (Articles 8.5.1. and 8.5.3.)	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2021/1)
8.8.	Infection with foot and mouth disease virus	Circulated for comments	Noted in Sep 2021 TAHSC report (Sep 2015/3)
8.11.	Infection with *Mycobacterium tuberculosis* complex	Expert consultation	Postponed for Feb 2022
8.13.	Paratuberculosis	Expert consultation	Refer to Sep 2020 TAHSC report
8.14.	Infection with rabies virus	Expert consultation	Noted in Sep 2021 TAHSC report and Sep 2021 SCAD report (Sep 2020/1)
8.15.	Infection with Rift Valley fever virus	Expert consultation	Noted in Sep 2021 TAHSC report and Sep 2021 SCAD report (Feb 2019/3)
8.16.	Infection with rinderpest virus	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2020/3)
8.X.	New Chapter on Surra	Preparatory work	Noted in Sep 2021 TAHSC report
Section 10			
10.3.	Avian infectious laryngotracheitis	Not started	Refer to Sep 2020 TAHSC report
Section 11			
11.4.	Bovine spongiform encephalopathy	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report and Sep 2021 SCAD report (Sep 2019/4)
11.5.	Infection with *Mycoplasma mycoides* subsp. *mycoides* SC (Contagious bovine pleuropneumonia)	Preparatory work	Postponed until Feb 2022
11.10.	Theileriosis	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report(Sep 2017/3)
11.11.	Trichomonosis	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2020/2)
Section 12			
12.1.	African horse sickness	Preparatory work	Refer to Feb 2021 TAHSC and SCAD reports

12.2.	Contagious equine metritis	Expert consultation	Postponed until Feb 2022 (Sep 2020/1)
12.3.	Dourine	Expert consultation	Noted in Sep 2021 TAHSC report
12.4.	Equine encephalomyelitis (Eastern and Western)	Not started	Pending ongoing work on case definition
12.6.	Infection with equine influenza virus	Expert consultation	Postponed until Feb 2022 (Sep 2019/3)
12.7.	Equine piroplasmosis	Expert consultation	Refer to Feb 2021 TAHSC and SCAD reports (Sep 2020/1)
12.11.	Venezuelan equine encephalomyelitis	Not started	Pending ongoing work on case definition
Section 14			
14.8.	Scrapie	Preparatory work	Noted in Sep 2021 TAHSC report
14.X.	New Chapter on Infection with Theileria in small ruminants	Pending *Terrestrial Manual*	Noted in Sep 2021 TAHSC report (Sep 2017/1)
Section 15			
15.3.	Infection with porcine reproductive and respiratory syndrome virus (Article 15.3.9.)	Preparatory work	Refer to Feb 2018 TAHSC report
15.4.	Infection with *Taenia solium* (Porcine cysticercosis) (Articles 15.4.1. and 15.4.3.)	Circulated for comments (proposed for adoption in May 2022)	Noted in Sep 2021 TAHSC report (Sep 2021/1)
Others			
X.X.	New Chapter on Crimean Congo haemorrhagic fever	Not started	Refer to Feb 2016 TAHSC report Pending ongoing work on case definition
X.X.	New Chapter on infection with *Leishmania* spp. (Leishmaniosis)	Preparatory work	Postponed until Feb 2022
X.X.	New Chapter on infection with Middle East respiratory syndrome coronavirus	Preparatory work	Postponed until Feb 2022
X.X.	New Chapter on Camelpox	Not started	Refer to Sep 2020 TAHSC report Pending ongoing work on case definition

List of abbreviations	
AHG	***Ad hoc* Group**
BSC	**Biological Standards Commission**
Ch	**Chapter**
SCAD	**Scientific Commission for Animal Diseases**
TAHSC	**Terrestrial Animal Health Standard Commission**

GLOSSARY

~~STRAY DOG~~ FREE-ROAMING DOG

means any *owned dog* or unowned dog that is without ~~not under~~ direct human supervision or control, including *feral* dogs. ~~by a person or not prevented from roaming. Types of stray dog:~~

~~a) free-roaming owned dog not under direct control or restriction at a particular time,~~

~~b) free-roaming dog with no owner,~~

~~c) feral dog: domestic dog that has reverted to the wild state and is no longer directly dependent upon humans.~~

PROTEIN MEAL

means any final or intermediate solid protein-containing product, obtained when animal tissues are rendered, excluding ~~: blood and blood products,~~ peptides of a molecular weight less than 10,000 daltons and amino-acids.

COMPETENT AUTHORITY

means ~~the *Veterinary Authority* or other~~ a Governmental Authority of a Member Country ~~having the responsibility and that has competence for ensuring or supervising~~ having responsibility in the whole or part of the territory for the implementation of ~~animal health and *welfare* measures, international veterinary certification and other~~ ~~any~~ certain standards ~~and recommendations~~ of ~~in~~ the *Terrestrial Code* ~~and in the OIE *Aquatic Animal Health Code* in the whole territory, which are not under the competence of the *Veterinary Authority*~~.

VETERINARY AUTHORITY

means the Governmental Authority of a Member Country~~, comprising the OIE Delegate, *veterinarians*, other professionals and paraprofessionals,~~ having the primary responsibility in the whole territory ~~and competence~~ for coordinating ~~ensuring or supervising~~ the implementation of ~~animal health, and *animal welfare* and veterinary public health measures, international veterinary certification and other~~ the standards ~~and recommendations~~ of ~~in~~ the *Terrestrial Code* ~~in the whole territory~~.

VETERINARY SERVICES

means the combination of ~~the~~ governmental and non-governmental individuals and organisations that perform activities to implement ~~animal health, and *animal welfare* and veterinary public health measures and other~~ the standards ~~and recommendations~~ of ~~in~~ the *Terrestrial Code* ~~and the OIE *Aquatic Animal Health Code* in the territory. The Veterinary Services are under the overall control and direction of the *Veterinary Authority*. Private sector organisations, *veterinarians*, *veterinary paraprofessionals* or aquatic animal health professionals are normally accredited or approved by the *Veterinary Authority* to deliver the delegated functions~~.

Edited definitions in clean text:

COMPETENT AUTHORITY

means a Governmental Authority of a Member Country having responsibility in the whole or part of the territory for the implementation of certain standards of the *Terrestrial Code*.

VETERINARY AUTHORITY

means the Governmental Authority of a Member Country having the primary responsibility in the whole territory for coordinating the implementation of the standards of the *Terrestrial Code*.

VETERINARY SERVICES

means the combination of governmental and non-governmental individuals and organisations that perform activities to implement the standards of the *Terrestrial Code*.

CHAPTER 3.1.

INTRODUCTION TO RECOMMENDATIONS ON VETERINARY SERVICES

Article 3.1.1.

Veterinary Services are critical to global and national health security, food security and food safety, agricultural and rural development, poverty alleviation, safe national and *international trade*, *wildlife* health and environmental protection; as such they are considered a global public good. To achieve these goals, *Veterinary Services* require good governance, including effective policy and management, personnel and resources, veterinary professionals and interaction with stakeholders in a One Health approach, involving all relevant sectors and disciplines across the human-animal-environment interface.

Member Countries have the sovereign right to structure and manage the delivery of animal health, *animal welfare* and veterinary public health in the veterinary domain in their countries as they consider appropriate. The veterinary domain covers a broad scope of possible activities. Section 3 focuses on aspects of the *Veterinary Services* that enable the OIE standards to be met even when under the responsibility of one or more *Competent Authorities*.

Member Countries should implement the OIE standards across their whole territory and should meet their obligations at the international level through representation by their respective OIE Delegate. The *Veterinary Authority*, including the OIE Delegate, should coordinate with other *Competent Authorities* to ensure that international standards and responsibilities are met.

Veterinary Services have responsibility for implementing the activities necessary for the Member Country to comply with OIE standards. These activities can be delivered by a combination of individuals or organisations, public or private, that are responsible to one or more *Competent Authorities*. *Veterinary Services* also include the personnel of the *Competent Authorities* themselves. The term *Veterinary Services* refers to the combination of a number of separate actors, with different organisational affiliations.

Section 3 provides standards to assist the *Veterinary Services* of Member Countries in meeting their objectives of improving terrestrial animal health, *animal welfare* and veterinary public health, as well as in establishing and maintaining confidence in their *international veterinary certificates*.

CHAPTER 3.2.

QUALITY OF VETERINARY SERVICES

[…]

Article 3.2.3.

Policy and management

Veterinary Services should have the leadership, organisational structure and management systems to develop, implement and update policies, legislation and programmes, incorporating *risk analysis*, and epidemiological, economics and social science principles. Decision-making by *Veterinary Services* should be free from undue financial, political and other non-scientific influences.

The *Veterinary Authority* should coordinate with other relevant governmental authorities, and should undertake active international engagement with the OIE and other relevant regional and international organisations.

This component should comprise the following specific elements:

1) comprehensive national *veterinary legislation* in accordance with Chapter 3.4., regularly updated with reference to changing international standards and new scientific evidence;

2) implementation of *veterinary legislation* through a programme of communications and awareness, as well as formal, documented inspection and compliance activities;

3) capability to perform *risk analysis* and cost–benefit analysis to define, review, adapt and resource policies and programmes;

4) policies or programmes that are well documented, resourced and sustained, appropriately reviewed and updated to improve their effectiveness and efficiency, and that address emerging issues;

5) quality management systems with quality policies, procedures and documentation suited to the *Veterinary Services*' activities, including procedures for information sharing, complaints and appeals and for internal audits;

6) information management systems for collecting data to monitor and evaluate *Veterinary Services*' policies and activities and to perform *risk analysis*;

7) organisational structures with defined roles and responsibilities for effective internal coordination of activities from central to field levels (chain of command), which are periodically reviewed and updated as necessary;

8) formal external coordination mechanisms with clearly described procedures or agreements for activities (including preparedness and response mechanisms) between the *Veterinary Authority*, *Competent Authorities*, other relevant governmental authorities and stakeholders, incorporating a One Health approach;

9) appropriate levels of official representation at international multilateral fora, involving consultation with stakeholders, active participation and sharing of information, and follow up on meeting outcomes.

[…]

Article 3.2.9.

Veterinary medicinal products

Veterinary Services should regulate all *veterinary medicinal products* such as veterinary medicines, biologicals and medicated *feed*, in order to ensure their quality and safety, as well as their responsible and prudent use, including *monitoring* antimicrobial use and antimicrobial resistance, and minimising the associated risks.

This article should be read in conjunction with the *Terrestrial Manual*, which sets standards for the production and control of vaccines and other biological products.

This component should comprise the following specific elements:

1) effective regulatory and administrative control, in accordance with Article 3.4.11., including communications and compliance programmes for:

   a) the market authorisation of *veterinary medicinal products*, including registration, import, manufacture, quality control and reducing the risk from illegal imports;

   b) responsible and prudent use of *veterinary medicinal products*, including the labelling, distribution, sale, dispensing, prescription, administration and appropriate safe storage and disposal of these products;

2) *risk management* and *risk communication* for antimicrobial use and antimicrobial resistance, based on *risk assessment*. This includes *surveillance* and control of the use of antimicrobials and the development and spread of antimicrobial resistant pathogens in animal production and food products of animal origin. This should be coordinated using a One Health approach, and in accordance with Chapter 3.4. and relevant chapters of Section 6.

[…]

CHAPTER 3.4.

VETERINARY LEGISLATION

[…]

Article 3.4.5.

Competent Authorities

Competent Authorities should be legally mandated, have the necessary technical, administrative and infrastructure capacity and be organised to ensure that all necessary actions are taken in a timely, coherent and effective manner to address animal health, *animal welfare* and veterinary public health matters of concern.

Veterinary legislation should provide for a chain of command that is effective, as short as possible, and with all responsibilities clearly defined. For this purpose, the responsibilities and powers of *Competent Authorities*, from the central level to those responsible for the implementation of legislation in the field, should be clearly defined. Where more than one *Competent Authority* is involved, for example in relation to environmental, food safety or other public health matters, including biological threats and natural disasters, a reliable system of coordination and cooperation should be in place, including clarifying the role of each *Competent Authority*.

Competent Authorities should appoint technically qualified officials to take any actions needed for implementation, review and verification of compliance with the *veterinary legislation*, respecting the principles of independence and impartiality prescribed in Article 3.2.2.

1. Necessary powers of the Competent Authority

   The *veterinary legislation* should also ensure that:

   a) the *Competent Authority* has all the necessary legal authorities to achieve the purposes of the legislation, including the powers to enforce the legislation;

   b) while executing their legal mandate, officials are protected against legal action and physical harm for actions carried out in good faith and in accordance with professional standards;

   c) the powers and functions of officials are explicitly listed to protect the rights of stakeholders and the general public against any abuse of authority. This includes respecting confidentiality and transparency, as appropriate; and

   d) at least the following powers are available through the primary legislation:

      i) access to premises and *vehicles/vessels* for carrying out inspections;

      ii) access to documents;

      iii) application of specific ~~*sanitary measures*~~ measures and procedures such as:

         – taking samples;

         – retention (setting aside) of *commodities*, pending a decision on final disposition;

         – seizure of *commodities* and fomites;

         – destruction of *commodities* and fomites;

         – suspension of one or more activities of a facility;

         – temporary, partial or complete closure of facilities;

         – suspension or withdrawal of authorisations or approvals;

- restrictions on the movement of *commodities*, *vehicles/vessels* and, if required, other fomites and people;
- listing disease for mandatory reporting; and
- ordering of *disinfection*, *disinfestation* or pest control;

iv) establishment of compensation mechanisms.

These essential powers should be clearly identified because they can result in actions that may conflict with individual *rights* ascribed in fundamental laws.

2. Delegation of powers by the Competent Authority

The *veterinary legislation* should provide the possibility for *Competent Authorities* to delegate specific powers and tasks related to official activities. The specific powers and tasks delegated, the competencies required, the bodies or officers to which the powers and tasks are delegated, the conditions of supervision by the *Competent Authority* and the conditions of withdrawals of delegations should be defined.

[…]

Article 3.4.11.

Veterinary medicinal products

Veterinary legislation should provide a basis for assuring the quality of *veterinary medicinal products* and minimising the *risk* to human, animal and environmental health associated with their use, including the development of antimicrobial resistance, as described in Chapters 6.7. to 6.11.

1. General measures

Veterinary legislation should provide a basis for actions to address the following elements:

a) definition of *veterinary medicinal products*, including any specific exclusions; and

b) regulation of the authorisation, importation, manufacture, wholesale, retail, usage of, commerce in, and disposal of ~~safe and effective~~ *veterinary medicinal products*.

2. Raw materials for use in veterinary medicinal products

Veterinary legislation should provide a basis for actions to address the following elements:

a) quality standards for raw materials used in the manufacture or composition of *veterinary medicinal* products and arrangements for checking quality; and

b) restrictions on substances in *veterinary medicinal products* that may, through their effects, interfere with the interpretation of veterinary diagnostic test results or the conduct of other veterinary checks.

3. Authorisation of veterinary medicinal products

a) *Veterinary legislation* should ensure that only authorised *veterinary medicinal products* may be placed on the market.

b) Special provisions should be made for:

i) *veterinary medicinal products* incorporated into *feed*;

ii) products prepared by authorised *veterinarians* or authorised pharmacists;

iii) emergencies and temporary situations;

iv) establishment of maximum residue limits for active substances and withdrawal periods for relevant *veterinary medicinal products* containing these substances; and

v) restrictions of use of *veterinary medicinal products* for food-producing animals.

c) *Veterinary legislation* should address the technical, administrative and financial conditions associated with the granting, suspension, renewal, refusal and withdrawal of authorisations.

d) In defining the procedures for seeking and granting, suspending, withdrawing, or refusing, authorisations, the legislation should:

i) describe the responsibilities of the relevant *Competent Authorities*; and

ii) establish rules providing for transparency in decision-making.

e) *Veterinary legislation* may provide for the possibility of recognition of the equivalence of authorisations.

4. Facilities producing, storing and wholesaling veterinary medicinal products

Veterinary legislation should provide a basis for actions to address the following elements:

a) registration or authorisation of all operators manufacturing importing, exporting, storing, processing, wholesaling or otherwise distributing *veterinary medicinal products* or raw materials for use in making *veterinary medicinal products*;

b) definition of the responsibilities of operators;

c) good manufacturing practices and good distribution practices as appropriate;

d) reporting on adverse effects to the Competent Authority; and

e) mechanisms for traceability and recall.

5. Retailing, use and traceability of veterinary medicinal products

Veterinary legislation should provide a basis for actions to address the following elements:

a) control over the distribution of *veterinary medicinal products* and arrangements for traceability, recall and conditions of use;

b) establishment of rules for the prescription and provision of veterinary medicinal products to end users, including appropriate labelling;

c) restriction to *veterinarians* or other authorised professionals and, as appropriate, authorised *veterinary paraprofessionals*, of commerce in *veterinary medicinal products* that are subject to prescription;

d) obligation of *veterinarians*, other authorised professionals or authorised *veterinary paraprofessionals* to inform end users of the withdrawal periods of relevant *veterinary medicinal products* and the obligation of end users to observe those withdrawal periods when using those products;

e) the supervision, by an authorised professional, of organisations approved for the holding and use of *veterinary medicinal products*;

f) the regulation of advertising claims and other marketing and promotional activities;

g) a system of *surveillance* of the quality of *veterinary medicinal products* marketed in the country, including a system of *surveillance* for falsification; and

h) a system for the reporting on adverse effects to the *Competent Authority*.

[…]

CHAPTER 6.12.

ZOONOSES TRANSMISSIBLE FROM NON-HUMAN PRIMATES

[...]

Article 6.12.4.

Quarantine requirements for non-human primates from an uncontrolled environment

Veterinary Authorities of *importing countries* should require for shipments which originate from the wild or other sources where they were not subjected to permanent veterinary supervision:

1) the presentation of the documentation referred to in Article 6.12.3.;

2) the immediate placement of the animals in a *quarantine station* meeting the standards set in Chapter 5.9. for at least 12 weeks; and during this quarantine:

   a) all animals to be monitored daily for signs of illness and, if necessary, be subjected to a clinical examination;

   b) all animals dying for any reason to be subjected to complete post-mortem examination at a *laboratory* approved for this purpose;

   c) any cause of illness or death to be determined before the group to which the animals belong is released from quarantine;

   d) animals to be subjected to the following diagnostic tests and treatments in accordance with Chapter 4.16.:

Disease/agent	**Animal groups**	**Schedule**	**Methods**
Endo- and ectoparasites	All species	At least two tests, one of which should be at the start, the other towards the end of the quarantine.	Testing methods and antiparasitic treatment as appropriate to species of animal and parasitic agent.
Tuberculosis (M*ycobacterium tuberculosis* complex)	Marmosets and tamarins	Two tests at an interval of 2 to 4 weeks.	Skin test or serology. In-vitro gamma interferon assay or polymerase chain reaction (PCR) assay. The skin test using mammalian tuberculin (old tuberculin) is the most reliable of all. Skin tests in marmosets, tamarins or small prosimians should be performed in the abdominal skin rather than in the eyelid. In some species (e.g. orang utan), skin tests for tuberculosis are notorious for false positive results. Comparative tests using both mammalian and avian PPD, together with cultures, radiography, ELISA, in-vitro gamma interferon assay and PCR of gastric or bronchial lavage, faeces or tissues may eliminate confusion.
	Prosimians, New World monkeys, Old World monkeys, gibbons and great apes	At least three tests at intervals of 2 to 4 weeks.	

Disease/agent	Animal groups	Schedule	Methods
Other bacterial pathogenic agents (*Salmonella*, *Shigella* and *Yersinia* and others as appropriate)	All species	Daily test for 3 days after arrival, and at least one or two more tests at intervals of 2 to 4 weeks.	Faecal culture. The fresh faeces or rectal swabs should be cultured immediately or be placed immediately in the appropriate transportation medium.
~~**Hepatitis B**~~	~~Gibbons and great apes~~	~~First test during first week; second test after 3 to 4 weeks.~~	~~Serological tests for anti-hepatitis B core antigen and for hepatitis B surface antigen, and additional parameters as appropriate.~~

Veterinary Authorities of *importing countries* should recognise the public health importance of zoonoses listed in the table ~~below~~ above as well as measles (a human disease, sometimes affecting non-human primates), hepatitis A, monkey pox, Marburg disease or Ebola/Reston virus, retroviruses, etc., even though this article does not recommend specific testing or treatment protocols for these agents during the quarantine period. *Veterinary Authorities* should recognise that, if animals are infected, the importation and spread of many such agents will be best controlled by the detection of clinical signs of disease during a 12-week quarantine period.

Certain endemic viruses, such as herpesviruses or retroviruses, may be present in both wild and captive populations of primates. These viruses are often asymptomatic in primate species. If animals are being imported to be introduced to other populations of the same species, it may be advisable to determine if the animals selected for importation have similar viral profiles to the established population.

[…]

Article 6.12.6.

Certification and quarantine requirements for other non-human primates from premises under veterinary supervision

Veterinary Authorities of *importing countries* should require:

for prosimians, New World monkeys, Old World monkeys, gibbons and great apes from premises under veterinary supervision

1) the presentation of an *international veterinary certificate* attesting that the shipment meets the requirements specified in Article 6.12.3., and that the animals:

   a) are either born in the premises of origin or have been kept there for at least two years;

   b) come from premises which are under permanent veterinary supervision, and where a suitable health monitoring programme is followed, including microbiological and parasitological tests as well as necropsies;

   c) have been kept in buildings and enclosures in which no *case* of tuberculosis has occurred during the last two years prior to shipment;

   d) come from premises in which no *case* of tuberculosis or other major zoonoses including rabies has occurred during the last two years prior to shipment in the building where the animals were kept;

   e) were subjected to a tuberculosis test on two occasions with negative results, at an interval of at least two weeks between each test during the 30 days prior to shipment;

   f) were subjected to a diagnostic test for pathogenic enteric bacteria including *Salmonella*, *Shigella* and *Yersinia*;

   g) were subjected to diagnostic tests for, and appropriate treatment against, endo- and ectoparasites;

~~h) were subjected to a diagnostic test for hepatitis B virus and their current status documented (gibbons and great apes only);~~

2) the placement of the animals in a *quarantine station* for at least 30 days, and during this period:

   a) all animals to be monitored daily for signs of illness and, if necessary, subjected to a clinical examination;

   b) all animals dying for any reason to be subjected to complete post-mortem examination at a laboratory approved for this purpose;

   c) any cause of illness or death to be determined before the group to which the animals belong is released from quarantine;

   d) animals to be subjected to the following diagnostic tests and treatments in accordance with Chapter 4.16.:

Disease/agent	**Animal groups**	**Schedule**	**Methods**
Tuberculosis *(Mycobacterium tuberculosis* complex)	All species	One test.	Skin test or serology. In-vitro gamma interferon assay or polymerase chain reaction (PCR) assay. (See further comments in the Table of Article 6.12.4.)
Other bacterial pathogenic agents (*Salmonella*, *Shigella* and *Yersinia* and others as appropriate)	All species	Daily test for 3 days after arrival, and another test at least one week later.	Faecal culture. (See further comments in the Table of Article 6.12.4.)
Endo- and ectoparasites	All species	At least two tests, one of which should be at the start, the other towards the end of the quarantine.	Testing methods and antiparasitic treatment as appropriate to species of animal and parasitic agent.

Veterinary Authorities of *importing countries* may not normally require any tests for viral diseases. However, stringent precautions to ensure human health and safety should be followed as recommended in Article 6.12.7.

Article 6.12.7.

Precautionary measures to be followed by staff exposed to non-human primates or to their body fluids, faeces and tissues

The presence in most non-human primates of some zoonotic agents is almost unavoidable, even after release from quarantine. The relevant Authorities should, therefore, encourage the management of institutions whose staff are exposed to non-human primates or their body fluids, faeces or tissues (including when performing necropsies) to comply with the following recommendations:

1) to provide staff with training in the proper handling of primates, their body fluids, faeces and tissues, with respect to zoonoses containment and personal safety;

2) to inform their staff that certain species should be considered as having lifelong *infections* with some zoonotic agents, e.g. Asian macaques with Herpes B virus;

3) to ensure that the staff follows personal hygiene practices, including the use of protective clothing, and the prohibition of eating, drinking and smoking in potentially infective areas;

4) to implement a screening programme for personnel health, including monitoring for tuberculosis, pathogenic enteric bacteria and endoparasites and other agents that are deemed necessary;

5) to implement an immunisation programme as appropriate, including e.g. tetanus, measles, poliomyelitis, rabies, hepatitis A ~~and B~~, and other diseases, such as yellow fever, endemic in the area of origin of the African and American non-human primates;

6) to develop guidelines for the prevention and treatment of zoonoses that may be transmitted by bites and scratches, e.g. rabies and herpes viruses;

7) to issue to their staff a card which states that they work with non-human primates or with their body fluids, faeces or tissues, and which may be presented to the medical profession in case of illness;

8) to dispose of carcasses, body fluids, faeces and tissues in a manner which is not detrimental to public health.

_____

CHAPTER 7.7.

DOG POPULATION MANAGEMENT

Article 7.7.1.

Introduction

Dog Population Management (DPM) refers to the holistic approach that aims to improve the welfare of dogs, reduce problems they may present and create harmonious co-existence with people and their environment. Dogs are present in every human society around the world and are valued for the range of roles they fulfil. However, they can present public health and safety, and animal health and *animal welfare* issues, especially when free to roam.

DPM ~~is an integral part of~~supports effective and sustainable rabies control programmes and the control of other zoonoses. Recognising that mass culling of dogs is ineffective and may be counterproductive, reducing dog population size is not an effective means of reducing rabies *prevalence* [(WHO, 2018)]. However, DPM can contribute to rabies control by reducing population turnover, therefore supporting maintenance of herd immunity within a vaccinated dog population. The components of population turnover most relevant for rabies control are the reduction in the birth of unwanted puppies that would be at risk of remaining unvaccinated and the improve~~ing~~ment of welfare and life expectancy of vaccinated dogs.

Reproduction control as part of DPM also reduces breeding behaviours which may increase the *risk* of rabies transmission due to increased contact rates between dogs.

Promotion of *responsible dog ownership* as part of DPM ~~can~~strengthens owner motivation, knowledge and therefore behaviour in caring for their dogs, including timely rabies *vaccination* of *owned dogs* to maintain immunity.

~~The OIE recognises the importance of~~It is important to manage~~ing~~ dog populations without~~causing unnecessaryanimalsuffering~~ compromising animal welfare, in accordance with Chapter 7.1.

Article 7.7.~~4~~.2

Definitions

For the purpose of this chapter:

Dog Population Management programme means a combination of DPM measures that enhance the care of dogs and influence dog population dynamics to sustainably improve dog health and welfare, public health and safety, and the environment, ~~and~~ while taking into consideration related economic benefits and costs.

Rabies means dog-mediated rabies.

Article 7.7.~~2~~3.

Scope

The scope of this chapter is to provide recommendations for the management of dog (*Canis lupus familiaris*) populations to improve human health and safety, animal health and *animal welfare* and to minimise their potential negative socio-economic and environmental impacts. The recommendations will also assist Members in the implementation of zoonotic disease control programmes, in particular ~~such as with a focus on~~ *infection* with rabies virus, in accordance with Chapter 8.14.

Article 7.7.~~3~~4.

Guiding principles

Building upon the guiding principles described in Chapter 7.1., the following apply:

– DPM has direct benefits to public health and safety, and to animal health and welfare.

– Dogs are domesticated species and therefore dependent on human communities, thus there is an ethical responsibility to ensure their health and welfare even in the absence of ownership.

– Recognising the diversity of stakeholders in the management of dog populations, it is crucial to clarify roles and responsibilities.

– Dog ecology is linked with human activities. Therefore, effective management of dog populations should be accompanied by changes in human behaviour, including promotion of *responsible dog ownership*.

– Acknowledging that the *owned dog* population is a common source of free-roaming dogs, DPM programmes should consider all dogs.

– Understanding local dog population dynamics and community attitudes is a key element ~~to~~ in ~~determine~~ determining whether and how DPM programmes might contribute to rabies control and which tools would be most successful.

– Considering that sources and drivers of free-roaming dogs and management goals differ across communities, DPM should be individually tailored ~~at~~ to local and national ~~level~~contexts.

– DPM programmes should be designed to be sustainable, aligned with legislative requirements, evaluated and ~~refined~~ adaptable.

~~Article 7.7.4.~~

~~**Definitions for the purpose of this chapter**~~

~~means a combination of DPM measures that enhance the care of dogs and influence dog population dynamics to sustainably improve dog health and welfare, public health and safety, and the environment, and while taking into consideration related economic benefit and costs.~~

~~**Rabies** means dog-mediated rabies.~~

~~**Free-roaming dog** means any *owned dog* or unowned dog that is without direct human supervision or control.~~

Article 7.7.5.

Dog Population Management programme objectives

DPM programmes may include the following objectives:

– promote and establish *responsible dog ownership*;

– improve health and welfare of dog populations;

– reduce the number of free-roaming dogs to a manageable level;

– stabilise the dog population by reducing turnover;

– reduce *risks* to public health and safety including dog bites, traffic accidents, and zoonotic diseases such as rabies;

– contribute towards eradicating dog-mediated human rabies~~by 2030~~;

– reduce nuisance free-roaming dogs may cause (e.g. environmental impact, negative publicity directed at governments, tourism disincentives);

– prevent harm to livestock and other animals;

– prevent ~~dog~~illegal trade and trafficking of dogs.

Article 7.7.6.

Roles and responsibilities

As a cross-sectoral subject, DPM requires a high level of engagement and collaboration ~~between~~ among *Competent Authorities* responsible for animal health and welfare, food safety and public health, in line with the One Health approach.

DPM activities performed by *Veterinary Services* or other *Competent Authorities* should be integrated, to the greatest extent possible, with the activities of all other responsible agencies.

Articles 7.7.7. and 7.7.8. describe the roles and responsibilities ~~that~~ of different organisations ~~may play~~ in the ~~planning and implementation~~development of DPM programmes, at the local and national ~~and local~~ levels.

Article 7.7.7.

Competent Authority for Ddog Ppopulation Mmanagement

The development ~~and implementation~~of DPM occurs at the local level through specific DPM programmes, whose success requires a supportive and enabling environment created by the *Competent Authority* at the national level. As DPM is relevant to several governmental agencies and various stakeholders, a multi-sectorial group should establish governance and coordinate actions across governmental agencies and programmes, including those focusing on zoonotic diseases where dogs play a role, such as rabies.

1. Governance

   DPM should be identified as the responsibility of a *Competent Authority*, which may be the *Veterinary Authority*. A ~~N~~national ~~level~~ action plan provides the details of actions which support the implementation of DPM programmes and coordinate with other action plans, such as those focused on dog-related zoonoses. These plans are led by this *Competent Authority* and developed in collaboration with the multi-sectorial group.

2. Legislation

   Implementation of DPM programmes requires the support of a suitable regulatory framework (see Article 7.7.9.). Further secondary regulations provide customisations ~~adaptations~~to suit local requirements.

3. Enforcement

   The *Competent Authority* can support enforcement of legislation through guidelines on enforcement procedures/practices, training~~,~~ and funding of enforcement agencies, and defining penalties.

4. Funding

   To establish sustainable DPM with long-lasting impacts, the *Competent Authority* and multi-sectorial group should establish a policy and legislative basis for sufficient funding of national action plans and DPM programmes. The One Health concept ~~provides~~strengthens ~~to~~ the argument for increasing the priority of DPM across the animal health, environmental and public health sectors.

5. Training and support

   ~~Training of professionals including *veterinarians* and providing accessibility to appropriate drugs at local, national or regional level led by the *Competent Authority* would support achievement of minimum standards across DPM Programmes~~To support ~~minimum standards across~~ DPM programmes, the relevant *Competent Authority* should lead on the training of professionals, including *veterinarians*, and ensure they have access to appropriate *veterinary medicinal products* for the implementation of DPM measures. The *Competent Authority* should support DPM through national level communication and education initiatives.

Article 7.7.8.

Other organisations and actors involved in Ddog Ppopulation Mmanagement

The following may have a role in the development of DPM programmes [(Paolini *et al.*, 2020)]:

1. Veterinary Authority

The *Veterinary Authority* plays a lead role in preventing zoonotic diseases and ensuring *animal welfare* and should be involved in DPM, coordinating its activities with other relevant *Competent Authorities*.

2. Veterinary Services

Veterinary Services should play an active role and coordinate their activities with relevant *Competent Authorities*, and may be responsible for the organisation, implementation and supervision of DPM programmes.

3. Other governmental agencies

The responsibilities of other governmental agencies will depend on the *risk* being managed and the objective or nature of the DPM measures implemented.

a) Public health

~~The ministry or other~~Governmental agencies responsible for public health would normally play a leadership role and may have legislative authority in dealing with zoonotic diseases and regarding other human health *risks* (e.g. free-roaming dogs on roads; dog bites).

b) Environmental protection

Environmental protection ~~governmental~~agencies may take responsibility for problems associated with free-roaming dogs when they present a *hazard* to the environment (e.g. control of ~~*feral*~~dogs in national parks; prevention of predation ~~to~~ on *wildlife* or transmission of diseases to *wildlife*) or where a lack of environmental controls encourages dogs to roam.

c) Education

Governmental agencies responsible for ~~The Ministry of E~~education ~~can~~ may play a key role in promoting *responsible dog ownership* and dog bite prevention programmes ~~at~~in schools~~level~~.

d) Local authorities

In many countries, local authorities are responsible for the implementation of DPM programmes and the enforcement of legislation relating to dog ownership (e.g.~~,~~ *registration*, identification, *vaccination*, leash laws, animal abandonment). This should be done with the support and enabling environment created by the *Competent Authority.*

4. Civil Society

The responsibilities of civil society stakeholders will depend on their involvement with the DPM measures implemented.

a) Dog owners

When a person takes on the ownership of a dog, there should be an immediate acceptance of responsibility for that dog, and for any offspring it may produce, for the duration of its life or until a subsequent owner is found. The owner's responsibilities should include providing for the health and welfare of the dog and mitigating negative impacts on public health and the environment, in accordance with Article 7.7.17.

b) Dog breeders and sellers

Dog breeders and sellers have the same responsibilities as dog owners and in addition should comply with the recommendations, in accordance with Article 7.7.15.

5. Advisory group

The development of ~~a~~DPM programmes and a national action plan should also benefit from the support of ~~an~~advisory groups, which should include *veterinarians*, experts in dog ecology, dog behaviour and zoonotic diseases, and representatives of relevant stakeholders (local authorities, public~~human~~ health services or authorities, environmental control services or authorities, non-governmental organisations and the public).

Article 7.7.9.

Regulatory framework

DPM legislation is a key element for the sustainability and efficiency of DPM programmes. It ~~can~~ensures that DPM programmes are ~~is~~ carried out with respect to *animal welfare* guiding principles (see Chapter 7.1.).

Regulations related to the following areas may support successful DPM programmes; these may be found in a DPM regulatory framework or other regulatory frameworks:

– ~~O~~owners' obligations regarding the principles of *responsible dog ownership*, including *animal welfare*;

– *animal welfare* obligations of authorities;

– *registration* and identification of dogs in ~~a~~centralised or interoperable databases;

– authorisation and licensing of dog breeders and sellers;

– authorisation and licensing of dog shelters, rehoming centres and holding facilities;

– licensing ~~practice~~of *veterinarians*~~veterinary medicine, including surgery~~;

– licensing preparation, use and sale~~s~~ of *veterinary medicinal products*;

– preventive ~~and medical~~measures against rabies and other zoonotic diseases;

– dog movements and trade at international and national levels;

– waste management.

This regulatory framework must be designed with both incentive measures for compliance and penalties for non-compliance.

Article 7.7.10.

~~**Assessment, monitoring and evaluation**~~**Evidence-based programme development**

~~DPM programmes should be regularly evaluated and adapted to improve effectiveness and to respond to changes in wider context that influence dog population dynamics. This requires an evidence-base from data collected through initial assessment and continued *monitoring* using objective methods.~~

Development of DPM programmes should include an initial assessment and ongoing adaptation based on continued monitoring and evaluation using objective methods. This evidence-based approach improves programme effectiveness and informs responses to changes in the wider context that influence dog population dynamics.

Recognising the different needs of communities and the multi-sectorial roles in DPM, it ~~this~~should be conducted with the involvement of advisory groups and relevant authorities.

Competent Authorities should support evidence-based DPM programmes ~~assessment, monitoring and evaluation~~by:

– identifying qualified personnel and ~~D~~developing training and tools to help with implementing data collection (assessment~~,~~ and *monitoring*) and use (planning and evaluation);

– ensuring ~~Providing~~ the budget of DPM programmes includ~~ing~~es ~~the~~not only the costs for the initial assessment but also for *monitoring* and evaluation activities;

– ~~E~~establishing standardised indicators with feasible and repeatable methods of measurement that can be used across locations and over time, to support subsequent evaluations and compare performance between different DPM programmesit should be expected that DPM programmes will also use and benefit from their own context-specific indicators and methods of measurement;

– ~~E~~encouraging the use of *monitoring* data for evaluation, learning and subsequent amendments~~adaptation~~ of DPM programmes.

Article 7.7.11.

DPM programme ~~development~~assessment and planning

The initial DPM programme development stages of assessment and planning. ~~Developing a DPM~~ should provide the evidence required for planning and ~~requires an evidence-based approach. Areas for assessment that provide this evidence should~~ include:

1) Review of the current regulatory framework and evaluation of the efficiency and effectiveness of DPM control measures used historically and currently.

2) Identification of the priority issues related to dogs from the perspective of all relevant stakeholders. The resolution of these issues will form the objectives of DPM programmes. Establishing baselines and *monitoring* methods for indicators reflecting each objective allows for later evaluation of efficiency and effectiveness. Identifying which dogs are associated with the priority issues may include *owned dogs*.

3) Exploration of dog population dynamics in the whole dog population (not limited to the current free-roaming dog population) to identify the sources of free-roaming dogs:

   – *owned dogs* that roam freely;

   – dogs that have been lost or abandoned, including puppies resulting from uncontrolled breeding of *owned dogs*;

   – unowned dogs that roam freely and reproduce.

4) Identification~~y~~ of people's knowledge, attitudes and practices ~~of~~ regarding dog care and responsibility ~~over~~for *owned dogs* and unowned dogs. ~~Further, c~~Citizens' attitudes towards potential control measures should also be explored. This information can be used to ensure the acceptability of the DPM programme ~~acceptability~~ to local communities and its effectiveness at changing human behaviours.

5) Estimating dog population size and demography:.

   Dog population size estimates can help with planning DPM programmes. Accuracy of estimates is typically improved with more time-consuming methods. Where resources are limited, a rough estimate may be sufficient at the outset. This estimate may be refined by *monitoring* population coverage achieved by the implementation of measures and comparing this to the number of dogs receiving these measures (e.g.~~,~~ rabies *vaccination* and sterilisation in 'Catch, Neuter, Vaccination and Return') (see Article 7.7.19).

   For evaluation of DPM programme effectiveness, *monitoring* changes in population trends (e.g. changes in the density of free-roaming dogs along routes designed to traverse areas of high free-roaming dog density~~on public streets~~, proportion of lactating females and presence of puppies) may be sufficient, rather than investing in repeated estimates of population size [(Hiby and Hiby, 2017)]. Methods to estimate population size may also measure demographic factors such as age, sex, sterilisation and reproductive status (lactation and pregnancy in females) to allow for refinement of estimates to sub-populations of relevance.

   Available methods for population size estimates include the following:

   – *Owned dogs*: d~~D~~og *registration* databases, household questionnaires (to estimate proportion of dog-owning households and mean number of dogs per dog-owning household), post-*vaccination* campaign coverage and animal ownership surveys as part of human census.

   – Free-roaming *owned dogs*: h~~H~~ousehold questionnaires including questions or visible inspection of whether *owned dogs* are confined or allowed to roam unsupervised.

   – All free-roaming dogs, including both owned roaming and unowned:

      a) Direct observation of free-roaming dogs during surveys along routes designed to be representative of the area of interest and unbiased with regard to free-roaming dog density~~through public streets at peak roaming time; capturing of these data~~ can provide the mean number of free-roaming dogs per km of street surveyed. This can be extrapolated by the estimated total street length within the~~defined~~ area of interest to estimate the total number of free-roaming dogs on the street at the time of survey; some free-roaming dogs will not have been visible during the survey and so this is an underestimate of the total free roaming dog population [(Meunier et al~~.~~., 2019)].

b) Mark–resight is a method that aims to estimate population size, considering that not all animals are visible to direct observation on a survey. This is achieved by first marking dogs with temporary marks such as paint, or photographs for individual recognition~~.~~ ~~or~~ T~~t~~he survey can opportunistically make use of marks applied as part of control measures to indicate a dog's treatment status, such as collars or paint applied ~~during *vaccination*~~to identify a dog as vaccinated and ear notches or tags applied under anaesthetic to identify a dog as sterilised during neutering in 'Catch, Neuter, Vaccination and Return' measures (see Article 7.7.19.)~~programmes~~. In subsequent surveys, ~~Then noting~~the proportions of marked and unmarked dogs are noted~~during subsequent surveys~~. Mark–resight methods rely on assumptions that may not hold true in dog populations, such as equal resighting probability ~~in~~ for marked and unmarked dogs, lack of immigration/emigration and no or measurable mark loss.

Mark–resight is a relatively resource intensive method ~~as~~ when compared ~~to~~ with direct observation which may limit the extent of the area that can ~~be~~ feasibly be surveyed.

Mark–resight and direct observation may be done concurrently in a sample of areas to estimate the proportion of free-roaming dogs visible during direct observation. This proportion can be used to correct the data regarding those dogs missed during direct observation over a larger geographical area.

Article 7.7.12.

DPM programme monitoring and evaluation

Later stages of DPM programme development should include monitoring and evaluation. *Monitoring* aims to check the progress of DPM programme measures against targets and support performance management. It should allow for regular adjustments of implementation of measures and collection of data on indicators of objectives. It should also include *monitoring* of costs associated with measures and costs or savings relating to objectives, to support cost–benefit analysis.

Evaluation is a periodic assessment of progress using data collected through *monitoring*, usually carried out at milestones to assess whether the DPM programme is achieving the desired objectives and to adapt the DPM programme to improve effectiveness and efficiency. Where methods of *monitoring* are equivalent – clearly defined, repeatable and consistent –, evaluation can compare effectiveness and efficiency across DPM programmes.

Indicators are the measurable ~~signs~~results of objectives. Indicators of DPM objectives may include:

– *Owned dog* population size, demographics and whether they are receiving *responsible dog ownership* (can include their *vaccination* status, sterilisation, *registration*, identification, level and method of confinement and how they were acquired).
– Free-roaming dog population density, demography (age, sex, sterilisation, lactating females and puppies) and welfare (e.g. body condition score ~~and~~, presence of a skin problem) recorded by direct observation of free-roaming dogs on surveys along standardised routes.
– *Prevalence* of zoonotic diseases in both the animal and human populations~~;~~ , for example~~,~~ rabies ~~and~~ or echinococcosis ~~*Echinococcus* Chapter 8.14. and Chapter 8.5~~.

– Knowledge, attitudes and practices of communities relating to the free-roaming dog population, and dog owner knowledge, attitudes and practices ~~of~~ regarding *responsible dog ownership*.

– Dog population movements from owned to unowned dogs or from confined to free-roaming dogs (based on investigations and monitoring).

– Adoption or reuniting facility performance including intake, adoption rates, welfare state of dogs in their care, mortality and *euthanasia* rates.

– Dog bites reported to health centres or number of rabies post-exposure prophylaxis courses provided to ~~the~~ exposed individuals, or the cost incurred by the public health authorities for provision of post-exposure prophylaxis.

– Number and nature of complaints about dogs to local government authorities.

– Compensation costs relating to dog-related damage~~s~~ to people, livestock~~,~~ or property.

Article 7.7.13.

Recommendations for DPM measures

~~The recommendations for DPM measures in Articles 7.7.14. to 7.7.24. should be implemented in accordance with the national context and local circumstances.~~A combination of the following measures should be used for a successful DPM programme:

– ~~R~~*registration* and identification of dogs;

– ~~R~~regulation of ~~C~~commercial dog breeding and sale;

– ~~C~~control of national and international (export and import) dog movements;

– ~~P~~promoting *responsible dog ownership*;

– ~~R~~reproductive control;

– 'Catch, Neuter, Vaccination and Return';

– ~~R~~reuniting and adoption;

– ~~A~~access to veterinary care;

– ~~E~~environmental controls;

– ~~E~~education on safe dog–human interaction.

These recommendations for DPM measures are described in detail in Articles 7.7.14. to 7.7.24. and should be implemented in accordance with the national context and local circumstances.

Article 7.7.14.

Registration and identification of dogs

Outcomes of *registration* and identification of dogs include the following:

– support~~s~~ for the enforcement of legislation through proof of ownership;

– improve~~s~~ment of the success rate in reuniting lost dogs with their owners;

– ~~enables~~d enabling traceability in commercial breeding and sale;

– encourage~~s~~ment of responsible ownership behaviours;

– support~~s~~ for an animal health programme, e.g.~~,~~ mandatory rabies *vaccination* and traceability.

These outcomes require widespread adoption of *registration* and identification.

Competent Authorities should ensure that ~~a~~centralised or interoperable database~~s~~ are~~is~~ established for dog *registration* to allow ~~for~~ reuniting of identified dogs with registered owners across the territory. *Competent Authorities* should ensure there is an enforcement system in place with the capacity to deliver appropriate methods of identification to all dogs (such as microchipping or Quick Response tags [QR tags]), read identification when a dog is found (using scanners or other devices) and access the *registration* database to retrieve owner details.

Owners need to be informed and able to access identification services and the *registration* system both initially to enter each dog and~~,~~ to update ~~contact~~information~~,~~ when required.~~there is a change of ownership or the dog dies.~~

Article 7.7.15.

Regulation of c~~C~~ommercial dog breeding and sale

Outcomes of regulating commercial breeding and sale as a DPM measure include:

– protection of dog health and welfare~~,~~;

– avoidance of abandonment~~,~~;

– transparency in dog breeding and sales.

Competent Authorities should require mandatory *registration* of all breeders and sellers. For commercial breeders and sellers, where the number of litters produced per year exceeds a threshold set by regulations, a further requirement for licensing ~~can~~may be imposed, including the requirement for inspection before trade can begin.

Advertisements for dog sales should be required to carry the *registration* or licence number of the breeder and seller.

To ensure dog~~s~~ traceability, the breeder should be established through identification and *registration* as the first owner.

The seller should ensure that *registration* details of the dog are updated with those of the first buyer following transfer of ownership.

Regulations of breeding practices should include limits on number of litters, minimum breeding age (to protect the health and welfare of the dam), good health of both parents and avoidance of selective breeding that leads to inherited diseases and extreme conformations. Regulations ~~of~~ for both breeders and sellers should also outline specific requirements for accommodation, veterinary care, husbandry, puppy socialisation and habituation to their environment, minimum puppy age before leaving the dam and training of staff. Sales of ~~puppies or adult~~dogs should be limited to adult~~s~~ buyers, and unregulated sales ~~exhibitions or from the street~~ should be banned.

Article 7.7.16.

Control of national and international (export or import) dog movements

International movements of dogs (import and export) should comply with trade measures, import or export procedures and veterinary certification in accordance with ~~according to~~Chapters 5.11., 7.2., 7.3., 7.4. and 8.14.

Movement of dogs within a country should be under the responsibility of the owner, with the following outcomes:

– reducing the *risk* of contagious diseases spread~~,~~;

– protecting public health and safety~~,~~;

– protecting *wildlife* and livestock~~,~~;

– protecting dog *welfare*.

Article 7.7.17.

Promoting responsible dog ownership

1) Owning a dog is a choice and should result in a mutually beneficial relationship. The benefits of dog ownership come with responsibilities. Promoting *responsible dog ownership* through education and enforcement of national and local regulations is a core component of a DPM programme to achieve the following outcomes:

   – improve~~e~~ing the health and welfare of dogs;

   – support ing the human–animal bond;

   – minimis~~e~~ing the *risk* that dogs pose to household members and the community;

   – reduce~~e~~ing the number of dogs allowed to roam.

2) Education on *responsible dog ownership* (for the currently *owned dog* and any offspring it produces for its lifetime or until the responsibility is passed to the next owner) should address the following~~elements~~:

   – provid~~e~~ing appropriate care to ensure the welfare of the dog and any offspring according to the dog's five welfare needs (suitable environment, suitable diet, housed with or apart from other animals, ability to exhibit normal behaviour and protect~~ed~~ion from pain, suffering, injury~~,~~ and disease) in order to meet the internationally recognised 'five freedoms' (see point 2 of Article 7.1.2.);

– encourage~~ing~~ appropriate behaviours, reducing unwanted behaviours (including dog bites) and supporting the dog's ability to cope with its environment through attention to socialisation and~~training~~ reward-based training and recognition of dog behavioural signs;

– ensure the *registration* and identification of dogs (see Article 7.7.14.);

– ensure access to preventive and therapeutic veterinary care (see Article 7.7.21.);

– prevent~~ing~~ negative impacts of dogs on the community, via pollution (e.g. faeces and noise), *risks* to human health through bites or traffic accidents and *risks* to other dogs, *wildlife*, livestock and other companion animal species;

– control ~~of~~dog reproduction (see Article 7.7.18.);

– arrange~~ing~~ for ~~the care of the~~ dogs to be cared for when the owner is unable to do so.

3) Achieving sustained and widespread responsible ownership requires an understanding of barriers and motivations for responsible behaviour and taking action to address these. This ~~will~~ is likely to require a combination of legislation, public awareness and enforcement, behaviour change campaigns, formal education in schools and encouragement through the building of social expectations. It may also be necessary to improve availability and accessibility ~~to~~ of resources supporting responsible ownership, such as veterinary care, identification and *registration* services and measures for control of zoonotic diseases.

Article 7.7.18.

Reproductive control

1) Outcomes of controlling reproduction in dogs include the following:

– prevent~~s~~ing the birth of unwanted puppies;

– help~~s~~ing address the imbalance between reproduction and demand for dogs;

– reduce~~s~~ing the size of the free-roaming dog population.

2) Efficient use of reproduction control does not require a ~~limiting~~limit on overall population size. To ensure best use of resources, focus should be on controlling reproduction of females most likely to be the source of unwanted and free-roaming dogs.

3) Methods of controlling reproduction will require direct veterinary input to individual animals. Involvement of both private and public veterinary sectors may be required to meet demand for services. Subsidisation of sterilisation programmes by government or other organisations may be considered to encourage uptake. The control of reproduction in *owned dogs* is essentially the responsibility of owners and should be incorporated in~~to~~ promotion of responsible ownership (see Article 7.7.17.).

4) Methods for controlling reproduction in dogs include:

– surgical sterilisation;

– non-surgical fertility control, ~~is~~i.e. the prevention of reproduction without the use of surgery~~.~~, ~~sterilisation or contraception,~~ including chemical and immunological approaches;

– confinement or separation~~/confinement~~ of female dogs during oestrus from unsterilised males.

5) Surgery has the primary advantage of being permanent. Surgical sterilisation must be carried out by a *veterinarian* and must include good animal handling, good surgical technique, a good standard of asepsis, appropriate anaesthesia and proactive, multi-modal pain management maintained throughout and adjusted to the individual animal as needed. This requires *monitoring* during surgery and post-operatively for the whole recovery period. It requires suitably trained *veterinarians* and *veterinary paraprofessionals* and access to appropriate drugs and equipment. *Competent Authorities* are responsible for ensuring access to training and authorised drugs that are not counterfeit,~~drugs~~ to ensure surgical sterilisation can be performed safely.

6) Castration of male dogs is ~~generally~~preferred over vasectom~~ies~~my ~~as~~ because, unlike castration, vasectomy does not reduce sex hormone levels and therefore has no mechanism to reduce ~~sex-~~specific behaviours such as roaming, territory marking and fighting due to hormonal aggression (Houlihan, 2017; McGreevy *et al.*, 2018). Females may be surgically sterilised by ovariohysterectomy~~,~~ or ovariectomy~~, hysterectomy or tubal ligation~~. ~~Tubal~~ ligation and hysterectomy are not recommended ~~as~~ because the female will be under ovarian hormonal influence~~s~~ and will continue to show sexual behaviour~~.~~, increasing susceptibility to diseases such as transmissible venereal tumours and pyometra where uterine tissue remains. However, effects of sterilisation on non-hormone related behaviours cannot be generalised; hence, just as with any surgical procedure, the *veterinarian* should use their professional judgement when recommending gonadectomy for individual patients.

7) Any chemicals or drugs used in controlling reproduction should be shown to have appropriate safety, quality and efficacy for the function required and be used in accordance with the manufacturer's recommendations and *Competent Authority*'s regulations. In the case of non-surgical sterilants and contraceptives in the research phase, trials ~~may~~will need to be completed before use.

Article 7.7.19.

'Catch, Neuter, Vaccination and Return'

'Catch, Neuter, Vaccination and Return' provides an approach to controlling the reproduction of unowned dogs as a source of free-roaming dogs. This is not a stand-alone solution to DPM and must be used in combination with other measures addressing other sources of free-roaming dogs. It can be considered a method of managing the current free-roaming dog population *in situ* on the streets and hence an alternative to removal for reuniting and adoption (see Article 7.7.20.).

In collaboration with the local community, identified unowned dogs are caught, provided with health care (including rabies *vaccination*), evaluated for adoption~~,~~ and, if adoption is not feasible, sterilised, and released to their local community at or near the place of capture. This method is more likely to be accepted in the situation where the presence of free-roaming dogs is widespread and well tolerated by the local community.

This method is not applicable in all situations and may be illegal in countries or regions where legislation prohibits the abandonment of dogs and authorities perceive the release of sterilised dogs as a form of abandonment. Problems caused by dogs, such as noise, faecal pollution, bite injuries and traffic accidents, would not be alleviated as dogs are returned to the local community and their movements are not restricted. Where owners have limited access to affordable reproduction control for their dogs, ~~C~~consideration should be given to the risk that 'Catch, Neuter, Vaccination and Return' could encourage owners to access free sterilisation by allowing their owned dogs to roam ~~abandonment of unwanted dogs~~. To avoid this risk, promoting responsible dog ownership (Article 7.7.17) and ensuring access to reproduction control for owned dogs (Article 7.7.18) should be implemented alongside 'Catch, Neuter, Vaccination and Return'.In the situation where many free-roaming dogs are owned, a DPM programme that focuses on ~~neutering~~sterilisation and responsible ownership may be more appropriate.

It is recommended that, before adopting this approach, a cost–benefit analysis is conducted. Factors such as the monetary costs, impact on culture of ownership and public safety should be assessed as well as the benefits for *disease* control and *animal welfare*, ~~as well as~~ and any societal benefits.

If this measure is implemented, the *Competent Authority* should ensure the following are addressed:

– engaging local communities to understand, support, design and be an active part of 'Catch, Neuter, Vaccination and Return' activities and *monitoring* of released dogs, in particular in the case of dogs cared for by the community;

– use of humane methods for catching, transporting and holding dogs;

– correct surgical technique with a good standard of asepsis, anaesthesia and analgesia, followed by post-operative care (see Article 7.7.18.);

– disease control may include *vaccination* (e.g.~~,~~ rabies) and treatments and testing for diseases (e.g.~~,~~ leishmaniasis) followed, as appropriate, by treatment or *euthanasia* of the dog;

– '~~C~~catch, N~~n~~euter, Vaccination and R~~r~~eturn' is not suitable for all dogs and should be applied on an individual basis. Health assessment and behavioural observation may be used to assess ~~if~~ whether dogs are suitable for release~~;~~ – if they are not suitable for release or adoption, *euthanasia* should be considered;

– permanent marking (e.g.~~,~~ tattoo or microchip) to indicate that the animal has been sterilised; individual identification also allows for tracking of *vaccination* status and treatment history. A visible form of identification (e.g. collar, tag or ear notch) may also be used to prevent unnecessary recapture. As with surgical sterilisation, the same principles of asepsis, anaesthesia and multi-modal pain management are relevant to the application of tags and notches because these are also surgical procedures. *Monitoring* of released dogs should include issues of mark loss, *infection* and *infestation*;

– the dog should be returned to a place that is as near as possible to the place of capture;

– the behaviour and welfare of dogs after release should be monitored and action taken if required.

Article 7.7.20.

Reuniting and adoption

Free-roaming dogs can be removed to housing facilities for reuniting with their owners, or adopted. This addresses only the current free-roaming population and not the source of these dogs, hence must be used in combination with other measures to prevent replacement of removed dogs. These facilities can also offer the option for owners to relinquish dogs they can no longer care for, as an alternative to abandonment. Evidence collected about dogs and dog owner practices during DPM programme development must confirm that reuniting and adoption ~~is~~ are probable and achievable before developing reuniting and adoption facilities. Without sufficient adoptive homes or systems for reuniting, facilities quickly fill to capacity, creating an ineffective and expensive measure. The *Competent Authority* should establish and enforce regulations for facilities providing reuniting and rehoming services to ensure capture, transport~~,~~ and holding of dogs ~~is~~ are done humanely.

Dogs that are removed from a community may be reunited with the owner or adopted. There should be provision for holding the dogs for a reasonable period to allow for reuniting with the owner and, as appropriate, for rabies observation. Reuniting and adoption provide an opportunity to promote responsible ownership and good animal health care (including rabies *vaccination* and sterilisation). The suitability of dogs should be assessed and matched with available owners. The effectiveness of adoption may be limited by the number of adoptive homes.

Efforts should be made to transport animals for the shortest distance and least amount of time possible. Relocation for adoption should first be considered locally, then expanded to the nearest available locations. This minimises the stress associated with transportation of dogs and reduces the risk of spreading zoonotic or other pathogens to new areas. If transport is needed, it should be done in accordance with Chapter 7.1.

Dogs that are removed from a community may be too numerous or may be unsuitable for adoption. If acceptable to the local community, 'Catch, Neuter, Vaccination and Return'~~(see Article 7.7.19)~~ may provide an alternative approach~~(see Article 7.7.19.)~~. If *euthanasia* of these unwanted animals is the only option, the procedure should be conducted in accordance with Article 7.7.27.

Article 7.7.21.

Access to veterinary care

Access to veterinary care ~~delivered by V*veterinary S*~~*services* positively impacts animal health, *animal welfare* and public health through provision of preventive and therapeutic veterinary care to dogs in a community. Increased interactions with V*veterinary S*~~s~~*ervices* provide additional opportunities to educate dog owners on *responsible dog ownership* (see Article 7.7.17.). From a DPM perspective, the prevention and control of disease, treatment of illness and injury, and *euthanasia* to end suffering where treatment is not feasible potentially reduce abandonment of sick or injured dogs.

Veterinary care should be part of DPM programmes and contribute to disease control by creating healthier populations of dogs with reduced population turnover. Herd immunity for rabies control is supported by DPM through improvement in the survival of vaccinated dogs and reducing birth of unvaccinated puppies through surgical sterilisation. Guidance on implementing dog rabies *vaccination* campaigns is provided in Chapter 8.14.

Preventive veterinary care is central to zoonotic disease control and *surveillance*. DPM programmes should encompass or align with all disease control measures relevant to dogs. This includes rabies *vaccination*, deworming (in particular for *Echinococcus granulosus*) and prevention and control of other pathogens.

Veterinary Sservices should identify 'at *risk*' populations of dogs that do not have reliable access to basic veterinary care. *Competent Authorities* should facilitate access to veterinary care. Potential solutions may include subsidising costs and organising outreach *veterinary services*.

Article 7.7.22.

Environmental controls

Actions shouldcan be taken to exclude dogs from uncontrolled sources of food (e.g. protecting rubbish dumps and *abattoirs* and installing animal-proof rubbish containers). Chapter 8.5. provides additional recommendations on environmental controls for the prevention and control of *Echinococcus granulosus*.Environmental control should be linked to other DPM measures, to avoid *animal welfare* problems and reduce public health risks from a sudden reduction in food sources.

Article 7.7.23.

Education on safe dog–human interaction

The most effective means of reducing the occurrence of dog bites are education on safe interaction with dogs and owner responsibility for training and managing dogs as part of *responsible dog ownership*. Young children are the group at highest *risk* for dog bites. Public education programmes focussed on appropriate dog-directed behaviour have been demonstrated to be effective in reducing the occurrence of dog bites and these programmes should be encouraged. *Competent Authorities* should seek advice from dog behaviour experts in developing dog safety education programmes.

Education programmes inon appropriate bite treatment, and when necessaryincluding post-exposure prophylaxis where rabies is a risk, are encouraged for all ages groups is encouraged.

Article 7.7.24.

Specific considerations for Ddog Ppopulation Mmanagement activities

The following activities Articles 7.7.25. to 7.7.27. are recommendations for activities thatmay be required as part of the implementation of the DPM abovemeasures described in Article 7.7.13.:

– Dog capture and handling;

– Dog housing;

– *Euthanasia.*

Euthanasia of dogs, used alone, is not effective for DPM. If used, it should be done humanely (see Article 7.7.27.) and implemented in combination with other measures as part of a DPM programme.

Article 7.7.25.

Dog capture and handling

Humane capture and handling aim to prevent animal suffering and distress. It They can also bring other benefits, including reduced injuries to handlers, easier handling of dogs in future and modelling positive handling to owners and the public.

Competent Authorities should develop appropriate legislation and training to promote humane handling and enforce regulations against cruel methods, such as , including the use of tongs and uncovered wire loops. *Animal welfare* and operator safety outcomes are improved when the personnel conducting capture and handling have a complete understanding of, and proficiency in, the capture and handling method to be used.

Competent Authorities and *Vveterinary Sservices* should ensure their staff and volunteers expected to handle dogs have received rabies pre-exposure *vaccination* and are provided with clear protocols for treating injuries, including dog bites.

The least aversive method of capture and handling should be used to minimise harm and discomfort to the dog, while also considering safety of the handler. Further, handlers should strive to make the handling experience as positive as possible from the perspective of the dog; this includes looking for ways to reward the dog during handling.

Handlers should use minimum *restraint* to provide the dog with opportunities to exert choice and control, so that they cope better with the handling.

Article 7.7.26.

Dog housing

Competent Authorities should develop minimum standards for the housing (physical facilities) and care of dogs by providing a suitable environment, a suitable diet, a house which keeps them with or apart from other animals, allows them to exhibit normal behaviour and provide protection from pain, suffering, injury and disease in order to meet the internationally recognised 'five freedoms'. ~~to ensure the physical, mental and social needs of dogs are met~~Enforcement of these standards ~~are~~ is supported by licensing and inspection of facilities (Barnard *et al.*, 2014). The following minimum standards should be considered:

~~a~~1. Facilities

- sustainable finances to cover ongoing running costs;
- site selection: access to drainage, waste disposal, water and electricity ~~are~~ is essential and environmental factors such as noise and pollution should be considered;
- kennel size, design and occupancy, taking into account exercise ~~and~~, expected length of stay ~~into account~~ and ~~providing~~sufficient area for dogs to separate the functions of eating or drinking, resting, urinating and defecating, as well as maintaining acceptable environmental temperatures;
- disease control measures including isolation and *quarantine station*;
- maximum capacity of the facility.

~~b~~2. Management

- provision of adequate fresh water and nutritious food;
- regular hygiene and cleaning;
- routine inspection, handling and exercise of the dogs;
- *monitoring* of physical and behavioural health and provision of required veterinary treatments under veterinary supervision, including routine and preventive veterinary care and *euthanasia*;
- policies and procedures to respect the maximum capacity for the facility and action when this is reached, assessment of dog health and behaviour, animal care, intake, treatment, adoption, sterilisation and *euthanasia*;
- provision of sufficient numbers of appropriately skilled staff and training of staff in safe, appropriate and positive handling of dogs;
- record keeping, animal identification and reporting to the *Competent Authority*~~.~~;
- provision of opportunities for conspecific socialisation, human socialisation, enrichment and locomotory activity as appropriate to the individual.

~~c~~3. Assessment

Dog housing performance may be assessed using the following measurables:

- body condition score, skin condition, disease *incidence*, injuries and mortality, reaction to humans and conspecifics;
- expression of species-specific behaviours reflecting a positive emotional state;
- housing must provide adequate space appropriate to the age, size, weight~~,~~ and breed of the dog, and ~~that~~ allow~~s~~ the dog to engage in normal body movements, including the ability to sit, stand up, turn about freely, or lie recumbent in a natural position, stretch, move their head, hold the tail erect while standing, and comfortably eat, drink, urinate and defecate;

- hygiene, cleaning, drainage and housing materials should prevent an excessive accumulation of faeces and food waste, to prevent soiling of dogs in the enclosure, and reduce disease *hazards*, insects, pests and odours;
- ventilation should allow dogs to ~~comfortably~~ maintain normal body temperature comfortably and provide good air quality;
- protection from harmful extremes of temperature, air movement, moisture, light and other climatic elements to ensure proper health and well-being of the dog.

Article 7.7.27.

Euthanasia

Euthanasia of dogs, used alone, is not effective for DPM. If used, it should be done humanely and implemented in combination with other measures as part of a DPM programme to achieve effective long-term management. Reducing dog population size is not an effective means of reducing the number of rabies cases [1(WHO, 2018)].

As a process, *euthanasia* involves pre-*euthanasia* and handling procedures, *euthanasia* methods and agents, confirmation of *death*, and carcass disposal. When *euthanasia* is practised, the general principles in the *Terrestrial Code* should be applied, with the emphasis on using practical methods which achieve the most rapid, painless and distress-free-*death* possible while ensuring operator safety. *Euthanasia* should be conducted under the supervision of a *veterinarian*. To ensure *animal welfare* and operator safety, the personnel conducting *euthanasia* should have a complete understanding of, and proficiency in, the *euthanasia* method to be used.

~~a~~1) Restraint

When a dog needs to be restrained for any procedure, including *euthanasia*, this should always be done with full regard for operator ~~security~~safety and *animal welfare*. Animal handling should also minimise distress experienced by the dog prior to loss of consciousness. Some *euthanasia* methods should be used ~~in~~with prior sedation or anaesthesia to be considered humane. Regardless of the *euthanasia* method used, it is advisable to perform pre-*euthanasia* sedation or anaesthesia ~~should be used~~to minimise anxiety or facilitate safe *restraint*.

~~b~~2) Euthanasia methods

The following are recommended methods of canine *euthanasia*:

- intravenous barbiturates~~,~~;
- intraperitoneal barbiturates in small dogs or puppies, to be used only if the intravenous route is not feasible~~,~~;
- intravenous anaesthetic overdose~~,~~;
- inhaled anaesthetic overdose in small dogs (not neonates).

If anaesthetised:

- administration of barbiturates by alternative routes (intracardiac, intrarenal, intrahepatic, intraosseous).

If sedated:

- intravenous *euthanasia*-specific formulation of embutramide, chloroquine and lidocaine;
- intravenous *euthanasia*-specific formulation of embutramide, mebezonium and tetracaine.

Methods, procedures and practices that are unacceptable as primary methods of *euthanasia* on *animal welfare* grounds include air embolism, asphyxiation, burning, chloral hydrate, chloroform, cyanide, decompression, drowning, exsanguination, formalin, household products and solvents, pesticides and herbicides, hypothermia, insulin, neuromuscular blocking agents (magnesium sulphate, potassium chloride, nicotine and all curariform agents), manually applied blunt force trauma to the head, rapid freezing, thoracic compression, strychnine, nitrous oxide, ether, kill-trapping, CO from engine fumes, CO_2 if the required concentration and flow rates are not regulated and monitored, free-bullet without proper anatomical placement at close range by highly trained personnel, penetrating captive bolt followed by pithing, electrocution ~~if not already under general anaesthesia,~~and *stunning* without a secondary kill method.

~~c~~3. Confirmation of death

For all methods of *euthanasia* used, *death* should be confirmed before animals are disposed of or left unattended.

A combination of criteria is most reliable in confirming *death*, including lack of pulse, breathing~~,~~ and corneal reflex, and response to firm toe pinch; inability to hear respiratory sounds and heartbeat by use of a stethoscope; greying of the mucous membranes; and rigor mortis. None of these signs alone, except rigor mortis, confirms *death*. If an animal is not dead, another humane method of *euthanasia* should be performed.

~~d~~4. Carcass disposal

Carcasses should be disposed of in a manner that complies with legislation. Attention should be paid to the *risk* of residues occurring in the carcass. Incineration is generally the safest ~~way~~ means of carcass disposal (see Chapter 4.13.).

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CHAPTER 8.16.

INFECTION WITH RINDERPEST VIRUS

Article 8.16.1.

General provisions

1) The global eradication of rinderpest has been achieved and was announced in mid-2011 based on the following:

   a) Evidence demonstrating that there is no significant likelihood that rinderpest virus (RPV) remains in susceptible domesticated or *wildlife* host populations anywhere in the world.

   b) OIE Member and non-member countries have completed the pathway defined by the OIE for recognition of national rinderpest freedom and have been officially recognised by the OIE as free from *infection* with RPV.

   c) All *vaccinations* against rinderpest are banned and have ceased throughout the world. A ban on *vaccination* against rinderpest means a ban on administering any vaccine containing RPV or any components derived from RPV to any animal.

   However, RPV-containing material including live vaccines continues to be held in a number of institutions around the world and this poses a *risk* of virus re-introduction into susceptible animals. Therefore, Member Countries should not manipulate~~ion~~ ~~of~~ existing RPV-containing material, ~~and synthesis~~ or synthesise or produce ~~other forms of production of~~ RPV-containing material, ~~is forbidden~~ unless authorised by the FAO and OIE.

   As sequestration and destruction of virus stocks proceed, the *risks* of re-occurrence of *infection* are expected to ~~progressively~~ diminish progressively. The possibility of deliberate or accidental release of virus demands continuing vigilance, especially in the case of those countries hosting an institution holding RPV-containing material.

   This chapter takes into account the global freedom status of rinderpest and provides recommendations to prevent re-emergence of the disease, to ensure adequate *surveillance* and protection of livestock and to manage any re-emergence and facilitate recovery of global freedom from rinderpest.

2) For the purposes of the *Terrestrial Code*:

   a) Rinderpest is defined as an *infection* of susceptible animals with RPV, with or without clinical signs.

   b) The following defines the occurrence of a *case* of *infection* with RPV:

      i) RPV has been isolated from a susceptible animal or a product derived from that animal and identified; or

      ii) viral antigen or viral RNA specific to RPV has been identified in samples from a susceptible animal; or

      iii) antibodies that are not a consequence of *vaccination* to RPV have been identified in a susceptible animal with either epidemiological links to a confirmed or suspected *outbreak* of rinderpest, or showing clinical signs consistent with recent *infection* with RPV.

   c) The following defines a 'suspected *case*' of ~~rinderpest~~ *infection* with RPV:

      i) a potential *case* for which other diseases compatible with 'stomatitis-enteritis syndrome' have been ruled out by clinical ~~or~~ and laboratory investigation; or

      II) a potential *case* which has given a positive reaction in a diagnostic test for RPV conducted outside of an OIE reference laboratory for rinderpest; or

      iii) the detection of RPV-specific antibodies that are not a consequence of *vaccination* in a susceptible animal with or without clinical signs.

   d) The *incubation period* for ~~rinderpest~~ *infection* with RPV shall be 21 days.

e) RPV-containing material means field and laboratory strains of RPV; vaccine strains of RPV including valid and expired vaccine stocks; tissues, sera and other material from animals known or suspected to be infected; laboratory-generated diagnostic material containing live virus, recombinant morbilliviruses (segmented or nonsegmented) containing unique RPV nucleic acid or amino acid sequences~~,~~; and full length genomic material including ~~virus~~ viral RNA and its cDNA copies.

Subgenomic fragments of RPV genome (either as plasmids or incorporated into recombinant viruses) that cannot be incorporated into a replicating morbillivirus or morbillivirus-like virus are not considered to be RPV-containing material, neither are sera that have been either heat-treated to at least 56°C for at least two hours, or shown to be free from RPV genome sequences by a validated RT-PCR assay.

3) For the purposes of this chapter:

a) 'Susceptible animals' means domestic, *feral, captive wild* and *wild* artiodactyls.

b) A 'potential *case*' of *infection* with RPV means a susceptible animal showing clinical signs consistent with 'stomatitis–enteritis syndrome' and where these signs cannot be ascribed to another disease compatible with 'stomatitis–enteritis syndrome' by clinical or epidemiological ~~considerations or appropriate laboratory~~ investigation.

The occurrence of a potential *case* should draw special attention if it is linked to identified risks such as proximity to facilities holding RPV-containing material.

c) 'Stomatitis–enteritis syndrome' is defined as fever with ocular and nasal discharges in combination with clinical signs of erosions in the oral cavity with diarrhoea, dysentery, dehydration or death or necropsy findings of haemorrhages on serosal surfaces, haemorrhages and erosions on alimentary mucosal surfaces and lymphadenopathy.

4) Standards for diagnostic tests and vaccines are described in the *Terrestrial Manual*.

Article 8.16.2.

1. Safe commodities during global freedom

When authorising import or transit of ~~the~~ *commodities* of susceptible animals, *Veterinary Authorities* should not require any conditions related to rinderpest.

2. Safe commodities in the event of re-emergence of rinderpest

Regardless of the rinderpest status of the *exporting country*, *Veterinary Authorities* should not require any conditions related to rinderpest for:

a) semi-processed hides and skins (limed hides, pickled pelts, and semi-processed leather, e.g. wet blue and crust leather) ~~which have been submitted to the usual chemical and mechanical processes in use in the tanning industry~~;

b) *meat products* in hermetically sealed containers with a F_0 value of 3 or above;

c) gelatine.

Article 8.16.2bis.

Article 8.16.3., Article 8.16.4. and point 1 of Article 8.16.5. apply during global freedom.

Articles 8.16.5. to 8.16.13. apply in the event of re-emergence of rinderpest.

~~First section: applicable during global freedom~~

Article 8.16.3.

Ongoing surveillance post global freedom

All countries in the world, whether or not Member Countries of the OIE, have completed all the procedures necessary to be recognised as free from rinderpest ~~*infection*~~, and annual re-confirmation of ~~rinderpest absence~~ absence of *infection* with RPV is no longer required. However, rinderpest should still be notifiable in the whole 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 OIE reporting obligations concerning the occurrence of unusual epidemiological events in accordance with Chapter 1.1. Countries should either maintain the capacity for local investigation of potential *cases* or have protocols in place to send samples from such potential *cases* to an OIE Reference Laboratory for routine checking. Countries should also maintain national contingency plans for responding to events suggestive of rinderpest including the checking of potential *cases* and the prompt identification of suspected *cases*.

The Global Rinderpest Action Plan (GRAP) complements all national and regional contingency plans and lays out the roles and responsibilities of all relevant stakeholders to prepare for, prevent, detect, respond to and recover from a rinderpest *outbreak*. If needed, expertise from the region or continent, or international organisations may be requested to provide resources to help confirm or rule out ~~if~~ whether the potential *case* meets the definition for a suspected *case* or a *case* ~~of rinderpest~~.

Article 8.16.4.

Annual update on RPV-containing material

Annual reports on RPV-containing material should be submitted to the OIE each year by the *Veterinary Authority* of a Member Country hosting an institution or institutions holding RPV-containing material, using the online platform designated for such a purpose. A final report should be submitted to the OIE for each institution when all RPV-containing materials have been destroyed and no new related activities are foreseen.

~~Second section: applicable in the event of re-emergence of rinderpest~~

Article 8.16.5.

Response to a recurrence of rinderpest

1. Procedures to be followed in the event of the suspicion of rinderpest

   Any suspected *case* of *infection* with RPV should be immediately ~~notified~~ reported to the *Veterinary Authority.*

   Veterinary Authorities shall immediately notify any suspected *case* of *infection* with RPV to the OIE.

   Upon detection of a suspected *case*, the national contingency plan should be implemented immediately. If the presence of rinderpest cannot be ruled out or if there is a positive reaction in a diagnostic test for RPV conducted outside of an OIE Reference Laboratory for rinderpest, samples should be collected in accordance with the *Terrestrial Manual* and dispatched to one of the appointed OIE Reference Laboratories for rinderpest for confirmation and, if applicable, for molecular characterisation of the virus to facilitate identification of its source. A full epidemiological investigation should be conducted simultaneously to provide supporting information and to assist in identifying the possible source and spread of the virus.

2. Procedures to be followed after confirmation of rinderpest

   Veterinary Authorities shall immediately notify any *case* of *infection* with RPV to the OIE.

   A *case* of *infection* with RPV shall constitute a global emergency requiring immediate, concerted action for its investigation and elimination.

Immediately following the confirmation of the presence of RPV, viral RNA or antibody as described in Article 8.16.1., the appointed OIE Reference Laboratory for rinderpest should inform the country concerned, the OIE and the FAO, allowing the initiation of the response operations described in the GRAP.

When epidemiological investigation has indicated the extent of the infected area, zoning can be implemented for the purposes of disease control. In the event of a limited *outbreak*, a *containment zone* may be established in accordance with Article 8.16.8.

Emergency *vaccination* is acceptable only with rinderpest vaccines produced in accordance with the *Terrestrial Manual*. Vaccinated animals should always be clearly and permanently identified at the individual level.

Global rinderpest freedom is suspended and the *sanitary measures* for trade with the infected country or countries shall be those in Articles 8.16.12. and 8.16.13.

Article 8.16.6.

Country free from rinderpest

In the event of re-emergence of rinderpest, all OIE Member Countries without a *case* will remain free from rinderpest. However, all OIE Member Countries will be asked to provide a *risk assessment* to the OIE and free status will be suspended if their *risk assessment* is not accepted by the OIE.

Some countries will be at heightened *risk*. In particular, countries meeting the conditions below would be regarded as being at heightened *risk* and should carry out appropriate *surveillance*, capable of detecting the presence of *infection* with RPV even in the absence of clinical signs; this may be achieved through a *surveillance* programme in accordance with Article 8.16.11. in addition to ongoing *surveillance* in accordance with Article 8.16.3.~~:~~

1) countries that are adjacent to a country infected with RPV; or

2) countries that have relevant epidemiological or ecological links through trade or animal movements to a country infected with RPV.

Article 8.16.7.

Country infected with RPV

A country infected with RPV is one in which a *case* of ~~rinderpest~~ *infection* with RPV has occurred.

Article 8.16.8.

Establishment of a containment zone within a country previously free from rinderpest

In the event of a limited *outbreak* within a country previously free of rinderpest, a *containment zone* for the purposes of disease control and eradication ~~can~~ should be established in accordance with Article 4.4.7. Notwithstanding the establishment of a *containment zone* for disease control and eradication, *international trade* in *commodities* of susceptible species from the entire country will be limited to the *safe commodities* listed in point 2 of Article 8.16.2. until free status is recovered.

Article 8.16.9.

Recovery of free status for a country

Should a *case* of ~~rinderpest~~ *infection* with RPV occur, a country is considered infected with RPV until shown to be free from rinderpest in accordance with the procedures below.

The time needed to recover ~~rinderpest~~ free status of a country depends on the methods employed to achieve the elimination of *infection*.

One of the following waiting periods is applicable:

1) when a *stamping-out policy* has been applied:

   a) three months after the *disinfection* of the last affected *establishment* where a *stamping-out policy* without *vaccination* and targeted *surveillance* in accordance with Article 8.16.11. have been applied; or

   b) three months after the *disinfection* of the last affected *establishment* and the *slaughter* of all vaccinated animals, where a *stamping-out policy*, emergency *vaccination* and targeted *surveillance* in accordance with Article 8.16.11. have been applied; or

   c) 18 months after the *disinfection* of the last affected *establishment* and the last *vaccination*, where a *stamping-out policy*, emergency *vaccination* not followed by the *slaughter* of all vaccinated animals, and targeted *surveillance* in accordance with Article 8.16.11. have been applied;

2) when a *stamping-out policy* is not practised, the above waiting periods do not apply. Instead, the country must be in compliance with the requirements below:

   a) have a record of regular and prompt animal disease reporting in accordance with Chapter 1.1.;

   b) send a declaration to the OIE stating that:

      i) there has been no *case* of ~~rinderpest~~ *infection* with RPV during the past 24 months;

      ii) no suspected *case* of *infection* with RPV ~~*infection*~~ has been found during the past 24 months;

      iii) no *vaccination* against rinderpest has been carried out during the past 24 months;

   c) supply documented evidence that targeted *surveillance* for *infection* with RPV in accordance with Chapter 1.4. and Article 8.16.11. is in operation and that regulatory measures for the prevention and control of rinderpest have been implemented;

   d) not have imported, since the cessation of *vaccination*, any animals vaccinated against rinderpest.

In the scenarios mentioned in points 1(a), (b) and (c) and in point 2 above, the recovery of free status requires an international expert mission to verify the successful application of containment and eradication measures, as well as a review of documented evidence by the OIE. The country shall be considered free only after the outcome of the mission and submitted evidence ~~has~~ have been accepted by the OIE.

Article 8.16.10.

Recovery of global freedom

The suspension of global freedom will be lifted when all countries infected with RPV have recovered freedom in accordance with Article 8.16.9.

Unless it is verified through an OIE expert mission that the conditions below are met for all countries having experienced an *outbreak* within 12 months of suspension, then global rinderpest freedom is lost and recovery of freedom would require an assessment of free status of all countries by the OIE. If the conditions below are met within 12 months, then global freedom will remain suspended, subject to periodic review by the OIE.

1) The *outbreak* is limited to a country or *zone*, without any further *outbreaks* outside the ecosystem of the first *outbreak*.

2) The *outbreak* is handled in a prompt and efficient manner, with robust control measures including movement controls, which were rapidly implemented and were shown to be successful in mitigating the spread of rinderpest and reducing its incidence.

Article 8.16.11.

Surveillance for recovery of ~~rinderpest~~ free status

A country infected with RPV applying for recovery of ~~rinderpest~~ free status in accordance with Article 8.16.9. should provide evidence demonstrating effective *surveillance* in accordance with Chapter 1.4. and the points below.

1) The target for *surveillance* should be all populations of ~~rinderpest~~ susceptible ~~species~~ animals within the country. In certain areas some *wildlife* populations, such as African buffaloes, act as sentinels for ~~rinderpest~~ *infection* with RPV.

2) An awareness programme should be established for all animal health professionals including *veterinarians*, both official and private, and livestock owners to ensure that ~~rinderpest's~~ clinical and epidemiological characteristics of rinderpest and *risks* of its recurrence are understood. Farmers and workers who have day-to-day contact with livestock, as well as diagnosticians, should report promptly any potential *case*.

3) Differing clinical presentations can result from variations in levels of innate host resistance (*Bos indicus* breeds being more resistant than *B. taurus*), and variations in the virulence of the attacking strain. In the case of sub-acute (mild) cases, clinical signs are irregularly displayed and difficult to detect. Experience has shown that syndromic *surveillance* strategies, i.e. *surveillance* based on a predefined set of clinical signs (~~i.e.~~ 'stomatitis–enteritis syndrome'), are useful to increase the sensitivity of the system.

4) Given these differing clinical presentations, virological *surveillance* should be conducted in addition to clinical surveillance. A procedure should be established for the rapid collection and transport of samples from suspected *cases* to an appointed OIE Reference Laboratory for rinderpest.

5) Since rinderpest is an acute *infection* with no known carriers, serological *surveillance* should be conducted to detect mild *infections* that are not detected clinically. There are no serological means to differentiate animals infected with field virus from vaccinated animals. Consequently, serological surveys should target unvaccinated animals and young animals devoid of maternal antibodies.

~~2~~Article 8.16.12.

Recommendations for importation of ~~rinderpest~~ susceptible animals and their products ~~except safe commodities in point 2 of Article 8.16.2~~ from countries free from rinderpest

1) For ~~rinderpest~~ susceptible animals, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the animals remained in a country free from rinderpest since birth or for at least 30 days prior to shipment. Animals must not transit through a country infected with RPV, in accordance with Chapter 5.7.

2) For *fresh meat* or *meat products* (except those listed in point 2 of Article 8.16.2.) of susceptible animals, for *milk or milk products* from susceptible animals, and for all products of animal origin intended for use in animal feeding, for agricultural use or for industrial use, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting the entire consignment of product is derived from animals that remained in a country free from rinderpest since birth or for at least 30 days prior to *slaughter* or harvesting of the product.

3) For semen and oocytes of susceptible animals, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that:

   a) the donor animals showed no clinical signs of ~~rinderpest~~ *infection* with RPV on the day of collection and had been kept in a country free from rinderpest for at least 30 days prior to collection;

   b) the semen and oocytes were collected, processed and stored in conformity with the provisions of Chapters 4.6., 4.7. or 4.9., as relevant.

4) For *in vivo* derived embryos of susceptible animals, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that:

   a) the donor females showed no clinical signs of ~~rinderpest~~ *infection* with RPV on the day of collection and had been kept in a country free from rinderpest for at least 30 days prior to collection;

   b) the embryos were collected, processed and stored in conformity with the provisions of Chapters 4.8. and 4.10., as relevant.

Article 8.16.13.

Recommendations for importation from countries ~~infected with~~ not free from rinderpest

~~In the event of re-emergence of rinderpest,~~ From countries not free from rinderpest, only ~~*safe commodities*~~ listed in point 2 of Article 8.16.2. can be traded.

CHAPTER 8.5.

INFECTION WITH *ECHINOCOCCUS GRANULOSUS*

Article 8.5.1.

General provisions

Echinococcus granulosus (E. granulosus) is a widely distributed cestode (tapeworm). The adult worms occur in the small intestine of canids (definitive host). Larval stages (hydatid) occur in tissues of liver, lung and other organs of other mammals (intermediate host), including humans. *Infection* with the larval stage of the parasite in the intermediate host, referred to as 'cystic echinococcosis' or 'hydatidosis', is associated with significant economic losses in livestock production and causes a major disease burden in humans.

For the purposes of the *Terrestrial Code*, *infection* with *E. granulosus* is defined as a zoonotic parasitic *infection* of canids, ungulates and macropod marsupials with *E. granulosus* (ovine, bovine, cervid, camelid and porcine strains).

For the purposes of this chapter, offal is defined as internal organs of ungulates and macropod marsupials.

Transmission of *E. granulosus* to canids occurs through ingestion of hydatid-infected offal.

Infection in intermediate hosts, as well as in humans, occurs by ingestion of *E. granulosus* eggs from contaminated environments. In humans, *infection* may also occur following contact with infected canids or by consumption of food or water contaminated with *E. granulosus* eggs from canine faeces.

Infection in humans can be prevented by good food hygiene and personal hygiene, community health education and preventing *infection* of canids. Collaboration between the *Competent Authority* and the public health authority is an essential component in preventing and controlling *E. granulosus* transmission.

This chapter provides recommendations for prevention of, control of, and *surveillance* for *infection* with *E. granulosus* in dogs and livestock.

When authorising the import or transit of the *commodities* covered in this chapter, with the exception of those listed in Article 8.5.2., *Veterinary Authorities* should apply the recommendations in this chapter.

Standards for diagnostic tests and vaccines are described in the *Terrestrial Manual*.

[...]

Article 8.5.3.

Programmes for the prevention and control of infection with *E. granulosus*

In order to prevent and control *infection* with *E. granulosus*, the *Veterinary Authority* or other *Competent Authority* should carry out community awareness programmes about the risk factors associated with transmission of *E. granulosus*, the role of dogs (including *stray dogs*) and the importance of *responsible dog ownership*. The *Veterinary Authority* or other *Competent Authority* should also implement the following prevention and control measures.

1. Prevention of infection in dogs (owned and stray)

    a) Dogs should not be fed offal unless it has been treated in accordance with Article 8.5.6.

    b) Dogs should be prevented from scavenging on dead ungulates and macropod marsupials. Dead animals should be disposed of in accordance with Article 4.13.6.

    c) The *Veterinary Authority* or other *Competent Authority* should ensure that *slaughterhouses/abattoirs* have implemented measures that prevent access of dogs to the premises, and to animal carcasses and waste containing offal.

d) When livestock cannot be slaughtered in a *slaughterhouse/abattoir* and are slaughtered on-farm, dogs should be prevented from having access to raw offal, and not be fed offal unless it has been treated in accordance with Article 8.5.6.

2. Control of infection in dogs (owned and stray)

a) For control of *stray dog* populations, the *Veterinary Authority* or other *Competent Authority* should implement relevant aspects of Chapter 7.7.

b) Dogs known to be infected or suspected of having access to raw offal or in contact with livestock should be dewormed at least every 4-6 weeks with praziquantel (5 mg/kg) or another cestocidal product with comparable efficacy. Where possible, faeces excreted up to 72 hours post treatment should be disposed of by incineration or burial.

c) In areas of persistent transmission, the *Veterinary Authority* and other *Competent Authority* should collaborate to identify the possible origins of the *infection*, and review and amend the control programme, as appropriate.

3. Control of infection in livestock

a) The *Veterinary Authority* should ensure that all slaughtered livestock are subjected to post-mortem *meat* inspection in accordance with Chapter 6.3., including inspection of offal for hydatids.

b) When hydatids are detected during post-mortem *meat* inspection:

~~c)~~ i) offal containing hydatids should be disposed of in accordance with Article 4.13.6., or treated in accordance with Article 8.5.6.;

~~d)~~ ii) an investigation should be carried out by the *Veterinary Authority* and other *Competent Authority* to identify the possible origin of the *infection*, and review and amend, as appropriate, the control programme.~~;~~

c) Control programmes should include the *vaccination* of livestock with the objective of decreasing the prevalence of *infection* in livestock.

[…]

CHAPTER 15.4.

INFECTION WITH *TAENIA SOLIUM* (PORCINE CYSTICERCOSIS)

Article 15.4.1.

General provisions

Taenia solium (T. solium) is a zoonotic parasite of pigs and occasionally of other animals. *T. solium* is a cestode (tapeworm) that is endemic in large areas of Latin America, Asia and sub-Saharan Africa. The adult cestode occurs in the small intestine of humans (definitive host) causing taeniosis. The larval stage (cysticercus) occurs in striated muscles, subcutaneous tissues and central nervous system of pigs (intermediate hosts), causing cysticercosis. Other suids and dogs can be infected but are not epidemiologically significant. Humans may also become infected with the larval stage through the ingestion of eggs shed in faeces of infected humans. The most severe form of human *infection* by the larval stage is neurocysticercosis which causes neurological disorders including seizures (epilepsy) and sometimes death. Cysticercosis, although normally clinically inapparent in pigs, is associated with significant economic losses due to carcass condemnation and decreased value of pigs, and causes a major disease burden in humans.

In humans, taeniosis occurs following ingestion of pig *meat* containing viable cysticerci and can be prevented by avoiding consumption of raw or undercooked contaminated pig *meat*. In humans, cysticercosis occurs following ingestion of *T. solium* eggs and can be prevented by avoiding exposure to *T. solium* eggs through detection and treatment of human tapeworm carriers, community health education, appropriate sanitation, personal hygiene, and good food hygiene. Collaboration between the *Veterinary Authority* and the public health authority is essential in preventing and controlling *T. solium* transmission.

In pigs, cysticercosis occurs by ingestion of *T. solium* eggs from faeces, or environments contaminated with faeces of humans harbouring adult *T. solium*.

For the purposes of the *Terrestrial Code*, *infection* with *T. solium* is defined as an *infection* of pigs.

The aim of this chapter is to reduce the risk of *infection* with *T. solium* of humans and pigs and to minimise the international spread of *T. solium*. The chapter provides recommendations for prevention, control and *surveillance* of *infection* with *T. solium* in pigs.This chapter should be read in conjunction with the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005).

When authorising the import or transit of the *commodities* covered in this chapter, with the exception of those listed in Article 15.4.2., *Veterinary Authorities* should apply the recommendations in this chapter.

Standards for diagnostic tests and vaccines are described in the *Terrestrial Manual*.

[…]

Article 15.4.3.

Measures to prevent and control infection with *T. solium*

The *Veterinary Authority* and other *Competent Authorities* should carry out community awareness and education programmes on the risk factors associated with transmission of *T. solium* emphasising the role of pigs and humans.

The *Veterinary Authority* or other *Competent Authorities* should promote the comprehensive *animal health management* of pigs, which should include the following measures:

1. Prevention of infection in pigs

Transmission of *T. solium* eggs from humans to pigs can be avoided by:

a) preventing the exposure of pigs to environments contaminated with human faeces;

b) preventing the deliberate use of human faeces as pig *feed* or the use of pigs as a means of human faeces disposal;

c) preventing the use of untreated sewage effluent to irrigate or fertilise land to be used by pigs for forage or for food crops;

d) ensuring that any treated sewage effluent used to irrigate or fertilise land to be used by pigs for forage or for food crops has been treated in a manner shown to inactivate *T. solium* eggs;

e) providing adequate toilet and sanitation facilities for people in areas and *establishments* where pigs are kept to prevent the exposure of pigs and their environment to human faeces~~.~~;

f) vaccinating pigs in combination with an anthelmintic treatment in accordance with the *Terrestrial Manual*.

2. Control of infection in pigs

a) The *Veterinary Authority* should ensure that all slaughtered pigs are subjected to post-mortem *meat* inspection in accordance with Chapter 6.3., and with reference to Chapter 3.9.5. of the *Terrestrial Manual*.

b) When cysticerci are detected during post-mortem *meat* inspection:

i) if cysticerci are detected in a carcass of a pig in multiple locations (systemic infection), that carcass and its viscera, as well as all pigs from the same *establishment* of origin should be disposed of in accordance with Article 4.13.6.;

ii) if only localised cysticerci are detected in a carcass of a pig, the *meat* from that carcass and from all pigs from the same *establishment* of origin should be treated in accordance with Article 15.4.6. or may be disposed of in accordance with Article 4.13.6.;

iii) an investigation should be carried out by the *Veterinary Authority* and the public health authority to identify the possible source of the *infection* in order to target an intervention;

iv) post-mortem examination of pigs at *slaughter* from known infected *establishments* should be intensified until evidence has been obtained indicating that the *infection* has been eliminated from the *establishment*.

An optimal control programme should include detection and treatment of human tapeworm carriers and control of sewage used for agricultural production.

[…]

CHAPTER 11.4.

BOVINE SPONGIFORM ENCEPHALOPATHY

Article 11.4.1.

General provisions

1) The recommendations in this chapter are intended to mitigate the human and animal health risks associated with the presence of the bovine spongiform encephalopathy (BSE) agents in cattle only. BSE manifests in two main forms: classical BSE and atypical BSE. Oral exposure to contaminated *feed* is the main route of transmission of classical BSE. Atypical BSE is a condition that occurs at a very low rate and is assumed to occur spontaneously in any cattle population. ~~Oral exposure to contaminated *feed* is the main route of transmission of classical BSE.~~ Given that cattle have been experimentally infected by the oral route with a low molecular weight type of atypical BSE (L-type BSE~~,~~), atypical BSE is also ~~potentially~~ considered capable of being recycled in a cattle population if cattle are orally exposed to contaminated *feed*.

2) BSE primarily affects cattle. Other animal species may be naturally and experimentally susceptible to BSE, but they are not regarded as being epidemiologically significant, particularly when feeding ruminants with ruminant-derived protein meal is not ~~practiced~~practised.

3) For the purposes of the *Terrestrial Code*:

   ~~1~~a) BSE is an invariably fatal neurological prion disease of cattle caused by a misfolded form of the prion protein (~~PrP^{BSE}~~PrP^{Sc}), ~~including~~ which includes both classical (C-type BSE) and atypical strains (H- and L-type BSE~~). for respectively~~ having, respectively, a ~~protease resistant PrP^{BSE}~~PrP^{Sc} fragment of higher and lower molecular mass than classical BSE). The term 'BSE' includes both classical and atypical forms~~, unless otherwise specified~~.

   ~~2~~b) The occurrence of a BSE *case* is defined by the immunohistochemical (IHC) or immunochemical detection of ~~PrP^{BSE}~~PrP^{Sc} in brain tissue of a bovid of the species *Bos taurus* or *Bos indicus.* ~~, with d~~Discrimination between atypical and classical BSE strains is based on the Western immunoblot banding pattern, as described in the *Terrestrial Manual*.

4) For the purposes of this chapter:

   ~~3~~a) 'Cattle' means ~~a~~ bovids of the species *Bos taurus* or *Bos indicus.*

   ~~4~~b) 'Protein meal' means any final or intermediate solid protein-containing product, obtained when animal tissues are rendered, excluding ~~blood and blood products,~~ peptides of a molecular weight less than 10,000 daltons and amino~~-~~ acids.

5) When *commodities* are imported in accordance with this chapter, the BSE risk of the *importing country* or *zone* of destination is not affected by the BSE risk of the *exporting country*, *zone* or *compartment* of origin.

6) Standards for diagnostic tests are described in the *Terrestrial Manual.*

Article 11.4.1bis.

Safe commodities

When authorising the importation or transit of the following *commodities* derived from cattle, *Veterinary Authorities* should not require any conditions related to BSE, regardless of the BSE risk posed by the cattle population of the *exporting country*, *zone* or *compartment*:

1) *milk* and *milk products*;

2) semen and *in vivo* derived cattle embryos collected and handled in accordance with the relevant chapters of the *Terrestrial Code*;

3) hides and skins;

4) gelatine and collagen;

5) tallow with maximum level of insoluble impurities of 0.15% in weight and derivatives made from this tallow;

~~6) tallow derivatives;~~

~~7~~6) dicalcium phosphate (with no trace of protein or fat~~).~~);

7) ~~foetal~~ fetal blood.

Other *commodities* of cattle can be traded safely if in accordance with the relevant articles of this chapter.

Article 11.4.2.

~~The~~ General criteria for the determination of the BSE risk ~~of the cattle population~~ of a country, zone or compartment

~~The~~ ~~Due~~ Owing to its specific etiological and epidemiological features, the BSE risk of ~~the cattle population of~~ a country, *zone* or *compartment* is determined on the basis of the following criteria:

1) ~~a~~A BSE *risk assessment*, in accordance with the provisions of ~~Chapter 1.8.~~the "~~"~~Application for official recognition by the OIE of risk status for bovine spongiform encephalopathy~~"~~ that evaluates the ~~likelihood~~ risk of BSE agents being recycled within the cattle population by identifying all potential factors associated with the occurrence of BSE and their historic perspective. Member Countries should review the *risk assessment* annually to determine whether the situation has changed.

   ~~A~~The *risk assessment* for the purpose of BSE, based on the framework provided by Article 2.1.4., consists of:

   a) Entry assessment

      ~~An~~The entry assessment evaluates the likelihood that the classical BSE agent has been introduced into the country, *zone* or *compartment* ~~via imported~~through the importation of the following *commodities*~~.~~ in the preceding eight years:

      i) ~~C~~cattle;

      ii) ~~R~~ruminant-derived protein meal;

      iii) ~~F~~*feed* (except packaged and labelled pet food ~~not intended for pets~~) that contains ruminant-derived protein meal;

      iv) ~~F~~fertili~~z~~sers that contain ruminant-derived protein meal;

      v) ~~A~~any other *commodity* that either is or could be contaminated by *commodities* listed in Article 11.4.14.

   b) Exposure assessment

      ~~An~~The exposure assessment evaluates the likelihood of cattle being exposed to BSE during the preceding eight years, either through imported *commodities* or as a result of the presence of BSE agents ~~in~~ within the indigenous cattle population of the country, *zone* or *compartment*.

      The first step in the exposure assessment involves an evaluation of livestock industry practices through a consideration of the impact of:

      i) Livestock industry practices ~~on~~ preventing cattle from being fed ruminant-derived protein meal, taking account of:

         – demographics of the cattle population and production and farming systems;

         – feeding practices;

- slaughtering and waste management practices;
- rendering practices;
- *feed* production, labelling, distribution and storage.

Depending on the outcome from this step, an evaluation of mitigation measures specifically targeting BSE may also need to be included through ~~a~~ consideration of the impact of:

ii) Specific risk mitigation measures ~~on~~ preventing cattle from being fed ruminant-derived protein meal, taking account of:

- the nature and scope of a *feed* ban on feeding ruminants with protein meal derived from ruminants;
- the fate of *commodities* with the greatest BSE infectivity (those *commodities* listed in point 1 of Article 11.4.14.);
- parameters of the rendering process;
- prevention of cross-contamination during rendering, *feed* production, transport, storage and feeding;
- an awareness programme under the scope of the *feed* ban;
- monitoring and enforcement of the *feed* ban.

Depending on the outcome of the exposure assessment, a consequence assessment (in point (c) below) may not be required.

c) Consequence assessment

~~A~~The consequence assessment evaluates the likelihood of cattle becoming infected ~~with~~ following exposure to the BSE agents together with the likely extent and duration of any subsequent recycling and amplification within the cattle population during the preceding eight years. The factors to be considered in the consequence assessment are:

i) age at exposure;

ii) production type;

iii) the impact of cattle industry practices or the implementation of ~~BSE~~ BSE-specific mitigation measures under a *feed* ban.

d) Risk estimation

The risk estimation combines the results and conclusions arising from the entry, exposure and consequence assessments to provide an overall measure of the risk ~~that~~ of BSE agents ~~have been~~ being recycled ~~in~~ within the cattle population ~~through the feeding of ruminant-derived protein meal, with indigenous *cases* arising as a consequence~~, and to determine the date from which the risk of BSE agents being recycled within the cattle population has been negligible.

2) ~~the~~ The ongoing implementation of a *surveillance* programme for classical BSE in the cattle population in accordance with Article 11.4.18.;

3) ~~the~~ The history of occurrence and management of BSE *cases*.

Article 11.4.3.

Negligible BSE risk

The BSE risk of ~~the cattle population of~~ a country~~,~~ or *zone* ~~or *compartment*~~ can be considered to be negligible if all the following conditions for the cattle population are met for ~~at least~~ at least the preceding eight years:

1) A *risk assessment* as described in Article 11.4.2. that has identified all potential risk factors associated with the occurrence of BSE has been conducted, and the Member Country has demonstrated through documented evidence that the ~~likelihood~~risk of BSE agents being recycled ~~in~~ within the cattle population has been negligible ~~as the result of:~~.

~~EITHER:~~

~~a) livestock industry practices ensuring that protein meal derived from ruminants has not been fed to ruminants;~~

~~OR~~

~~b) effective and continuous mitigation of each identified risk ensuring that protein meal derived from ruminants has not been fed to ruminants.~~

2) The *surveillance* provisions as described in Article 11.4.~~20~~18. have been implemented.

3) EITHER:

a) there has been no *case* of BSE or, if there has been a *case*, every *case* of BSE has been demonstrated to have been imported or has been diagnosed as atypical BSE as defined in this chapter;

OR

b) if there has been an indigenous *case* of classical BSE:

~~EITHER~~either:

i) all *cases* were born ~~at least eight years ago~~ before the date from which the risk of BSE agents being recycled within the cattle population has been negligible;

~~OR~~or

ii) where a *case* was born ~~within the preceding eight years~~ after that date, subsequent investigations have confirmed that any identified source of *infection* has been mitigated and the ~~likelihood~~risk of BSE agents being recycled within the cattle population has continued to be negligible.

4) Any *cases* of BSE that have been detected have been completely destroyed or disposed of to ensure that they do not enter the animal *feed* chain.

The country or the *zone* will be included in the list of countries or *zones* posing a negligible risk for BSE in accordance with Chapter 1.6. Retention on the list requires annual confirmation of the conditions in points 1 to 4 above. Documented evidence should be resubmitted annually for points 1 to 4 above.

Any changes in the epidemiological situation or other significant events should be notified to the OIE in accordance with Chapter 1.1.

Article 11.4.3bis.

Recovery of negligible BSE risk status

~~When~~Should an indigenous *case* of classical BSE ~~is reported~~ in an animal born within the preceding eight years occur in a country or *zone* recognised as ~~having~~posing a negligible ~~BSE~~ risk for BSE, the status~~,~~ of the ~~negligible BSE risk status~~country or *zone* is suspended ~~and the recommendations for controlled BSE risk status apply, pending~~. The status may be recovered when the outcome of subsequent investigations ~~confirming~~confirms that any identified source of *infection* has been mitigated and the ~~likelihood~~risk of BSE agents being recycled within the cattle population continues to be negligible. ~~The~~In the interim, the provisions for a country or *zone* ~~will regain~~with a controlled BSE risk status apply.

The negligible BSE risk status of the country or *zone* will be reinstated only after the submitted evidence has been accepted by the OIE.

Article 11.4.4.

Controlled BSE risk

The BSE risk ~~of the cattle population~~ of a country or~~,~~ *zone* ~~or *compartment*~~ can be considered to be controlled provided all of the conditions of Article 11.4.3. are met, but at least one of these conditions has not been met for ~~at least~~ the preceding eight years.

The country or the *zone* will be included in the list of countries or *zones* posing a controlled risk for BSE in accordance with Chapter 1.6. Retention on the list requires annual confirmation of the conditions in points 1 to 4 of Article 11.4.3. Documented evidence should be resubmitted annually for points 1 to 4 of Article 11.4.3.

Any changes in the epidemiological situation or other significant events should be notified to the OIE in accordance with Chapter 1.1.

Article 11.4.4bis.

Compartment with negligible or controlled BSE risk

The establishment and bilateral recognition of a *compartment* posing negligible or controlled BSE risk should follow the relevant requirements of this chapter and the principles laid down in Chapters 4.4. and 4.5.

Article 11.4.5.

Undetermined BSE risk

The BSE risk ~~of the cattle population~~ of a country or~~,~~ *zone* ~~or *compartment*~~ is considered to be undetermined if it cannot be demonstrated that it meets the requirements for negligible or controlled BSE risk.

~~Article 11.4.6.~~

~~**Recommendations for importation of cattle from a country, zone or compartment posing a negligible BSE risk**~~

~~*Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that cattle selected for export came from a country, *zone* or *compartment* posing a negligible BSE risk.~~

Article 11.4.7.

Recommendations for importation of cattle from a country, zone or compartment posing a negligible or controlled BSE risk

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1) ~~the~~The cattle selected for export~~:~~

~~1)~~ came from a country, *zone* or *compartment* posing a negligible or controlled BSE risk and are identified through an *animal identification system* enabling ~~each *animal*~~ them to be traced throughout ~~its~~ their lifetime~~;~~.

AND EITHER:

2) ~~the~~The cattle selected for export were born and kept in ~~the~~ a country, *zone* or *compartment* posing a negligible or controlled BSE risk after the date from which ~~during the period when~~ the ~~likelihood~~risk of ~~the~~ BSE agents being recycled ~~in~~ within the cattle population has been demonstrated to be negligible~~;~~.

OR

3)

~~a) are identified by a permanent individual identification system from birth enabling each animal to be traced throughout its lifetime; and~~

~~b)~~ ~~are~~ ~~it~~ It is demonstrated ~~as having~~that the cattle selected for export have not been fed protein meal derived from ruminants.

Article 11.4.8.

Recommendations for importation of cattle from a country or~~,~~ zone ~~or compartment~~ posing an undetermined BSE risk

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that ~~cattle selected for export~~:

1) ~~the~~The cattle selected for export are identified ~~by a permanent individual~~ through an *animal identification system* ~~from birth~~ enabling ~~each *animal*~~ them to be traced throughout ~~its~~ their lifetime~~:~~.

2) ~~are~~~~it~~ It is demonstrated ~~as having~~ that the cattle selected for export have not been fed protein meal derived from ruminants.

~~Article 11.4.9.~~

~~**Recommendations for importation of fresh meat and meat products from a country, zone or compartment posing a negligible BSE risk**~~

~~*Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the cattle from which the *fresh meat* and *meat products* were derived:~~

~~1) came from a country, *zone* or *compartment* posing a negligible BSE risk;~~

~~2) have been subjected to an ante-mortem inspection with favourable results.~~

Article 11.4.10.

Recommendations for importation of fresh meat and meat products from a country, zone or compartment posing a negligible or controlled BSE risk

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1) the cattle from which the *fresh meat* and *meat products* were derived ~~came from a country, *zone* or *compartment* posing a controlled BSE risk~~negligible or controlled BSE risk and are identified through an *animal identification system*;
2) they have been subjected to an ante-mortem inspection with favourable results;

AND EITHER:

3) they were born and kept in ~~the~~ a country, *zone* or *compartment* posing a negligible or controlled BSE risk after the date from which~~during the period when~~ the ~~likelihood~~ risk of ~~the~~ BSE agents being recycled ~~in~~ within the cattle population has been demonstrated to be negligible;

OR

4) the *fresh meat* and *meat products*:

   a) derived from cattle not subjected to a *stunning* process with a device injecting compressed air or gas into the cranial cavity, or to a pithing process, or to any other procedure that can contaminate blood with nervous tissue, prior to *slaughter*; and

   b) were produced and handled in a manner which ensures that such products do not contain and are not contaminated with:

      i) the *commodities* listed in point~~s~~ 1~~)~~ ~~*a) and 1) b)*~~ of Article 11.4.14.;

ii) mechanically separated *meat* from the skull ~~and~~nor or from the vertebral column ~~from~~ of cattle over 30 months of age.

Article 11.4.11.

Recommendations for importation of fresh meat and meat products from a country, zone or compartment posing an undetermined BSE risk

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1) the cattle from which the *fresh meat* and *meat products* were derived~~:~~

~~a)~~ are identified through an *animal identification system*;

2) it is demonstrated ~~as having~~that the cattle from which the *fresh meat* and *meat products* were derived have not been fed protein meal derived from ruminants;

~~b~~3) the cattle from which the *fresh meat* and *meat products* were derived:

a) were subjected to an ante-mortem inspection with favourable results;

~~c~~b) were not subjected to a *stunning* process with a device injecting compressed air or gas into the cranial cavity, or to a pithing process, or to any other procedure that can contaminate blood with nervous tissue, prior to *slaughter*;

~~2~~4) the *fresh meat* and *meat products* were produced and handled in a manner which ensures that such products do not contain and are not contaminated with:

a) the *commodities* listed in point~~s~~ 1~~)~~ ~~*a) and 1) b)*~~ of Article 11.4.14.;

b) mechanically separated *meat* from the skull ~~and~~nor or from the vertebral column ~~from~~ of cattle over 30 months of age.

Article 11.4.12.

Recommendations for importation of cattle-derived protein meal from a country, zone or compartment posing a negligible BSE risk

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the cattle from which the protein meal was derived ~~came from a country, *zone* or *compartment* posing a negligible BSE risk. 1)~~ ~~came from a country, *zone* or *compartment* posing a negligible BSE risk;~~

~~2~~ were ~~are~~ identified through an *animal identification system* and were born and kept in ~~the~~ a country, *zone* or *compartment* posing a negligible BSE risk after the date from which ~~during the period when~~ the risk of ~~the~~ BSE agents being recycled ~~in~~ within the cattle population has been demonstrated to be negligible.

Article 11.4.13.

Recommendations for importation of blood and blood products derived from cattle (except ~~foetal~~ fetal blood)

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

EITHER:

~~1)~~ ~~the blood and blood products came from a country, *zone* or *compartment* posing a negligible or controlled BSE risk; and~~

~~OR~~

1~~2~~) the ~~blood and blood products came from a country, *zone* or *compartment* posing a controlled BSE risk and the~~ cattle from which the blood and blood products were derived ~~are~~ were identified through an *animal identification system* and were born and kept in ~~the~~ a country, *zone* or *compartment* posing a negligible or controlled BSE risk after the date from which ~~during the period when~~ the ~~likelihood~~ risk of ~~the~~ BSE agents being recycled ~~in~~ within the cattle population has been demonstrated to be negligible;

OR

2~~3~~) the blood and blood products were:

a) collected from cattle not subjected to a *stunning* process~~, or to any other procedure that can contaminate the blood with nervous tissue,~~ with a device injecting compressed air or gas into the cranial cavity, or to a pithing process, or to any other procedure that can contaminate the blood with nervous tissue, prior to *slaughter*; and

b) collected and processed in a manner that ensures they are not contaminated with nervous tissue.

Article 11.4.14.

Recommendations in relation to the trade of the commodities with the greatest BSE infectivity

~~1)~~ Unless covered by other articles in this chapter, the following *commodities* ~~originating from a country, *zone* or *compartment* posing a controlled or undetermined BSE risk, and any *commodity* contaminated by them,~~ should not be traded ~~for the preparation of food, *feed*, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices~~:

~~a~~1~~)~~) ~~distal~~ Distal ileum from cattle of any age; ~~*b)*~~ skull, brain, eyes, vertebral column and spinal cord from cattle that were at the time of *slaughter* over 30 months of age~~.~~; or any *commodity* contaminated by them, for the preparation of protein products, food, *feed*, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices, which originate from a country, *zone* or *compartment* posing:

a) an undetermined BSE risk;

b) a controlled BSE risk or a negligible BSE risk if the *commodities* are derived from cattle born before the ~~period when~~ date from which the risk of ~~the~~ BSE agents being recycled ~~in~~ within the cattle population has been demonstrated to be negligible.

2) Protein products, food, *feed*, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices prepared using *commodities* listed in point~~s~~ 1~~) *a)* or 1) *b)*~~ above ~~of this article, which originate from a country, *zone* or *compartment* posing a controlled or undetermined BSE risk, should not be traded~~.

3) Cattle-derived protein meal~~,~~ or any *commodities* containing such product~~s~~~~,~~ which originate from a country, *zone* or *compartment* posing a controlled or undetermined BSE risk~~, should not be traded~~.

~~These points do not apply to cattle in a country or *zone* with a controlled BSE risk when they are born during the period when the likelihood of the BSE agents being recycled in the cattle population has been demonstrated to be negligible.~~

Article 11.4.15.

Recommendations for importation of tallow (other than as defined in Article 11.4bis.) intended for food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the tallow:

1) ~~the tallow~~ came from a country, *zone* or *compartment* posing a negligible BSE risk; or

2) ~~the tallow~~ is derived from cattle which have been subjected to an ante-mortem inspection with favourable results, and has not been prepared using the *commodities* listed in ~~points~~point 1~~) a) and 1) b)~~ of Article 11.4.14.

Article 11.4.15bis.

Recommendations for importation of tallow derivatives (other than as defined in Article 11.4.1bis.) intended for food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the tallow derivatives either:

1) originate from a country, *zone* or *compartment* posing a negligible BSE risk; or

2) are derived from tallow that meets the conditions referred to in Article 11.4.15.; or

3) have been produced by hydrolysis, saponification or transesterification that uses high temperature and pressure.

Article 11.4.16.

Recommendations for importation of dicalcium phosphate (other than as defined in Article 11.4.1bis.) intended for food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the dicalcium phosphate:

1) ~~the dicalcium phosphate~~ came from a country, *zone* or *compartment* posing a negligible BSE risk; or

2) ~~the dicalcium phosphate~~ is a co-product of bone gelatine.

~~Article 11.4.16bis.~~

~~**Recommendations for importation of tallow derivatives (other than as defined in Article 11.4.1bis.) intended for food, feed, fertilisers, cosmetics, pharmaceuticals including biologicals, or medical devices**~~

~~*Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the tallow derivatives either:~~

~~1) originate from a country, *zone* or *compartment* posing that poses a negligible BSE risk; or~~

~~2) are derived from tallow that meets the conditions referred to in Article 11.4.15.; or~~

~~3) have been produced by hydrolysis, saponification or transesterification that uses high temperature and pressure.~~

Article 11.4.17.

Procedures for reduction of BSE infectivity in protein meal

The following procedure should be used to reduce the infectivity of any ~~transmissible spongiform encephalopathy~~BSE agents ~~which~~that may be present during the production of protein meal containing ruminant proteins~~.~~:

1) ~~T~~the raw material should be reduced to a maximum particle size of 50 mm before heating~~.~~;

2) ~~T~~the raw material should be heated under saturated steam conditions to a temperature of not less than 133°C for a minimum of 20 minutes at an absolute pressure of 3 bar.

Article 11.4.18.

Surveillance

~~1)~~ ~~*Surveillance* for BSE consists of the regular reporting of animals with clinical signs suggestive of BSE to the *Veterinary Authority* for subsequent investigation and diagnosis. The credibility of the *surveillance* programme is supported by:~~

~~a)~~ ~~compulsory notification of BSE throughout the whole territory by all those stakeholders involved in the rearing and production of livestock including farmers, herdsmen, *veterinarians*, transporters and *slaughterhouse/abattoir* workers;~~

~~b)~~ ~~an ongoing awareness programme to ensure that all stakeholders are familiar with the clinical signs suggestive of BSE as well as the reporting requirements;~~

~~c)~~ ~~appropriate *laboratory* investigations in accordance with the *Terrestrial Manual* and follow-up field investigation as necessary of all clinical suspects.~~

~~2~~1) BSE is a progressive, fatal disease of the nervous system of cattle that usually has an insidious onset and that is refractory to treatment. A range of clinical signs that vary in severity and between animals have been described for classical BSE:

a) progressive behavioural changes that are refractory to treatment such as increased excitability, depression, nervousness, excessive and asymmetrical ear and eye movements, apparent increased salivation, increased licking of the muzzle, teeth grinding, hypersensitivity to touch and/or sound (hyperaesthesia), tremors, excessive ~~vocalization~~vocalisation, panic-stricken response and excessive alertness;

b) postural and locomotory changes such as abnormal posture (dog sitting), abnormal gait (particularly pelvic limb ataxia), low carriage of the head, ~~(~~head shyness~~)~~, difficulty avoiding obstacles, inability to stand and recumbency;

c) ~~generalized~~generalised non-specific signs such as reduced *milk* yield, loss of body condition, weight loss, bradycardia and other disturbances of cardiac rhythm.

Some of these signs are also likely to be relevant for atypical BSE, particularly those associated with difficulty in rising and recumbency. A nervous form of atypical BSE resembling classical BSE may be observed with over-reactivity to external stimuli, unexpected startle responses and ataxia. In contrast, a dull form of atypical BSE may be observed, with dullness combined with a low head carriage and compulsive behaviour (licking, chewing, pacing in circles).

The clinical signs of BSE usually progress on a spectrum over a few weeks to several months, but ~~in~~on rare occasions cases can develop acutely and progress rapidly. ~~In the continuum of the disease spectrum, t~~The~~The~~ final stages of the disease are characterised by recumbency, coma and death.

~~Cattle displaying some of the above mentioned progressive neurological signs without signs of infectious illness, and that are refractory to treatment, are candidates for examination.~~
Since these signs are not pathognomonic for either classical or atypical BSE, all Member Countries with cattle populations ~~may~~ are likely to observe individual animals displaying clinical signs suggestive of BSE. ~~The rate at which they are likely to occur~~General statements about the likely frequency of occurrence of such animals cannot be ~~reliably predicted~~made as they will vary depending on the epidemiological situation in a particular country. ~~In addition, in~~

2) *Surveillance* for BSE consists of the reporting of all animals that ~~lie on the continuum of the~~ show ~~symptoms~~ signs of the clinical spectrum of BSE ~~spectrum~~ to the *Veterinary Authority* for subsequent investigation and follow-up.

In those countries where cattle are intensively reared and subjected to regular observation, it is likely that ~~such~~ animals that display clinical signs suggestive of BSE will be more readily seen. Behavioural changes, ~~that~~ which may be very subtle in the early clinical phase, are best identified by those who handle animals on a daily basis and who can monitor them closely for a progression of the signs. In more extensive systems, however, where cattle are not monitored as closely, situations may ~~inevitably~~ arise where an animal might be considered as a clinical suspect, yet if it ~~was~~ has not been observed for a period of time, it may only be initially seen as a downer (non-ambulatory) or found dead (fallen stock). ~~Under such circumstances, if there is an appropriate supporting clinical history, these animals that lie on the continuum of a progressive disease from clinical suspect to downer to fallen stock may still be suitable candidates for *surveillance*.~~

The investigation of potential *surveillance* candidates should take into account that the vast majority of BSE *cases* arise as single, isolated events. The ~~concurrent occurrence~~ concurrence of multiple animals with behavioural or neurological signs, or non-ambulatory or fallen stock is most likely associated with other causes.

The following animals that lie on ~~the continuum of~~ the ~~disease~~ clinical spectrum of BSE should be targeted for BSE *surveillance* and should be followed up with appropriate laboratory testing in accordance with the *Terrestrial Manual* to accurately confirm or rule out the presence of BSE agents:

a) those displaying some of the progressive clinical signs suggestive of BSE mentioned in point 1 of Article 11.4.18. ~~suggestive of BSE~~ that are refractory to treatment, and where other common causes of behavioural or neurological signs (e.g. infectious, metabolic, traumatic, neoplastic or toxic causes) have been ruled out;

b) those showing behavioural or neurological signs at ~~that have been subjected to an~~ ante-mortem inspection ~~with unfavourable results~~ at *slaughterhouses/abattoirs*;

c) those presented as downers (non-ambulatory), with an appropriate supporting clinical history (i.e. other common causes of recumbency ~~has~~ have been ruled out);

d) those found dead (fallen stock), with an appropriate supporting clinical history (i.e. other common causes of death ~~has~~ have been ruled out).

~~All these animals should be followed up with appropriate laboratory testing in accordance with the *Terrestrial Manual* to accurately confirm or rule out the presence of BSE agents.~~

3) The credibility of the *surveillance* programme is supported by:

a) ongoing awareness and training programmes to ensure that all those stakeholders involved in the rearing and production of livestock, including ~~farmers, herdsmen,~~ cattle owners and keepers, *veterinarians*, transporters and *slaughterhouse/abattoir* workers are familiar with the clinical signs suggestive of BSE as well as the statutory reporting requirements;

b) the fact that BSE is a compulsorily *notifiable disease* throughout the whole territory;

c) appropriate *laboratory* testing in accordance with the *Terrestrial Manual*;

d) robust, documented, evaluation procedures and protocols for the identification and reporting of potential candidates for BSE *surveillance*, for determination of animals to be subjected to laboratory testing, for the collection and submission of samples for laboratory testing, and for follow-up epidemiological investigation for BSE positive findings.

CHAPTER 1.8.

APPLICATION FOR OFFICIAL RECOGNITION BY THE OIE OF RISK STATUS FOR BOVINE SPONGIFORM ENCEPHALOPATHY

Article 1.8.1.

Guidelines

In accordance with Article 11.4.2., the bovine spongiform encephalopathy (BSE) risk of ~~the cattle (*Bos indicus* and *Bos taurus*) population of~~ a country or *zone* is determined on the basis of a *risk assessment* that evaluates the risk of BSE agents (classical and atypical) being recycled within the cattle (*Bos indicus* and *Bos taurus*) population by identifying all potential factors associated with the occurrence of BSE, the ongoing implementation of a *surveillance* programme, and the history of occurrence and management of BSE *cases*.

In this chapter, "BSE" refers to both classical and atypical forms~~, unless specified otherwise~~.

The information specified in Articles 1.8.2. to 1.8.6. should be provided by OIE Member Countries in support of their application for official recognition of BSE risk status in accordance with Chapter 11.4. of the *Terrestrial Code*. The structure of the dossier should follow guidelines provided in the "Standard Operating Procedure for official recognition of disease status and for the endorsement of national official control programmes of Member Countries" (available on the OIE website).

Each element of the core document of the dossier provided to the OIE~~,~~ should be clearly and concisely addressed, with an explanation, where relevant, of how each one complies with the provisions of the *Terrestrial Code* for the BSE risk status for which the Member is applying. The rationale leading to the conclusions reached for each section needs to be clearly explained and, as appropriate, figures, tables and maps should be provided. The core document of the dossier should include the following sections:

– ~~T~~the history of occurrence and management of BSE *cases* in the country or *zone* (Article 1.8.2.)

– ~~L~~legislation (Article 1.8.3.)

– ~~V~~veterinary system (Article 1.8.4.)

– BSE risk assessment (Article 1.8.5.)

– BSE surveillance (Article 1.8.6.).

The terminology defined in the *Terrestrial Code* and *Terrestrial Manual* should be referred to and used in the dossier. The dossier and all of its annexes should be provided in one of the OIE official languages.

Article 1.8.2.

History of occurrence and management of BSE cases in the country or zone

Describe the history of occurrence and management of BSE *cases* by providing the following documentary evidence:

1) If a *case* of BSE has ever been diagnosed in the country or *zone*, indicate the total number of BSE *cases*, and:

a) Provide a table of aggregated data on all *cases* of BSE encountered in the country or *zone*, by type (classical or atypical), origin (indigenous or, if imported, the country of origin), and the year of birth;

b) For the past eight years, provide a table to indicate, for each *case*, the year of occurrence, the origin (indigenous or, if imported, the country of origin), the type (classical or atypical), and the year of birth of each indigenous *case* of classical BSE.

2) If there have been *cases* of BSE, confirm that they were excluded from the *feed* chain and describe how this was achieved. In the table under Article 1.8.3. provide details of the national legislation, regulations and *Veterinary Authority* directives that describe these procedures.

Article 1.8.3.

Legislation

Provide a table listing all relevant legislation, regulations, *Veterinary Authority* directives, legal instruments, rules, orders, acts, decrees, etc., related to BSE. For each, provide the date of promulgation and implementation as well as a brief description of the relevance to mitigating ~~against~~ the risks associated with BSE. The table should include the legislation, regulations and directives referred to in the core document of the dossier. These instruments may be provided as annexes or as weblinks to supporting documents.

Article 1.8.4.

Veterinary system

The quality of the *Veterinary Services* of a Member is important to the establishment and maintenance of confidence in its *international veterinary certificates* by the *Veterinary Services* of other Members (Article 3.2.1.). It also supports an evaluation of the BSE risk status ~~of the cattle population~~ of a country or *zone*.

1) Describe how the *Veterinary Services* of the country comply with the provisions of Chapters 1.1., 3.2. and 3.3.

2) The applicant Member may provide information on any recent (not older than five years) OIE PVS evaluation conducted in the country and follow-up steps within the PVS Pathway, and highlight the results relevant to BSE.

3) Describe how the *Veterinary Services* supervise, control, enforce and monitor all BSE-related activities.

4) Provide a description of the involvement and the participation of industry; producers; ~~farmers; herdsmen;~~ cattle owners and keepers; private *veterinarians*; *veterinary paraprofessionals*; transporters; workers at livestock *markets*, auctions and *slaughterhouses/abattoirs*; and other relevant non-governmental stakeholders in the control of BSE.

5) Describe the official cattle identification, registration, *traceability* and movement control system. Provide evidence of its effectiveness. In the table under Article 1.8.3., provide any legislation, regulation or directives relevant to this topic. Indicate ~~if~~ whether there are any industry associations or organisations involved in cattle identification, registration, *traceability* and movement control systems that provide guidance, set standards or provide third party audits; include a description of their role, membership and interaction with the *Veterinary Services* or other *Competent Authority*.

Article 1.8.5.

BSE risk assessment

1~~.~~) Entry assessment

As described in Article 11.4.2., an entry assessment evaluates the likelihood that the classical BSE agent has been introduced into the country or *zone* through the importation of *commodities.*

For the purposes of undertaking an entry assessment, the period of interest is the preceding eight years (Articles 11.4.3. and 11.4.4.).

The *commodities* to be considered in the entry assessment are:

– ~~C~~cattle~~.~~;

– ~~R~~ruminant-derived protein meal~~.~~;

– ~~F~~*feed* (~~not intended for pets~~except packaged and labelled pet food) that contains ruminant-derived protein meal~~.~~;

– ~~F~~fertilizers that contain ruminant-derived protein meal~~.~~;

– ~~A~~any other *commodity* that either is or could be contaminated by *commodities* listed in Article 11.4.14.~~,~~ ~~e.g. over 30 months old cattle carcass or half carcass from which the spinal cord and vertebral column were not removed, originating from a country, *zone* or *compartment* posing a controlled or undetermined BSE risk.~~

a) For each *commodity* listed above indicate ~~if~~ whether they were imported in the preceding eight years, and if so, from which countries.

For each *commodity* listed above describe the import requirements applied by the applicant country or *zone* and how they are related to the BSE risk status of the *exporting country* or *zone* and whether or not they are consistent with, or provide an equivalent level of assurance ~~with~~ to, the recommendations laid out in Chapter 11.4. for the importation of such a *commodity*. Where the import requirements are not consistent with the recommendations in Chapter 11.4. but are considered to provide an equivalent level of assurance, provide an explanation outlining the rationale and supporting evidence. In situations where an import requirement does not provide an equivalent level of assurance to the relevant measure in Chapter 11.4., provide an explanation of how this is likely to impact the entry assessment.

Describe the importation process for these *commodities* and how are they controlled, regulated and monitored by the *Competent Authority* with references as appropriate to the relevant legislation in the table under Article 1.8.3. Provide supporting evidence of the importation process including, where relevant, import permits or their equivalent, and examples of *international veterinary certificates* issued by *exporting countries*.

Describe the intended end use of the imported *commodities*, for example: cattle may be imported for breeding or immediate *slaughter*; rendered products may be imported for incorporation into *feed* for non-ruminant species such as pigs or *poultry*. Provide information on any systems in place ~~and their results~~ to monitor or track imported *commodities* and their results to ensure they are used as intended.

Describe the actions available under national legislation to prevent illegal introduction of the *commodities* considered above and provide information on any illegal introductions detected and the actions taken.

b) Conclusions for the entry assessment.

Given the sanitary measures applied (if any), what was the likelihood that, during the preceding eight years, any of the *commodities*, in the form that they were imported, harboured or were contaminated by the classical BSE agent?

Clearly and concisely describe the rationale leading to the conclusions reached.

2~~.~~) Exposure assessment

As emphasised in Article 11.4.1., atypical BSE is a condition that occurs at a very low rate and is assumed to occur spontaneously in any cattle population. Although uncertainty remains regarding the potential transmissibility of atypical BSE through oral exposure to contaminated *feed*, this is the main route of transmission of classical BSE. Considering that atypical BSE may potentially be capable of being recycled in a cattle population if cattle were to be exposed to contaminated *feed*, it is necessary to undertake an exposure assessment regardless of the outcome of the entry assessment.

As described in Article 11.4.2., an exposure assessment evaluates the likelihood of cattle being exposed to the BSE agents either through imported *commodities* (classical BSE) or as a result of the presence of BSE agents (classical or atypical BSE) ~~in~~ within the indigenous cattle population of the country or *zone*.

For the purposes of undertaking an exposure assessment for the evaluation of BSE status, the period of interest is the preceding eight years (Articles 11.4.3. and 11.4.4.). At its discretion, the applicant Member may provide the information requested for a different period (i.e. longer than eight years for those applying for a negligible risk status, or for the ~~time~~ period for which they have the information if applying for a controlled risk status) to ~~establish the period when~~ indicate the date from which the ~~likelihood~~ risk of ~~the~~ BSE agents being recycled ~~in~~ within the cattle population has been ~~demonstrated to be~~ negligible (i.e. to determine the ~~period of time~~ date to be attested in ~~point 2 of~~ accordance with Articles ~~11.4.6.,~~ 11.4.7., 11.4.~~9~~10., 11.4.12., ~~and~~ 11.4.13. and 11.4.14.).

As indicated in point 1(b) of Article 11.4.2., the first step in the exposure assessment involves an evaluation of the impact of livestock industry practices on preventing cattle from being fed ruminant-derived protein meal and, depending on the outcome of this step, an evaluation of the impact of specific mitigation measures on preventing cattle from being fed ruminant-derived protein meal.

a) Livestock industry practices~~.~~

Because oral exposure to contaminated *feed* is the principal route of transmission of the BSE agents, the exposure assessment begins with a detailed description of the cattle population and associated industry practices, with a particular emphasis on: feeding practices; disposal of dead ~~stock~~ animals and waste from slaughtered animals; rendering; and production, distribution and storage of *feed* that may lead to cattle being exposed to potentially contaminated *feed*.

The intent of this section is not to describe the implementation and enforcement of measures specifically targeting the exposure of the cattle population to BSE agents (such as a legislated *feed* ban) as they will be considered where relevant in Section *b) An evaluation of BSE specific mitigation measures*. The intention here is to evaluate the likelihood and extent of exposure of the cattle population to the BSE agents, given the ongoing livestock industry practices in a country or *zone*.

i) Demographics of the cattle population and production and farming systems~~.~~

Describe the composition of the cattle population and how the cattle industry is structured in the country or *zone*~~.~~ considering the types of production~~. systems, including all that apply,~~ such as dairy, beef rearing~~, feedlot, fattening~~ and beef finishing, and the farming systems, such as intensive, extensive, ~~semi~~ semi-intensive, transhumant, pastoral, agropastoral, and mixed-species farming. The description should include the number and size of ***herds*** ~~farms~~ in each type of production and farming system.

ii) Feeding practices.

For each type of production system, describe the rearing and production practices related to feeding ruminants of various ages, including the types of *feed* and *feed ingredients* (animal or plant based). Where animal-based ingredients are used, describe whether or not they are derived from rendered products of ruminant or non-ruminant origin as well as the respective proportions used.

Provide an indication of the proportion of the national *feed* production prepared commercially (including local mills) or mixed on farm using either imported or domestically produced ingredients.

Describe whether or not fertili~~z~~sers containing ruminant-derived protein meal, composted materials derived from fallen stock (i.e. cattle of any age which were found dead or were killed on a farm, during transportation, at livestock *markets* or auctions, or at a *slaughterhouse/abattoir*), *slaughterhouse/abattoir* waste or animals condemned at ~~ante~~ ante-mortem inspections or any other materials derived from or that incorporate ruminant protein are applied to land where cattle graze or where forage is harvested for feeding to cattle. Where such fertili~~z~~sers or composted materials are used, provide information on the extent and frequency of use.

Describe, for mixed-species farms that include ruminants, the number and size of such farms and whether or not there are any practices in place to ensure that ruminants are not likely to be fed with *feed* meant for non-ruminant species or that ruminant *feed* is not likely to be cross-contaminated with *feed* intended for non-ruminants that may contain rendered products of ruminant origin.

iii) Slaughtering and waste management practices.

Describe the practices for fallen stock, including cattle euthanised as part of a BSE *surveillance* programme under Article 11.4.18.~~that occur on farm, during transport, at livestock *markets* or auctions or prior to *slaughter*~~, with particular reference to their transportation, disposal or destruction, including composting, burial, rendering or incineration. In the table under Article 1.8.3., provide any legislation, regulation or directives relevant to this topic.

Describe the places where cattle are slaughtered (for example, on farm, at a *slaughterhouse/abattoir* or *market*) together with the respective proportions and associated ages.

Describe whether or not places where animals are slaughtered are required to be registered or approved by the *Veterinary Services* or other *Competent Authority* and if they are subject to official veterinary supervision. In the table under Article 1.8.3., provide any legislation, regulation or directives relevant to this topic.

Describe how animals condemned at ~~ante~~ ante-mortem inspection and waste declared as unfit for human consumption from slaughtered animals are processed, disposed of or destroyed, including composting, burial, rendering, incineration or other industrial uses such as salvaging and crushing bones for use in animal *feed*. In the table under Article 1.8.3., provide any legislation, regulation or directives relevant to this topic.

iv) Rendering practices.

Rendering is a process by which animal material is transformed into products such as protein meal that may be used in animal *feed*. It provides the pathway for the introduction of the BSE agents (classical or atypical) into the animal feed chain.

Describe whether or not there are any rendering facilities in the country or *zone*, if they are required to be registered or approved by the *Veterinary Services* or other *Competent Authority* and if they are subject to official veterinary control or supervision. In the table under Article 1.8.3., provide any legislation, regulation or directives relevant to this topic.

Using tables as appropriate, for each of the preceding eight years, provide a breakdown of the number of rendering facilities operating, indicating for each facility:

– the source and types of raw materials handled;

– whether or not they receive and process material from a particular species or process mixed materials including those derived from ruminants;

– whether or not ruminant waste is segregated from non-ruminant waste and if so how segregation is maintained to avoid potential cross-contamination of non-ruminant rendered materials during processing, storage and transport of rendered products, for example through dedicated lines, storage bins or silos, transport vehicles or establishments;

– the parameters of the rendering process (time, temperature, pressure, etc.);

– the type and intended end use of the rendered products ~~produced~~. If available, provide the amount of rendered products produced annually by type and intended end use;

– if materials derived from imported cattle are managed differently, describe the process.

Indicate if there are any industry associations or organisations involved in the rendering industry that provide guidance, set standards or provide third party audits in relation to Hazard Analysis and Critical Control Points (HACCP) programmes, *good manufacturing practices*, etc. Include a description of their role, membership and interaction with the *Veterinary Services* or other *Competent Authority*.

v) Feed production, labelling, distribution and storage.

Where rendered products are used as ingredients in the production of animal *feed* the exposure of cattle to the BSE agents (classical and atypical) may arise as a result of the use of rendered products containing materials of ruminant origin as ingredients in cattle *feed* or as a result of cattle *feed* being cross-contaminated when such products are used in the production of *feed* for other species.

Describe whether ~~or not~~ facilities producing *feed* for ruminant or non-ruminant livestock as well as pets are required to be registered or approved by the *Veterinary Services* or other *Competent Authority* and if they are subject to official veterinary control or supervision. In the table under Article 1.8.3., provide any legislation, regulation or directives relevant to this topic.

For each of the preceding eight years, provide a breakdown using tables as appropriate of the number and types of facilities producing *feed*, indicating for each facility:

– ~~excluding those listed in Article 11.4.1bis.,~~ whether or not rendered ruminant products, excluding those listed in Article 11.4.1bis., were used as ingredients in *feed* for ruminants, non-ruminants and pets;

– whether or not each facility was dedicated to manufacturing *feed* for a particular species or manufactured *feed* for multiple species including ruminants.

Where facilities manufactured *feed* for multiple species including ruminants, indicate whether or not there were any practices in place to avoid ruminant *feeds* from being contaminated with rendered ruminant products during *feed* manufacture, storage and transport.

Indicate if there are any industry associations or organisations involved in *feed* production, distribution and storage that provide guidance, set standards or provide third party audits in relation to HACCP programmes, *good manufacturing practices*, etc. Include a description of their role, membership and interaction with the *Veterinary Services* or other *Competent Authority*.

vi) Conclusions for livestock industry practices.

– Given the livestock industry practices described above, is the likelihood that the cattle population has been exposed to either classical or atypical BSE during the preceding eight years negligible or non-negligible?

– Clearly and concisely describe the rationale leading to the conclusion reached.

– Where the likelihood estimate is negligible, proceed to *Section 4) Risk estimation*.

– Where the likelihood estimate is non-negligible, proceed to *Section b) An evaluation of BSE specific mitigation measures*.

b) An evaluation of ~~BSE~~ BSE-specific risk mitigation measures.

For those countries that have reported classical BSE *cases* in indigenous cattle, it is apparent that their historic livestock industry practices did not prevent the recycling of the BSE agent ~~in~~ within their cattle populations. These countries, together with others whose livestock industry practices would have been conducive to recycling, may have implemented specific measures, such as through a legislated *feed* ban, to ensure that the likelihood of recycling would be negligible. To qualify for official recognition of a BSE risk status, these countries need to demonstrate that the measures specifically targeting BSE have been and continue to be effectively implemented and enforced.

i) The nature and scope of a feed ban.

Indicate ~~if~~ whether there is a ban on feeding ruminants with protein meal derived from ruminants.

Where a *feed* ban has been implemented, clearly and concisely describe the date it was introduced, its nature and scope and how it has evolved over time.

In addition, if the *feed* ban has been implemented through national legislation, provide pertinent information in the table under Article 1.8.3. and a summary of any relevant legislation with references as appropriate.

ii) Commodities with the greatest BSE infectivity.

Indicate whether ~~or not~~ any of those *commodities* listed in point 1 of Article 11.4.14. are removed from the carcass at the time of *slaughter* or subsequent fabrication or processing.

If so, also:

– Describe how they are disposed of or destroyed through burial, composting, rendering, alkaline hydrolysis, thermal hydrolysis, gasification, incineration, etc.

– Describe any measures in place that ensure *slaughter* waste declared as unfit for human consumption that is rendered is not ~~cross-~~contaminated with these *commodities*.

– Describe whether these *commodities* from fallen stock and animals condemned at ~~ante-~~ante-mortem inspection are excluded from rendering and how this is done.

– Where these *commodities* are not ~~excluded~~ removed from fallen stock, animals condemned at ante-mortem inspection, or *slaughter* waste declared as unfit for human consumption, describe their final disposal ~~of this waste~~, and how it is handled and processed.

– Describe whether or not all these processes and methods are subject to approval and oversight by the *Veterinary Services* or other *Competent Authority*.

In addition, if there is specific national legislation concerning the definition, identification, removal and disposal or destruction of those *commodities* listed in point 1 of Article 11.4.14., provide pertinent information in the table under Article 1.8.3. and a summary of any relevant legislation with references as appropriate.

iii) Parameters of the rendering process.

Describe whether or not the parameters of the rendering process are prescribed in legislation and if they are consistent with, or provide an equivalent level of assurance to, the procedures for the reduction of BSE infectivity in ruminant-derived protein meal as described in Article 11.4.17. Provide details of the legislation, if applicable, in the table under Article 1.8.3.

iv) Cross-contamination.

Describe the measures in place to prevent cross-contamination during rendering, *feed* production, transport, storage and feeding such as dedicated facilities, lines and equipment, as well as measures to prevent misfeeding, such as the use of warning labels. Provide information as to whether any of these measures are prescribed in legislation and if facilities involved in rendering and *feed* production are required to be registered or approved under the *feed* ban by the *Veterinary Services* or other *Competent Authority*.

v) Awareness programme under the scope of the feed ban.

Provide information on the existence of any ongoing awareness programmes or other forms of guidance given to all those stakeholders involved in rendering, *feed* production, transport, storage, distribution, sale and feeding under the scope of the *feed* ban. Provide examples of communication materials including publications, brochures and pamphlets.

vi) Monitoring and enforcement of the feed ban.

Describe how the feed ban, if implemented, has been and continues to be monitored and enforced. Provide information on:

– official oversight from the *Veterinary Authority*, other *Competent Authority* or an *approved* third party;

– training and accreditation programmes for inspectors;

– the planned frequency of inspections~~,~~ and the procedures involved including manuals and inspection forms;

– sampling programmes and *laboratory* testing methods used to check the level of compliance with the *feed* ban and cross-contamination;

– options available to deal with infractions (non-compliances) such as recalls, destruction and monetary penalties.

Provide information on the ongoing results of the official inspection programme for each of the preceding eight years, using tables as appropriate:

- planned *versus* actual delivery inspections at rendering facilities, *feed* mills, farms, etc., with an explanation of any significant ~~variance~~ variation and how ~~they~~ it may have impacted the programme;

- number and type of samples taken during inspections to verify that ruminant *feed* does not contain or is not ~~cross~~ cross-contaminated with rendered products containing ruminant material (excluding those listed in Article 11.4.1bis.). Provide information by year, by source (rendering facility, *feed* mill or farm), indicating the *laboratory* test(s) used and the results obtained;

- the types of infractions (non-compliance) that occurred and corrective actions undertaken;

- any infractions (non-compliance~~s~~) that were likely to have led to cattle being exposed to *feed* contaminated with ruminant material (excluding those listed in Article 11.4.1.bis) and how they were resolved.

vii) Conclusions for the evaluation of ~~BSE~~ BSE-specific risk mitigation measures~~.~~

- In evaluating the effectiveness of a *feed* ban, if implemented, for each of the preceding eight years, consideration needs to be given to:

  - the management of *commodities* listed in point 1 of Article 11.4.14., and the associated likelihood that these materials, or other materials ~~cross~~ cross-contaminated by them, may have entered the animal feed chain;

  - the rendering industry and the associated likelihood that rendered products containing ruminant material may retain BSE infectivity;

  - the *feed* industry, and the associated likelihood that *feed* for cattle may contain or has been cross-contaminated with ruminant-derived protein meal.

- Given the evaluation of ~~BSE~~ BSE-specific risk mitigation measures and their enforcement as described above, is the likelihood that, during the preceding eight years, the cattle population has been exposed to either classical or atypical BSE negligible or non-negligible?

- Clearly and concisely describe the rationale leading to the conclusion reached.

- Where the likelihood estimate is negligible, proceed to *Section 4) Risk estimation*.

- Where the likelihood estimate is non-negligible, proceed to *Section 3) Consequence assessment*.

3~~.~~) Consequence assessment

While uncertainty remains regarding the potential transmissibility of atypical BSE through oral exposure to contaminated *feed*, it is reasonable to assume for the purposes of a consequence assessment, that the likelihood of cattle becoming infected would be similar to that for classical BSE.

As described in Article 11.4.2., a consequence assessment evaluates the likelihood of cattle becoming infected following exposure to the BSE agents (classical or atypical) together with the likely extent and duration of any subsequent recycling and amplification.

For the purposes of undertaking a consequence assessment for the evaluation of BSE risk status, the period of interest is the preceding eight years.

Considering that, for all practical purposes, oral exposure to contaminated *feed* is the principal, if not the only, route of transmission of the BSE agents, to initiate a cycle of BSE infectivity within a cattle population the following series of events would need to unfold:

- *commodities* listed in point 1 of Article 11.4.14. from an infected animal are included in raw materials that are rendered into ruminant-derived protein meal;

- the rendering process does not destroy infectivity of the BSE agent(s);

- the ruminant-derived protein meal is incorporated as an ingredient in cattle *feed*, or cattle *feed* is cross-contaminated during *feed* production, distribution and storage, or cattle are incorrectly fed with *feed* intended for non-ruminant species that includes the ruminant-derived protein meal as an ingredient;

- one or more animals that ingest contaminated *feed* become infected;

– the infected animal survives long enough to reach the later stages of a protracted incubation period when the levels of the BSE agent in those *commodities* listed in point 1 of Article 11.4.14. would begin to rise dramatically;

– *commodities* listed in point 1 of Article 11.4.14. are then included in raw materials that are rendered into ruminant-derived protein meal, completing one cycle.

Recycling arises when this cycle is repeated one or more times. Any level of recycling within a given period is sufficient to conclude that the consequences of exposure to contaminated *feed* for that period within the cattle population are non-negligible.

a) Factors to consider when evaluating the likely extent of recycling of the BSE agents within a cattle population:

i) Age at exposure~~.~~

Animals less than 12 months of age are considered to be much more susceptible to *infection* than older animals, which are likely to be increasingly refractory to *infection* as they mature.

ii) Production type~~.~~

– Calves reared as replacement animals for the breeding herd~~.~~

Cattle exposed to BSE agents at less than 12 months of age and destined to enter the breeding *herd* are much more likely to become infected and survive long enough to reach the later stages of a protracted incubation period when the levels of the BSE agent in those *commodities* listed in point 1 of Article 11.4.14. would begin to rise dramatically. If these materials were rendered and subsequently contaminated cattle *feed*, it is highly likely that some level of recycling would occur.

– Feedlot cattle~~.~~

Even if cattle reared in a feedlot that were destined to be slaughtered within the next two to six months were to become infected after consuming contaminated *feed*, the likelihood that they would have reached the later stages of a protracted incubation period (when the levels of the BSE agent in those *commodities* listed in point 1 of Article 11.4.14. would begin to rise dramatically) would essentially be negligible.

Considering that mature cattle are likely to be much more refractory to *infection* than animals within their first year of life, even if they were to consume contaminated *feed*, it is highly unlikely that those *commodities* listed in point 1 of Article 11.4.14. would pose a threat if they were rendered and subsequently contaminated cattle *feed*.

iii) The impact of livestock industry practices or the implementation of measures under a *feed* ban~~.~~

When evaluating the potential for the recycling of the BSE agents ~~in~~ within the cattle population where an infraction (non-compliance) has occurred that may have led to *feed* being ~~cross~~ contaminated, it is important to consider the impact of both the livestock industry practices and the ongoing measures under a *feed* ban. Even if an infraction that arose several years ago led to susceptible young animals becoming infected, in evaluating the likelihood of recycling in future years, consideration would need to be given to the effectiveness of the *feed* ban in subsequent years or whether or not any changes to livestock industry practices may have influenced the exposure risk.

b) Conclusions for the consequence assessment~~.~~

Where the outcome of the evaluation of livestock industry practices or the evaluation of ~~BSE~~ BSE-specific mitigation measures~~,~~ that include the nature and scope of the *feed* ban and its enforcement~~,~~ has concluded that there was a non-negligible likelihood that the cattle population has been exposed to the BSE agents, what is the likelihood that they have been recycled within the cattle population during the preceding eight years?

Clearly describe the rationale leading to the conclusions reached.

4.) Risk estimation

As described in Article 11.4.2., risk estimation combines the results and the conclusions arising from the entry, exposure and consequence assessments to provide an overall measure of the risk that of BSE agents have been being recycled in within the cattle population through the feeding of ruminant-derived protein meal.

a) Provide a summary of the entry and exposure assessments and the conclusions reached.

b) If applicable, provide a summary of the consequence assessment, and the conclusions reached.

c) When the condition of point 1 of Article 11.4.3. has not been met, that is, it cannot be demonstrated that for at least eight years the risk that the BSE agents have been recycled in the cattle population has been negligible, provide an explanation for the period of time within the preceding eight years for which it can be considered that the risk has been negligible. Clearly Indicate the period of time fordate from which it can be considered that the risk of BSE agents being recycled in within the cattle population has been negligible. Provide explanations and clearly describe the rationale leading to the conclusions reached.

Article 1.8.6.

BSE sSurveillance

Article 11.4.18. describes the criteria that underpin a credible *surveillance* programme, together with an overview of the range and progression of clinical signs that cattle affected by BSE are likely to exhibit.

Requirements under point 2 of Article 11.4.18. are focused on subsets of the cattle population where disease BSE is more likely to be detected, if it is actually present.

The Member applying for recognition of a negligible or a controlled BSE risk status should submit documentary evidence that the provisions of point 3 of Article 11.4.18. have been effectively implemented.

For the purposes of *surveillance*, the period of interest is the preceding eight years (Articles 11.4.3. and 11.4.4.).

Animals that lie on the continuum show symptoms signs of the clinical disease spectrum of BSE (i.e. from clinically ill to non-ambulatory to fallen stock) should be targeted for BSE *surveillance* and should include those animals described in points 2(a) to 2(d) of Article 11.4.18.

1.) Awareness and training programmes (point 3(a) of Article 11.4.18.)

Ongoing awareness and training programmes are essential to ensure that all stakeholders are familiar with clinical signs suggestive of BSE (those described in point 1 of Article 11.4.8.) as well as their statutory reporting requirements.

a) Describe the stakeholder groups targeted for BSE awareness and training programmes. Describe the methods used to identify stakeholder groups within the jurisdiction and methods used to identify how, for example, the size and characteristics of the stakeholder group changes over time.

b) Describe the type(s) of awareness and training programmes implemented for specific stakeholder groups. Describe how these programmes are adapted to meet the specific obligations and activities of each stakeholder group by those involved in caring for livestock, as well as the protocols for sample collection and submission by *veterinarians* and animal health technicians).

c) Provide information on the number of awareness and training activities, the stakeholder groups targeted, the number of individuals reached per activity (if available), and the geographical coverage for of these activities.

d) Provide a description including examples of materials used in the awareness programme including such as training manuals, supporting documents such as publications in local newspapers and farming magazines, pamphlets and videos (weblinks to supporting documents in one of the official languages of the OIE may also be provided, where they exist).

e) Provide details on how the effectiveness of the awareness and training programmes is evaluated.

f) Provide details of any contingency or preparedness plan for BSE.

2~~.~~) Compulsory notification (point 3(b) of Article 11.4.18.)

To ensure the reporting and further investigations of any animals that ~~lie on the continuum~~ show ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE, appropriate legislation, policies and incentives to support compulsory notification, investigation and verification should be in place.

a) Indicate whether the date of implementation of any supporting legislation and associated policies making notification of BSE compulsory. Indicate if a definition for a ~~"~~"BSE suspect~~"~~" exists. If appropriate, outline relevant legislation in the table under Article 1.8.3.

b) Describe the supportive measures in place for notification of animals that ~~lie on the continuum~~ show ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE, such as incentives, compensations or penalties.

c) Describe the guidance given to all stakeholders involved in the rearing and production of livestock including ~~farmers, herdsmen,~~ cattle owners and keepers, *veterinarians*, transporters, and workers at livestock *markets*, auctions and *slaughterhouses/abattoirs* in terms of the criteria for reporting animals that ~~lie on the continuum~~ show ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE. What mechanisms are in place to ensure that these guidelines reach those stakeholders?

d) Describe the reporting framework for animals that ~~lie on the continuum~~ show ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE for evaluation. Has this framework evolved over time and, if so, how?

3~~.~~) Laboratory testing (point 3(c) of Article 11.4.18.)

Provide documentary evidence that the relevant provisions of Chapter 3.4.5. of the *Terrestrial Manual* are applied, including the following:

a) If BSE samples are submitted to ~~a *laboratory*~~ *laboratories* in the country or *zone* for testing, provide an overview of ~~how many are involved in testing BSE samples,~~ how they are approved or certified, their number, location and diagnostic procedures and the time frame for reporting results.

b) If the BSE samples are not submitted to a *laboratory* in the country or *zone* for testing, or if suspicious or positive samples are referred to ~~a *laboratory*~~ *laboratories* outside the country, provide the names of the *laboratories* in other countries providing the service, as well as the arrangements in place, including logistics for shipment of samples and the time frame for reporting results.

c) Describe the diagnostic protocol and tests used for processing samples for classical and atypical BSE and how they may have evolved over time, indicating: ~~what is~~ the primary test used~~?~~; ~~what would be~~ the series of secondary tests performed, if any, depending on the results of the primary test (i.e. negative, positive and inconclusive)~~?~~; and what test would be undertaken if discordant results arise between primary and secondary tests ~~arise~~ (e.g. primary positive result followed by a secondary negative result)~~?~~.

4~~.~~) Evaluation procedures and protocols to identify and report potential candidates for BSE surveillance, to determine animals to be subjected to laboratory testing, to collect and submit samples for laboratory testing, and to follow up BSE positive findings with epidemiological investigation ~~BSE positive findings~~ (point 3(d) of Article 11.4.18.)

~~Because~~ Given that the incidence of BSE is likely to be very low in Member Countries it is important that *surveillance* efforts focus on subsets of the cattle population where disease is more likely to be detected~~, if it is actually present~~. Hence, those animals described in points 2(a) to 2(d) of Article 11.4.18. must be targeted for BSE *surveillance*.

Considering that BSE is a progressive disease and that animals to be included in the *surveillance* programme may arise at the farm, the *slaughterhouse/abattoir*, or during transportation, procedures and protocols should be in place covering all points in the livestock production chain for: (1) the identification and reporting of animals potentially ~~lying on the continuum~~ showing ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE (e.g. by the farmer, *animal handler*, *veterinarian*, etc.)~~.~~; (2) the criteria to determine which of these reported animals need to be tested for BSE (e.g. the criteria used by the *veterinarian* that allows the discrimination of reported animals subject to laboratory testing)~~.~~; (3) the collection and submission of samples for testing in a laboratory~~.~~; and (4) a follow-up epidemiological investigation for BSE positive findings.

It is important that appropriate procedures and protocols are in place to ensure that BSE can be definitively ruled out on the list of differential diagnoses.

a) List the common cattle disorders with clinical signs compatible with BSE in the country or *zone*. If available, provide the incidence/prevalence of these disorders, ideally by production system (e.g. dairy, beef) and by age group.

b) Describe the procedures and protocols in place for reporting animals potentially ~~lying on the continuum~~ showing ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE (those described in points 2(a) to 2(d) of Article 11.4.18.) to the *Competent Authority*. For example, these procedures and protocols may include the steps that a farmer may follow once an animal with clinical signs suggestive of BSE is identified. These procedures and protocols should cover the clinical continuum of the disease spectrum ranging from clinical suspects to non-ambulatory to fallen stock.

c) Describe the procedures and protocols in place for the investigation of reported animals potentially ~~lying on the continuum~~ showing ~~symptoms~~ signs of the clinical ~~BSE~~ spectrum of BSE (those described in points 2(a) to 2(d) of Article 11.4.18.) that allow the discrimination of reported animals to be subjected to laboratory testing. For example, these procedures and protocols may include the range of clinical signs to be considered, and how the age, the clinical history of the animal and epidemiological data of the *herd* are taken into account. An evaluation procedure may, for example, be in the form of a protocol, a checklist or a decision tree, and should cover the clinical continuum of the disease spectrum ranging from clinical suspects to non-ambulatory to fallen stock.

d) Describe the methods applied to assess the age of animals investigated, such as individual identification or dentition.

e) Describe the procedures and protocols for the transport of live or dead animals for sampling, and transfer of samples to laboratories for testing, including details of the cattle identification system, the maintenance of the chain of custody of the carcass and the samples, and the reconciliation of samples with the animals they were collected from.

f) Provide the procedures and protocols for a follow-up epidemiological investigation of BSE positive results.

g) Provide a summary table for each of the preceding eight years (Table 1) of the number of animals reported and the number of animals subjected to BSE testing for each clinical presentation (those in points 2(a) to 2(d) of Article 11.4.18.).

Table 1.

Year: _____

Table 1 - Summary of all animals that were reported and evaluated for testing by the Veterinary Authority

Clinical presentation (see point 2 of Article 11.4.18.)	Number of reported animals	Number of animals subjected to BSE testing
(A) Cattle displaying progressive behavioural or neurological signs suggestive of BSE that are refractory to treatment		
(B) Cattle showing behavioural or neurological signs that did not pass the ante-mortem inspection at slaughterhouses/abattoirs		
(C) Cattle presented as downers (non-ambulatory) with an appropriate supporting clinical history		
(D) Cattle found dead (fallen stock) with an appropriate supporting clinical history		

5.) Animals subjected to laboratory testing

a) Provide in Table 2, for each of the preceding eight years, details of all animals counted in Table 1 that were subjected to laboratory testing (see point 2 of Article 11.4.18.).

Table 2. Details of the animals that were subjected to laboratory testing.

Year notified	Laboratory identification number or individual identification number	Age (in months) at the time of reporting first detection	Type of production system (dairy, beef, mixed, etc.)	Description of observed clinical signs	Clinical presentation (A, B, C or D)	Final diagnosis (if BSE, specify the strain)	For a BSE case, indicate the origin (indigenous or imported; if imported, indicate the country of birth)

Article 1.8.7.

Recovery of BSE risk status

Following the occurrence of an indigenous *case* of classical BSE in an animal born within the preceding eight years in a country or *zone* with a negligible BSE risk status ~~of a country or *zone*~~, the outcome of the investigation together with any additional measures implemented that confirm or ensure that the risk of BSE agents being recycled within the cattle population continues to be negligible should be provided with reference to the provisions in Article 1.8.5. as appropriate. Information in relation to other sections need to only be supplied if relevant.

CHAPTER 11.10.

INFECTION WITH *THEILERIA ANNULATA, T. ORIENTALIS* AND *T. PARVA*

Article 11.10.1.

General provisions

Animals susceptible to *infection* with *Theileria* are bovines (*Bos indicus*, *B. taurus* and *B. grunniens*), water buffaloes *(Bubalus bubalis)*, African buffaloes *(Syncerus caffer)*, sheep *(Ovis aries)*, goats *(Capra hircus),* camels (*Camel dromedarius* and *C. bactrianus)* and some *wild* ruminants.

Infection with *Theileria* can give rise to disease of variable severity and to *Theileria* transmission. *Theileria* may persist in ruminants for their lifetime. Such *animals* are considered carriers.

For the purposes of the *Terrestrial Code*, *infection* with *Theileria annulata*, *T. orientalis* and *T. parva* ~~are~~ is defined as a tickborne *infection* of bovines and water buffaloes with *T. annulata, T. orientalis* Ikeda, *T. orientalis* Chitose and *T. parva*.

For the purposes of this chapter, *Theileria* means *T. annulata, T. orientalis* Ikeda, *T. orientalis* Chitose and *T. parva.*

The following defines the occurrence of *infection* with *Theileria*:

1) *Theileria* has been identified in a sample from a bovine or water buffalo; or

2) antigen or nucleic acid specific to *Theileria* has been identified in a sample from a bovine or water buffalo showing clinical signs consistent with *infection* with *Theileria*, or epidemiologically linked to a suspected or confirmed *case*, or giving cause for suspicion of previous association with *Theileria*; or

3) antibodies specific to *Theileria* have been detected in a sample from a bovine or water buffalo that either shows clinical signs consistent with *infection* with *Theileria*, or is epidemiologically linked to a suspected or confirmed *case* or giving cause for suspicion of previous association with *Theileria*.

For the purposes of the *Terrestrial Code*, the *incubation period* for *infection* with *Theileria* shall be 35 days.

Standards for diagnostic tests and vaccines are described in the *Terrestrial Manual*.

Article 11.10.2.

Safe commodities

When authorising the import or transit of the following *commodities*, *Veterinary Authorities* should not require any *Theileria*-related conditions regardless of the *infection* with *Theileria* status of the *animal population* of the *exporting country*:

1) *meat* and *meat products*;

2) *casings*;

3) *milk* and *milk products*;

4) gelatine and collagen;

5) tallow;

6) semen and embryos;

7) hooves and horns;

8) bones.

Article 11.10.3.

Country or zone free from infection with *Theileria*

1) A country or a *zone* may be considered free from *infection* with *Theileria* when the disease is notifiable in the entire country, importation of bovines and water buffaloes and their *commodities* is carried out in accordance with this chapter, and:

   a) the country or *zone* is historically free as described in Article 1.4.6.; or

   b) a *surveillance* programme in accordance with Chapter 1.4. has demonstrated no evidence of *infection* with *Theileria* in the country or *zone* for at least two years; or

   c) an ongoing *surveillance* programme in accordance with Chapter 1.5. has found no competent tick *vectors* for at least two years in the country or *zone*.

2) A country or *zone* free from *infection* with *Theileria* in which ongoing *vector surveillance*, performed in accordance with Chapter 1.5., has found no competent tick *vectors* will not lose its free status through the introduction of vaccinated, test-positive or infected bovines or water buffaloes from infected countries or *zones*.

3) A country or *zone* free from *infection* with *Theileria* will not lose its status as a result of introduction of seropositive or vaccinated bovines, water buffaloes or their *commodities*, provided they were introduced in accordance with this chapter.

Article 11.10.4.

Recommendations for importation from countries or zones free from infection with *Theileria*

For bovines and water buffaloes

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the animals:

1) showed no clinical sign of *infection* with *Theileria* on the day of shipment;

2) come from a country or *zone* free from *infection* with *Theileria*.

Article 11.10.5.

Recommendations for importation from countries or zones not free from infection with *Theileria*

For bovines and water buffaloes

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the animals:

1) showed no clinical sign of *infection* with *Theileria* and no *infestation* with tick *vectors* on the day of shipment;

2) were kept isolated for at least 35 days prior to shipment, in an e*stablishment* where no *case* of *infection* with *Theileria* has occurred during the preceding two years;

3) were treated with a registered acaricide, the efficacy of which has been confirmed in relation to the area of origin of the *animals*, at the ~~entrance~~ time of entry into ~~of~~ the isolation *establishment* and then at regular intervals, according to manufacturer's instructions, allowing continuous protection against ticks until their shipment ~~48 hours prior to entry to the *establishment*, no more than two days after entering the *establishment* and three days prior to shipment~~;

4) were subjected to serological and agent detection tests with negative results on samples taken immediately prior to ~~on~~ entry and at least 25 days after entry into~~to~~ the isolation *establishment*~~and five days before shipment~~.

Article 11.10.6.

Recommendations for importation of hides and skins from countries or zones not free from infection with *Theileria*

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the products have been:

1) dry-salted or wet-salted for a period of at least 14 days prior to dispatch; or

2) treated for a period of at least seven days in salt (NaCl) with the addition of 2% sodium carbonate (Na_2CO_3); or

3) dried for a period of at least 42 days at a temperature of at least 20°C; or

4) frozen to at least -20°C for at least 48 hours.

Article 11.10.7.

Recommendations for importation of trophies derived from susceptible ~~wild~~ ruminants from countries or zones not free from infection with *Theileria*

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the products have been processed to ensure the destruction of tick *vectors*.

CHAPTER 1.3.

DISEASES, INFECTIONS AND INFESTATIONS LISTED BY THE OIE

[…]

Article 1.3.2.

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

– Bovine anaplasmosis
– Bovine babesiosis
– Bovine genital campylobacteriosis
– Bovine spongiform encephalopathy
– Bovine viral diarrhoea
– Enzootic bovine leukosis
– Haemorrhagic septicaemia
– Infection with lumpy skin disease virus
– Infection with *Mycoplasma mycoides* subsp. *mycoides* SC (Contagious bovine pleuropneumonia)
– Infectious bovine rhinotracheitis/infectious pustular vulvovaginitis
– ~~Theileriosis~~ Infection with *Theileria annulata*, *Theileria orientalis* and *Theileria parva*
– Trichomonosis.

[…]

CHAPTER 11.11.

TRICHOMONOSIS

Article 11.11.1.

General provisions

Standards for diagnostic tests are described in the *Terrestrial Manual*.

Article 11.11.2.

Recommendations for the importation of cattle for breeding

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that:

1) the animals showed no clinical sign of trichomonosis on the day of shipment;

2) the animals were kept in a *herd* in which no *case* of trichomonosis has been reported; ~~and/or~~

3) ~~for~~ females which have been mated~~, direct microscopic examination and culture of vaginal mucus were negative~~ were subjected to a~~n~~ test for the detection of the agent ~~identification test~~ with a negative result~~s~~.

Article 11.11.3.

Recommendations for the importation of bulls for breeding (natural service or artificial insemination)

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that:

1) the animals showed no clinical sign of trichomonosis on the day of shipment;

2) the animals were kept in a *herd* in which no *case* of trichomonosis has been reported; ~~and/or~~

AND

3) the animals have never been used for natural service; or

4) the animals have only mated virgin heifers; or

5) the animals were subjected to ~~a direct microscopic and cultural examination of preputial specimens~~ a~~n~~ test for the detection of the agent ~~identification test~~ with a negative result~~s~~.

Article 11.11.4.

Recommendations for the importation of bovine semen

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that:

1) the semen was collected, processed and stored in accordance with Chapter 4.6. and 4.7.;

AND

~~1~~2) the donor animals have never been used for natural service; or

~~2~~3) the donor animals have only mated virgin heifers; or

~~3~~4) the donor animals were kept in an *establishment* or *artificial insemination centre* where no *case* of trichomonosis has been reported~~;~~ and

~~4)~~ ~~the donor animals~~ were subjected to ~~a direct microscopic and cultural examination of preputial specimens~~ an test for the detection of the agent ~~identification test~~ with a negative result.~~;~~

~~5~~) ~~the semen was collected, processed and stored in accordance with Chapter 4.6. and 4.7.~~

TERMINOLOGY: USE OF THE TERM 'SANITARY MEASURE'

Article 4.15.6.

Conditions for sanitation and disinfection or disinfestation of apicultural equipment

Veterinary Authorities or other *Competent Authorities* of countries are requested to regulate the use of products and means for sanitation and *disinfection* or *disinfestation* of apicultural equipment in their own country, taking into account the following recommendations.

1) Any apicultural equipment kept in an *establishment* which has been recognised as being affected with a contagious disease of bees should be subjected to ~~*sanitary measures*~~ procedures ensuring the elimination of pathogens.

2) In all cases, these ~~measures~~ procedures comprise the initial cleaning of the equipment, followed by sanitation or *disinfection* or *disinfestation* depending on the disease concerned.

3) Any infested or contaminated equipment which cannot be subjected to the above-mentioned ~~measures~~ procedures should be destroyed, preferably by burning.

4) The products and means used for sanitation and *disinfection* or *disinfestation* should be accepted as being effective by the *Veterinary Authority* or other *Competent Authority*. They should be used in such a manner as to exclude any risk of contaminating the equipment which could eventually affect the health of bees or adulterate the products of the hive.

Article 6.3.3.

Hygienic practice throughout the meat production chain

The Codex Alimentarius Code of Hygienic Practice for Meat (CHPM) constitutes the primary international standard for *meat* hygiene and incorporates a *risk*-based approach to application of ~~*sanitary measures*~~ hygiene practices and sanitation throughout the *meat* production chain. Ante-mortem inspection is described as a primary component of *meat* hygiene before *slaughter*, and post-mortem inspection is described as a primary component of process control in post-slaughter *meat* hygiene. The CHPM specifically recognises the dual objectives that *slaughterhouse/abattoir* inspection activities deliver in terms of animal and public health.

The CHPM does not provide inspection measures for specific *hazards*, which remain the responsibility of national competent authorities. The animal and public health *risks* associated with livestock populations vary across regions and animal husbandry systems, and ante- and post-mortem inspection needs to be tailored to the individual country situation and its animal and public health objectives.

The CHPM provides a platform for development of *meat* hygiene systems that are based on *risk assessment*. There are few *risk assessment* models and little relevant scientific information available on public health *hazards* derived specifically from *animals* and their products, making difficult the development of *risk*-based standards for foodborne diseases and zoonoses. While this scientific information is being accumulated, ante- and post-mortem inspection systems will remain dependent on traditional approaches.
