Annex 23

GLOSSARY

CONTAINMENT ZONE

means an *infected* ~~defined~~ *zone* ~~around and~~ in a previously free country or *zone*, in which are included ~~including~~ all *epidemiological units* suspected or confirmed to be infected ~~*establishments*, taking into account the epidemiological factors and results of investigations,~~ and where control, *biosecurity* and *sanitary* *measures* have been applied to prevent the spread of the *infection* ~~are applied~~.

FREE ZONE

means a *zone* in which the absence of a specific ~~the~~ *disease*, *infection* or *infestation* ~~under consideration~~ in an animal *population* has been demonstrated by the requirements specified in the *Terrestrial Code* for free status being met. ~~Within the *zone* and at its borders, appropriate *official veterinary control* is effectively applied for *animals* and animal products, and their transportation.~~

INFECTED ZONE

means, if not otherwise defined in the specific-disease chapter of the *Terrestrial Code*, a *zone* in which a *disease*, *infection* or *infestation* has been diagnosed.

OIE STANDARD

means a text that has been ~~formally~~ adopted by the OIE World Assembly of Delegates, published by the OIE~~,~~ in the *Codes* and *Manuals*, ~~and that describes requirements, recommendations, criteria, specifications and characteristics that should be used consistently~~ intended to ensure the maintenance or improvement of animal health, veterinary public health ~~and~~ or animal welfare worldwide.

OIE GUIDELINE

means a text ~~an OIE publication that provides advice to improve animal health, veterinary public health and animal welfare worldwide and~~ that has been endorsed by an OIE Specialist Commission or the OIE Council~~,~~ but ~~has~~ not ~~been~~ ~~formally~~ adopted by the OIE World Assembly of Delegates, and that provides advice intended to maintain or improve animal health, veterinary public health or animal welfare worldwide.

PROTECTION ZONE

means a *zone* established to protect ~~the health status of animals in~~ a free country or *free zone*, from ~~those in~~ the entry or spread of a pathogen from an adjacent country or *zone* of a different *animal health status*, using *biosecurity* and *sanitary* measures ~~based on the epidemiology of the *disease* under consideration to prevent spread of the causative pathogenic agent into a free country or *free zone*. These measures~~ that may include, but are not limited to, *vaccination*, movement control and ~~an~~ intensified ~~degree of~~ *surveillance*.

ZONE~~/REGION~~

means a clearly defined part ~~of a territory~~ of a country containing an animal *population* or *subpopulation* with a distinct health status with respect to a specific *disease*, *infection* or *infestation*. ~~for which required *surveillance*, control and *biosecurity* measures have been applied for the purpose of *international trade*~~.

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— Text deleted.

CHAPTER 1.4.

ANIMAL HEALTH SURVEILLANCE

[Article 1.4.1.]

[Article 1.4.2.]

[Article 1.4.3.]

[Article 1.4.4.]

[Article 1.4.5.]

Article 1.4.6.

Surveillance to demonstrate freedom from a disease, ~~or~~ infection or infestation

1. Requirements to declare a country or a zone free from disease or infection ~~without pathogen specific surveillance~~

This article provides general principles for declaring a country or a *zone* free from *a disease, ~~or~~ infection or infestation* in relation to the time of last occurrence and in particular for the recognition of historical freedom.

The provisions of this article are based on Article 1.4.3. and the following premises:

– in the absence of *disease* and *vaccination*, the animal population would become susceptible over a period of time;

– the disease agents to which these provisions apply are likely to produce identifiable clinical signs in susceptible *animals*;

– competent and effective *Veterinary Services* will be able to investigate, diagnose and report *disease*, if present;

– *the disease, ~~or~~ infection or infestation* can affect both domestic *animals* and *wildlife*;

– the absence of the *disease, ~~or~~ infection* or infestation over a long period of time in a susceptible population can be substantiated by effective disease investigation and reporting by a Member Country.

a) Historical~~ly~~ freedom

Unless otherwise specified in the relevant *disease*-specific chapter, a country or *zone* may be recognised as free ~~from *infection*~~ without formally applying a pathogen-specific *surveillance* programme when:

i) there has never been occurrence of *disease*, or

ii) eradication has been achieved or the *disease* ~~or *infection*~~ has ceased to occur for at least 25 years, provided that for at least the past 10 years:

~~iii)~~ – the *disease* has been a *notifiable disease*;

~~iv)~~ – an early detection system has been in place for all relevant species;

~~v)~~ – measures to prevent the introduction of the *disease* ~~or *infection* introduction~~ have been in place; no *vaccination* against the *disease* has been carried out unless otherwise provided for in the *Terrestrial Code*;

~~vi)~~ – the *infection* or infestation is not known to be established in *wildlife* within the country or *zone*. A country or *zone* cannot apply for historical freedom if there is any evidence of *infection* or infestation in *wildlife*.

b) Last occurrence within the previous 25 years

Countries or *zones* that have achieved eradication (or in which the *disease* or *infection* has ceased to occur) within the previous 25 years, should follow the pathogen-specific *surveillance* requirements in the *Terrestrial Code* if they exist. In the absence of specific requirements, countries should follow the general recommendations on *surveillance* outlined in this chapter provided that for at least the past 10 years:

i) the *disease* has been a *notifiable disease*;

ii) an early detection system has been in place;

iii) measures to prevent the introduction of the *disease* ~~or *infection* introduction~~ have been in place;

iv) no *vaccination* against the *disease* has been carried out unless otherwise provided for in the *Terrestrial Code*;

v) the *infection* or infestation is not known to be established in *wildlife* within the country or *zone*. A country or *zone* cannot apply for recognition of freedom if there is any evidence of *infection* or infestation in *wildlife*.

2. Recommendations for the discontinuation of pathogen-specific screening after recognition of freedom from infection or infestation

A country~~,~~ or *zone* ~~or *compartment*~~ that has been recognised as free ~~from *infection*~~ following the provisions of the *Terrestrial Code* may discontinue pathogen-specific screening while maintaining the ~~infection-~~free status provided that:

a) the *disease* is a *notifiable disease*;

b) an *early detection system* is in place;

c) the measures to prevent the introduction of the *disease* or *infection* are in place;

d) *vaccination* against the *disease* is not applied;

e) the *infection* or infestation is known not to be established in *wildlife*. It can be difficult to collect sufficient epidemiological data to prove absence of *disease*, ~~or~~ *infection* or infestation in *wild animal* populations. In such circumstances, a range of supporting evidence should be used to make this assessment.

3. Self-declaration of freedom ~~from disease or infection~~

A Member Country may make a self-declaration in accordance with Chapter 1.6. that its entire territory, a *zone* or a *compartment* is free from a *listed disease*, *infection* or *infestation*, based on the implementation of the provisions of the *Terrestrial Code* and the *Terrestrial Manual*. When ~~The~~ the *Veterinary Authority* ~~may wish to~~ transmits this information to ~~OIE~~ the *Headquarters* in accordance with Article 1.1.5., ~~which~~ the Headquarters may publish the information.

4. International recognition of ~~disease or infection~~ free status

For *diseases* for which procedures exist whereby the OIE can officially recognise the existence of a *disease* or *infection* free country or *zone*, a Member Country wishing to apply for recognition of this status should, via its Permanent Delegate, send to the OIE all the relevant documentation relating to the country or *zone* concerned. Such documentation should be presented in accordance with the recommendations prescribed by the OIE for the appropriate animal *diseases*.

5. Demonstration of freedom ~~from infection~~

A *surveillance* system to demonstrate freedom from *disease*~~,~~ *infection* or *infestation* should meet the following requirements in addition to the general requirements outlined in Article 1.4.3.

Freedom ~~from *infection*~~ implies the absence of the pathogenic agent in the country, *zone* or *compartment*. Scientific methods cannot provide absolute certainty of ~~the~~ this absence ~~of *infection*~~. Therefore, demonstrating freedom ~~from *infection*~~ involves providing sufficient evidence to demonstrate (to a level of confidence acceptable to Member Countries) that *infection* or *infestation* with a specified pathogen, if present, is present in less than a specified proportion of the population.

However, finding evidence of *infection* or *infestation* at any prevalence in the target population automatically invalidates any freedom ~~from *infection*~~ claim unless otherwise stated in the relevant *disease*-specific chapter. The implications for the status of domestic *animals* of *disease*~~,~~ ~~or~~ *infection* or *infestation* present in *wildlife* in the same country or *zone* should be assessed in each situation, as indicated in the relevant *disease*-specific chapter ~~on each *disease*~~ in the *Terrestrial Code*.

Evidence from targeted, random or non-random data sources, as stated before, may increase the level of confidence or be able to detect a lower level of prevalence with the same level of confidence compared to structured surveys.

[Article 1.4.7.]

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— Text deleted.

Annex 25

CHAPTER 4.3.

ZONING AND COMPARTMENTALISATION

Article 4.3.1.

Introduction

~~For the purposes of the *Terrestrial Code*, 'zoning' and 'regionalisation' have the same meaning.~~

Establishing and maintaining a *disease* free status throughout the country should be the final goal for Member Countries. However, given the difficulty of establishing and maintaining a *disease* free status for an entire territory, especially for *diseases*, the entry of which is difficult to control through measures at national boundaries, there may be benefits to a Member Country in establishing and maintaining a *subpopulation* with a distinct health status within its territory for the purpose of *disease* control or *international trade*. *Subpopulations* may be separated by natural or artificial geographical barriers or~~, in certain situations,~~ by the application of appropriate management practices.

~~Zoning and compartmentalisation are procedures implemented by a Member Country under the provisions of this chapter with a view to defining *subpopulations* of distinct health status within its territory for the purpose of *disease* control and/or *international trade*.~~ While zoning applies to an animal *subpopulation* defined primarily on a geographical basis ~~(using natural, artificial or legal boundaries)~~, compartmentalisation applies to an animal *subpopulation* defined primarily by management and husbandry practices related to *biosecurity*. In practice, spatial considerations and good management, including *biosecurity plans*, play important roles in the application of both concepts.

~~A particular application of the concept of zoning is the establishment of a *containment zone*. In the event of limited *outbreaks* of a specified *disease* within an otherwise free country or *zone*, a single *containment zone*, which includes all *cases*, can be established for the purpose of minimizing the impact on the entire country or *zone*.~~

~~This chapter is to assist Member Countries wishing to establish and maintain different *subpopulations* within their territory using the principles of compartmentalisation and zoning. These principles should be applied in accordance with the measures recommended in the relevant *disease* chapter(s). This chapter also outlines a process through which trading partners may recognise such *subpopulations*. This process is best implemented by trading partners through establishing parameters and gaining agreement on the necessary measures prior to *outbreaks* of *disease*.~~

~~Before trade in *animals* or their products may occur, an *importing country* needs to be satisfied that its *animal health status* will be appropriately protected. In most cases, the import regulations developed will rely in part on judgements made about the effectiveness of sanitary procedures undertaken by the *exporting country*, both at its borders and within its territory.~~

~~As well as contributing to the safety of *international trade*, zoning and compartmentalisation may assist *disease* control or eradication within a Member Country's territory.~~ Zoning may encourage the more efficient use of resources within certain parts of a country and compartmentalisation may allow the functional separation of a *subpopulation* from other domestic ~~*animals*~~ or *wild animals* through *biosecurity* ~~measures~~, which a *zone* ~~(through geographical separation)~~ would not achieve through geographical separation. In a country where a *disease* in endemic, establishment of *free zones* may assist in the progressive control and eradication of the *disease*. Following a *disease outbreak* in a previously free country, to facilitate *disease* control and the continuation of trade, the use of zoning may allow a Member Country to limit the extension of the *disease* to a defined restricted area, while preserving the status of the remaining territory. ~~the~~ The use of compartmentalisation may allow a Member Country to take advantage of epidemiological links among *subpopulations* or common practices relating to *biosecurity*, despite diverse geographical locations~~, to facilitate *disease* control and/or the continuation of trade~~. A Member Country may thus have more than one *zone* or *compartment* within its territory.

~~Zoning and compartmentalisation cannot be applied to all *diseases* but separate requirements will be developed for each *disease* for which the application of zoning or compartmentalisation is considered appropriate.~~

Annex 25 (contd)

~~To regain free status following a *disease outbreak* in a *zone* or *compartment*, Member Countries should follow the recommendations in the relevant *disease* chapter in the *Terrestrial Code*.~~

The purpose of this chapter is to provide recommendations on the principles of zoning and compartmentalisation to Member Countries wishing to establish and maintain different *subpopulations* within their territory. These principles should be applied in accordance with the relevant chapters of the *Terrestrial Code*. This chapter also outlines a process by which trading partners may recognise such *subpopulations*.

Article 4.3.2.

General considerations

The *Veterinary Services* of ~~an *exporting*~~ a Member ~~country~~ Country ~~which~~ that is establishing a *zone* or *compartment* within its territory ~~for *international trade* purposes~~ should clearly define the *subpopulation* in accordance with the recommendations in the relevant chapters ~~in~~ of the *Terrestrial Code*, including those on *surveillance*, and the *identification* and *traceability* of ~~live~~ *animals*. ~~The *Veterinary Services* of an *exporting country* should be able to explain to the *Veterinary Services* of an *importing country* the basis for claiming a distinct *animal health status* for the given *zone* or *compartment* under consideration.~~

The procedures used to establish and maintain the distinct *animal health status* of a *zone* or *compartment* ~~will~~ depend on the epidemiology of the *disease*, including ~~in particular~~ the presence and role of susceptible *wildlife* ~~species,~~ and environmental factors, as well as on the application of *biosecurity* and *sanitary measures*.

Biosecurity and *surveillance* are essential components of zoning and compartmentalisation, and the arrangements should be developed through active cooperation of industry and *Veterinary Services*.

The authority, organisation and infrastructure of the *Veterinary Services*, including *laboratories*, should be clearly documented in accordance with ~~the~~ Chapters 3.1. and 3.2. ~~on the evaluation of *Veterinary Services* of the *Terrestrial Code*~~, to provide confidence in the integrity of the *zone* or *compartment*. The final authority ~~of~~ over the *zone* or *compartment*, for the purposes of domestic and *international trade*, lies with the *Veterinary Authority*. The *Veterinary Authority* should conduct an assessment of the resources needed and available to establish and maintain a *zone* or *compartment*. These include the human and financial resources and the technical capability of the *Veterinary Services* (and of the relevant industry and production system, in the case of a *compartment*), including for *disease surveillance* and diagnosis.

In the context of maintaining the *animal health status* of a *population* or *subpopulation* of a country, *zone* or *compartment*, ~~references to 'import', 'importation' and 'imported animals/ products' found in the *Terrestrial Code* apply both to~~ importations into ~~a~~ the country as well as ~~and to the~~ movements of *animals* and their products into the *zones* ~~and~~ or *compartments*~~. Such movements~~ should be the subject of appropriate *sanitary measures* ~~to preserve the *animal health status* of the country, *zone*/ or *compartment*~~.

The *Veterinary Services* should provide movement certification, and carry out documented periodic inspections of facilities, *biosecurity*, records and *surveillance* procedures. *Veterinary Services* should conduct or audit *surveillance*, reporting and *laboratory* diagnostic examinations.

~~The *exporting country* should be able to demonstrate, through detailed documentation provided to the *importing country*, that it has implemented the recommendations in the *Terrestrial Code* for establishing and maintaining such a *zone* or *compartment*.~~

~~An *importing country* should recognise the existence of this *zone* or *compartment* when the appropriate measures recommended in the *Terrestrial Code* are applied and the *Veterinary Authority* of the *exporting country* certifies that this is the case.~~

~~The *exporting country* should conduct an assessment of the resources needed and available to establish and maintain a *zone* or *compartment* for *international trade* purposes. These include the human and financial resources, and the technical capability of the *Veterinary Services* (and of the relevant industry and production system, in the case of a *compartment*) including *disease surveillance* and diagnosis.~~

~~*Biosecurity* and *surveillance* are essential components of zoning and compartmentalisation, and the arrangements should be developed through cooperation of industry and *Veterinary Services*.~~

~~Industry's responsibilities include the application of *biosecurity* measures, documenting and recording movements of *animals* and personnel, quality assurance schemes, monitoring the efficacy of the measures, documenting corrective actions, conducting *surveillance*, rapid reporting and maintenance of records in a readily accessible form.~~

~~The *Veterinary Services* should provide movement certification, and carry out documented periodic inspections of facilities, *biosecurity* measures, records and *surveillance* procedures. *Veterinary Services* should conduct or audit *surveillance*, reporting and *laboratory* diagnostic examinations.~~

Article 4.3.3.

Principles for defining and establishing a zone or compartment~~, including protection and containment zones~~

~~In conjunction with the above considerations, the~~ The following principles ~~should~~ apply when Member Countries define a *zone* or a *compartment*.

1) The extent of a *zone* and its geographical limits should be established by the *Veterinary Authority* on the basis of natural, artificial ~~and/~~or legal boundaries, and made public through official channels.

~~2) A *protection zone* may be established to preserve the health status of *animals* in a free country or *zone*, from adjacent countries or *zones* of different *animal health status*. Measures should be implemented based on the epidemiology of the *disease* under consideration to prevent introduction of the pathogenic agent and to ensure early detection.~~

~~These measures should include intensified movement control and *surveillance* and may include:~~

~~a) *animal identification* and *animal traceability* to ensure that *animals* in the *protection zone* are clearly distinguishable from other populations;~~

~~b) *vaccination* of all or at risk susceptible *animals*;~~

~~c) testing and/or *vaccination* of *animals* moved;~~

~~d) specific procedures for sample handling, sending and testing;~~

~~e) enhanced *biosecurity* including cleansing – *disinfection* procedures for transport means, and possible compulsory routes;~~

~~f) specific *surveillance* of susceptible *wildlife* species and relevant *vectors*;~~

~~g) awareness campaigns to the public or targeted at breeders, traders, hunters, *veterinarians*.~~

~~The application of these measures can be in the entire free *zone* or in a defined area within and/or outside the free *zone*.~~

~~3) In the event of limited *outbreaks* in a country or *zone* previously free of a *disease*, a *containment zone* may be established for the purposes of trade. Establishment of a *containment zone* should be based on a rapid response including:~~

~~a) Appropriate standstill of movement of *animals* and other *commodities* upon notification of suspicion of the specified *disease* and the demonstration that the *outbreaks* are contained within this zone through epidemiological investigation (trace-back, trace-forward) after confirmation of *infection*. The primary *outbreak* has been identified and investigations on the likely source of the *outbreak* have been carried out and all *cases* shown to be epidemiologically linked.~~

~~b) A *stamping-out policy* or another effective control strategy aimed at eradicating the *disease* should be applied and the susceptible animal population within the *containment zones* should be clearly identifiable as belonging to the *containment zone*. Increased passive and targeted *surveillance* in accordance with Chapter 1.4. in the rest of the country or *zone* should be carried out and has not detected any evidence of *infection*.~~

~~c) Measures consistent with the *disease* specific chapter should be in place to prevent spread of the *infection* from the *containment zone* to the rest of the country or *zone*, including ongoing *surveillance* in the *containment zone*.~~

~~d) For the effective establishment of a *containment zone*, it is necessary to demonstrate that there have been no new *cases* in the *containment zone* within a minimum of two *incubation periods* from the last detected *case*.~~

~~e) The free status of the areas outside the *containment zone* would be suspended pending the establishment of the *containment zone*. The free status of these areas could be reinstated, once the *containment zone* is clearly established, irrespective of the provisions of the *disease* specific chapter.~~

~~f) The *containment zone* should be managed in such a way that it can be demonstrated that *commodities* for *international trade* can be shown to have originated outside the *containment zone*.~~

~~g) The recovery of the free status of the *containment zone* should follow the provisions of the *disease* specific chapter.~~

~~4~~2) The factors defining a *compartment* should be established by the *Veterinary Authority* on the basis of relevant criteria such as management and husbandry practices related to *biosecurity*, and made public through official channels.

~~5~~3) *Animals* and *herds/flocks* belonging to ~~such~~ *subpopulations* of *zones* or *compartments* ~~need to~~ should be recognisable as such through a clear epidemiological separation from other *animals* and all ~~things~~ factors presenting a *disease risk*. ~~For a *zone* or *compartment*, the~~ The *Veterinary Authority* should document in detail the measures taken to ensure the identification of the *subpopulation* and the establishment and maintenance of its health status through a *biosecurity plan*. The measures used to establish and maintain the distinct *animal health status* of a *zone* or *compartment* should be appropriate to the particular circumstances, and ~~will~~ depend on the epidemiology of the *disease*, environmental factors, the health status of *animals* in adjacent areas, applicable *biosecurity* ~~measures~~ (including movement controls, use of natural and artificial boundaries, the spatial separation of *animals*, and commercial management and husbandry practices), and *surveillance*.

~~6~~4) Relevant *animals* within the *zone* or *compartment* should be identified in such a way that their movements are traceable. Depending on the system of production, identification may be done at the *herd/~~,~~ flock* ~~lot~~ or individual animal level. Relevant animal movements into and out of the *zone* or *compartment* should be well documented and controlled. The existence of a valid *animal identification system* is a prerequisite to assess the integrity of the *zone* or *compartment*.

~~7~~5) For a *compartment*, the *biosecurity plan* should describe the partnership between the relevant industry and the *Veterinary Authority*, and their respective responsibilities. It should also describe the routine operating procedures to provide clear evidence that the *surveillance* conducted, the ~~live~~ *animal identification* and *traceability* system, and the management practices are adequate to meet the definition of the *compartment*. In addition to information on animal movement controls, the plan should include *herd/~~ or~~ flock* production records, feed sources, *surveillance* results, birth and *death* records, visitor logbook, morbidity and mortality history, medications, *vaccinations*, documentation of training of relevant personnel and any other criteria necessary for evaluation of *risk management*. The information required may vary in accordance with the species and *diseases* under consideration. The *biosecurity plan* should also describe how the measures will be audited to ensure that the *risks* are regularly ~~re-assessed~~ reassessed and the measures adjusted accordingly.

Article 4.3.4.

Free zone

A *free zone* is one in which the absence of a specific *disease, infection* or *infestation* in an animal population has been demonstrated by *surveillance* in accordance with the relevant requirements of the *Terrestrial Code*.

In conjunction with Articles 4.3.2. and 4.3.3., and depending on the prevailing epidemiological situation, the free status demonstration may require past or ongoing pathogen-specific *surveillance*, as well as appropriate *biosecurity* and *sanitary measures*, within the *zone* and at its borders. The *surveillance* should be conducted in accordance with Chapter 1.4. or the relevant *disease*-specific chapters of the *Terrestrial Code*.

The free status can apply to one or more susceptible animal species populations, domestic or wild.

So long as an ongoing *surveillance* demonstrates there is no occurrence of the specific *disease, infection* or *infestation*, the *zone* keeps its free status.

Article 4.3.5.

Infected zone

An *infected zone* is one in which a *disease*, *infection* or *infestation* either has been diagnosed, or the absence of which cannot be demonstrated. In the latter case, the *disease*-specific chapter of the *Terrestrial Code* contains an article describing the conditions for free and infected status.

An *infected zone* may be:

– a *zone* of a country where the *disease* has been present for a long period and has not yet been eradicated, while other *zones* of the country have been free;

– a *zone* of a country or *zone* previously free, in which the *disease* has been reintroduced, while the rest of the country or *zone* remains unaffected.

To gain free status in an *infected zone*, or regain free status following a *disease outbreak* in a previously *free zone*, Member Countries should follow the recommendations in the relevant *disease*-specific chapters of the *Terrestrial Code.*

Article 4.3.6.

Protection zone

A *protection zone* may be established to preserve the *animal health status* of an *animal population* in a free country or a *free zone* from introduction of a pathogenic agent of a specific *disease, infection* or *infestation* from adjacent countries or *zones* of different status. *Biosecurity* and *sanitary measures* should be implemented based on the animal management systems, the epidemiology of the *disease* under consideration and the epidemiological situation prevailing in an adjacent infected country or *zone*.

These measures should include intensified movement control and *surveillance* and may include:

1) specific *animal identification* and *animal traceability* to ensure that *animals* in the *protection zone* are clearly distinguishable from other populations;

2) *vaccination* of all or at risk susceptible *animals*;

3) testing or *vaccination* of *animals* moved;

4) specific procedures for sample handling, dispatching and testing;

5) enhanced *biosecurity* including *disinfection* procedures for *vehicles/vessels*, and possible compulsory routes;

6) specific *surveillance* of susceptible *wildlife* and relevant *vectors*;

7) awareness campaigns aimed at the public or targeted at breeders, traders, hunters or *veterinarians*.

The *protection zone* may be a part of an *infected zone* or of a *free zone*.

Annex 25 (contd)

Article 4.3.7.

Containment zone

In the event of limited *outbreaks* in a country or *zone* previously free from a *disease*, a *containment zone* may be established for the purposes of *disease* control or trade.

Establishment of a *containment zone* should be based on a rapid response, prepared in a contingency plan, including:

1) appropriate standstill of movement of *animals* and other *commodities* upon notification of suspicion of the specified *disease*;

2) epidemiological investigation (trace-back, trace-forward) after confirmation of *infection*, demonstrating that the *outbreaks* are epidemiologically linked and contained within the *zone*;

3) *stamping-out policy* or another effective emergency control strategy aimed at eradicating the *disease*;

4) clear identification of the susceptible animal population within the *containment zone* enabling its recognition as belonging to the *containment zone*;

5) increased passive and targeted *surveillance* in accordance with Chapter 1.4. in the rest of the country or *zone* demonstrating no evidence of *infection*;

6) *sanitary measures*, including on-going *surveillance* in the *containment zone*, consistent with the *disease*-specific chapter, to prevent spread of the *infection* from the *containment zone* to the rest of the country or *zone*.

For the effective establishment of a *containment zone*, it is necessary to demonstrate that there have been no new *cases* in the *containment zone* within a minimum of two *incubation periods* from the last detected *case*.

The free status of the areas outside the *containment zone* would be suspended pending demonstration of the effectiveness of the *containment zone*. The free status of these areas may then be reinstated, irrespective of the provisions of the *disease*-specific chapter.

The *containment zone* is an infected zone that should be managed in such a way that *commodities* for *international trade* can be shown to have originated from inside or outside the *containment zone*. Well managed, it may allow the rest of the country or *zone* to keep their free status.

Article 4.3.8.

Bilateral recognition by trading countries

Trading partners should exchange information allowing the recognition of different *subpopulations* within their respective territories. This recognition process is best implemented through establishing parameters and gaining agreement on the necessary measures prior to *outbreaks* of *disease*.

The *Veterinary Services* of an *exporting country* should be able to explain to the *Veterinary Services* of an *importing country* the basis for claiming a distinct *animal health status* for the given *zone* or *compartment* under consideration.

The *exporting country* should be able to demonstrate, through detailed documentation provided to the *importing country*, that it has implemented the recommendations in the *Terrestrial Code* for establishing and maintaining such a *zone* or *compartment*.

An *importing country* should recognise the existence of this *zone* or *compartment* when the appropriate measures recommended in the *Terrestrial Code* are applied and the *Veterinary Authority* of the *exporting country* certifies that this is the case.

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CHAPTER 5.3.

OIE PROCEDURES RELEVANT TO THE AGREEMENT ON THE APPLICATION OF SANITARY AND PHYTOSANITARY MEASURES OF THE WORLD TRADE ORGANIZATION

Article 5.3.1.

The Agreement on the Application of Sanitary and Phytosanitary Measures and role and responsibility of the OIE

The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) specifically encourages the Members of the World Trade Organization to base their *sanitary measures* on international standards, guidelines and recommendations, where they exist. Members may choose to implement *sanitary measures* more stringent ~~adopt a higher level of protection~~ than ~~that provided by~~ those in international standards, ~~texts~~ if these are deemed necessary to protect animal or human health and are scientifically justified by a *risk analysis* ~~there is a scientific justification~~ ~~or if the level of protection provided by the relevant international texts is considered to be inappropriate~~. In such circumstances, Members ~~are subject to obligations relating to *risk assessment* and to~~ should adopt a consistent approach ~~of~~ to *risk management*.

~~The SPS Agreement encourages Governments to make a wider use of risk analysis: WTO Members shall undertake an assessment as appropriate to the circumstances of the actual risk involved.~~

In order to promote transparency, ~~The~~ the SPS Agreement, in Article 7, obliges WTO Members to notify changes in, and provide relevant information on, *sanitary measures* ~~which~~ that may, directly or indirectly, affect international trade.

The SPS Agreement recognises the OIE as the relevant international organisation responsible for the development and promotion of international animal health standards, guidelines, and recommendations affecting trade in live *animals* and animal products.

Article 5.3.2.

Introduction ~~on~~ to the ~~judgement~~ determination of the equivalence of sanitary measures

The importation of *animals* and animal products involves a degree of *risk* to ~~the~~ *animal* ~~*health status*~~ and human health ~~status~~ ~~of~~ in an *importing country*. The estimation of that *risk* and the choice of the appropriate *risk management* option~~(s)~~ are made ~~more~~ difficult by differences among the animal health management systems and animal production systems in Member Countries. However, ~~It is now recognised that~~ significantly different ~~animal health and production~~ systems and measures ~~can provide~~ may achieve equivalent animal and human health protection for the purposes of *international trade*~~, with benefits to both the importing country and the exporting country~~.

~~These~~ The recommendations in this chapter are intended to assist Member Countries to determine whether *sanitary measures* arising from different ~~animal health and production~~ systems ~~may provide~~ achieve the same level of animal and human health protection. They discuss principles ~~which might~~ that may be utilised in a ~~judgement~~ determination of equivalence, and outline a step-wise process for trading partners to follow ~~in determining~~ ~~facilitating a judgement of~~ ~~equivalence~~. These provisions are applicable whether equivalence applies ~~at the level of~~ to specific measures or on a systems-wide basis, and whether equivalence applies to specific areas of trade or *commodities*, or in ~~generally~~ general.

Annex 26 (contd)

Article 5.3.3.

General considerations on the ~~judgement~~ determination of the equivalence of sanitary measures

Before trade in *animals* or their products ~~may~~ occurs, an *importing country* must be ~~satisfied~~ assured that its *animal* ~~*health status*~~ and human health will be appropriately protected. In most cases, the *risk management* measures adopted ~~drawn up~~ will rely in part on judgements made about the *animal health management* and animal production system~~(s)~~ in the *exporting country* and the effectiveness of *sanitary measures* ~~procedures~~ applied ~~undertaken~~ there. Systems operating in the *exporting country* may differ from those in the *importing country* and from those in other countries with which the *importing country* has traded. Differences may be ~~with respect to~~ in infrastructure, policies ~~and~~/or operating procedures, *laboratory* systems, approaches to control of ~~the pests and~~ *diseases* present, border security and internal movement controls.

~~International recognition of the legitimacy of different approaches to achieving the importing country's appropriate level of protection (ALOP) has led to the principle of equivalence being included in trade agreements, including the SPS Agreement of the WTO.~~

If trading partners agree that the measures applied achieve the same level of health protection, these measures are considered equivalent. Benefits of applying equivalence may include:

1) minimising costs associated with international trade by ~~tailoring~~ allowing *sanitary measures* to be tailored ~~animal health measures~~ to local circumstances;

2) maximising animal health outcomes for a given level of resource input;

3) facilitating trade by achieving the required health protection through less trade restrictive *sanitary measures*; and

4) decreased reliance on relatively costly commodity testing and isolation procedures ~~in bilateral or multilateral agreements~~.

The *Terrestrial Code* recognises equivalence by recommending alternative *sanitary measures* for many *diseases*, *infections* and *infestations* ~~pathogenic agents~~. Equivalence may be ~~gained~~ achieved, for example, by enhanced *surveillance* and monitoring, by the use of alternative test, treatment or isolation procedures, or by combinations of the above. To facilitate the ~~judgement~~ determination of equivalence, Member Countries should base their *sanitary measures* on the OIE standards~~,~~ and guidelines ~~and recommendations of the OIE~~.

~~It is essential to apply a scientific~~ Member Countries should use *risk analysis* to ~~the extent practicable in~~ establish~~ing~~ the basis for a ~~judgement~~ determination of equivalence.

Article 5.3.4.

Prerequisite considerations ~~in a judgement~~ for the determination of equivalence

1) Application of risk assessment

~~Application of the discipline of~~ ~~*risk*~~ *Risk assessment* provides a structured basis for judging equivalence among different *sanitary measures* as it allows a comparison ~~close examination to be made~~ of the effect of a measure~~(s)~~ on a particular step~~(s)~~ in the importation pathway~~, and the relative~~ with the effect~~s~~ of a proposed alternative measure~~(s)~~ ~~on the same or related steps~~.

A ~~judgement~~ determination of equivalence should ~~needs to~~ ~~assess~~ compare the effectiveness of the *sanitary measures* ~~in terms of its effectiveness~~ against ~~regarding~~ the particular *risk* or group of *risks* against which ~~it~~ ~~the measure~~ ~~is~~ they are designed to protect. ~~Such an assessment may include the following elements: the purpose of the measure, the level of protection achieved by the measure and the contribution the measure makes to achieving the ALOP of the importing country.~~

2) Categorisation of sanitary measures

Proposals for equivalence may ~~be in terms of a measure comprising~~ consider a single component ~~of a measure~~ (e.g. an isolation or sampling procedure, a test or treatment requirement, a certification procedure) or multiple components (e.g. a production system for a *commodity*) of a measure, or a combination of measures. ~~Multiple components or combinations of~~ ~~measures~~ Measures may be applied consecutively or concurrently.

Sanitary measures are ~~those~~ described in ~~each~~ the *disease*-specific chapter of the *Terrestrial Code* ~~which are used~~ for ~~reducing~~ managing *risks* ~~reduction and are appropriate for particular~~ posed by that *diseases*~~,~~ *infection* or *infestation*. ~~*Sanitary measures* may be applied either alone or in combination and include test requirements, processing requirements, inspection or certification procedures, quarantine confinements, and sampling procedures.~~

For the purposes of judging determining equivalence, *sanitary measures* can be broadly categorised as:

a) infrastructure: including the legislative base (e.g. animal health law) and administrative systems (e.g. organisation of *Veterinary Services* national and regional animal health authorities, emergency response organisations);

b) programme design and/implementation: including documentation of systems, performance and decision criteria, *laboratory* capability, and provisions for certification, audit and enforcement;

c) specific technical requirement: including requirements applicable to the use of secure facilities, treatment (e.g. retorting of cans), specific test (e.g. ELISA) and procedures (e.g. pre-export inspection).

A *sanitary* *Sanitary* *measure(s)* proposed for a judgement determination of equivalence may fall into one or more of these categories, which are not mutually exclusive.

In some cases, such as a method for pathogen inactivation, a comparison of specific technical requirements may suffice. In many instances, however, a judgement as to assessment of whether the same level of protection is likely to will be achieved may only be able to be determined through an evaluation of all relevant components of an *exporting country*'s *animal health management* systems and animal production systems. For example, a judgement of equivalence for a specific sanitary measure at the programme design/implementation level may require a prior examination of infrastructure while a judgement of equivalence for a specific measure at the specific technical requirement level may require that the specific measure be judged in its context through examination of infrastructure and programmes.

Article 5.3.5.

Principles for judgement determination of equivalence

In conjunction with the above considerations, judgement Determination of the equivalence of *sanitary measures* should be based on application of the following principles:

1) an *importing country* has the right to set the level of protection it deems appropriate (its ALOP) in relation to human and animal life and health in its territory; this ALOP may be expressed in qualitative or quantitative terms;

2) the *importing country* should be able to describe the reason for each *sanitary measure* i.e. the level of protection intended to be achieved by application of the identified measure against a *hazard* *risk*;

3) an *importing country* should recognise that *sanitary measures* different from the ones it has proposed may be capable of providing achieving the same level of protection, in particular, it should consider the existence of specified disease-free *zones/regions* or *compartments*;

4) the *importing country* should, upon request, enter into consultations with the *exporting country* with the aim of facilitating a judgement determination of equivalence;

5) any *sanitary measure* or combination of *sanitary measures* can be proposed for judgement determination of equivalence;

6) an interactive process should be followed that applies a defined sequence of steps, and utilises an agreed process for exchange of information, so as to limit data collection to that which is necessary, to minimise administrative burden, and to facilitate resolution of claims;

7) the *exporting country* should be able to demonstrate objectively how the alternative *sanitary measure(s)* proposed as equivalent will provide the same level of protection;

8) the *exporting country* should present a submission for equivalence in a form that facilitates judgement determination by the *importing country*;

9) the *importing country* should evaluate submissions for equivalence in a timely, consistent, transparent and objective manner, and in accordance with appropriate *risk assessment* principles;

10) the *importing country* should take into account any knowledge of and prior experience with the *Veterinary Authority* or other *Competent Authority* of the *exporting country*;

10bis) the *importing country* should take into account any arrangements it has with other *exporting countries* on similar issues;

10ter) the *importing country* may also take into account any knowledge of the *exporting country's* arrangements with other *importing countries*;

11) the *exporting country* should provide access to enable the procedures or systems ~~which~~ that are the subject of the equivalence ~~judgement~~ determination to be examined and evaluated upon request of the *importing country*;

12) the *importing country* should be the sole ~~determinant~~ judge of equivalence, but should provide to the *exporting country* a full explanation for its judgement;

13) to facilitate a ~~judgement~~ determination of equivalence, Member Countries should base their *sanitary measures* on relevant OIE standards and guidelines, where these exist. However, they may choose to implement more stringent *sanitary measures* if these are scientifically justified by a *risk analysis*;

14) to allow the ~~judgement~~ determination of equivalence to be reassessed if necessary, the *importing country* and the *exporting country* should keep each other informed of significant changes to infrastructure, health status or programmes ~~which~~ that may bear on the ~~judgement~~ determination of equivalence; and

15) appropriate technical assistance from an *importing country*, following a ~~should give positive consideration to a~~ request by an *exporting* ~~developing~~ *country*, ~~for appropriate technical assistance that would~~ may facilitate the successful completion of a ~~judgement~~ determination of equivalence.

Article 5.3.6.

Sequence of steps to be taken in ~~judgement~~ determination of equivalence

There is no single sequence of steps ~~which~~ that ~~must~~ should be followed in all ~~judgements~~ determinations of equivalence. The steps that trading partners choose will generally depend on the circumstances and their trading experience. Nevertheless, ~~The~~ the interactive sequence of steps described below may be useful for assessing any ~~all~~ *sanitary measures* irrespective of their categorisation as infrastructure, programme design~~/~~ and implementation or specific technical requirement components of an *animal health management* system or ~~and~~ animal production system.

This sequence assumes that the *importing country* is meeting its obligations under the WTO SPS Agreement and has in place a transparent measure based either on an international standard or a *risk analysis*.

Recommended steps are:

1) the *exporting country* identifies the measure~~(s)~~ for which it wishes to propose an alternative ~~measure(s),~~ and requests from the *importing country* a reason for its *sanitary measure* in terms of the level of protection intended to be achieved against a ~~*hazard*(s)~~ *risk*;

2) the *importing country* explains the reason for the measure~~(s),~~ in terms that ~~which~~ would facilitate comparison with an alternative *sanitary measure*~~(s)~~ and consistent with the principles set out in these provisions;

3) the *exporting country* demonstrates the case for equivalence of an alternative *sanitary measure*~~(s)~~ in a form ~~which~~ that facilitates evaluation ~~analysis~~ by an *importing country*;

4) the *exporting country* responds to any technical concerns raised by the *importing country* by providing relevant further information;

5) ~~judgement~~ determination of equivalence by the *importing country* should take~~s~~ into account as appropriate:

   a) the impact of biological variability and uncertainty;

   b) the expected effect of the alternative *sanitary measure*~~(s) on all relevant hazards~~;

   c) OIE standards and guidelines;

   d) ~~application of solely *qualitative* frameworks where it is not possible or reasonable to conduct *quantitative*~~ the results of a *risk assessment*;

6) the *importing country* notifies the *exporting country* of its judgement and its ~~the underlying~~ reasons within a reasonable period of time. The judgement:

   a) ~~recognition~~ recognises ~~of~~ the equivalence of the *exporting country's* alternative *sanitary measure*~~(s)~~; or

   b) requests ~~for~~ further information; or

   c) ~~rejection~~ rejects ~~of~~ the case for equivalence of the alternative *sanitary measure*~~(s)~~;

7) an attempt should be made to resolve any differences of opinion over judgement of a case~~, either interim or final,~~ by using an agreed mechanism such as ~~to reach consensus (e.g.~~ the OIE informal procedure for dispute mediation~~), or by referral to an agreed expert~~ (Article 5.3.8.);

8) depending on the category of measures involved, the *importing country* and the *exporting country* may enter into a formal or informal agreement of equivalence ~~agreement~~ giving effect to the judgement ~~or a less formal acknowledgement of the equivalence of a specific measure(s) may suffice~~.

An *importing country* recognising the equivalence of an *exporting country's* alternative *sanitary measure*~~(s) needs to~~ should ensure that it acts consistently with regard to applications from third countries for recognition of equivalence applying to the same or a very similar measure~~(s)~~. Consistent action does not mean however that a specific measure~~(s)~~ proposed by several *exporting countries* should always be judged as equivalent because ~~as~~ a measure~~(s)~~ should not be considered in isolation but as part of a system of infrastructure, policies and procedures, in the context of the animal health situation in the *exporting country*.

Article 5.3.7.

Sequence of steps to be taken in establishing a zone~~/~~ or ~~-~~compartment and having it recognised for international trade purposes

The establishment ~~There is no single sequence of steps which should be followed in establishing~~ of a disease-free *zone* or a *compartment* is described in Chapter 4.3 and should be considered by trading partners when establishing *sanitary measures* for trade. ~~The steps that the Veterinary Services of the importing country and the exporting country choose and implement will generally depend on the circumstances existing within the countries and at their borders, and their trading history. The recommended~~ Recommended steps are:

1. For zoning

a) The *exporting country* identifies a geographical area within its territory, which, based on *surveillance*, it considers to contain an animal *subpopulation* with a distinct health status with respect to a specific *disease*~~/specific diseases~~, *infection* or *infestation*~~, based on surveillance~~.

b) The *exporting country* describes in the *biosecurity plan* for the *zone* the measures ~~which are being, or will be,~~ applied to distinguish such an area epidemiologically from other parts of its territory, in accordance with the recommendations in the *Terrestrial Code*.

c) The *exporting country* provides:

i) the above information to the *importing country*, with an explanation of why the area can be treated as an epidemiologically separate *zone* for *international trade* purposes;

ii) access to enable the procedures or systems that establish the *zone* to be examined and evaluated upon request by the *importing country*.

d) The *importing country* determines whether it accepts such an area as a *zone* for the importation of *animals* ~~and~~ or animal products, taking into account:

i) an evaluation of the *exporting country's Veterinary Services*;

ii) the result of a *risk assessment* based on the information provided by the *exporting country* and its own research;

iii) its own animal health situation with respect to the *disease*~~(s)~~ concerned; and

iv) other relevant OIE standards or guidelines.

e) The *importing country* notifies the *exporting country* of its ~~determination~~ judgement and ~~the underlying~~ its reasons, within a reasonable period of time, being:

i) recognition of the *zone*; or

ii) request for further information; or

iii) rejection of the area as a *zone* for *international trade* purposes.

Annex 26 (contd)

f) An attempt should be made to resolve any differences over recognition of the *zone*~~, either in the interim or finally,~~ by using an agreed mechanism ~~to reach consensus~~ such as the OIE informal procedure for dispute mediation (Article 5.3.8.).

g) The *Veterinary Authorities* of the *importing* and *exporting countries* should enter into an ~~formal~~ agreement recognising the *zone*.

2. For compartmentalisation

a) Based on discussions with the relevant industry, the *exporting country* identifies within its territory a *compartment* comprising an animal *subpopulation* contained in one or more *establishments* or other premises operating under common management practices and ~~related to~~ *biosecurity plan*. The *compartment* contains an identifiable animal *subpopulation* with a distinct health status with respect to a specific disease~~(s)~~. The *exporting country* describes how this status is maintained through a partnership between the relevant industry and the *Veterinary Authority* of the *exporting country*.

b) The *exporting country* examines the *compartment's biosecurity plan* and confirms through an audit that:

i) the *compartment* is epidemiologically closed throughout its routine operating procedures as a result of effective implementation of its *biosecurity plan*; and

ii) the *surveillance* and monitoring programme in place is appropriate to verify the status of such a *subpopulation* with respect to ~~such~~ the disease~~(s)~~ in question.

c) The *exporting country* describes the *compartment*, in accordance with ~~the recommendations in the *Terrestrial Code*~~ Chapters 4.3. and 4.4.

d) The *exporting country* provides:

i) the above information to the *importing country*~~,~~ with an explanation of why such a *subpopulation* can be treated as an epidemiologically separate *compartment* for *international trade* purposes; and

ii) access to enable the procedures or systems that establish the *compartment* to be examined and evaluated upon request by the *importing country*.

e) The *importing country* determines whether it accepts such a *subpopulation* as a *compartment* for the importation of *animals* or ~~and~~ animal products, taking into account:

i) an evaluation of the *exporting country's Veterinary Services*;

ii) the result of a *risk assessment* based on the information provided by the *exporting country* and its own research;

iii) its own animal health situation with respect to the disease~~(s)~~ concerned; and

iv) other relevant OIE standards or guidelines.

f) The *importing country* notifies the *exporting country* of its ~~determination~~ judgement and ~~the underlying~~ its reasons, within a reasonable period of time, being:

i) recognition of the *compartment*; or

ii) request for further information; or

iii) rejection of such a *subpopulation* as a *compartment* for *international trade* purposes.

g) An attempt should be made to resolve any differences over recognition of the *compartment*~~, either in the interim or finally,~~ by using an agreed mechanism ~~to reach consensus~~ such as the OIE informal procedure for dispute mediation (Article 5.3.8.).

h) The *Veterinary Authorities* of the *importing* and *exporting countries* should enter into an ~~formal~~ agreement recognising the *compartment.*

~~i) The *Veterinary Authority* of the *exporting country* should promptly inform *importing countries* of any occurrence of a *disease* in respect of which the *compartment* was defined.~~

Article 5.3.8.

The OIE informal procedure for dispute mediation

OIE ~~shall~~ maintains ~~its existing~~ a voluntary in-house mechanism~~s~~ for assisting Member Countries to resolve differences. In-house procedures that ~~which~~ will apply are that:

1) Both parties agree to give the OIE a mandate to assist them in resolving their differences.

2) If considered appropriate, the Director General of the OIE recommends an expert, or experts, and a chairman, as requested, agreed by both parties.

3) Both parties agree on the terms of reference and working programme, and to meet all expenses incurred by the OIE.

4) The expert or experts are entitled to seek clarification of any of the information and data provided by either country in the assessment or consultation processes, or to request additional information or data from either country.

5) The expert or experts ~~shall~~ submit a confidential report to the Director General of the OIE, who ~~will~~ then transmits it to both parties.

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CHAPTER 2.X.

CRITERIA FOR ASSESSING THE SAFETY OF COMMODITIES

Article 2.X.1.

~~**Assessing the safety of animal products from a country or zone not free from a specific listed disease**~~

General provisions

For the purposes of this chapter the word 'safety' is applied only to ~~animal~~ and human health considerations for *listed diseases*.

In many *disease*-specific chapters, Article X.X.2. lists *animal* ~~products~~ *commodities* that can be traded from a country or *zone* regardless of its status with respect to ~~not free from~~ the specific *listed disease*. The criteria for their inclusion ~~of *animal* products~~ in the list of *safe commodities* are based on the absence of the pathogenic agent in the traded ~~*animal* products~~ *commodity*, either due to its absence in the tissues from which the ~~*animal* products~~ *commodity* ~~are~~ is derived or to its inactivation by the processing or treatment that the *animal* products have undergone.

The assessment of the safety of the ~~*animal* products~~ *commodities* using the criteria relating to processing or treatment can only be undertaken when processing or treatments are well defined. It may not be necessary to take into account the entire process or treatment, so long as the steps critical for the inactivation of the pathogenic agent of concern are considered.

It is assumed that processing or treatment (i) uses standardised protocols, which include the steps considered critical in the inactivation of the pathogenic agent of concern; (ii) is conducted in accordance with Good Manufacturing Practices; and (iii) that any other steps in the treatment, processing and subsequent handling of the *animal* product do not jeopardise its safety.

Article 2.X.2.

Criteria

For an *animal* product to be considered a *safe commodity* for *international trade*, it should comply with the following criteria:

1) There is strong evidence that the pathogenic agent is not present in the tissues from which the *animal* product is derived at a ~~concentration~~ dose able to cause *infection* in a human or *animal* by a natural exposure route. This evidence is based on the known distribution of the pathogenic agent in an infected *animal*, whether or not it shows clinical signs of *disease*.

OR

2) If the pathogenic agent may be present in, or may contaminate, the tissues from which the *animal* product is derived, the standard processing or treatment normally applied to produce the ~~*animal* product~~ *commodity* to be traded, while not being specifically directed at this pathogenic agent, inactivates ~~the pathogen~~ it to the extent that possible *infection* of a human or *animal* is prevented through its action which is:

   a) physical (e.g. temperature, drying, irradiation);

   or

   b) chemical (e.g. iodine, pH, salt, smoke);

   or

   c) biological (e.g. fermentation);

   or

   d) a combination of a) to c) above.

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— Text deleted.

Annex 28

DRAFT CHAPTER 6.X.

PREVENTION AND CONTROL OF *SALMONELLA* IN COMMERCIAL CATTLE PRODUCTION SYSTEMS

Article 6.X.1.

Introduction

Nontyphoidal salmonellosis is one of the most common food-borne bacterial diseases in the world with *Salmonella* Enteritidis and *S.* Typhimurium (including monophasic variants) being the predominant serotypes identified in humans in most countries. *S.* Enteritidis is primarily associated with *poultry* while *S.* Typhimurium may be present in many mammalian and avian hosts. ~~In addition, a~~ These serotypes and several others occur at variable prevalence in cattle depending on the region. For example, in some countries *S.* Dublin and *S.* Newport may also cause salmonellosis in humans. ~~limited number of other serotypes associated with cattle may cause salmonellosis in humans, for example, *S.* Dublin and *S.* Newport.~~

~~As is the case in most food producing *animals*,~~ *Salmonella infection* in cattle is mostly subclinical, although clinical *disease* such as enteritis, septicaemia or abortion ~~can~~ may occur. Subclinical *infection*, ~~can be of variable duration~~ including a carrier state, can be of variable duration and can play an important role in the spread of *Salmonella* within and between *herds* and pose a public health *risk*.

Herd size and stocking density may influence the ~~*risk*~~ likelihood of introduction, dissemination or persistence of *Salmonella*; however, this is also dependent on geographical region, husbandry and other factors such as season and age.

Salmonella serotypes and their *prevalence* in cattle may vary considerably within and between farms, countries and regions. It is important for *Veterinary Authorities* and the producers to consider types of *Salmonella*, their occurrence and the *disease* burden in cattle and human populations ~~if~~ when they develop~~ing~~ and implement~~ing~~ strategies for the prevention and control of *Salmonella* in commercial cattle production systems.

Article 6.X.2.

Definitions

For the purposes of this chapter:

Commercial cattle production systems: means those systems ~~where~~ in which the purpose of the operation includes some or all of the breeding, rearing and management of cattle for the production of *meat* ~~and *meat products*~~ or *milk* ~~and *milk products*~~.

Intensive cattle production systems: means commercial systems ~~where~~ in which cattle are in confinement and are fully dependent on humans to provide for basic animal needs such as food, shelter and water on a daily basis.

Extensive cattle production systems: means commercial systems ~~where~~ in which cattle have the freedom to roam outdoors, and where the cattle have some autonomy over diet selection (through grazing), water consumption and access to shelter.

Feed: means any material (single or multiple), whether processed, semi-processed or raw, which is intended to be fed directly to terrestrial *animals* (except bees).

Feed ingredient: means a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the *animal*'s diet, including feed additives. Ingredients are of plant (including aquatic plants) or terrestrial or aquatic animal origin, or other organic or inorganic substances.

Semi-intensive cattle production systems: means commercial systems in which cattle are exposed to any combination of both intensive and extensive husbandry methods, either simultaneously or variably according to changes in climatic conditions or physiological state of the cattle.

Annex 28 (contd)

Article 6.X.3.

Purpose and scope

~~The purpose of this~~ This chapter ~~is to~~ provides recommendations for the prevention and control of *Salmonella* in commercial cattle production systems in order to reduce the burden of *disease* in cattle and the *risk* of human illness through food-borne contamination as well as human *infections* resulting from direct or indirect contact with infected cattle ~~(e.g. via faeces or abortion material)~~.

This chapter applies to cattle (*Bos taurus*, *B. indicus* and *B. grunniens*), water buffaloes (*Bubalus bubalis*) and ~~wood~~ bison (*Bison bison* and *B. bonasus*) kept in commercial cattle production systems.

This chapter should be read in conjunction with the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005), ~~and the Codex Alimentarius~~ Code of Hygienic Practice for Milk and Milk Products (CAC/RCP 57-2004), Code of Practice of Good Animal Feeding (CAC/RCP 54-2004), and the Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Pork Meat (under development), and the OIE/FAO Guide to Good Farming Practices for Animal Production Food Safety.

Article 6.X.4.

Objectives of prevention and control measures

It is recommended that prevention and control measures be focused on those types of *Salmonella* of greatest consequence to cattle or public health.

~~Reduction of *Salmonella* in cattle in primary production may reduce the level of the pathogen:~~

~~1) entering the *slaughterhouse/abattoir* and therefore decrease the *risk* of beef contamination during *slaughter* and dressing procedures;~~

~~2) in *milk* and *milk products;*~~

~~3) in the farm environment, thereby reducing the risk of dissemination of *Salmonella* and contact *infections* in humans.~~

Prevention and control measures in commercial cattle production systems may:

1) reduce the prevalence and concentration of *Salmonella* entering the *slaughterhouse/abattoir* and therefore decrease the challenge to the slaughter and dressing procedures and the likelihood of bovine *meat* contamination;

2) reduce the likelihood of *Salmonella* contamination in *milk;*

3) reduce *Salmonella* contamination of the environment via cattle faecal waste, which in turn will limit *infection* of *animals* (including *wildlife*);

4) reduce the likelihood of *infections* in humans through contact with infected cattle or contaminated material.

While control in the primary production phase can decrease the number of animals carrying or shedding *Salmonella,* controls after primary production are also important to minimise the contamination and cross-contamination of carcasses and *meat products*.

Articles 6.X.5.to 6.X.~~14~~16. provide recommendations for the prevention and control of *Salmonella* in commercial cattle production systems.

These recommendations may also ~~have beneficial effects on the occurrence of~~ contribute to the prevention and control of some other *infections* ~~and *diseases*~~.

Article 6.X.5.

Biosecurity

Biosecurity is intended to assist with the prevention and control of *Salmonella*. A *biosecurity* management plan should be developed according to the commercial cattle production systems employed e.g. intensive or extensive. The applicability of the measures, described below, will vary according to the type of commercial cattle production system.

When including *Salmonella* as part of a *biosecurity* management plan it is recommended that the following be addressed:

1) location, design and management of the *establishment*;

2) veterinary supervision of cattle health;

3) management of the introduction and mixing of cattle;

4) training of personnel in their responsibilities and their role in animal health, human health and food safety;

5) maintenance of records including data on cattle health, production, movements, medications, *vaccination*, and mortality, and cleaning and *disinfection* of farm buildings and equipment;

6) availability of test results to the farm operator when *Salmonella surveillance* is conducted;

7) removal of unwanted vegetation and debris that could attract or harbour pests around cattle premises;

8) minimising the entry of *wild* birds into cattle buildings and feed stores;

9) cleaning and *disinfection* procedures for buildings in which cattle are handled or housed. For example, the cleaning and *disinfection* procedures for intensive calf housing, calving areas and sick pens after emptying may include feeders, drinkers, floor, walls, aisles, partitions between pens, and ventilation ducting. All visible organic material should be removed before *disinfection.*

   When chemical disinfectants are used, the effective concentration and contact time for *Salmonella* should be considered and the choice of disinfectant should take into account the cleaning process. Surfaces should be allowed to dry after *disinfection*. Disinfectants should be used in accordance with Chapter 4.13.;

10) control of pests such as rodents and arthropods and regular assessment of effectiveness;

11) control and hygienic procedures for entry and movement of persons and *vehicles*;

12) cleaning and *disinfection* of equipment and *vehicles* identified as posing a *risk*;

13) storage and disposal of dead animals, bedding, faeces and other potentially contaminated farm waste in a manner that minimises the likelihood of dissemination of *Salmonella* and prevents the direct or indirect exposure of humans, livestock and *wildlife* to *Salmonella*. Particular care should be taken when cattle bedding and faeces are applied to land used for horticultural crops intended for human consumption.

Article 6.X.~~5~~6.

Location and design of cattle establishments

When making decisions on the location and design of cattle *establishments,* it is recommended that ~~mitigation~~ reduction of the ~~*risk*~~ likelihood of transfer of pathogens, including *Salmonella*, from major sources of contamination be considered. Sources of *Salmonella* may include other livestock *establishments* or areas of application or disposal of contaminated waste or effluent. ~~Transfer~~ Other sources and *vectors* of *Salmonella* ~~between *establishments* may involve carriage by~~ include *vehicles, equipment*, water-courses, persons, domestic animals, ~~*wild*~~ birds, rodents, flies and ~~other~~ *wildlife*.

Annex 28 (contd)

It is recommended that the design of intensive cattle production systems consider the following:

1) management of faecal waste to minimise contamination of the *establishment*;

~~1~~2) adequate drainage for the site and control of run-off water and untreated waste water;

~~2~~3) use of materials for construction that facilitate effective cleaning and *disinfection*;

~~3~~4) control of ~~the points of~~ entry and movement of *vehicles*, equipment and persons;

5) preventing contamination of feed and water during storage and distribution;

~~4~~6) cattle handling and movements to minimise stress and spread of *Salmonella infection*;

~~5~~7) separation of cattle according to likelihood of ~~different~~ *infection* with, or susceptibility to, *Salmonella* ~~*risk* status~~;

~~6~~8) restriction of entry of domestic animals, ~~*wild*~~ birds, rodents, flies and other relevant *wildlife*.

In extensive cattle production systems, location and design options may be limited; however, applicable biosecurity measures should be considered.

~~Article 6.X.6.~~

~~**Biosecurity management plan**~~

~~Biosecurity measures that include management and physical factors designed to reduce the *risk* of introduction, establishment and spread of animal *diseases*, *infections* or *infestations* to, from and within an animal population would also be expected to assist with the prevention and control of *Salmonella*.~~

~~When developing a biosecurity management plan it is recommended that the following be taken into consideration:~~

~~1) Veterinary supervision of cattle health.~~

~~2) Management of introduction and mixing of cattle.~~

~~3) Training of personnel in their responsibilities and their role in animal health, human health and food safety.~~

~~4) Maintenance of records including data on cattle health, production, movements, medications, *vaccination*, and mortality, and cleaning and *disinfection* of farm buildings and equipment.~~

~~5) Availability of test results to the farm operator when *Salmonella surveillance* is conducted.~~

~~6) Removal of unwanted vegetation and debris that could attract or harbour pests around cattle premises .~~

~~7) Minimising the entry of wild birds into cattle buildings and feed stores.~~

~~8) Cleaning and *disinfection* procedures for buildings in which cattle are handled or housed. For example, the cleaning and *disinfection* procedures for intensive calf housing, calving areas and sick pens after emptying may include feeders, drinkers, floor, walls, aisles, partitions between pens, and ventilation ducting.~~

~~When disinfectants are used they should be applied at an effective concentration after a complementary cleaning procedure.~~

~~9) Control of pests such as rodents and arthropods when required and regular assessment of effectiveness.~~

~~10) Control of persons and *vehicles* entering the *establishment*.~~

~~11) Cleaning and *disinfection* of *vehicles* and equipment identified as a *risk*.~~

~~12) Storage and disposal of cattle carcasses, bedding, faeces and other potentially contaminated farm waste in a safe manner to minimise the risk of dissemination of *Salmonella* and to prevent the direct or indirect exposure of humans, livestock and *wildlife* to *Salmonella*. Particular care to be taken when cattle bedding and faeces are used as fertiliser for horticultural crops intended for human consumption.~~

Article 6.X.7.

Management of cattle introductions

To minimise the ~~*risk*~~ likelihood of introducing *Salmonella* through cattle introductions, it is recommended that:

1) ~~There be~~ good communication within the cattle industry be encouraged to raise awareness of the ~~*risk*~~ likelihood of introducing *Salmonella* through cattle introductions~~.~~;

2) ~~The number of separate sources of cattle for breeding or rearing be kept to as few as possible. For example in a closed dairy *herd* it is possible to introduce new genetic material solely by semen or embryos.~~ consideration be given to minimising the number of sources of replacement cattle;

3) the introduction of new genetic material through the use of semen and embryos be considered whenever practicable;

~~3~~4) if possible, cattle be sourced directly from *herds* of origin because live animal markets or other places where cattle from multiple properties are mixed for resale may increase the ~~*risk*~~ likelihood of spread of *Salmonella* and other ~~*infections*~~ infectious agents among cattle~~.~~;

~~4~~5) newly introduced cattle be kept separate from the rest of the *herd* for a suitable period before mixing with other cattle, e.g. four weeks~~.~~;

~~5) Where appropriate, for example with cattle of unknown status, pooled faecal samples from introduced cattle could be taken to assess their *Salmonella* status.~~

6) where appropriate, testing of animals for *Salmonella* prior to introduction be considered to inform subsequent control measures, for example, when introducing cattle of unknown status.

Article 6.X.8.

On farm cattle management

To ~~minimise~~ reduce the ~~*risk*~~ likelihood of transferring *Salmonella* among cattle, it is recommended that:

1) cattle with suspected salmonellosis be separated from healthy cattle~~.~~;

2) care of healthy cattle be carried out prior to care of cattle with suspected salmonellosis~~.~~;

3) priority be given to the hygienic management of calving areas, for example keeping perinatal cattle separated from sick cattle and maintaining a clean environment~~.~~;

4) when possible, the 'all-in-all-out' principle for production cohorts be used. In particular, the unnecessary mixing of different age groups ~~during rearing~~, especially of calves, should be avoided~~.~~;

5) consideration be given to the potential for between-herd transmission of *Salmonella* via breeding, rearing and grazing of cattle from multiple sources on a single site, for example shared pasture, ~~and~~ heifer rearing~~.~~ or sharing of bulls;

6) consideration be given to the potential for between-herd transmission of *Salmonella* through direct contact between cattle across boundary lines or indirectly, for example through contamination of water courses.

Annex 28 (contd)

Article 6.X.9.

Feed ~~and water~~

~~1.~~ ~~Compound feed~~ Feed and feed ingredients

~~Compound feed~~ Feed and feed ingredients can be sources of *Salmonella infection* for cattle. For the effective control of *Salmonella* it is recommended that:

~~a~~1) ~~Where~~ When appropriate, ~~compound~~ feed and feed ingredients be produced, handled, stored, transported and distributed according to Good Manufacturing Practices, considering Hazard Analysis Critical Control Points (HACCP) principles and recommendations in accordance with Chapter 6.3.

~~b~~2) ~~Compound~~ Where practical, feed and feed ingredients be transported, ~~and~~ stored and fed in a hygienic manner that minimises contamination by manure and access by domestic animals, ~~wild~~ birds, rodents and ~~other~~ *wildlife*.

~~2.~~ ~~Water~~

~~Where there is reason to be concerned about *infection* of cattle with *Salmonella* from contaminated water, measures be taken to evaluate and minimise the *risk*. For example sediment in water troughs may act as a reservoir for contamination.~~

Article 6.X.10.

Water

Drinking water should be of an appropriate quality. When there is reason to be concerned about *infection* of cattle with *Salmonella* from contaminated water, measures should be taken to evaluate and minimise the *risk*. For example sediment in water troughs may act as a reservoir for contamination. Where practicable, untreated surface water should be avoided as a water source.

Article 6.X.~~10~~11.

~~Prevention, treatment and control~~ Additional prevention and control measures

1) The immune status of calves is important and therefore care should be taken to ensure that new-born calves consume adequate amounts of high quality colostrum in accordance with Article 7.9.5. (point 3c) and Article 7.X.5). Raw milk from infected cows should not be fed to calves.

~~1) *Antimicrobial agents* may modify normal flora in the gut and increase the likelihood of colonisation by *Salmonella*. If *antimicrobial agents* are used, they should be used in accordance with Chapter 6.9. *Antimicrobial agents* should not be used to control subclinical *infection* with *Salmonella* in cattle because the effectiveness of the treatment is limited, they may increase the risk of *Salmonella* colonisation, and their use can contribute to the development of antimicrobial resistance.~~

2) *Vaccination* may be ~~used~~ considered as part of a *Salmonella* control programme. Vaccine production and use should be in accordance with Chapter 1.1.6. of the *Terrestrial Manual*. The protective effect of vaccines is generally serotype specific ~~and few licensed vaccines are available for cattle~~ and is influenced by factors such as timing of *vaccination* in relation to exposure.

~~3) Use of probiotics may reduce colonisation of cattle by *Salmonella* and shedding of *Salmonella*; however, efficacy is variable.~~

~~4~~3) ~~Because conditions such as~~ A number of conditions, for example liver fluke and infection with bovine viral diarrhoea virus, may increase the susceptibility of cattle to *Salmonella*~~,~~; therefore, control of ~~these~~ such conditions is recommended.

~~5) The immune status of calves is important and therefore care should be taken to ensure that new-born calves consume adequate amounts of high quality colostrum.~~

4) *Antimicrobial agents* can be used for treatment of clinical salmonellosis and when administered, it should be in accordance with Chapter 6.9. However, *antimicrobial agents* should not be used to control subclinical *infection* with *Salmonella* in cattle because the effectiveness of the treatment is limited, they may increase the risk of *Salmonella* colonisation, and their use can contribute to the development of antimicrobial resistance.

Article 6.X.~~11~~12.

Transportation

Hygienic maintenance of *vehicles* is recommended.

When transporting animals from multiple *establishments,* it is recommended that the *Salmonella* status of the *establishments* be considered to avoid cross-contamination of cattle.

The relevant recommendations in Chapters 7.2., 7.3. and 7.4. apply.

~~When transporting animals from multiple *establishments,* it is recommended that the *Salmonella* status of the *establishments* be considered to avoid cross-contamination of cattle.~~

Article 6.X.~~12~~13.

Lairage

Relevant aspects of *lairage* management include consideration of effective cleaning and *disinfection* between groups, minimising mixing of ~~separate groups~~ animals that have not continuously been kept together and managing stress.

In addition the relevant recommendations in Articles 7.5.1., 7.5.3. and 7.5.4. apply.

Article 6.X.14.

Cleanliness of hides

Cleanliness of hides can be achieved by applying suitable practices during housing (for example additional clean bedding), transport and lairage. Dirty hides increase the risk of microbial contamination of carcasses during the slaughter process. Contamination can be reduced by hide washing of the live animal or of the slaughtered animal before hide removal.

Article 6.X.~~13~~15.

Surveillance ~~in cattle~~ for Salmonella in commercial cattle production systems

Surveillance data provide information to assist the *Competent Authorities* in their decision making regarding the requirement for, and design of, control programmes and in setting and verifying performance objectives. ~~Sampling and testing methods, frequency and type of samples required should be determined by the *Veterinary Services.*~~

Standards for diagnostic tests are described in the *Terrestrial Manual*. In addition, other sampling and testing methodologies such as testing of bulk milk or serum samples by ELISA may provide useful information on herd or individual animal status. Boot swab samples from communal areas in cattle housing, slurry samples, or caecal or lymph node~~s~~ samples collected post-mortem can also be useful for microbiological testing. Some types of *Salmonella* such as *S*. Dublin can be difficult to detect ~~through~~ using microbiological methods.

~~If *vaccination* is used,~~ If serology is used as the *surveillance* method, it may not be possible to distinguish between vaccinated and infected cattle by means of serological testing.

Article 6.X.~~14~~16.

Prevention and control in low prevalence regions

In regions where *Salmonella infection* of cattle is uncommon, it may be possible to maintain low prevalence status or eliminate *infection* from *herds* through a combination of good farming practices, *herd surveillance,* individual testing, movement controls, ~~and possible~~ or removal of persistent carriers.

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Annex 29

DRAFT CHAPTER 6.Y.

PREVENTION AND CONTROL OF *SALMONELLA* IN COMMERCIAL PIG PRODUCTION SYSTEMS ~~PIG HERDS~~

Article 6.Y.1.

Introduction

Nontyphoidal salmonellosis is one of the most common food-borne bacterial diseases in the world with *Salmonella* Enteritidis and *S.* Typhimurium (including monophasic variants) being the predominant serotypes identified in ~~most countries.~~humans in most countries. *S.* Enteritidis is primarily associated with *poultry* while *S.* Typhimurium may be present in many mammalian and avian hosts. These serotypes and several others occur at variable prevalence in pigs depending on the region. For example, in some countries *S.* Infantis and *S.* Choleraesuis may also cause salmonellosis in humans.

Salmonella infection in pigs is mostly subclinical, although clinical *disease* such as enteritis and septicaemia in weaned pigs may occur. Subclinical *infection,* including a carrier state, can be of variable duration and can play an important role in the spread of *Salmonella* within and between *herds* and pose a public health *risk*.

~~As is the case in most food producing *animals*, *Salmonella infection* in pigs is mostly subclinical and of variable duration. Pigs with subclinical *infection* play an important role in the spread of *Salmonella* between *herds* and pose a public health risk.~~

Salmonella serotypes and their *prevalence* in pigs may vary considerably within and between farms, ~~regions and~~ countries and regions. It is important for *Veterinary Authorities* and the producers to consider ~~the sero~~types of *Salmonella*, their occurrence and the *disease* burden ~~and their prevalence~~ in pig and human populations when they develop~~ing~~ and implement~~ing~~ strategies for the prevention and control of *Salmonella* in commercial pig production systems ~~*Salmonella* reduction strategies~~.

Article 6.Y.2.

Definitions

For the purpose of this chapter:

Commercial pig production systems: means those systems in which the purpose of the operation includes some or all of the breeding, rearing and management of pigs for the production of meat.

Feed: means any material (single or multiple), whether processed, semi-processed or raw, which is intended to be fed directly to terrestrial *animals* (except bees).

Feed ingredient: means a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the *animal*'s diet, including feed additives. Ingredients are of plant (including aquatic plants) or terrestrial or aquatic animal origin, or other organic or inorganic substances.

Article 6.Y.~~2~~3.

Purpose and scope

This chapter provides recommendations for the prevention and control of *Salmonella* in commercial pig production systems in order to reduce the burden of *infection* in pigs and the *risk* of human illness through food-borne contamination as well as human *infections* resulting from direct or indirect contact with infected pigs.

Annex 29 (contd)

~~To combat the occurrence of food borne salmonellosis, a pre-harvest pathogen reduction strategy can assist in reducing the presence of *Salmonella* in pig *meat*.~~

This chapter ~~provides recommendations on the prevention and control of *Salmonella* in domestic pigs kept for commercial breeding and production from farm to slaughter. It~~ should be read in conjunction with the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005), Code of Good Animal Feeding (CAC/RCP 54-2004), and the Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Pork Meat (under development) ~~and the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005)~~, and the OIE/FAO Guide to Good Farming Practices for Animal Production Food Safety.

~~Article 6.Y.3.~~

~~**Surveillance in pig herds for *Salmonella***~~

~~Where justified by *risk assessment*, *surveillance* should be carried out to identify the occurrence and distribution of *Salmonella* in pig *herds*. *Surveillance* data willprovide information to assist the *Competent Authorities* in their decision-making regarding the requirement for, and design of, control programmes. Sampling and testing methods, frequency and type of samples required should be determined by the *Veterinary Services* based on the *risk assessment*.~~

~~Serological testing, usually using 'meat juice' at slaughter, is a common method for assessing exposure to *Salmonella* in pig *herds*. Benefits of serological testing include low cost per test, high throughput capability and the potential for automation of tests. Collection of samples at the *slaughterhouse/abattoir* enables centralised sampling of multiple *herds*. Serological testing does not detect exposure to all serotypes and does not provide information on the serotypes present.~~

~~Microbiological testing identifies serotypes present in pig *herds*and can provide epidemiological information on likely sources of *Salmonella* and on the presence of strains with higher public health risk, including those with enhanced virulence or resistance to *antimicrobial agents*. Bacteriological sampling of individual pigs has low sensitivity but this can be overcome by repeated sampling, by pooling of samples (such as individual faecal samples or mesenteric lymph nodes) or sampling naturally pooled material (such as sampling of faeces from the floor of pig pens).~~

~~Communication of the results of post-mortem *Salmonella* testing that are relevant to the *Salmonella* status of pigs at *herd* level to the *herd* manager or *veterinarian* is an important element of a *Salmonella* control programme.~~

~~Article 6.Y.4.~~

~~**Definitions**~~

~~**Feed:** means any material (single or multiple), whether processed, semi-processed or raw, which is intended to be fed directly to terrestrial *animals* (except bees).~~

~~**Feed ingredient:** means a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the *animal*'s diet, including feed additives. Ingredients are of plant (including aquatic plants) or terrestrial or aquatic animal origin, or other organic or inorganic substances.~~

Article 6.Y.~~5~~4.

~~**Prevention**~~ **Objectives of prevention and control measures**

It is recommended that prevention and control measures be focused on those types of *Salmonella* of greatest consequence to pigs and public health.

Prevention and control measures in commercial pig production systems may:

1) reduce the prevalence and concentration of *Salmonella* entering the *slaughterhouse/abattoir* and therefore decrease the challenge to the slaughter and dressing procedures and the likelihood of pig *meat* contamination;

2) reduce *Salmonella* contamination of the environment via pig manure, which in turn will limit *infection* of *animals* (including *wildlife*);

3) reduce the likelihood of *infections* in humans through contact with infected pigs or contaminated material.

While control in the primary production phase can decrease the number of animals carrying or shedding *Salmonella,* controls after primary production are also important to minimise the contamination and cross-contamination of carcasses and *meat products*.

Articles 6.Y.~~6~~5.to 6.Y.~~18~~14. provide recommendations for the prevention and control of *Salmonella* ~~at~~ in commercial pig production systems~~ *herd* level~~. ~~Contamination of pig *meat* can be reduced by measures taken during the *slaughter* process~~. ~~Reduction of *Salmonella* in pigs entering the *slaughterhouse/abattoir* enhances the effectiveness of such measures.~~

These recommendations may ~~will~~ also contribute to the prevention and control of some ~~have beneficial effects on the occurrence of~~ other *infections* ~~and *diseases*~~.

Article 6.Y.~~6~~5.

Biosecurity ~~measures~~

~~It is important to have biosecurity measures in place to reduce the risk of introduction of *Salmonella* or the entry of new strains of *Salmonella* into pig *herds,* the spread of these strains across the *herd,* as well as to minimise prevalence of existing strains.~~

Biosecurity is intended to assist with the prevention and control of *Salmonella*. The choice of specific measures will vary according to the type of commercial pig production system.

When including *Salmonella* as part of a *biosecurity* management plan, it is recommended that the following be addressed:

~~It is recommended that biosecurity measures include the following:~~

1) location, design and management of the *establishment*; ~~Development and implementation of a *biosecurity plan* including management strategies for the prevention and control of *Salmonella*.~~

2) veterinary supervision of pig health;

3) management of the introduction and mixing of pigs;

~~2~~4) training of personnel ~~regarding~~ in their responsibilities and ~~the significance of~~ their role in ~~improving~~ animal health, human health, ~~and~~ food safety~~.~~;

~~3~~5) maintenance of records including data on pig health, production, movements, medications, *vaccination*, mortality, ~~*surveillance,*~~ and cleaning and *disinfection* of farm buildings and equipment~~.~~;

6) availability of test results to the farm operator when *Salmonella surveillance* is conducted;

~~4) veterinary supervision of pighealth and *Salmonella* control.~~

~~5~~7) removal of unwanted vegetation and debris that could attract or harbour pests around pig housing~~.~~;

~~6~~8) ~~prevention of~~ minimising the entry of *wild* birds into pig ~~houses and~~ buildings and feed stores~~.~~;

~~7~~9) cleaning and *disinfection* procedures for buildings in which pigs are handled or housed, including feeding systems, drinkers, floor, walls, aisles, walkways, partitions between pens, and ventilation ducting. ~~Cleaning and *disinfection* procedures for pig housing, general equipment, transportation equipment and animal walkways. The cleaning and *disinfection* procedures for pig housing after emptying should include at least feeders, drinkers, floor, walls, aisles, partitions between pens, and ventilation ducting.~~ All visible organic material should be removed before *disinfection* ~~with a suitable *disinfectant* at an effective concentration. *Disinfectants* should be used in accordance with Chapter 4.13~~.

~~8~~10) control of pests such as rodents and arthropods, and regular assessment of effectiveness;~~Procedures for the control of vermin such as rodents and arthropods should be in place and regular checks should be carried out to assess effectiveness. When the presence of vermin is detected timely control actions should be taken to prevent the development of unmanageable populations; for example, the placement of baits for rodents where they are nesting.~~

~~9~~11) ~~Controlled access of persons and *vehicles* entering the *establishment*.~~control and hygienic procedures for entry and movement of persons and *vehicles*;

1~~0~~12) *biosecurity* ~~measures~~ applied to all personnel and visitors entering the *establishment.* ~~This~~ As a minimum, this should include hand washing and changing into clean clothes and footwear provided by the *establishment*. Similar precautions are recommended when ~~moving~~ they move between separate *epidemiological units* on large farms~~.~~;

~~11) *vehicles* and equipment identified as a *risk* in the *biosecurity plan* should be cleaned and *disinfected* before entering the *establishment*.~~

13) cleaning and *disinfection* of equipment and *vehicles* identified as posing a *risk*;

~~12~~14) ~~pig carcasses,~~ storage and disposal of dead animals, bedding, faeces and other potentially contaminated farm waste ~~should be stored and disposed of~~ in a ~~safe~~ manner ~~to~~ that minimises the ~~risk~~ likelihood of dissemination of *Salmonella* and ~~to~~ prevents the direct or indirect exposure of humans, livestock and *wildlife* to *Salmonella*. Particular care should be taken when pig bedding and faeces are applied to land used ~~to fertilise~~ for horticultural crops intended for human consumption.

Article 6.Y.~~7~~6.

~~Facility~~ Location and design of pig establishments

When making decisions on the location and design of pig *establishments,* it is recommended that reduction of the likelihood of transfer of pathogens, including *Salmonella*, from major sources of contamination be considered. Sources of *Salmonella* may include other livestock *establishments* or areas of application or disposal of contaminated waste or effluent. Other sources and *vectors* of *Salmonella* include *vehicles*, equipment, water-courses, persons, domestic animals, birds, rodents, flies and *wildlife*.

It is recommended that the design of commercial pig production systems consider the following:

~~Good design of pig units facilitates the management and control of pathogens.~~

~~It is recommended that facility design consider the following:~~

1) ~~location~~ proximity of other livestock *establishments*, ~~in relation to~~ and *wild* bird and rodent populations;

2) management of faecal waste to minimise contamination of the *establishment*;

~~2~~3) adequate drainage for the site and control of run-off water and untreated waste water;

~~3~~4) use of smooth impervious materials for construction of pig houses to enable effective cleaning and *disinfection*;

4~~5~~) ~~surrounding~~ paving the area immediately surrounding ~~indoor~~ pig houses or indoor establishments with concrete or other impervious material. ~~to~~ This will facilitate rodent control and minimise recontamination after ~~facilitate~~ cleaning and *disinfection*;

~~5~~6) a control~~led~~ of entry and movement of *vehicles*, equipment and persons, ~~point to prevent the entry of unwanted *animals* and people;~~ for example, locate delivery and collection points away from pig housing or feed storage;

7) preventing contamination of feed and water during storage and distribution;

~~6) a sign indicating restricted entry at the entrance to the *establishment*;~~

~~7~~8) pig ~~flow~~ handling and movements to minimise stress and spread of *Salmonella infection*;

~~8~~9) ~~prevention of entry of *wild* birds, rodents and *feral animals*;~~ restriction of entry of domestic *animals*, *wild* birds, rodents, flies and other relevant *wildlife*.

~~9) location of delivery and collection points away from pig housing or feed storage.~~

Article 6.Y.7.

Management of new pig introductions into the establishment

Introduction of pigs into a *herd* is an important *risk* factor in moderate and high prevalence regions. To minimise the likelihood of introducing *Salmonella* by replacement pigs, it is recommended that:

1) good communication along the pig production chain be encouraged to raise awareness of the *risk* of introducing *Salmonella* through pig introductions;

2) consideration be given to minimising the number of sources for both replacement breeding stock and rearing pigs, and matching *Salmonella herd* status in terms of *Salmonella* freedom or occurrence of priority serotypes such as *S*. Typhimurium;

3) the introduction of new genetic material be through the use of semen whenever possible;

4) if possible, pigs be sourced directly from *herds* of origin because live animal markets or other places where pigs from multiple properties are mixed for resale may increase the likelihood of spread of *Salmonella* and other infectious agents among pigs;

4) newly introduced pigs be kept separate from the rest of the *herd* for a suitable period before mixing with other pigs, e.g. four weeks;

5) where appropriate, testing of pigs for *Salmonella* prior to introduction be considered to inform subsequent control measures, for example, when introducing pigs of unknown status.

Article 6.Y.8.

Moving and mixing of pigs

The moving and mixing of pigs increases the likelihood of spread of *Salmonella*. To minimise the spread of *Salmonella*, it is recommended that:

1) the number of pig movements and mixing of pigs between weaning and dispatch for *slaughter* be minimised;

2) if possible, the 'all-in-all-out' system with a single age group of pigs be used. In particular, the addition to younger groups of pigs held back from older groups should be avoided.

Article 6.Y.~~8~~9.

Feed and feed composition

1. Feed and feed ingredients

Feed and feed ingredients can be sources of *Salmonella infection* for pigs. This is especially important in *herds*, countries or regions of low prevalence. To minimise the spread of *Salmonella* through feed, it is recommended that:

a) feed and feed ingredients be produced, handled, stored, transported and distributed in accordance with Chapter 6.3.;

b) where practical, feed and feed ingredients be transported, stored and fed in a hygienic manner that minimises contamination by manure and access by domestic animals, birds, rodents and *wildlife*;

c) feeds be treated with heat, bactericidal or bacteriostatic treatments e.g. organic acids.

~~*Salmonella* contaminated feed and feed ingredients are known to be important sources of *infection* for pigs. Therefore, feed and feed ingredients should be produced, handled, stored, transported and distributed according to Good Manufacturing Practices, considering Hazard Analysis Critical Control Points (HACCP) principles and recommendations in accordance with Chapter 6.3.~~

~~For the effective control of *Salmonella* it is recommended that:~~

~~1) Feed and feed ingredients should come from monitored sources.~~

~~2) Heat treated feeds are used and may also include the addition of bactericidal or bacteriostatic treatments, e.g. organic acids. Where heat treatment is not possible, the use of bacteriostatic or bactericidal treatments or processes should be considered.~~

~~3) Cooling systems and dust control in feed ingredient processing plants and compound feed mills should be managed to avoid recontamination of feed and feed ingredients with *Salmonella*.~~

~~4) Feed should be stored and transported in a hygienic manner that prevents exposure to possible residual *Salmonella* contamination.~~

~~5) Access to feed by wild birds and rodents should be prevented.~~

~~6) Spilled feed should be cleaned up immediately to remove attractants for *wild* birds, rodents and other pests.~~

2. Feed composition

When *Salmonella* is present in a pig *herd,* the composition of feed may influence the occurrence of *Salmonella* in individual pigs.

For the control of *Salmonella* it is recommended that the following be considered:

a) liquid feed that is fermented or containing *milk products* has a protective effect due to the presence of beneficial bacteria and lowered pH;

b) coarsely ground feed may reduce the occurrence of *Salmonella* by slowing gastric transit (thereby increasing exposure to gastric acid) and reducing dysbacteriosis. Coarsely ground feed ingredients may be fed alongside pelleted feed;

c) fine grinding needed to produce heat treated pellets may result in dysbacteriosis which favours the colonisation and multiplication of *Salmonella* in the intestine. Therefore, heat treated pellets are most appropriate for situations in which *Salmonella* is uncommon;

d) when wheat is the predominant feed ingredient, reducing the proportion of this ingredient may reduce the occurrence of *Salmonella* because the rapid fermentation of wheat promotes dysbacteriosis.

Article 6.Y.~~9~~10.

Water

~~For the effective control~~ Drinking water should be of an appropriate quality. To minimise the spread of *Salmonella* through water, it is recommended that:

1) the drinking water supply be monitored and controlled to maintain it free from *Salmonella* contamination~~.~~;

2) water holding tanks ~~are~~ be enclosed~~.~~;

3) the water delivery system ~~is~~ be regularly cleaned and disinfected. For example in an ‘all-in-all-out’ system this ~~would~~ occurs before restocking.

~~Article 6.Y.10.~~

~~Feed composition~~

~~For the control of *Salmonella* it is recommended that the following be considered when determining feed composition:~~

~~1) slower gastric transit time of ingested feed increases exposure of *Salmonella* to stomach acid resulting in decreased survival.~~

~~2) modified fermentation conditions in the gastrointestinal tract may enhance colonisation by protective bacteria and thereby suppress the colonisation and multiplication of *Salmonella*.~~

~~3) liquid feed that is fermented has a protective effect due to the presence of beneficial bacteria and low pH levels; for example, the inclusion of fermented *milk products*.~~

~~Where *Salmonella* is present in a pig *herd*, the composition of feed may influence the occurrence of *Salmonella* in individual pigs. For the effective control of *Salmonella* it is recommended that:~~

~~4) feed should be coarsely ground.~~

~~5) where feed is wheat based, reducing the proportion of wheat may reduce the occurrence of *Salmonella* in pigs.~~

~~6) coarsely ground material may be added to pelleted feed.~~

~~Article 6.Y.11.~~

~~Pig flow management~~

~~The movement and mixing of pigs increase the risk of spread of *Salmonella*. For the effective control of *Salmonella* it is recommended that:~~

~~1) The number of pig movements and mixing of pigs between weaning and dispatch for *slaughter* should be minimised.~~

~~2) If possible, the 'all-in-all-out' single age group principle should be used. In particular, the addition to younger groups of pigs held back from older groups should be avoided.~~

~~Article 6.Y.12.~~

~~Management of new pig introductions~~

~~To minimise the risk of new introductions of *Salmonella* in replacement pigs in a *herd*, it is recommended that:~~

~~1) There is good communication along the pigproduction chain to ensure that steps are taken to minimise the introduction and dissemination of *Salmonella*.~~

~~2) A closed *herd* policy is applied with the introduction of new genetic material by semen only.~~

~~3) The number of separate sources for both replacement breeding stock and rearing pigs are as few as possible.~~

~~4) Newly introduced pigs are kept separate from the rest of the *herd* for a suitable period before incorporating with other pigs, e.g. four weeks.~~

~~5) Replacement breeding pigs are of a similar *Salmonella* status to that of the *herd*, for example a *Salmonella* free *herd* should source replacements from *Salmonella* free *herds*; or *herds* that are free of specific *Salmonella* serotypes such as *S.* Typhimurium should avoid introducing pigs from breeding *herds* infected with such serotypes.~~

~~6) Where appropriate, pooled faecal samples from introduced pigs are taken to assess their *Salmonella* status.~~

Annex 29 (contd)

~~Article 6.Y.13.~~

~~**Stress reduction**~~

~~Given that stress may increase the multiplication and shedding of *Salmonella* by pigs and their susceptibility to *infection*, it is important to consider management measures that reduce stress.~~

Article 6.Y.~~14~~11.

~~**Pig treatments**~~ **Additional prevention and control measures**

1) *Vaccination* may be considered as part of a *Salmonella* control programme. Vaccine production and use should be in accordance with Chapter 1.1.6. of the *Terrestrial Manual*. The protective effect of vaccines is generally serotype-specific and is influenced by factors such as timing of *vaccination* in relation to exposure.

2) *Antimicrobial agents* can be used for treatment of clinical salmonellosis and when administered, it should be in accordance with Chapter 6.9. However, a*ntimicrobial agents* should not be used to control subclinical *infection* with *Salmonella* in pigs because the effectiveness of the treatment is limited, they may increase the risk of *Salmonella* colonisation, and their use can contribute to the development of antimicrobial resistance.

   ~~*Antimicrobial agents* may modify normal flora in the gut and increase the likelihood of colonisation by*Salmonella*. If *antimicrobial agents* are used for the control of clinical *infections* in pigs, they should be used in accordance with Chapters 6.7., 6.8., 6.9. and 6.10.~~

   ~~*Antimicrobial agents* should not be used to control subclinical *infection* with *Salmonella* in pigsbecause the effectiveness of the treatment is limited and can contribute to the development of antimicrobial resistance.~~

~~2)~~ ~~*Vaccination* may be used as part a *Salmonella* control programme. Vaccine production and use should be in accordance with Chapter 2.9.9. of the *Terrestrial Manual*.~~

   ~~Vaccines for *Salmonella* in pigs may increase the threshold for *infection* and reduce the level of excretion of the organism. The protective effect of vaccines is serotype specific and few licensed vaccines are available for pigs.~~

   ~~If serology is used as the *surveillance* method, it may not be possible to distinguish between *vaccination* and *infection* with a field strain.~~

   ~~If live vaccines are used:~~

   ~~a) it is important that field and vaccine strains be easily differentiated in the laboratory;~~

   ~~b) the vaccine strain should not be present at the time of *slaughter*.~~

3) Where approved by the *Competent Authority*, ~~Organic~~ organic acids, probiotics and prebiotics may be added to feed or water to reduce shedding of *Salmonella* by pigs. However, efficacy is variable.

Article 6.Y.~~15~~12.

Transportation

Hygienic maintenance of *vehicles* is recommended.

When transporting animals from multiple *establishments*, it is recommended that the *Salmonella* status of the *establishments* be considered to avoid cross-contamination of pigs.

The relevant recommendations in Chapters 7.2., 7.3. and 7.4. apply.

Article 6.Y.~~16~~13.

Lairage

Lairage ~~can~~ may be used at various stages in pig production, for example accumulation of weaned pigs before movement to nursery *herds*, holding finisher pigs before transport to *slaughter* and holding pigs at the *slaughterhouse/abattoir* before *slaughter*. ~~Important aspects of *lairage* management include effective cleaning and *disinfection* between groups, minimising mixing of separate groups and managing stress.~~

Relevant aspects of *lairage* management include consideration of effective cleaning and *disinfection* between groups, minimising mixing of animals that have not continually been kept together and managing stress.

In addition, the relevant recommendations in Articles 7.5.1., 7.5.3., and 7.5.4. apply.

Article 6.Y.14.

Surveillance for *Salmonella* in commercial pig production systems

Surveillance data provide information to assist the *Competent Authorities* in their decision making regarding the requirement for, and design of, control programmes and in setting and verifying performance objectives. Harmonised *surveillance* systems to determine the occurrence of *Salmonella* at *herd* level are in place in some countries. Communication between *slaughterhouses/abattoirs*, *Veterinary Services* and the *herd* manager or *veterinarian* of the results of *Salmonella surveillance* systems is an important element of a *Salmonella* control programme.

Standards for diagnostic tests are described in the *Terrestrial Manual*. Serological testing, usually using 'meat juice' at slaughter, is one method for assessing exposure to *Salmonella* in pig *herds*. Benefits of serological testing include low cost per test, high throughput capability and the potential for automation of tests. Collection of samples at the *slaughterhouse/abattoir* enables centralised sampling of multiple *herds*. While serology is a useful tool for *risk* ranking of *herds*, serological testing does not detect exposure to all serotypes or differentiate between different serotypes within the serogroups included in the antigenic range of the test or the level of *Salmonella* in pigs at slaughter. If serology is used as the *surveillance* method, it may not be possible to distinguish between vaccinated and infected pigs by means of serological testing.

Microbiological testing, with additional phenotyping or genotyping, identifies types of *Salmonella* present in pig *herds* and can provide epidemiological information on likely sources of *Salmonella* and on the presence of strains with enhanced virulence or resistance to *antimicrobial agents*. Bacteriological sampling of individual pigs has low sensitivity but this can be overcome by repeated sampling, by pooling of samples (such as individual faecal samples or mesenteric lymph nodes) or sampling naturally pooled material (such as sampling of faeces from the floor of pig pens). Some types of *Salmonella* such as *S.* Choleraesuis can be difficult to detect using microbiological methods.

Article 6.Y.~~17~~15.

Prevention and control in low prevalence regions

In regions where *Salmonella infection* of pigs is uncommon, it may be possible to maintain low prevalence status or eliminate *infection* from *herds* through a combination of good farming practices, *herd surveillance,* individual testing, movement controls, or removal of persistent carriers.

~~In regions where *Salmonellainfection* of pigs is uncommon it may be possible to eliminate *infection* from individual *herds* by means of a test and removal policy. This can be accomplished by placing movement controls on the *herd*, repeated bacteriological sampling of groups of pigs and culling of persistently infected pigs. Movement controls can be lifted after two rounds of negative tests and confirmation of implementation of effective prevention and control measures as described in Articles 6.Y.5. to 6.Y.14.~~

~~It may be possible to attempt this approach in individual *herds*, for example in valuable breeding *herds*, in higher prevalence regions. However, the risk of reintroduction of *infection* must be low to achieve success with this approach.~~ In individual *herds*, for example valuable breeding *herds*, in higher prevalence regions, the success of this approach is dependent upon a low likelihood of reintroduction of *infection*.

Annex 29 (contd)

Article 6.Y.~~18~~16.

Outdoor pig production

~~As far as possible~~ Where practicable, the prevention and control measures described in Articles 6.Y.5. to 6.Y.14. should also be applied to outdoor pigs in commercial pig production systems to reduce *Salmonella infection* ~~in pigs~~. In addition, ~~It~~ it is recommended that:

1) field rotation programmes be used to minimise *Salmonella* contamination and accumulation in soil and surface water and therefore ingestion by pigs;

2) systems used to provide feed, and where possible water, ~~be provided using troughs or bird-proof hoppers~~ be designed to minimise attraction of, or access by, ~~of~~ *wild* birds;

3) the location of other outdoor pig *herds* and the concentration and behaviour of wild birds in the area be considered ~~when establishing outdoor pig *herds*~~.

~~Article 6.Y.19.~~

~~**Live animal markets**~~

~~Live animal markets pose a significant risk of spreading*Salmonella* and other *infections* and *diseases* among pigs. If possible, sourcing replacement pigs from live animal markets should be avoided. Precautions should be taken to prevent the spread of *Salmonella* from markets to pig *herds* by personnel or *vehicles*.~~

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Text deleted.

Annex 30

DRAFT CHAPTER 6.X.

PREVENTION AND CONTROL OF *SALMONELLA* IN COMMERCIAL CATTLE PRODUCTION SYSTEMS

Article 6.X.1.

Introduction

Nontyphoidal salmonellosis is one of the most common food-borne bacterial diseases in the world with *Salmonella* Enteritidis and *S.* Typhimurium (including monophasic variants) being the predominant serotypes identified in humans in most countries. *S*. Enteritidis is primarily associated with *poultry*, while *S*. Typhimurium may be present in many mammalian and avian hosts. These serotypes and several others occur at variable prevalence in cattle depending on the region. For example, in some countries *S*. Dublin and *S*. Newport may also cause salmonellosis in humans.

Salmonella infection in cattle is mostly subclinical, although clinical *disease* such as enteritis, septicaemia or abortion may occur. Subclinical *infection,* including a carrier state, can be of variable duration and can play an important role in the spread of *Salmonella* within and between *herds* and pose a public health *risk*.

Herd size and stocking density may influence the likelihood of introduction, dissemination or persistence of *Salmonella*; however, this is also dependent on geographical region, husbandry and other factors such as season and age.

Salmonella serotypes and their *prevalence* in cattle may vary considerably within and between farms, countries and regions. It is important for *Veterinary Authorities* and the producers to consider types of *Salmonella*, their occurrence and the *disease* burden in cattle and human populations when they develop and implement strategies for the prevention and control of *Salmonella* in commercial cattle production systems.

Article 6.X.2.

Definitions

For the purposes of this chapter:

Commercial cattle production systems: means those systems in which the purpose of the operation includes some or all of the breeding, rearing and management of cattle for the production of *meat* or *milk.*

Intensive cattle production systems: means commercial systems in which cattle are in confinement and are fully dependent on humans to provide for basic animal needs such as food, shelter and water on a daily basis.

Extensive cattle production systems: means commercial systems in which cattle have the freedom to roam outdoors, and where the cattle have some autonomy over diet selection (through grazing), water consumption and access to shelter.

Feed: means any material (single or multiple), whether processed, semi-processed or raw, which is intended to be fed directly to terrestrial *animals* (except bees).

Feed ingredient: means a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the *animal*'s diet, including feed additives. Ingredients are of plant (including aquatic plants) or terrestrial or aquatic animal origin, or other organic or inorganic substances.

Semi-intensive cattle production systems: means commercial systems in which cattle are exposed to any combination of both intensive and extensive husbandry methods, either simultaneously or variably according to changes in climatic conditions or physiological state of the cattle.

Annex 30 (contd)

Article 6.X.3.

Purpose and scope

This chapter provides recommendations for the prevention and control of *Salmonella* in commercial cattle production systems in order to reduce the burden of *disease* in cattle and the *risk* of human illness through food-borne contamination as well as human *infections* resulting from direct or indirect contact with infected cattle.

This chapter applies to cattle (*Bos taurus*, *B. indicus* and *B. grunniens*), water buffaloes (*Bubalus bubalis*) and bison (*Bison bison* and *B. bonasus*) kept in commercial cattle production systems.

This chapter should be read in conjunction with the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005), Code of Hygienic Practice for Milk and Milk Products (CAC/RCP 57-2004), Code of Practice of Good Animal Feeding (CAC/RCP 54-2004), and the Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Pork Meat (under development), and the OIE/FAO Guide to Good Farming Practices for Animal Production Food Safety.

Article 6.X.4.

Objectives of prevention and control measures

It is recommended that prevention and control measures be focused on those types of *Salmonella* of greatest consequence to cattle or public health.

Prevention and control measures in commercial cattle production systems may:

1) reduce the prevalence and concentration of *Salmonella* entering the *slaughterhouse/abattoir* and therefore decrease the challenge to the slaughter and dressing procedures and the likelihood of bovine *meat* contamination;

2) reduce the likelihood of *Salmonella* contamination in *milk;*

3) reduce *Salmonella* contamination of the environment via cattle faecal waste, which in turn will limit *infection* of *animals* (including *wildlife*);

4) reduce the likelihood of *infections* in humans through contact with infected cattle or contaminated material.

While control in the primary production phase can decrease the number of animals carrying or shedding *Salmonella,* controls after primary production are also important to minimise the contamination and cross-contamination of carcasses and *meat products*.

Articles 6.X.5.to 6.X.16. provide recommendations for the prevention and control of *Salmonella* in commercial cattle production systems.

These recommendations may also contribute to the prevention and control of some other *infections*.

Article 6.X.5.

Biosecurity

Biosecurity is intended to assist with the prevention and control of *Salmonella*. A *biosecurity* management plan should be developed according to the commercial cattle production systems employed e.g. intensive or extensive. The applicability of the measures, described below, will vary according to the type of commercial cattle production system.

When including *Salmonella* as part of a *biosecurity* management plan it is recommended that the following be addressed:

1) location, design and management of the *establishment*;

2) veterinary supervision of cattle health;

3) management of the introduction and mixing of cattle;

4) training of personnel in their responsibilities and their role in animal health, human health and food safety;

5) maintenance of records including data on cattle health, production, movements, medications, *vaccination*, and mortality, and cleaning and *disinfection* of farm buildings and equipment;

6) availability of test results to the farm operator when *Salmonella surveillance* is conducted;

7) removal of unwanted vegetation and debris that could attract or harbour pests around cattle premises;

8) minimising the entry of *wild* birds into cattle buildings and feed stores;

9) cleaning and *disinfection* procedures for buildings in which cattle are handled or housed. For example, the cleaning and *disinfection* procedures for intensive calf housing, calving areas and sick pens after emptying may include feeders, drinkers, floor, walls, aisles, partitions between pens, and ventilation ducting. All visible organic material should be removed before *disinfection.*

   When chemical disinfectants are used, the effective concentration and contact time for *Salmonella* should be considered and the choice of disinfectant should take into account the cleaning process. Surfaces should be allowed to dry after *disinfection*. Disinfectants should be used in accordance with Chapter 4.13.;

10) control of pests such as rodents and arthropods and regular assessment of effectiveness;

11) control and hygienic procedures for entry and movement of persons and *vehicles*;

12) cleaning and *disinfection* of equipment and *vehicles* identified as posing a *risk*;

13) storage and disposal of dead animals, bedding, faeces and other potentially contaminated farm waste in a manner that minimises the likelihood of dissemination of *Salmonella* and prevents the direct or indirect exposure of humans, livestock and *wildlife* to *Salmonella*. Particular care should be taken when cattle bedding and faeces are applied to land used for horticultural crops intended for human consumption.

Article 6.X.6.

Location and design of cattle establishments

When making decisions on the location and design of cattle *establishments,* it is recommended that reduction of the likelihood of transfer of pathogens, including *Salmonella*, from major sources of contamination be considered. Sources of *Salmonella* may include other livestock *establishments* or areas of application or disposal of contaminated waste or effluent. Other sources and *vectors* of *Salmonella* include *vehicles*, *equipment*, water-courses, persons, domestic animals, birds, rodents, flies and *wildlife*.

It is recommended that the design of intensive cattle production systems consider the following:

1) management of faecal waste to minimise contamination of the *establishment*;

2) adequate drainage for the site and control of run-off water and untreated waste water;

3) use of materials for construction that facilitate effective cleaning and *disinfection*;

4) control of entry and movement of *vehicles*, equipment and persons;

5) preventing contamination of feed and water during storage and distribution;

6) cattle handling and movements to minimise stress and spread of *Salmonella infection*;

7) separation of cattle according to likelihood of *infection* with, or susceptibility to, *Salmonella*;

8) restriction of entry of domestic animals, birds, rodents, flies and other relevant *wildlife*.

In extensive cattle production systems, location and design options may be limited; however, applicable biosecurity measures should be considered.

Article 6.X.7.

Management of cattle introductions

To minimise the likelihood of introducing *Salmonella* through cattle introductions, it is recommended that:

1) good communication within the cattle industry be encouraged to raise awareness of the likelihood of introducing *Salmonella* through cattle introductions;

2) consideration be given to minimising the number of sources of replacement cattle;

3) the introduction of new genetic material through the use of semen and embryos be considered whenever practicable;

4) if possible, cattle be sourced directly from *herds* of origin because live animal markets or other places where cattle from multiple properties are mixed for resale may increase the likelihood of spread of *Salmonella* and other infectious agents among cattle;

5) newly introduced cattle be kept separate from the rest of the *herd* for a suitable period before mixing with other cattle, e.g. four weeks;

6) where appropriate, testing of animals for *Salmonella* prior to introduction be considered to inform subsequent control measures, for example, when introducing cattle of unknown status.

Article 6.X.8.

On farm cattle management

To reduce the likelihood of transferring *Salmonella* among cattle, it is recommended that:

1) cattle with suspected salmonellosis be separated from healthy cattle;

2) care of healthy cattle be carried out prior to care of cattle with suspected salmonellosis;

3) priority be given to the hygienic management of calving areas, for example keeping perinatal cattle separated from sick cattle and maintaining a clean environment;

4) when possible, the ‘all-in-all-out’ principle for production cohorts be used. In particular, the unnecessary mixing of different age groups, especially of calves, should be avoided;

5) consideration be given to the potential for between-herd transmission of *Salmonella* via breeding, rearing and grazing of cattle from multiple sources on a single site, for example shared pasture, heifer rearing or sharing of bulls;

6) consideration be given to the potential for between-herd transmission of *Salmonella* through direct contact between cattle across boundary lines or indirectly, for example through contamination of water courses.

Article 6.X.9.

Feed

Feed and feed ingredients

Feed and feed ingredients can be sources of *Salmonella infection* for cattle. For the effective control of *Salmonella* it is recommended that:

1) When appropriate, feed and feed ingredients be produced, handled, stored, transported and distributed according to Good Manufacturing Practices, considering Hazard Analysis Critical Control Points (HACCP) principles and recommendations in accordance with Chapter 6.3.

2) Where practical, feed and feed ingredients be transported, stored and fed in a hygienic manner that minimises contamination by manure and access by domestic animals, birds, rodents and *wildlife*.

Article 6.X.10.

Water

Drinking water should be of an appropriate quality. When there is reason to be concerned about *infection* of cattle with *Salmonella* from contaminated water, measures should be taken to evaluate and minimise the *risk*. For example sediment in water troughs may act as a reservoir for contamination. Where practicable, untreated surface water should be avoided as a water source.

Article 6.X.11.

Additional prevention and control measures

1) The immune status of calves is important and therefore care should be taken to ensure that new-born calves consume adequate amounts of high quality colostrum in accordance with Article 7.9.5. (point 3c) and Article 7.X.5).Raw milk from infected cows should not be fed to calves.

2) *Vaccination* may be considered as part of a *Salmonella* control programme. Vaccine production and use should be in accordance with Chapter 1.1.6. of the *Terrestrial Manual*. The protective effect of vaccines is generally serotype specific and is influenced by factors such as timing of *vaccination* in relation to exposure.

3) A number of conditions, for example liver fluke and infection with bovine viral diarrhoea virus, may increase the susceptibility of cattle to *Salmonella*; therefore, control of such conditions is recommended.

4) *Antimicrobial agents* can be used for treatment of clinical salmonellosis and when administered, it should be in accordance with Chapter 6.9. However, *antimicrobial agents* should not be used to control subclinical *infection* with *Salmonella* in cattle because the effectiveness of the treatment is limited, they may increase the risk of *Salmonella* colonisation, and their use can contribute to the development of antimicrobial resistance.

Article 6.X.12.

Transportation

Hygienic maintenance of *vehicles* is recommended.

When transporting animals from multiple *establishments,* it is recommended that the *Salmonella* status of the *establishments* be considered to avoid cross-contamination of cattle.

The relevant recommendations in Chapters 7.2., 7.3. and 7.4. apply.

Article 6.X.13.

Lairage

Relevant aspects of *lairage* management include consideration of effective cleaning and *disinfection* between groups, minimising mixing of animals that have not continuously been kept together and managing stress.

In addition the relevant recommendations in Articles 7.5.1., 7.5.3. and 7.5.4. apply.

Annex 30 (contd)

Article 6.X.14.

Cleanliness of hides

Cleanliness of hides can be achieved by applying suitable practices during housing (for example additional clean bedding), transport and lairage. Dirty hides increase the risk of microbial contamination of carcasses during the slaughter process. Contamination can be reduced by hide washing of the live animal or of the slaughtered animal before hide removal.

Article 6.X.15.

Surveillance for Salmonella in commercial cattle production systems

Surveillance data provide information to assist the *Competent Authorities* in their decision making regarding the requirement for, and design of, control programmes and in setting and verifying performance objectives.

Standards for diagnostic tests are described in the *Terrestrial Manual*. In addition, other sampling and testing methodologies such as testing of bulk milk or serum samples by ELISA may provide useful information on herd or individual animal status. Boot swab samples from communal areas in cattle housing, slurry samples, or caecal or lymph node samples collected post-mortem can also be useful for microbiological testing. Some types of *Salmonella* such as *S*. Dublin can be difficult to detect using microbiological methods.

If serology is used as the *surveillance* method, it may not be possible to distinguish between vaccinated and infected cattle by means of serological testing.

Article 6.X.16.

Prevention and control in low prevalence regions

In regions where *Salmonella infection* of cattle is uncommon, it may be possible to maintain low prevalence status or eliminate *infection* from *herds* through a combination of good farming practices, *herd surveillance,* individual testing, movement controls, or removal of persistent carriers.

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Annex 31

DRAFT CHAPTER 6.Y.

PREVENTION AND CONTROL OF *SALMONELLA* IN COMMERCIAL PIG PRODUCTION SYSTEMS

Article 6.Y.1.

Introduction

Nontyphoidal salmonellosis is one of the most common food-borne bacterial diseases in the world with *Salmonella* Enteritidis and *S.* Typhimurium (including monophasic variants) being the predominant serotypes identified in humans in most countries. *S*. Enteritidis is primarily associated with *poultry* while *S*. Typhimurium may be present in many mammalian and avian hosts. These serotypes and several others occur at variable prevalence in pigs depending on the region. For example, in some countries *S*. Infantis and *S*. Choleraesuis may also cause salmonellosis in humans.

Salmonella infection in pigs is mostly subclinical, although clinical *disease* such as enteritis and septicaemia in weaned pigs may occur. Subclinical *infection,* including a carrier state, can be of variable duration and can play an important role in the spread of *Salmonella* within and between *herds* and pose a public health *risk*.

Salmonella serotypes and their *prevalence* in pigs may vary considerably within and between farms, countries and regions. It is important for *Veterinary Authorities* and the producers to consider types of *Salmonella*, their occurrence and the *disease* burden in pig and human populations when they develop and implement strategies for the prevention and control of *Salmonella* in commercial pig production systems.

Article 6.Y.2.

Definitions

For the purpose of this chapter:

Commercial pig production systems: means those systems in which the purpose of the operation includes some or all of the breeding, rearing and management of pigs for the production of meat.

Feed: means any material (single or multiple), whether processed, semi-processed or raw, which is intended to be fed directly to terrestrial *animals* (except bees).

Feed ingredient: means a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the *animal*'s diet, including feed additives. Ingredients are of plant (including aquatic plants) or terrestrial or aquatic animal origin, or other organic or inorganic substances.

Article 6.Y.3.

Purpose and scope

This chapter provides recommendations for the prevention and control of *Salmonella* in commercial pig production systems in order to reduce the burden of *infection* in pigs and the *risk* of human illness through food-borne contamination as well as human *infections* resulting from direct or indirect contact with infected pigs.

This chapter should be read in conjunction with the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005), Code of Good Animal Feeding (CAC/RCP 54-2004), and the Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Pork Meat (under development), and the OIE/FAO Guide to Good Farming Practices for Animal Production Food Safety.

Annex 31 (contd)

Article 6.Y.4.

Objectives of prevention and control measures

It is recommended that prevention and control measures be focused on those types of *Salmonella* of greatest consequence to pigs and public health.

Prevention and control measures in commercial pig production systems may:

1) reduce the prevalence and concentration of *Salmonella* entering the *slaughterhouse/abattoir* and therefore decrease the challenge to the slaughter and dressing procedures and the likelihood of pig *meat* contamination;

2) reduce *Salmonella* contamination of the environment via pig manure, which in turn will limit *infection* of *animals* (including *wildlife*);

3) reduce the likelihood of *infections* in humans through contact with infected pigs or contaminated material.

While control in the primary production phase can decrease the number of animals carrying or shedding *Salmonella,* controls after primary production are also important to minimise the contamination and cross-contamination of carcasses and *meat products*.

Articles 6.Y.5. to 6.Y.14. provide recommendations for the prevention and control of *Salmonella* in commercial pig production systems.

These recommendations may also contribute to the prevention and control of some other *infections*.

Article 6.Y.5.

Biosecurity

Biosecurity is intended to assist with the prevention and control of *Salmonella*. The choice of specific measures will vary according to the type of commercial pig production system.

When including *Salmonella* as part of a *biosecurity* management plan, it is recommended that the following be addressed:

1) location, design and management of the *establishment*;

2) veterinary supervision of pig health;

3) management of the introduction and mixing of pigs;

4) training of personnel in their responsibilities and their role in animal health, human health, food safety;

5) maintenance of records including data on pig health, production, movements, medications, *vaccination*, mortality and cleaning and *disinfection* of farm buildings and equipment;

6) availability of test results to the farm operator when *Salmonella surveillance* is conducted;

7) removal of unwanted vegetation and debris that could attract or harbour pests around pig housing;

8) minimising the entry of *wild* birds into pig buildings and feed stores;

9) cleaning and *disinfection* procedures for buildings in which pigs are handled or housed, including feeding systems, drinkers, floor, walls, aisles, walkways, partitions between pens, and ventilation ducting. All visible organic material should be removed before *disinfection*.

10) control of pests such as rodents and arthropods, and regular assessment of effectiveness;

11) control and hygienic procedures for entry and movement of persons and *vehicles*;

12) *biosecurity* applied to all personnel and visitors entering the *establishment.* As a minimum, this should include hand washing and changing into clean clothes and footwear provided by the *establishment*. Similar precautions are recommended when they move between separate *epidemiological units* on large farms;

13) cleaning and *disinfection* of equipment and *vehicles* identified as posing a *risk*;

14) storage and disposal of dead animals, bedding, faeces and other potentially contaminated farm waste in a manner that minimises the likelihood of dissemination of *Salmonella* and prevents the direct or indirect exposure of humans, livestock and *wildlife* to *Salmonella*. Particular care should be taken when pig bedding and faeces are applied to land used for horticultural crops intended for human consumption.

Article 6.Y.6.

Location and design of pig establishments

When making decisions on the location and design of pig *establishments,* it is recommended that reduction of the likelihood of transfer of pathogens, including *Salmonella*, from major sources of contamination be considered. Sources of *Salmonella* may include other livestock *establishments* or areas of application or disposal of contaminated waste or effluent. Other sources and *vectors* of *Salmonella* include *vehicles*, equipment, water-courses, persons, domestic animals, birds, rodents, flies and *wildlife*.

It is recommended that the design of commercial pig production systems consider the following:

1) proximity of other livestock *establishments*, and *wild* bird and rodent populations;

2) management of faecal waste to minimise contamination of the *establishment*;

3) adequate drainage for the site and control of run-off water and untreated waste water;

4) use of smooth impervious materials for construction of pig houses to enable effective cleaning and *disinfection*;

5) paving the area immediately surrounding pig houses or indoor establishments with concrete or other impervious material. This will facilitate rodent control and minimise recontamination after cleaning and *disinfection*;

6) a control of entry and movement of *vehicles*, equipment and persons, for example, locate delivery and collection points away from pig housing or feed storage;

7) preventing contamination of feed and water during storage and distribution;

8) pig handling and movements to minimise stress and spread of *Salmonella infection*;

9) restriction of entry of domestic *animals*, *wild* birds, rodents, flies and other relevant *wildlife*.

Article 6.Y.7.

Management of new pig introductions into the establishment

Introduction of pigs into a *herd* is an important *risk* factor in moderate and high prevalence regions. To minimise the likelihood of introducing *Salmonella* by replacement pigs, it is recommended that:

1) good communication along the pig production chain be encouraged to raise awareness of the *risk* of introducing *Salmonella* through pig introductions;

2) consideration be given to minimising the number of sources for both replacement breeding stock and rearing pigs, and matching *Salmonella herd* status in terms of *Salmonella* freedom or occurrence of priority serotypes such as *S*. Typhimurium;

3) the introduction of new genetic material be through the use of semen whenever possible;

4) if possible, pigs be sourced directly from *herds* of origin because live animal markets or other places where pigs from multiple properties are mixed for resale may increase the likelihood of spread of *Salmonella* and other infectious agents among pigs;

4) newly introduced pigs be kept separate from the rest of the *herd* for a suitable period before mixing with other pigs, e.g. four weeks;

5) where appropriate, testing of pigs for *Salmonella* prior to introduction be considered to inform subsequent control measures, for example, when introducing pigs of unknown status.

Article 6.Y.8.

Moving and mixing of pigs

The moving and mixing of pigs increases the likelihood of spread of *Salmonella*. To minimise the spread of *Salmonella*, it is recommended that:

1) the number of pig movements and mixing of pigs between weaning and dispatch for *slaughter* be minimised;

2) if possible, the 'all-in-all-out' system with a single age group of pigs be used. In particular, the addition to younger groups of pigs held back from older groups should be avoided.

Article 6.Y.9.

Feed and feed composition

1. Feed and feed ingredients

Feed and feed ingredients can be sources of *Salmonella infection* for pigs. This is especially important in *herds*, countries or regions of low prevalence. To minimise the spread of *Salmonella* through feed, it is recommended that:

a) feed and feed ingredients be produced, handled, stored, transported and distributed in accordance with Chapter 6.3.;

b) where practical, feed and feed ingredients be transported, stored and fed in a hygienic manner that minimises contamination by manure and access by domestic animals, birds, rodents and *wildlife*;

c) feeds be treated with heat, bactericidal or bacteriostatic treatments e.g. organic acids.

2. Feed composition

When *Salmonella* is present in a pig *herd,* the composition of feed may influence the occurrence of *Salmonella* in individual pigs.

For the control of *Salmonella* it is recommended that the following be considered:

a) liquid feed that is fermented or containing *milk products* has a protective effect due to the presence of beneficial bacteria and lowered pH;

b) coarsely ground feed may reduce the occurrence of *Salmonella* by slowing gastric transit (thereby increasing exposure to gastric acid) and reducing dysbacteriosis. Coarsely ground feed ingredients may be fed alongside pelleted feed;

c) fine grinding needed to produce heat treated pellets may result in dysbacteriosis which favours the colonisation and multiplication of *Salmonella* in the intestine. Therefore, heat treated pellets are most appropriate for situations in which *Salmonella* is uncommon;

d) when wheat is the predominant feed ingredient, reducing the proportion of this ingredient may reduce the occurrence of *Salmonella* because the rapid fermentation of wheat promotes dysbacteriosis.

Article 6.Y.10.

Water

Drinking water should be of an appropriate quality. To minimise the spread of *Salmonella* through water, it is recommended that:

1) the drinking water supply be monitored and controlled to maintain it free from *Salmonella* contamination;

2) water holding tanks be enclosed;

3) the water delivery system be regularly cleaned and disinfected. For example in an 'all-in-all-out' system this occurs before restocking.

Article 6.Y.11.

Additional prevention and control measures

1) *Vaccination* may be considered as part of a *Salmonella* control programme. Vaccine production and use should be in accordance with Chapter 1.1.6. of the *Terrestrial Manual*. The protective effect of vaccines is generally serotype-specific and is influenced by factors such as timing of *vaccination* in relation to exposure.

2) *Antimicrobial agents* can be used for treatment of clinical salmonellosis and when administered, it should be in accordance with Chapter 6.9. However, a*ntimicrobial agents* should not be used to control subclinical *infection* with *Salmonella* in pigs because the effectiveness of the treatment is limited, they may increase the risk of *Salmonella* colonisation, and their use can contribute to the development of antimicrobial resistance.

3) Where approved by the *Competent Authority*, organic acids, probiotics and prebiotics may be added to feed or water to reduce shedding of *Salmonella* by pigs. However, efficacy is variable.

Article 6.Y.12.

Transportation

Hygienic maintenance of *vehicles* is recommended.

When transporting animals from multiple *establishments,* it is recommended that the *Salmonella* status of the *establishments* be considered to avoid cross-contamination of pigs.

The relevant recommendations in Chapters 7.2., 7.3. and 7.4. apply.

Article 6.Y.13.

Lairage

Lairage may be used at various stages in pig production, for example accumulation of weaned pigs before movement to nursery *herds*, holding finisher pigs before transport to *slaughter* and holding pigs at the *slaughterhouse/abattoir* before *slaughter*.

Relevant aspects of *lairage* management include consideration of effective cleaning and *disinfection* between groups, minimising mixing of animals that have not continually been kept together and managing stress.

In addition, the relevant recommendations in Articles 7.5.1., 7.5.3., and 7.5.4. apply.

Annex 31 (contd)

Article 6.Y.14.

Surveillance for *Salmonella* in commercial pig production systems

Surveillance data provide information to assist the *Competent Authorities* in their decision making regarding the requirement for, and design of, control programmes and in setting and verifying performance objectives. Harmonised *surveillance* systems to determine the occurrence of *Salmonella* at *herd* level are in place in some countries. Communication between *slaughterhouses/abattoirs*, *Veterinary Services* and the *herd* manager or *veterinarian* of the results of *Salmonella surveillance* systems is an important element of a *Salmonella* control programme.

Standards for diagnostic tests are described in the *Terrestrial Manual*. Serological testing, usually using 'meat juice' at slaughter, is one method for assessing exposure to *Salmonella* in pig *herds*. Benefits of serological testing include low cost per test, high throughput capability and the potential for automation of tests. Collection of samples at the *slaughterhouse/abattoir* enables centralised sampling of multiple *herds*. While serology is a useful tool for *risk* ranking of *herds*, serological testing does not detect exposure to all serotypes or differentiate between different serotypes within the serogroups included in the antigenic range of the test or the level of *Salmonella* in pigs at slaughter. If serology is used as the *surveillance* method, it may not be possible to distinguish between vaccinated and infected pigs by means of serological testing.

Microbiological testing, with additional phenotyping or genotyping, identifies types of *Salmonella* present in pig *herds* and can provide epidemiological information on likely sources of *Salmonella* and on the presence of strains with enhanced virulence or resistance to *antimicrobial agents*. Bacteriological sampling of individual pigs has low sensitivity but this can be overcome by repeated sampling, by pooling of samples (such as individual faecal samples or mesenteric lymph nodes) or sampling naturally pooled material (such as sampling of faeces from the floor of pig pens). Some types of *Salmonella* such as *S*. Choleraesuis can be difficult to detect using microbiological methods.

Article 6.Y.15.

Prevention and control in low prevalence regions

In regions where *Salmonella infection* of pigs is uncommon, it may be possible to maintain low prevalence status or eliminate *infection* from *herds* through a combination of good farming practices, *herd surveillance,* individual testing, movement controls, or removal of persistent carriers.

In individual *herds*, for example valuable breeding *herds*, in higher prevalence regions, the success of this approach is dependent upon a low likelihood of reintroduction of *infection.*

Article 6.Y.16.

Outdoor pig production

Where practicable, the prevention and control measures described in Articles 6.Y.5. to 6.Y.14. should also be applied to outdoor pigs in commercial pig production systems to reduce *Salmonella infection*. In addition, it is recommended that:

1) field rotation programmes be used to minimise *Salmonella* contamination and accumulation in soil and surface water and therefore ingestion by pigs;

2) systems used to provide feed, and where possible water, be designed to minimise attraction of, or access by, *wild* birds;

3) the location of other outdoor pig *herds* and the concentration and behaviour of wild birds in the area be considered.

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— Text deleted.

Annex 32

CHAPTER 6.1.

THE ROLE OF THE VETERINARY SERVICES IN FOOD SAFETY SYSTEMS

Article 6.1.1.

Introduction

Food safety systems are now considerably different from those of earlier years and this provides a wider role for the *Veterinary Services*. The characteristics of these systems are global, regional, national and local in reach, especially in relation to the globalisation of the food supply, which requires a greater level of engagement and collaboration, in line with the One Health approach. There is a particular emphasis on risk-based food safety systems where implementation is a responsibility shared with a wide range of actors along with assurance of non-food safety requirements that are of high importance to consumers.

The education and training of *veterinarians*, which includes both *animal* health (including *zoonoses*) and food safety components, makes them uniquely equipped to play a central role in ensuring food safety, especially the safety of foods of *animal* origin. In addition to *veterinarians*, other professionals are involved in ensuring an integrated food safety system throughout the food chain.

Article 6.1.2.

Purpose and scope

The purpose of this chapter is to provide guidance to Member Countries on the role and responsibilities of the *Veterinary Services* in food safety systems.

This chapter should be read in conjunction with Chapters 4.1., 4.2., and relevant chapters of Sections 6 and 7.

The OIE and Codex Alimentarius Commission, through the development and implementation of standards and guidelines, contribute to improving food safety and human health by reducing risks that may arise at the farm and any subsequent stages in the food production continuum. Therefore, this chapter should be read in conjunction with the Codex Alimentarius General Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Meat (CAC/RCP 58-2005), Code of Practice on Good Animal Feeding (CAC/RCP 54-2004), Guidelines for the Design and Implementation of National Regulatory Food Safety Assurance Programmes Associated with the Use of Veterinary Drugs in Food Producing Animals (CAC/GL 71-2009), and other relevant Codex texts on hygienic practices, food import and export certification systems and antimicrobial resistance.

Article 6.1.3.

Characteristics of a food safety system

1. Farm to plate approach

   Food safety is best assured by an integrated, multidisciplinary approach, considering the whole food chain. Everyone in the food chain, such as food business operators, the *Veterinary Services* and consumers, has a responsibility to ensure that food is safe. A modern food safety system should take into account the complexity of food production and the increased globalisation of the food supply, and should be risk-based. The application of traceability systems and sharing of food chain information will enhance the effectiveness of a food safety system. The food safety system should include consideration of potential risks associated with each component of the food chain, namely primary production, transport, processing and distribution, and integrate these throughout the food continuum. The prevention, detection, and control of foodborne hazards throughout the food chain is generally more effective in reducing or eliminating the risk of unwanted health effects than relying on controls of the final product.

Annex 32 (contd)

2. Risk-based food safety systems

Risk-based food safety systems include measures based on good practices (such as Good Agricultural Practice, Good Hygienic Practice), hazard analysis and critical control points (HACCP) and risk assessment. The design and application of this risk-based approach depend on the availability of scientific information and technical resources of the *Competent Authority*. Monitoring and review are essential to evaluate the performance of a risk-based food safety system.

For international trade, a risk-based approach to food safety systems contributes to the determination of equivalence between trading partners.

3. Primary responsibilities of food business operators for food safety

Food business operators, including feed producers, farmers, processors, wholesalers, distributors, importers, exporters and retailers, have primary responsibility for ensuring the safety of their products and should be able to demonstrate that they comply with relevant food safety regulatory requirements. The food business operators have a responsibility to inform the *Competent Authority* of any non-compliance associated with their product and take action to manage the *risk* e.g. the withdrawal of the product.

4. Responsibilities of the Competent Authority

Each Member Country should establish its objectives for *animal* health and public health protection, through consultation with stakeholders (especially livestock producers, processors and consumers) in accordance with the social, economic, cultural, religious and political contexts of the country. Based on these objectives and the analysis of scientific information, the *Competent Authority* has the responsibility to develop national legislation and policies relevant to food safety. The *Competent Authority* should take steps to raise awareness of these both within the country and to trading partners.

The *Competent Authority* should ensure that the control systems used by food business operators are appropriate, validated, and effective, and operated in such a way that the standards are met. This should be verified through activities such as inspection and audit. In the event of non-compliance, appropriate corrective actions and sanctions should be applied.

5. Animal and public health roles of the Veterinary Services

At the national level the activities of the *Competent Authority* serve both public and *animal* health objectives. In the case of food safety, this duality of roles provides an opportunity for the *Veterinary Services* to perform complementary activities throughout the food chain in coordination with other relevant agencies. It is important that this duality of functions is recognised, and relevant public health and *animal* health activities are integrated.

Article 6.1.4.

The role of the Veterinary Services in a food safety system

1. Responsibilities of the Veterinary Services

The *Veterinary Authority* or other *Competent Authority* should provide an appropriate institutional environment to allow the *Veterinary Services* to implement the necessary policies and standards, and adequate resources for them to carry out their tasks in a sustainable manner. Within the *Veterinary Services* there should be a clear and well documented assignment of responsibilities and chain of command. In developing policies and national standards for food safety, the *Veterinary Authority* or other *Competent Authority* should collaborate with other responsible agencies to ensure that food safety risks are addressed in a coordinated manner.

In order for *Veterinary Services* to make the best possible contribution to food safety, it is important that the education and training of *veterinarians* and *veterinary para-professionals* meet appropriate levels of competence and that there are national programmes for ongoing professional development.

The *Veterinary Services* should be responsible for, or involved in, the design and implementation of national control programmes of a risk-based food safety system. Implementation includes verification, audit, assurance and certification. In the implementation of food safety systems for foods of *animal* origin, the *Veterinary Services* should retain responsibility for verification and audit and facilitate a flexible approach to operational activities.

Where food safety activities are delegated outside of the *Veterinary Services*, the *Veterinary Services* should retain responsibility for competency standards and performance of the delegated activities.

In addition to *veterinarians*, several other professional groups are involved in ensuring food safety throughout the food chain, including analysts, epidemiologists, food technologists, human and environmental health professionals, microbiologists and toxicologists. Irrespective of the roles assigned to the different professional groups and stakeholders by the administrative system in the country, close cooperation and effective communication between all involved is imperative to achieve the best results from the combined resources.

In view of the competencies within the *Veterinary Services*, they should contribute to other food safety related activities such as investigations of foodborne disease outbreaks, food defence, disaster management, and emerging risks.

2. Activities throughout the food chain

The *Veterinary Services* have a significant role to play throughout the food safety system. Depending on the role and responsibilities of the *Competent Authority*, the responsibilities of the *Veterinary Services* may be limited to the first part of the food chain (from farm to *slaughterhouse/abattoir* and associated premises for further processing) while in other cases the *Veterinary Services* may be responsible for the whole food chain.

a) Primary production

Through their presence on farms and appropriate collaboration with farmers, *Veterinary Services* play a key role in ensuring that *animals* are kept under hygienic conditions and in the early detection, *surveillance* and treatment of *animal diseases*, including conditions of public health significance. The *Veterinary Services* advise on *animal* husbandry practices, *biosecurity* and interventions that limit the transmission of *animal diseases*, including foodborne *zoonoses*.

Because of the importance of traceability throughout the food chain, the verification by the *Veterinary Services* of *animal identification* is an important function.

The *Veterinary Services* assist farmers on how to minimise chemical hazards (e.g. drug and pesticide residues, mycotoxins and environmental contaminants) in primary production, including through *animal* feed. Producers' organisations, particularly those with veterinary advisers, are in a good position to provide awareness and training as they are regularly in contact with farmers and are well placed to understand their priorities. Technical support from the *Veterinary Services* is important and both private *veterinarians* and employees of the *Veterinary Authority* can assist. The *Veterinary Services* play a central role in ensuring the responsible and prudent use of biological products and veterinary drugs, including *antimicrobial agents*, in *animal* husbandry. This helps to minimise the risk of developing antimicrobial resistance and unsafe levels of veterinary drug residues in foods of *animal* origin.

b) Processing and distribution

The *Veterinary Services* have an essential role in ensuring that processing (including meat inspection) and distribution minimises foodborne risks to public health. This may be provided by supervision and verification of process control and direct involvement in operational activities such as ante-mortem and post-mortem inspection. *Slaughterhouse/abattoir* inspection of live *animals* (ante-mortem) and their carcasses (post-mortem) plays a key role in both the *surveillance* network for *animal diseases* and *zoonoses* and ensuring the safety and suitability of *meat* and by-products for their intended uses. Control or reduction of biological hazards of public health and *animal* health importance by ante- and post-mortem *meat* inspection is a core responsibility of the *Veterinary Services* and they should have primary responsibility for the development and effective implementation of relevant inspection programmes. Chapter 6.2. provides recommendations for the control of biological hazards of a*nimal* health and public health importance through ante- and post-mortem meat inspection.

The *Veterinary Services* also play an important role in raising the awareness of food producers, processors and other stakeholders of the measures required to assure food safety.

Veterinarians provide essential inputs in terms of scientific information, risk assessment, validation of control measures, and monitoring and review of public health outcomes, in the design and implementation of a risk-based food safety system.

Veterinarians have an important role in ensuring food safety in various parts of the food chain, for example through the application of HACCP based controls and other quality assurance systems during food processing and distribution.

Annex 32 (contd)

c) Assurance schemes and certification of animal products for international trade

The *Veterinary Services* have an important role in providing public health assurance for products of *animal* origin. When assurance is required for *animal* products *international trade* assurance may take the form of certification of consignments. In which case, the *Veterinary Services* ensure that *international veterinary certificates* comply with *animal* health and food safety standards. Certification of *animal* products in relation to *animal diseases*, including foodborne *zoonoses*, and *meat* hygiene should be the responsibility of the *Veterinary Services*. Certification may be provided by other professionals in connection with food processing and hygiene (e.g. pasteurisation of *milk products*).

3. Foodborne disease outbreaks

Most reported *outbreaks* of foodborne disease in humans are due to contamination of foods with zoonotic agents during primary production or processing. The *Veterinary Services* play a key role in the investigation of such *outbreaks* throughout the food chain and in formulating and implementing control measures as appropriate once the source of the *outbreak* has been identified. This work should be carried out in close collaboration with human and environmental health professionals, analysts, epidemiologists, food producers, processors and traders and others involved.

The *Veterinary Services* can play a leading role in development and application of new epidemiological and diagnostic tools to better attribute outbreaks of foodborne diseases to specific *animal* reservoirs.

In the view of the global nature of the food trade, the *Veterinary Services* should work with other national agencies in reporting to international emergency foodborne disease networks such as the International Network of Food Safety Authorities (INFOSAN), and in utilising such information for preparedness.

4. Animal and public health roles of the Veterinary Services

This complementary role of the *Veterinary Services* is clearly illustrated in relation to inspection and monitoring at the *slaughterhouse*, for both *animal* health and public health hazards.

The *Veterinary Services* contribute to the development and management of coordinated *surveillance* and control programmes related to foodborne pathogens of public health importance, such as *Salmonella* and *Trichinella*.

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Annex 33

CHAPTER 7.5.

SLAUGHTER OF ANIMALS

[Article 7.5.1.]

[Article 7.5.2.]

[Article 7.5.3.]

[Article 7.5.4.]

[Article 7.5.5.]

[Article 7.5.6.]

Article 7.5.7.

Stunning methods

1. […]

2. […]

3. Electrical stunning

   a) […]

   b) Electrical stunning of birds using a waterbath

   This section should be read in conjunction with Article 7.5.7.3 a) and with Article 7.5.7.5.

   There should be no sharp bends or steep gradients in the shackle line and the shackle line should be as short as possible consistent with achieving acceptable line speeds, and ensuring that birds have settled by the time they reach the waterbath. A breast comforter can be used effectively to reduce wing flapping and calm birds. The angle at which the shackle line approaches the entrance to the waterbath, and the design of the entrance to the waterbath, and the draining of excess 'live' water from the bath are all important considerations in ensuring birds are calm as they enter the bath, do not flap their wings, and do not receive pre-stun electric shocks.

   In the case of birds suspended on a moving line, measures should be taken to ensure that the birds are not wing flapping at the entrance of the stunner. The birds should be secure in their shackle, but there should not be undue pressure on their shanks. The shackle size should be appropriate to fit the size of the shanks (metatarsal bones) of birds.

   Birds should be hung on shackles by both legs.

   Birds with dislocated or broken legs or wings should be humanely killed rather than shackled.

   The duration between hanging on shackles and *stunning* should be kept to the minimum. In any event, the time between shackling and *stunning* should not exceed one minute.

   Waterbaths for *poultry* should be adequate in size and depth for the type of bird being slaughtered, and their height should be adjustable to allow for the head of each bird to be immersed. The electrode immersed in the bath should extend the full length of the waterbath. Birds should be immersed in the bath up to the base of their wings. Electrical shock before *stunning* should be prevented.

Annex 33 (contd)

The shackle-to-leg contact should be wetted preferably before the birds are inserted in the shackles. In order to improve the electrical conductivity of the water, it is recommended that salt be added to the waterbath as necessary. Additional salt (as a solution) should be added regularly to maintain a suitable constant concentration in the waterbath.

The waterbath should be designed and maintained in such a way that when the shackles pass over the water, they are in continuous contact with the earthed rubbing bar.

The control box for the waterbath stunner should incorporate an ammeter which displays the total current flowing through the birds.

~~The shackle-to-leg contact should be wetted preferably before the birds are inserted in the shackles. In order to improve the electrical conductivity of the water, it is recommended that salt be added in the waterbath as necessary. Additional salt should be added regularly as a solution to maintain suitable constant concentrations in the waterbath.~~

The effectiveness of the stun depends on the interaction of several parameters in the *stunning* process such as current type (alternating current (AC) or direct current (DC), amperage, voltage, frequency, electrical wave form, electrical impedance, length and width of the live electrode, contact with the earth rail, depth of bird immersion and bird dwell time in the waterbath and the size, weight, and age of the birds. AC is more effective than DC at inducing unconsciousness. Higher frequencies require higher amperage for an effective stun.

The management of these parameters to ensure all birds are effectively stunned should be set out in standard operating procedures in the *slaughterhouse/abattoir*'s dedicated plan for animal welfare, taking into account manufacturers' instructions and traceability concerns.

As birds will have different impedances and are generally stunned in groups, the equipment should be adjusted so that the total current is the minimum required current per bird to achieve unconsciousness. The effective current for a particular *slaughterhouse/abattoir`s* operation should be adjusted through monitoring specific indicators such as voltage, calculated amperage and frequency.

Standard procedures should be implemented to ensure that small birds do not go on the line amongst bigger birds and that these small birds are stunned separately.

~~Using waterbaths, birds are stunned in groups and different birds will have different impedances. The voltage should be adjusted so that the total current is the required current per bird as shown in the table hereafter, multiplied by the number of birds in the waterbath at the same time. The following values have been found to be satisfactory when employing a 50 Hertz sinusoidal alternating current.~~

Birds should receive the current at least 4 seconds. ~~While a lower current may also be satisfactory,~~ In any case, the current ~~shall~~ should ~~in any case~~ be such as to ensure that unconsciousness occurs immediately and lasts until the bird is braindead ~~has been killed by cardiac arrest or by bleeding. When higher electrical frequencies are used, higher currents may be required.~~

The following table shows the minimum average current required in experimental conditions according to frequency range for AC using a sinusoidal wave form.

	Minimum average current (milliamperes per bird)			
Frequency (Hz)	**Broilers**	**Turkeys**	**Layers (spent hens)**	**Ducks and geese**
From 50 to 200 Hz	100 mA	250 mA	100 mA	130 mA
From 200 to 400 Hz	150 mA	400 mA	No data available	No data available
From 400 to 1500 Hz	200 mA	400 mA	No data available	No data available

The use of other wave forms, current, amperage and voltage combinations should be scientifically validated to demonstrate effective *stunning* (immediate onset of unconsciousness until death) prior to implementation.

The means of assessing the welfare outcomes of the *stunning* process should also be set out in the standard operating procedures in the *slaughterhouse/abattoir's* plan for animal welfare. The effectiveness of *stunning* should also be regularly monitored by assessing the following indicators and their corresponding outcomes of consciousness at two key stages: (a) between the exit from the waterbath stunner and neck cutting and (b) during bleeding. It is better if bird welfare monitoring is focused on detecting consciousness. A list of selected indicators is proposed to check for signs of consciousness. The staff responsible for welfare outcome monitoring should choose the most appropriate set of indicators (more than one, but as many as practical) from the list according to their expertise and the available infrastructure in the *slaughterhouse/abattoir*. Assessment using a single indicator may be misleading. Multiple indicators should be assessed in order to reach a reliable conclusion. Ideally, at any time after application of an electric current, birds should not display signs of consciousness. In any event the number of indicators used must demonstrate the required welfare outcome.

Indicators to confirm unconsciousness at slaughter are as follows:

a) presence of tonic seizures

b) absence of rhythmic breathing

c) absence of spontaneous blinking

d) absence of corneal or palpebral reflex

e) absence of vocalisation

f) absence of wing flapping

g) absence of spontaneous swallowing

h) absence of head shaking

The first three indicators in the list (tonic seizures, absence of rhythmic breathing, absence of spontaneous blinking) are considered the most important and practical indicators before exsanguination.

If the indicator shows that an effective stun is not being delivered then the operator should take immediate corrective action by adjusting the stun parameters to ensure birds are rendered immediately unconscious until death by bleeding occurs. In case of repetitive failure, the management of the *slaughterhouse/abattoir* should develop an improvement plan.

Indicators b) and f) (absence of rhythmic breathing, absence of wing flapping) are considered the most important and practical indicators during bleeding.

~~Every effort shall be made to ensure that no conscious or live birds enter the scalding tank.~~

~~In the case of automatic systems, until fail-safe systems of *stunning* and bleeding have been introduced,~~ Whatever cutting system is used, a manual back-up system to should be in place to ensure complete severance of the carotid arteries ~~that any birds which have missed the waterbath stunner and/or the automatic neck-cutter are immediately stunned and/or killed immediately, and they are dead before entering scald tank~~.

No conscious or live birds should enter the scalding tank.

A sampling and monitoring programme to demonstrate that the relevant welfare outcomes are attained should be developed and included into the dedicated plan for animal welfare of the *slaughterhouse/abattoir* (Article 7.5.2. point 1).

Annex 33 (contd)

~~To lessen the number of birds that have not been effectively stunned reaching neck cutters, steps should be taken to ensure that small birds do not go on the line amongst bigger birds and that these small birds are stunned separately. The height of the waterbath stunner should be adjusted according to the size of birds to ensure even the small birds are immersed in the water bath up to the base of the wings.~~

~~Waterbath *stunning* equipment should be fitted with a device which displays and records the details of the electrical key parameter.~~

~~Minimum current for *stunning poultry* when using 50Hz is as follows:~~

~~Species~~	~~Current (milliamperes per bird)~~
~~Broilers~~	~~100~~
~~Layers (spent hens)~~	~~100~~
~~Turkeys~~	~~150~~
~~Ducks and geese~~	~~130~~

~~Minimum current for stunning poultry when using high frequencies is as follows:~~

	~~Minimum current (milliamperes per bird)~~	
~~Frequency (Hz)~~	~~Chickens~~	~~Turkeys~~
~~From 50 to 200 Hz~~	~~100 mA~~	~~250 mA~~
~~From 200 to 400 Hz~~	~~150 mA~~	~~400 mA~~
~~From 400 to 1500 Hz~~	~~200 mA~~	~~400 mA~~

4. […]

5. […]

[Article 7.5.8.]

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— Text deleted.

NOTE:

- The revised Article 8.8.4. has been proposed for Member Countries comments in the Code Commission's September 2015 meeting report.
- The rationale for the proposed new Article 8.8.4bis is contained in the February 2016 report of the Scientific Commission and the ad hoc Group commissioned to review it. (http://www.oie.int/en/international-standard-setting/specialists-commissions-groups/scientific-commission-reports/meetings-reports/).

CHAPTER 8.8.

INFECTION WITH FOOT AND MOUTH DISEASE VIRUS

[…]

Article 8.8.4.

~~FMD free~~ ~~compartment~~ Compartment free from FMD

A ~~FMD free~~ *compartment* free from FMD can be established in either a ~~FMD~~ free country or *zone* or in an infected country or *zone*. In defining such a *compartment* the principles of Chapters 4.3. and 4.4. should be followed. Susceptible animals in the ~~FMD~~ free *compartment* should be separated from any other susceptible animals by the application of an effective *biosecurity* management system.

A Member Country wishing to establish a ~~FMD free~~ *compartment* free from FMD should:

1) have a record of regular and prompt animal *disease* reporting and, if not ~~FMD~~ free, have an *official control programme* and a *surveillance* system for FMD in place in accordance with Articles 8.8.40. to 8.8.42. that allows knowledge of the prevalence, distribution and characteristics of FMD in the country or *zone*;

2) declare for the ~~FMD~~ free *compartment* that:

   a) there has been no *case* of FMD during the past 12 months;

   b) no evidence of *infection* with FMDV has been found during the past 12 months;

   c) *vaccination* against FMD is prohibited;

   d) no animal vaccinated against FMD within the past 12 months is in the *compartment*;

   e) animals, semen, embryos and animal products may only enter the *compartment* in accordance with relevant articles in this chapter;

   f) documented evidence shows that *surveillance* in accordance with Articles 8.8.40. to 8.8.42. is in operation;

   g) an *animal identification* and *traceability* system in accordance with Chapters 4.1. and 4.2. is in place;

3) describe in detail:

   a) the animal *subpopulation* in the *compartment*;

   b) the *biosecurity plan* to mitigate the risks identified by the *surveillance* carried out in accordance with point 1.

The *compartment* should be approved by the *Veterinary Authority*. The first approval should only be granted when no *case* of FMD has occurred within a 10 ~~ten~~ kilometre radius of the *compartment* during the past three months.

Annex 34 (contd)

Article 8.8.4bis.

Compartment free from FMD where vaccination is practised

A *compartment* free from FMD where vaccination is practised can be established in either a free country or *zone* where vaccination is practised or in an infected country or *zone*. In defining such a *compartment* the principles of Chapters 4.3. and 4.4. should be followed. Susceptible animals in the free *compartment* should be separated from any other susceptible animals by the application of an effective *biosecurity* management system.

A Member Country wishing to establish a *compartment* free from FMD where vaccination is practised should:

1) have a record of regular and prompt animal *disease* reporting and, if not free, have an *official control programme* and a *surveillance* system for FMD in place in accordance with Articles 8.8.40. to 8.8.42., which allows knowledge of the prevalence, distribution and characteristics of FMD in the country or *zone*;

2) declare for the free *compartment* where vaccination is practised that for the past two years:

   a) there has been no *case* of FMD;

   b) there has been no evidence of transmission of FMDV;

   c) compulsory systematic *vaccination* has been carried out using a vaccine that complies with the standards described in the *Terrestrial Manual*, including appropriate vaccine strain selection. The *vaccination* coverage and population immunity have been closely monitored;

   d) animals, semen, embryos and animal products have only entered the *compartment* in accordance with relevant articles in this chapter;

   e) regular clinical, serological and virological *surveillance* in accordance with Articles 8.8.40. to 8.8.42. has been in operation, so as to detect *infection* at an early stage with a high level of confidence. This should be supported by documented evidence;

   f) an *animal identification* and *traceability* system in accordance with Chapters 4.1. and 4.2. has been in place;

3) describe in detail:

   a) the animal *subpopulation* in the *compartment*;

   b) the *biosecurity plan* to mitigate the *risks* identified by the *surveillance* carried out according to point 1) and the *vaccination* plan;

   c) implementation of point 2c) and 2e).

The *compartment* should be approved by the *Veterinary Authority*. The first approval should only be granted when no *case* of FMD has occurred within a 10-kilometre radius of the *compartment* during the past three months.

[…]

An extract from the report of *ad hoc* Group on the evaluation of foot and mouth disease status of Member Countries:

"Upon reviewing Member Countries' comments, the Group felt that there was a need to include provisions for a compartment where vaccination is practised given that stricter provisions for surveillance and biosecurity measures would be in place to ensure early detection of infection and absence of undetected infection. The Group highlighted that the establishment of such compartments would support bilateral trade agreements and allow access to regional/international markets. The Group drafted a specific draft article (Article 8.8.4bis.) to propose the concept of compartment free with vaccination."

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— Text deleted.

NOTE:
The rationale for this new chapter is contained in the September 2014 report of the Scientific Commission and the *ad hoc* Group commissioned to develop it. (http://www.oie.int/fileadmin/Home/eng/Internationa_Standard_Setting/docs/pdf/ SCAD/A_SCAD_Sept2014.pdf)

DRAFT CHAPTER 8.X.

INFECTION WITH *MYCOBACTERIUM TUBERCULOSIS* COMPLEX

Article 8.X.1.

General provisions

The recommendations in this chapter are intended to manage the human and animal health risks associated with *infection* of animals with a member of the *Mycobacterium tuberculosis (M. tuberculosis)* complex.

For the purposes of ~~this chapter~~ the *Terrestrial Code*, *M. tuberculosis* complex comprises *M. bovis*, *M. caprae* and *M. tuberculosis,* but excludes vaccine strains.

Many different domestic and *wild animal* species belonging to diverse mammalian taxa are known to be susceptible to *infection* with *M. tuberculosis* complex. Their epidemiological significance depends on the degree of susceptibility, the husbandry system, the density, spatial distribution and ecology of populations as well as the pathogenesis and transmission pathways. In some geographical regions, certain *wild animal* species can act as reservoirs.

For the purposes of this chapter, 'animals' means domestic and *captive wild* animal populations of the following categories:

1) Bovids: this term means cattle (*Bos taurus*, *B. indicus, B. frontalis, B. javanicus* and *B. grunniens*), water buffaloes *(Bubalus bubalis)*, and bison (*Bison bison* and *B. bonasus*).

2) Cervids: this term means red deer *(Cervus elaphus elaphus)*, wapiti/elk *(C. elaphus canadensis)*, sika *(C. nippon)*, samba (C. unicolor unicolor), rusa (C. timorensis), roe deer (Capreolus capreolus), fallow deer *(Dama dama)*, white-tailed, black-tailed and mule deer (*Odocoileus* spp.) and reindeer/caribou *(Rangifer tarandus)*.

3) Goats *(Capra hircus)*.

~~4) New World Camelids (under study).~~

The chapter deals not only with the occurrence of clinical signs caused by *infection* with *M. tuberculosis* complex, but also with the presence of *infection* with *M. tuberculosis* complex in the absence of clinical signs.

For the purposes of the *Terrestrial Code*, the following defines the occurrence of *infection* with *M. tuberculosis* complex:

– A member of *M. tuberculosis* complex has been identified in a sample from an animal or a product derived from that animal.

OR

– Positive results to a diagnostic test have been obtained and there is an epidemiological link to a *case* of *infection* with *M. tuberculosis* complex or there is other reason to suspect *infection* with *M. tuberculosis* complex.

Annex 35 (contd)

When authorising import or transit of *commodities* listed in this chapter, with the exception of those listed in Article 8.X.2., *Veterinary Authorities* should require the conditions prescribed in this chapter relevant to the *M. tuberculosis* complex *infection* status of the animal population of the country, *zone* or *herd* of origin.

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

Article 8.X.2.

Safe commodities

When authorising import or transit of the following *commodities*, *Veterinary Authorities* should not require any *M. tuberculosis* complex-related conditions, regardless of the *M. tuberculosis* complex *infection* status of the animal populations of the country, *zone* or *herd* of origin:

1) *fresh meat* and *meat products* originating from animals that have been subjected to ante- and post-mortem inspection as described in Chapter 6.2.;
2) cured hides, skins and trophies;
3) gelatine, collagen, tallow and *meat-and-bone meal*.

Article 8.X.3.

Country or zone historically free from infection with *M. tuberculosis* complex in specified animal categories

A country or *zone* may be considered historically free from *infection* with *M. tuberculosis* complex in specified animal categories when the conditions of point 1a) of Article 1.4.6. have been met for the relevant animal categories.

Article 8.X.4.

Country or zone free from infection with *M. tuberculosis* complex in bovids

1) To qualify as free from *infection* with *M. tuberculosis* complex in bovids, a country or *zone* should satisfy the following requirements:

   a) *infection* in animals is a *notifiable disease* in the entire country;

   b) regular testing of all *herds* has been in place for at least three years and for the past three years this testing has demonstrated that *infection* with *M. tuberculosis* complex was not present in at least 99.8 % of the *herds* representing at least 99.9 % of the bovids in the country or *zone*;

   c) a *surveillance* programme is in place to detect *infection* with *M. tuberculosis* complex in the country or *zone* through ante- and post-mortem inspection of bovids as described in Chapter 6.2.;

   d) regulatory measures have been implemented for the early detection of *infection* with *M. tuberculosis* complex in bovids;

   e) bovids and their germplasm introduced into the country or *zone* comply with the recommendations in Articles 8.X.7., 8.X.10. and 8.X.12.

2) To maintain the status as free from *infection* with *M. tuberculosis* complex in bovids, a country or *zone* should satisfy the following requirements:

   a) the requirements in points 1a), 1c), 1d) and 1e) are met;

   b) a *surveillance* programme based on regular testing of bovids is in place in the country or *zone* to detect *infection* with *M. tuberculosis* complex in accordance with Article 1.4.4.;

c) once the *surveillance* programme described in point b) has demonstrated that *infection* with *M. tuberculosis* complex has not been present in at least 99.8 % of the *herds* representing 99.9 % of the bovids in the country or *zone* for two consecutive years, *surveillance* may be maintained through ante- and post-mortem inspection as described in Chapter 6.2.;

3) The country or *zone* status of free from *infection* with *M. tuberculosis* complex in bovids is not affected by the occurrence of *infection* with *M. tuberculosis* complex in other animal categories or *feral* or *wild animals* provided that measures ~~have been implemented~~ intended to prevent transmission of *infection* with *M. tuberculosis* complex to bovids have been implemented.

Article 8.X.5.

Country or zone free from infection with *M. tuberculosis* complex in cervids

1) To qualify as free from *infection* with *M. tuberculosis* complex in cervids, a country or *zone* should satisfy the following requirements:

a) *infection* with *M. tuberculosis* complex in animals is a *notifiable disease* in the entire country;

b) regular testing of all cervid *herds* has been in place for at least three years and for the past three years this testing has demonstrated that *infection* with *M. tuberculosis* complex was not present in at least 99.8 % of the *herds* representing at least 99.9 % of the cervids in the country or *zone*;

c) a *surveillance* programme is in place to detect *infection* with *M. tuberculosis* complex in the country or *zone* through ante- and post-mortem inspection of cervids as described in Chapter 6.2.;

d) regulatory measures have been implemented for the early detection of *infection* with *M. tuberculosis* complex in cervids;

e) cervids and their germplasm introduced into the country or *zone* comply with the recommendations in Articles 8.X.7., 8.X.11. and 8.X.12.

2) To maintain the status as free from *infection* with *M. tuberculosis* complex in cervids, a country or *zone* should satisfy the following requirements:

a) the requirements in points 1a), 1c), 1d) and 1e) are met;

b) a *surveillance* programme based on regular testing of cervids is in place in the country or *zone* to detect *infection* with *M. tuberculosis* complex in accordance with Article 1.4.4.;

c) once the *surveillance* programme described in point b) has demonstrated that *infection* with *M. tuberculosis* complex has not been present in at least 99.8 % of the *herds* representing 99.9 % of the cervids in the country or *zone* for two consecutive years, *surveillance* may be maintained through ante- and post-mortem inspection as described in Chapter 6.2.;

3) The country or *zone* status free from *infection* with *M. tuberculosis* complex in cervids is not affected by the occurrence of *infection* with *M. tuberculosis* complex in other animal categories or *feral* or *wild animals* provided that measures ~~have been implemented~~ intended to prevent transmission of *infection* with *M. tuberculosis* complex to cervids have been implemented.

Article 8.X.6.

Herd free from infection with *M. tuberculosis* complex in bovids or cervids

1) To qualify as free from *infection* with *M. tuberculosis* complex, a *herd* of bovids or cervids should satisfy the following requirements:

Annex 35 (contd)

a) the *herd* is in a country or *zone* free from *infection* with *M. tuberculosis* complex in bovids or in cervids and is certified free by the *Veterinary Authority*;

OR

b) the *herd* meets the following conditions:

i) *infection* with *M. tuberculosis* complex in animals is a *notifiable disease* in the entire country;

ii) no evidence of *infection* with *M. tuberculosis* complex has been detected in the *herd* for at least the past 12 months;

iii) bovids or cervids in the *herd* have shown no clinical signs of *infection* with *M. tuberculosis* complex or lesions at ante- or post-mortem inspection for at least the past 12 months;

iv) two tests have been performed with negative results at a minimum interval of six months on all bovids or cervids over six weeks of age present in the *herd* at the time of testing. The first test was performed at least six months after the removal of the last *case*;

v) bovids or cervids and their germplasm introduced into the *herd* comply with Articles 8.X.7., 8.X.10., 8.X.11. and 8.X.12.;

vi) for at least the past 12 months, there has been no evidence of *infection* with *M. tuberculosis* complex in other *herds* of the same *establishments* or measures have been implemented to prevent any transmission of *infection* with *M. tuberculosis* complex from these other *herds*;

2) to maintain the free status, either:

a) the requirements in point 1a) are met;

OR

b) the requirements in point 1b i) to iii), v) and vi) are met and bovids or cervids in the *herd:*

i) showed a negative result to an annual test to ensure the continuing absence of *infection* with *M. tuberculosis* complex;

OR

ii) showed a negative result to a test every two years to ensure the continuing absence of *infection* with *M. tuberculosis* complex if it has been confirmed that the annual percentage of *herds* infected with *M. tuberculosis* complex is not more than 1% of all *herds* in the country or *zone* during the past two years;

OR

iii) showed a negative result to a test every three years to ensure the continuing absence of *infection* with *M. tuberculosis* complex if it has been confirmed that the annual percentage of *herds* infected with *M. tuberculosis* complex is not more than 0.2% of all *herds* in the country or *zone* during the past four years;

OR

iv) showed a negative result to a test every four years to ensure the continuing absence of *infection* with *M. tuberculosis* complex if it has been confirmed that the annual percentage of *herds* infected with *M. tuberculosis* complex is not more than 0.1% of all *herds* in the country or *zone* during the past six years.

OR

c) When there is a known *wildlife* reservoir of *M. tuberculosis* complex, all *herds* in the country or *zone* are covered by a *surveillance* programme in accordance with point 1c) of Articles 8.X.4. and 8.X.5 and all *herds* identified as being at risk of *infection* with *M. tuberculosis* complex, based on;

i) a location associated with suspected or confirmed *infection* with *M. tuberculosis* complex in *wildlife*; or

ii) a history of *infection* with *M. tuberculosis* complex within last five years; or

iii) an epidemiological link with *herds* in c) i) or ii);

are subjected to a testing programme commensurate with the assessed epidemiological risk of *infection* with *M. tuberculosis* complex.

Article 8.X.7.

Recommendations for the importation of bovids ~~and~~ or cervids for breeding or rearing

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the bovids ~~and~~ or cervids:

1) showed no clinical signs of *infection* with *M. tuberculosis* complex on the day of shipment;

2) a) originate from a *herd* free from *infection* with *M. tuberculosis* complex that is in a country or *zone* free from *infection* with *M. tuberculosis* complex; or

b) originate from a *herd* free from *infection* with *M. tuberculosis* complex and have been tested for *infection* with *M. tuberculosis* complex with negative results within 30 days prior to shipment; or

c) have been isolated for at least ~~90 days~~ six months prior to shipment including protection from contact with ~~animal~~ any reservoirs of *M. tuberculosis* complex and all isolated animals showed negative results to at least two consecutive tests carried out at a six-month interval, with the second test performed within 30 days prior to shipment.

Article 8.X.8.

Recommendations for the importation of goats for breeding or rearing

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

1) *infection* with *M. tuberculosis* complex in animals is a *notifiable disease* in the entire country;

2) the goats showed no clinical signs of *infection* with *M. tuberculosis* complex on the day of shipment;

3) either:

a) the goats ~~were~~ have been kept since birth or for at least six months prior to shipment in *herds* in which no *case* of *infection* with *M. tuberculosis* complex has been detected for the past three years; or

b) have been isolated for at least six months prior to shipment including protection from contact with any reservoir of *M. tuberculosis* complex and all isolated animals showed negative results to at least two consecutive tests carried out at a six-month interval, with the second test performed within 30 days prior to shipment.

Article 8.X.9.

Recommendations for the importation of bovids ~~and~~ or cervids for slaughter

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the bovids ~~and~~ or cervids:

1) showed no clinical signs of *infection* with *M. tuberculosis* complex on the day of shipment;

2) a) originate from a country, *zone* or *herd* free from *infection* with *M. tuberculosis* complex; or

b) are not being culled as part of an eradication programme against *infection* with *M. tuberculosis* complex and were tested for *infection* with *M. tuberculosis* complex with negative results within 30 days prior to shipment.

Article 8.X.10.

Recommendations for the importation of semen of bovids

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

1) the donor males showed no clinical signs of *infection* with *M. tuberculosis* complex on the day of collection of the semen;
2) the donor males ~~either~~:
   a) were kept in an *artificial insemination centre* complying with the provisions of Chapter 4.5. and complied with Article 4.6.2.; or
   b) were kept in a *herd* free from *infection* with *M. tuberculosis* complex that is in a country or *zone* free from *infection* with *M. tuberculosis* complex; or
   ~~b~~c) were kept in a *herd* free from *infection* with *M. tuberculosis* complex and showed negative results to a test~~s~~ ~~carried out annually and the semen~~ performed within 30 days prior to collection of the semen, which was collected, processed and stored in ~~conformity~~ accordance with ~~the provisions of~~ Articles 4.5.~~3~~4., ~~to~~ 4.5.5., and ~~Articles~~ 4.6.5. to 4.6.7.

Article 8.X.11.

Recommendations for the importation of semen of cervids

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

1) the donor males showed no clinical signs of *infection* with *M. tuberculosis* complex on the day of collection of the semen;
2) the donor males either:
   a) were kept in a *herd* free from *infection* with *M. tuberculosis* complex in a country or *zone* free from *infection* with *M. tuberculosis* complex ~~and which only accepts cervids from free *herds* in a free country, or *zone*~~; or
   b) were kept in a *herd* free from *infection* with *M. tuberculosis* complex and showed negative results to a test~~s~~ ~~carried out annually~~ ~~and the semen~~ performed within 30 days prior to collection of the semen, which was collected, processed and stored in ~~conformity~~ accordance with ~~the provisions of~~ Articles 4.5.~~3~~4., ~~to~~ 4.5.5., and ~~Articles~~ 4.6.5. to 4.6.7.

Article 8.X.12.

Recommendations for the importation of embryos of bovids ~~and~~ or cervids

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

1) the donor females either:
   a) originated from a *herd* free from *infection* with *M. tuberculosis* complex in a country or *zone* free from *infection* with *M. tuberculosis* complex; or
   b) were kept in a *herd* free from *infection* with *M. tuberculosis* complex, and were subjected to a test for *infection* with *M. tuberculosis* complex with negative results during an isolation period of 30 days in the *establishment* of origin prior to collection;
2) the semen used for embryo production complied with Article 8.X.10. or 8.X.11.
~~2~~3) the embryos were collected, processed and stored in accordance with the relevant provisions of Chapters 4.7. to 4.9.

Article 8.X.13.

Recommendations for the importation of milk and milk products of bovids

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the *milk* or *milk products*:

1) have been derived from bovids in a *herd* free from *infection* with *M. tuberculosis* complex; or

2) were subjected to pasteurisation or any combination of control measures with equivalent performance as described in the Codex Alimentarius Code of Hygienic Practice for Milk and Milk Products.

Article 8.X.14.

Recommendations for the importation of milk and milk products of goats

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

1) *infection* with *M. tuberculosis* complex in animals is a *notifiable disease* in the entire country and the *milk* or *milk products* have been derived from goats kept in *herds* in which no *case* of *infection* with *M. tuberculosis* complex has been detected for the past three years;

OR

2) the *milk* or *milk products* were subjected to pasteurisation or any combination of control measures with equivalent performance as described in the Codex Alimentarius Code of Hygienic Practice for Milk and Milk Products.

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— Text deleted.

Annex 36

NOTE:

The rationale for the proposed new chapter is contained in the January 2016 report of the Scientific Commission and the ad hoc Group commissioned to develop it. (http://www.oie.int/en/international-standard-setting/specialists-commissions-groups/scientific-commission-reports/meetings-reports/)

CHAPTER 11.11.

INFECTION WITH LUMPY SKIN DISEASE VIRUS

Article 11.11.1.

General provisions

Lumpy skin disease (LSD) susceptible animals are cattle (*Bos indicus* and *B. taurus*) and water buffaloes (*Bubalus bubalis*) and occasionally certain wild ruminants.

For the purpose of the *Terrestrial Code*, LSD is defined as an *infection* of cattle (*Bos indicus* and *B. taurus*) and water buffaloes *(Bubalus bubalis)* with lumpy skin disease virus (LSDV).

The following defines *infection* with LSDV:

1) LSDV has been isolated; or

2) antigen or nucleic acid specific to LSDV, excluding vaccine strains, has been identified in a sample from cattle or water buffaloes showing clinical signs consistent with LSD, or epidemiologically linked to a suspected or confirmed *case*, or giving cause for suspicion of previous association or contact with LSDV; or

3) antibodies specific to LSDV, which are not a consequence of vaccination, have been identified in a sample from cattle or water buffaloes that either show clinical signs consistent with LSD, or epidemiologically linked to a suspected or confirmed *case*.

For the purposes of the *Terrestrial Code*, the *incubation period* for LSD shall be 28 days.

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

Article 11.11.2

Safe commodities

When authorising import or transit of the following *commodities*, *Veterinary Authorities* should not require any LSD related conditions regardless of the status of the animal population of the exp*orting country*:

1) skeletal muscle *meat*;

2) casings;

3) gelatine and collagen;

4) tallow;

5) hooves;

6) horns.

Annex 36 (contd)

Article 11.11.3.

Country or zone free from LSD

A country or a *zone* may be considered free from LSD when *infection* with LSDV is notifiable in the entire country, importation of cattle and water buffaloes and their *commodities* is carried out in accordance with this chapter, and either:

1) the country or *zone* is historically free as described in point 1 a) of Article 1.4.6.; or

2) the country or *zone* has prohibited *vaccination*, has not reported any *case* of *infection* with LSDV and a clinical *surveillance* programme in accordance with Article 11.11.14. has demonstrated no evidence of *infection* with LSDV in the country or *zone* for at least three years; or

3) the country or *zone* has prohibited *vaccination*, has not reported any *case* of *infection* with LSDV and a clinical, virological and serological *surveillance* programme in accordance with Article 11.11.14. has demonstrated no evidence of *infection* with LSDV in the country or *zone* for at least two years.

A country or *zone* free from LSD adjacent to an infected area should include a *zone* in which *surveillance* is conducted in accordance with Article 11.11.14.

A country or *zone* free from LSD will not lose its status as a result of introduction of seropositive or vaccinated cattle or water buffaloes or their *commodities*, provided they were introduced in accordance with this chapter.

Article 11.11.4.

Recommendations for importation from countries or zones free from LSD

For domestic cattle and water buffaloes

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

1) showed no clinical sign of LSD on the day of shipment;

2) come from a country or *zone* free from LSD.

Article 11.11.5.

Recommendations for importation from countries or zones not free from LSD

For domestic cattle and water buffaloes

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

1) showed no clinical sign of LSD on the day of shipment;

2) were kept since birth, or for the past 60 days prior to shipment, in an *epidemiological unit* where no *case* of LSD occurred during that period;

3) were vaccinated against LSD according to manufacturer's instructions at least 60 days prior to shipment;

4) were demonstrated to have antibodies at least 30 days after *vaccination*;

5) were kept in a *quarantine station* for the 28 days prior to shipment.

Article 11.11.6.

Recommendations for importation from countries or zones free from LSD

For semen of cattle and water buffaloes

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

1) the donor males:

   a) showed no clinical sign of LSD on the day of collection;

   b) were kept in a free country or *zone* for at least 28 days prior to collection;

2) the semen was collected, processed and stored in accordance with Chapters 4.5. and 4.6.

Article 11.11.7.

Recommendations for importation from countries or zones not free from LSD

For semen of cattle and water buffaloes

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

1) the donor males:

   a) showed no clinical sign of LSD on the day of collection and the following 28 days;

   b) were kept for the past 60 days prior to collection, in an *artificial insemination centre* where no *case* of LSD occurred during that period;

   c) and EITHER:

      i) were regularly vaccinated against LSD according to manufacturer's instructions, the first *vaccination* being administrated at least 60 days prior to the first semen collection; and

      ii) were demonstrated to have antibodies against LSDV at least 30 days after vaccination;

      OR

      iii) were subjected to a serological test to detect antibodies specific to LSDV, with negative results, at least every 14 days throughout the collection period and one test 14 days after the final collection for this consignment; and

      iv) were subjected to agent detection by PCR conducted on blood samples collected at commencement and conclusion of, and at least every 14 days during, semen collection for this consignment, with negative results; and

      v) the semen to be exported was subjected to agent detection by PCR;

2) the semen was collected, processed and stored in accordance with Chapters 4.5. and 4.6.

Article 11.11.8.

Recommendations for importation from countries or zones free from LSD

For embryos of cattle and water buffaloes

Annex 36 (contd)

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

1) the donor females:
   a) showed no clinical sign of LSD on the day of collection of the embryos;
   b) kept for at least 28 days prior to collection in a free country or *zone*;
2) the embryos were collected, processed and stored in accordance with Chapters 4.7., 4.8. and 4.9., as relevant;
3) the semen used for the production of the embryos complied with Articles 11.11.6. or 11.11.7. as relevant.

Article 11.11.9.

Recommendations for importation from countries or zones not free from LSD

For embryos of cattle and water buffaloes

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

1) the donor females:
   a) showed no clinical sign of LSD on the day of collection and the following 28 days;
   b) were kept in an *establishment* where no *case* of LSD occurred during the 60 days prior to collection;
   c) and EITHER:
      i) were regularly vaccinated against LSD according to manufacturer's instructions, the first vaccination being administrated at least 60 days prior to the first collection; and
      ii) were demonstrated to have antibodies against LSDV at least 30 days after vaccination;

      OR

      iii) were subjected to a serological test to detect antibodies specific to LSDV, with negative results, on the day of collection and at least 21 after collection; and
      iv) were subjected to agent detection by PCR with negative results on a blood sample on the day of collection;
2) the semen used for the production of the embryos complied with Articles 11.11.6. or 11.11.7. as relevant;
3) the embryos were collected, processed and stored in accordance with Chapters 4.7., 4.8. and 4.9.

Article 11.11.10.

Recommendations for the importation of milk and milk products

Veterinary Authorities of *importing countries* should require the presentation of an *international veterinary certificate* attesting that the *milk* or the *milk products*:

1) have been derived from animals in a country or *zone* free from LSD;

OR

2) were subjected to pasteurisation or any combination of control measures with equivalent performance as described in the Codex Alimentarius Code of Hygienic Practice for Milk and Milk Products.

Article 11.11.11.

Recommendations for importation of products of animal origin from cattle and water buffaloes intended for agricultural or industrial use

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

1) these products have been derived from animals that have been kept in a country or *zone* free from LSD since birth or for at least the past 28 days; or

2) these products have been processed to ensure the destruction of the LSDV.

Article 11.11.12.

Recommendations for importation of meal and flour from blood, meat other than skeletal muscle, or bones from cattle and water buffaloes

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

1) these products have been derived from animals in a country or *zone* free from LSD; or

2) a) the products were processed using heat treatment to a minimum internal temperature of 65°C for at least 30 minutes;

   b) the necessary precautions were taken after processing to avoid contact of the *commodities* with any potential source of LSDV.

Article 11.11.13.

Recommendations for importation of hides of cattle and water buffaloes

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

1) these products have been derived from animals that have been kept in a country or *zone* free from LSD since birth or for at least the past 28 days; or

2) these products had been processed to ensure the destruction of LSDV, in premises controlled and approved by the *Veterinary Authority* of the *exporting country*.

Article 11.11.14.

Surveillance

1. General principles of surveillance

   A Member Country should justify the *surveillance* strategy chosen as being adequate to detect the presence of *infection* with LSDV given the prevailing epidemiological situation in accordance with Chapter 1.4. and Chapter 1.5. under the responsibility of the *Veterinary Authority.*

   The *Veterinary Authority* should implement programmes to raise awareness among farmers and workers who have day-to-day contact with livestock, as well as *veterinary para-professionals*, *veterinarians* and diagnosticians, who should report promptly any suspicion of LSD.

Annex 36 (contd)

In particular Member Countries should have in place:

a) a formal and ongoing system for detecting and investigating *outbreaks* of *disease*;

b) a procedure for the rapid collection and transport of samples from suspected *cases* of *infection* with LSDV to a *laboratory* for diagnosis;

c) a system for recording, managing and analysing diagnostic and *surveillance* data.

2) Clinical surveillance

Clinical *surveillance* requires the physical examination of susceptible animals.

Surveillance based on clinical inspection provides a high level of confidence of detection of *disease* if a sufficient number of clinically susceptible animals is examined regularly at an appropriate frequency and investigations are recorded and quantified. Clinical examination and diagnostic testing should be pre-planned and applied using appropriate types of samples to clarify the status of suspected *cases*.

3) Virological and serological surveillance

An active *surveillance* programme of susceptible populations to detect evidence of *infection* with LSDV is useful to establish the status of a country or *zone*. Serological and molecular testing of cattle and water buffaloes may be used to detect presence of *infection* with LSDV in naturally infected animals.

The study population used for a serological survey should be representative of the population at risk in the country or *zone* and should include susceptible unvaccinated animals.

4. Surveillance in high risk areas

Disease specific enhanced *surveillance* in a free country or *zone* should be carried out over an appropriate distance from the border with an infected country or *zone*, based upon geography, climate, history of *infection* and other relevant factors. The *surveillance* should be carried out over a distance of at least 20 kilometres from the border with that country or *zone*, but a lesser distance could be acceptable if there are relevant ecological or geographical features likely to interrupt the transmission of LSDV. A country or *zone* free from LSD may be protected from an adjacent infected country or *zone* by a *protection zone*.

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CHAPTER 15.1.

INFECTION WITH AFRICAN SWINE FEVER VIRUS

Article 15.1.1.

General provisions

~~The~~ Suids ~~(the pig and its close relatives)~~ are the only natural non-arthropod hosts for African swine fever virus (ASFV). These include all varieties of *Sus scrofa* (pig), both domestic and wild, and African *wild* suid species including warthogs (*Phacochoerus* spp.), bushpigs (*Potamochoerus* spp.) and the giant forest hog (*Hylochoerus meinertzhageni*).

For the purposes of this chapter, a distinction is made among ~~between~~; ~~domestic pigs (permanently captive and farmed free-range pigs) and wild pigs (including feral pigs and wild boar) as well as between *Sus scrofa* and African pig species.~~

- domestic and *captive wild* pigs, permanently captive or farmed free range, used for the production of *meat*, or other commercial products or use, or for breeding ~~these categories of pigs~~;
- *wild* and *feral* pigs;
- African *wild* suid species.

All varieties of *Sus scrofa* are susceptible to the pathogenic effects of ASFV, while the African *wild* suids ~~pigs~~ are not and may act as reservoirs of the virus ~~*infection*~~. Ticks of the genus *Ornithodoros* are the only known natural arthropod~~s~~ hosts of the virus and act as reservoirs and biological *vectors* ~~of the *infection*~~.

For the purposes of the *Terrestrial Code*, African swine fever (ASF) is defined as an *infection* of suids with ASFV.

The following defines *infection* with ASFV:

1) ASFV has been isolated from samples from a suid;

OR

2) ~~viral~~ antigen ~~has been identified,~~ or ~~viral~~ nucleic acid specific to ASFV has been ~~demonstrated to be present~~ detected in samples from a suid showing clinical signs suggestive of ASF or epidemiologically linked to a suspected or confirmed ~~*outbreak*~~ *case* of ASF, or from a suid giving cause for suspicion of previous association or contact with ASFV, whether or not clinical signs or pathological lesions consistent with ASF are present;

OR

3) antibodies specific to ASFV have been identified in samples from a suid showing clinical signs or pathological lesions consistent with ASF, or epidemiologically linked to a suspected or confirmed ~~*outbreak*~~ *case* of ASF, or giving cause for suspicion of previous association or contact with ASFV.

~~A Member Country should not impose bans on the trade in *commodities* of domestic and or *captive wild* pigs in response to a *notification* of *infection* with ASFV in *wild* and or *feral* pigs or African *wild* suids provided that Article 15.1.2. is implemented.~~

For the purpose of the *Terrestrial Code*, the *incubation period* in *Sus scrofa* ~~is~~ shall be 15 days.

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

Article 15.1.2.

General criteria for the ~~Determination~~ determination of the ASF status of a country, zone or compartment

~~The African swine fever (ASF) status of a country, *zone* or *compartment* can only be determined after considering the following criteria in domestic and wild pigs, as applicable:~~

1) ASF ~~should be~~ is a *notifiable disease* in the entire ~~whole~~ country, and all suids showing clinical signs suggestive of ASF are subjected to appropriate field and *laboratory* investigations;

2) an ongoing awareness programme is in place to encourage reporting of all ~~cases~~ suids showing signs suggestive of ASF;

3) the *Veterinary Authority* has current knowledge of, and authority over, all domestic and *captive wild* pig *herd*s in the country, *zone* or *compartment*;

4) the *Veterinary Authority* has current knowledge of ~~about~~ the species of *wild* and *feral* suids present, their distribution, ~~population~~ and habitat ~~of wild suids pigs~~ in the country or *zone*~~.~~;

5) for domestic and *captive wild* pigs, an appropriate *surveillance* programme in accordance with Articles 15.1.22. to 15.1.25. and 15.1.27. is in place;

6) for *wild* and *feral* pigs, and for African *wild* suids, if present in the country or *zone*, a *surveillance* programme is in place ~~according to~~ in accordance with Article 15.1.26., ~~taking into account~~ considering the presence of natural and artificial boundaries, the ecology of the *wild* and *feral* pig and African *wild* suid populations and an assessment of the ~~*risks*~~ likelihood of ~~*disease*~~ ASF spread including taking into account the presence of *Ornithodoros* ticks;

7) based on the assessed ~~*risk*~~ likelihood of spread within the *wild* and *feral* pig and African *wild* suid populations, and ~~according to~~ *surveillance* in accordance with Article 15.1.26., the domestic and *captive wild* pig population should be separated by appropriate *biosecurity* ~~measures~~, effectively implemented and supervised, from the *wild* and *feral* pig and African *wild* suid populations and protected from *Ornithodoros* ticks ~~by appropriate measures~~.

Commodities of domestic or *captive wild* pigs can be traded safely according to the relevant articles of this chapter from countries complying with the provisions of this article, even if they notify *infection* with ASFV in *wild* or *feral* pigs or African *wild* suids.

Article 15.1.3.

Country or zone free from ASF ~~free country, zone or compartment~~

1. ~~Historically free status~~ Historical freedom

   A country or *zone* may be considered ~~historically~~ free from ASF without formally applying a specific *surveillance* programme if the provisions of point 1 a) of Article 1.4.6. are complied with.

2. ~~Free status as a result of an eradication programme~~ Freedom in all suids

   A country or *zone* which does not meet the conditions of point 1 above may be considered free from ASF when it complies with all the criteria of Article 15.1.2. and when:

   a) *surveillance* in accordance with Articles 15.1.22. to 15.1.27. has been in place for the past three years;

   b) there has been no *case* of *infection* with ASFV during the past three years; this period can be reduced to 12 months when the *surveillance* demonstrates no evidence of presence of *Ornithodoros* ticks;

   c) pig *commodities* are imported in accordance with Articles 15.1.5. to 15.1.17.

3. Freedom in domestic and captive wild pigs

   A country or *zone* which does not meet the conditions of point 1 or 2 above ~~or a *compartment*~~ may be considered free from ASF in domestic and *captive wild* pigs when it complies with all the criteria of Article 15.1.2. and when:

   a) *surveillance* in accordance with Articles 15.1.22. to 15.1.27. has been in place for the past three years;

   ~~a~~b) there has been no ~~*outbreak*~~ *case* of *infection* with ASFV in domestic ~~and~~ or *captive wild* pigs during the past ~~12 months~~ three years; this period can be reduced to 12 months when ~~there is no evidence of tick involvement in the epidemiology of the *infection*~~ the *surveillance* demonstrates no evidence of presence of *Ornithodoros* ticks;

~~b)~~ ~~no evidence of ASFV *infection* with ASFV in domestic and *captive wild* pigs has been found during the past 12 months~~;

~~bc)~~ ~~*surveillance* in accordance with Articles 15.1.22. to 15.1.27. has been in place in domestic and *captive wild* pigs for the past 12 months;~~

~~d~~c) ~~imported domestic and *captive wild*~~ pigs and pig *commodities* are imported in accordance ~~comply~~ with ~~the requirements of in~~ Articles 15.1.5. ~~or~~ to ~~Article~~ 15.1.~~6~~17.

~~AND~~

~~Based on *surveillance*, ASF *infection* has been demonstrated not to be present in any wild pig population in the country or *zone*, and:~~

~~e) there has been no clinical evidence, nor virological evidence of ASF in wild pigs during the past 12 months;~~

~~f) no seropositive wild pigs have been detected in the age class 6–12 months during the past 12 months;~~

~~g) imported wild pigs comply with the requirements in Article 15.1.7.~~

Article 15.1.3bis.

Compartment free from ASF

The establishment of a~~n ASF-free~~ *compartment* free from ASF should follow the relevant requirements of this chapter and the principles in Chapters 4.3. and 4.4.

Article 15.1.3ter.

Establishment of a containment zone within a country or zone free from ASF

In the event of limited *outbreaks* of ASF within a country or *zone* previously free from ASF, including within a *protection zone*, a *containment zone*, which includes all *outbreaks*, ~~can~~ may be established for the purpose of minimising the impact on the entire country or *zone*.

In addition to the requirements for the establishment of a *containment zone* outlined in point 3 of Article 4.3.3., the *surveillance* programme should take into account the presence and potential role of *Ornithodoros* ticks and of *wild* and *feral* pigs and African *wild* suids and any measures in place to avoid their dispersion.

The free status of the areas outside the *containment zone* is suspended while the *containment zone* is being established. The free status of these areas outside the containment zone may be reinstated irrespective of the provisions of Article 15.1.4., once the *containment zone* is clearly established. It should be demonstrated that *commodities* for *international trade* have originated outside the *containment zone* unless these *commodities* comply with the provisions in Articles 15.1.6., 15.1.9., 15.1.11. and Articles 15.1.13. to 15.1.17.

The recovery of the ~~ASF~~ free status of the *containment zone* should follow the provisions of Article 15.1.4.

Article 15.1.4.

Recovery of free status

Should an ~~ASF~~ *outbreak* of ASF occur in a previously free country~~,~~ or *zone* ~~or *compartment*~~, ~~the free~~ its status may be restored three months after the ~~disposal of the last *case*~~ *disinfection* of the last infected *establishment*, provided that:

~~where *surveillance* has been carried out with negative results, either:~~

1) ~~three months after the last *case* where~~ a *stamping-out policy* ~~is~~ has been implemented ~~practised and in the case where ticks are suspected to be involved in the epidemiology of the *infection*,~~ followed by ~~acaricide treatment and~~ the use of sentinel pigs in the infected *establishments* for two months; ~~or~~

2) *surveillance* in accordance with Article 15.1.25. has been carried out with negative results.

~~2) where a *stamping-out policy* is not practised~~ Otherwise, the provisions of point 2 of Article 15.1.3. apply ~~should be followed~~.

Annex 37 (contd)

~~AND~~

~~Based on *surveillance*, ASF *infection* has been demonstrated not to be present in any wild pig population in the country or *zone*.~~

Article 15.1.5.

Recommendations for importation from ~~ASF free~~ countries, zones or compartments free from ASF

For domestic and *captive wild* pigs

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

1) the animals showed no clinical sign of ASF on the day of shipment;

2) the animals were kept in a~~n ASF free~~ country, *zone* or *compartment* free from ASF since birth or for at least the past ~~40 days~~ three months;

3) if the animals are exported from a free *zone* or *compartment* within an *infected* country or *zone*, necessary precautions were taken to avoid contact with any source of ASFV.

Article 15.1.6.

Recommendations for importation from countries or zones ~~considered infected with~~ not free from ASF

For domestic and *captive wild* pigs

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

1) showed no clinical sign of ASF on the day of shipment;

2) and either:

a) were kept since birth or for the past ~~40 days~~ three months in a~~n ASF free~~ *compartment* free from ASF~~.~~; or

b) were kept in a *quarantine station*, isolated for 30 days prior to shipment, and were subjected to a virological test and a serological test performed at least 21 days after entry into the *quarantine station*, with negative results.

~~Article 15.1.7.~~

~~**Recommendations for importation from ASF free countries or zones**~~

~~For wild pigs~~

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

~~1) showed no clinical sign of ASF on the day of shipment;~~

~~2) have been captured in an ASF free country or *zone*;~~

~~and, if the *zone* where the *animal* has been captured is adjacent to a *zone* with *infection* in wild pigs:~~

~~3) were kept in a *quarantine station* for 40 days prior to shipment, and were subjected to a virological test and a serological test performed at least 21 days after entry into the *quarantine station*, with negative results.~~

Article 15.1.8.

Recommendations for importation from ~~ASF free~~ countries, zones or compartments free from ASF

For semen of domestic and *captive wild* pigs

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

1) the donor ~~*animals*~~ males:

   a) were kept in ~~an ASF free~~ country, *zone* or *compartment* free from ASF since birth or for at least ~~40 days~~ three months prior to collection;

   b) showed no clinical sign of ASF on the day of collection of the semen;

2) the semen was collected, processed and stored in ~~conformity~~ accordance with ~~the provisions of~~ Chapters 4.5. and 4.6.

Article 15.1.9.

Recommendations for importation from countries or zones ~~considered infected with~~ not free from ASF

For semen of domestic and *captive wild* pigs

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

1) the donor ~~*animals*~~ males:

   a) were kept ~~in an ASF free~~ ~~*establishment*~~ ~~*compartment*~~ ~~free from ASF~~ since birth or for at least ~~40 days~~ three months prior to collection in an *establishment*, in which *surveillance* in accordance with Articles 15.1.22. to 15.1.2. demonstrates that no *case* of ASF has occurred in the past three years; this period can be reduced to 12 months when the *surveillance* demonstrates that there is no evidence of tick involvement in the epidemiology of the *infection*;

   b) showed no clinical sign of ASF on the day of collection of the semen ~~and for the following 40~~ 30 ~~days~~;

   ~~c) were subjected to a serological test performed at least 21 days after collection, with negative results;~~

2) the semen was collected, processed and stored in ~~conformity~~ accordance with ~~the provisions of~~ Chapters 4.5. and 4.6.

Article 15.1.10.

Recommendations for importation from ~~ASF free~~ countries, zones or compartments free from ASF

For *in vivo* derived embryos of domestic pigs

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

1) the donor females:

   ~~a) were kept in an ASF free country, *zone* or *compartment* since birth or for at least 40 days prior to collection;~~

   a) were kept in a country, *zone* or *compartment* free from ASF since birth or for at least three months prior to collection;

   b) showed no clinical sign of ASF on the day of collection of the embryos;

2) the embryos were collected, processed and stored in ~~conformity~~ accordance with the relevant provisions of Chapters 4.7. and 4.9.~~, as relevant.~~

Article 15.1.11.

Recommendations for importation from countries or zones ~~considered infected with~~ not free from ASF

For *in vivo* derived embryos of domestic pigs

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

Annex 37 (contd)

1) the donor females:

a) were kept ~~in an ASF free~~ ~~*compartment*~~ ~~free from ASF~~ since birth or for at least ~~40 days~~ three months prior to collection in an *establishment*, in which *surveillance* in accordance with Articles 15.1.22. to 15.1.24 demonstrates that no *case* of ASF has occurred in the past three years; this period can be reduced to 12 months when the *surveillance* demonstrates that there is no evidence of tick involvement in the epidemiology of the *infection*;

b) showed no clinical sign of ASF on the day of collection of the embryos ~~and for the following 40~~ 30 ~~days~~;

c) were subjected to a serological test performed at least 21 days after collection, with negative results;

2) the embryos were collected, processed and stored in ~~conformity~~ accordance with the relevant provisions of Chapters 4.7. and 4.9.~~, as relevant.~~

Article 15.1.12.

Recommendations for importation from ~~ASF free~~ countries, zones or compartments free from ASF

For fresh meat of domestic and *captive wild* pigs

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *fresh meat* comes from animals which:

1) have been kept in a~~n ASF free~~ country, *zone* or *compartment* free from ASF since birth ~~or for at least the past 40 days,~~ or ~~which~~ have been imported or introduced in accordance with Article 15.1.5. or Article 15.1.6.;

2) have been slaughtered in an approved *slaughterhouse/abattoir*, where they have been subjected with favourable results to ante- and post-mortem inspections in accordance with Chapter 6.2.~~, and have been found free of~~ from ~~any sign suggestive of ASF.~~

Article 15.1.12.bis

Recommendations for importation from countries or zones ~~considered infected with~~ not free from ASF

For fresh meat of domestic and *captive wild* pigs

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

1) ~~the entire consignment of *fresh meat* comes from animals which have been slaughtered in an approved *slaughterhouse/abattoir*, have been subjected with favourable results to ante- and post-mortem inspections in accordance with Chapter 6.2., and have been found free from any sign suggestive of ASF;~~

~~2)~~

~~a)~~ the entire consignment of *fresh meat* comes from animals which originated from *herds* in which *surveillance* in accordance with Articles 15.1.22. to 15.1.24 demonstrates that no *case* of ASF has occurred in the past three years. This period can be reduced to 12 months when the *surveillance* demonstrates that there is no evidence of tick involvement in the epidemiology of the *infection*. ~~and~~ In addition, samples from a statistically representative number of animals were tested for ASF, with negative results; ~~or~~

~~b) appropriate samples have been collected from every animal killed slaughtered and been tested subjected to a virological test and a serological test for ASF, with negative results.~~

2) the entire consignment of *fresh meat* comes from animals which have been slaughtered in an approved *slaughterhouse/abattoir*, have been subjected with favourable results to ante- and post-mortem inspections in accordance with Chapter 6.2.;

3) necessary precautions have been taken after *slaughter* to avoid contact of the *fresh meat* with any source of ASFV.

Article 15.1.13.

Recommendations for importation ~~from ASF free countries or zones~~ of fresh meat of wild and feral pigs

~~For fresh meat of wild pigs~~

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

~~1)~~ the entire consignment of *fresh meat* comes from animals which:

~~a~~1) ~~have been killed in an ASF free country or *zone*~~ have been killed in a country or *zone* free from ASF in accordance with point 1) or 2) of Article 15.1.3.;

~~b~~2) have been subjected with favourable results to a post-mortem inspection in accordance with Chapter 6.2. in an ~~approved~~ examination ~~centre~~ facility approved by the *Veterinary Authority* for export purposes, ~~and have been found free of any sign suggestive of ASF~~;

~~and,~~

~~2) if the country or the *zone* where the *animal* has been killed does not comply with the conditions of point 1 of Article 1.4.6., or is adjacent to a country or *zone* with an unknown infection status or with *infection* in *wild* or *feral* pigs or African wild suids,~~

~~2) appropriate samples has have been collected from every animal killed and has been subjected to a virological test and a serological tested for ASF, with negative results.~~

Article 15.1.14.

Recommendations for the importation of meat products of pigs ~~(either domestic or wild), or for products of animal origin (from fresh meat of pigs) intended for use in animal feeding, for agricultural or industrial use, or for pharmaceutical or surgical use, or for trophies derived from wild pigs~~

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

1) have been prepared:

a) exclusively from *fresh meat* meeting the relevant conditions ~~laid down~~ in Articles 15.1.12. 15.1.12.bis ~~or~~ and 15.1.13.~~, as relevant~~;

b) in a processing ~~establishment~~ facility:

i) approved by the *Veterinary Authority* for export purposes;

ii) processing only *meat* meeting the relevant conditions ~~laid down~~ in Articles 15.1.12. or 15.1.13.~~, as relevant~~;

OR

2) have been processed in a~~n~~ ~~establishment~~ facility approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of ~~the~~ ASFV in accordance with Article 15.1.19., and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

~~Article 15.1.15.~~

~~**Recommendations for the importation of pig products of animal origin (from pigs, but not derived from fresh meat) intended for use in animal feeding and for agricultural or industrial use**~~

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

~~1) have been prepared: originated from domestic and *captive wild* pigs in a country, *zone* or *compartment* free from ASF and have been prepared in a processing establishment approved by the *Veterinary Authority* for export purposes;~~

~~a) exclusively from *fresh meat* meeting the conditions laid down in Articles 15.1.12. or 15.1.13., as relevant;~~

~~b) in a processing establishment:~~

~~i) approved by the *Veterinary Authority* for export purposes;~~

~~ii) processing only *meat* meeting the conditions laid down in Articles 15.1.12. or 15.1.13., as relevant;~~

~~OR~~

~~2) have been processed in an establishment approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of the ASFV, for swill in accordance with Article 15.1.18., and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.~~

Article 15.1.16.

Recommendations for the importation of bristles~~, litter and manure~~ ~~(from pigs)~~

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that ~~these products~~ bristles:

1) originated from domestic ~~and~~ or *captive wild* pigs in ~~come from~~ ~~an ASF free~~ a country, *zone* or *compartment* free from ASF and have been processed in a~~n~~ ~~establishment~~ facility approved by the *Veterinary Authority* for export purposes; or

2) have been processed in a~~n~~ ~~establishment~~ facility approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of ~~the~~ ASFV in accordance with one of the processes listed in Article 15.1.21bis, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

~~Article 15.1.17.~~

~~**Recommendations for the importation of litter and manure (from pigs)**~~

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

~~1) come from an ASF free country, *zone* or *compartment*; or~~

~~2) have been processed in an establishment approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of the ASFV, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.~~

Article 15.1.17. (Reinstated)

Recommendations for the importation of litter and manure from pigs

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

1) originated from domestic or *captive wild* pigs in a country, *zone* or *compartment* free from ASF; or

2) have been processed in a~~n~~ ~~establishment~~ facility approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of the ASFV in accordance with one of the processes listed in Article 15.1.21.ter, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

Article 15.1.17bis.

Recommendations for the importation of skins and trophies from suids

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

1) originated from ~~domestic and or *captive wild* pigs~~ suids in a country, *zone* or *compartment* free from ASF and have been processed in a~~n establishment~~ facility approved by the *Veterinary Authority* for export purposes; or

2) have been processed in a~~n establishment~~ facility approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of ASFV in accordance with one of the procedures referred to in Article 15.1.21., and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

Article 15.1.17ter.

Recommendations for the importation of other pig products

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

1) originated from domestic or *captive wild* pigs in a country, *zone* or *compartment* free from ASF and have been prepared in a processing ~~establishment~~ facility approved by the *Veterinary Authority* for export purposes;

OR

2) have been processed in a~~n~~ ~~establishment~~ facility approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of ASFV, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

Article 15.1.18.

Procedures for the inactivation of ASFV in swill

For the inactivation of ASFV in swill, one of the following procedures should be used:

1) the swill ~~should be~~ is maintained at a temperature of at least 90°C for at least 60 minutes, with continuous stirring; or

2) the swill ~~should be~~ is maintained at a temperature of at least 121°C for at least 10 minutes at an absolute pressure of 3 bar; or

3) the swill is subjected to an equivalent treatment that has been demonstrated to inactivate ASFV.

Article 15.1.19.

Procedures for the inactivation of ASFV in meat

For the inactivation of ASFV in *meat*, one of the following procedures should be used:

1. Heat treatment

   Meat should be subjected to one of the following ~~treatments~~:

   a) heat treatment in a hermetically sealed container with a Fo value of 3.00 or more; or

   b) heat treatment for at least 30 minutes at a minimum temperature of 70°C, which should be reached throughout the *meat*.

2. Dry cured pig meat (under study)

   a) if salted, *meat* should be cured and dried for a minimum of six months; or

   b) if not salted, *meat* should be cured and dried for a minimum of 12 months.

Annex 37 (contd)

Article 15.1.20.

Procedures for the inactivation of ASFV in casings of pigs

For the inactivation of ASFV present in casings of pigs, the following procedures should be used: treating for at least 30 days either with dry salt (NaCl) or with saturated brine (Aw < 0.80), or with phosphate supplemented dry salt containing 86.5 % ~~percent~~ NaCl, 10.7 % ~~percent~~ Na_2HPO_4 and 2.8 % ~~percent~~ Na_3PO_4 (weight/weight/weight), and kept at a temperature of greater than 12°C during this entire period.

Article 15.1.21.

Procedures for the inactivation of ASFV in skins and trophies

For the inactivation of ASFV in skins and trophies, one of the following procedures should be used:

1) boiling in water for an appropriate time so as to ensure that any matter other than bone, tusks or teeth is removed; or

2) soaking, with agitation, in a 4 % ~~percent~~ (w/v) solution of washing soda (sodium carbonate – Na_2CO_3) maintained at pH 11.5 or above for at least 48 hours; or

3) soaking, with agitation, in a formic acid solution (100 kg salt [NaCl] and 12 kg formic acid per 1,000 litres water) maintained at below pH 3.0 for at least 48 hours; wetting and dressing agents may be added; or

4) in the case of raw hides, treating for at least 28 days with salt (NaCl) containing 2 % ~~percent~~ washing soda (sodium carbonate – Na_2CO_3); or

5) treatment with 1 % ~~percent~~ formalin for a minimum of six days.

Article 15.1.21bis.

Procedures for the inactivation of ASFV in bristles

For the inactivation of ASFV present in bristles for industrial use, one of the following procedures should be used:

1) boiling for at least 30 minutes;

2) immersion for at least 24 hours in a 1% solution of formaldehyde prepared from 30 ml commercial formalin per litre of water.

Article 15.1.21ter.

Procedures for the inactivation of ASFV in litter and manure ~~and litter~~ from pigs ~~(under study)~~

For the inactivation of ASFV present in litter and manure of pigs, one of the following procedures should be used:

1) moist heat treatment for at least one hour at a minimum temperature of 55°C

2) moist heat treatment for at least 30 minutes at a minimum temperature of 70°C

Article 15.1.22.

Introduction to surveillance

Articles 15.1.22. to 15.1.27. ~~define the principles and~~ provide ~~a~~ recommendations for ~~guide on the~~ *surveillance* for ASF, and are complementary to Chapter 1.4. and Chapter 1.5.~~, applicable to Member Countries seeking to determine their ASF status. This may be for the entire country or a *zone*. Guidance is also provided for Member Countries seeking recovery of ASF free status for the entire country or for a *zone* following an *outbreak* and for the maintenance of ASF free status.~~

The impact and epidemiology of ASF may vary in different regions of the world~~.~~, as does the routine *biosecurity* ~~measures~~ in different production systems. The *surveillance* strategies employed for determining ~~demonstrating freedom from~~ ASF status should be adapted to the ~~regional or sub-regional~~ situation. ~~For example, the~~ The approach used should take into account ~~be tailored in order to demonstrate freedom from ASF for a country or *zone* where~~ the presence of *wild* ~~and~~ or *feral* pigs or African *wild* suids, the presence of *Ornithodoros* ticks, ~~provide a potential reservoir of *infection*, or~~ and the presence of ~~where~~ ASF ~~is present~~ in adjacent countries or *zones*. ~~The method should examine the epidemiology of ASF in the region concerned and adapt to the specific risk factors encountered. This should include provision of scientifically based supporting data. There is, therefore, latitude available to Member Countries to provide a well reasoned argument to demonstrate that absence of *infection* with ASFV is assured at an acceptable level of confidence.~~

Surveillance for ASF should be in the form of an ongoing programme designed to establish that susceptible populations in a country, *zone* or *compartment* are free from *infection* with ASFV or to detect the introduction of ASFV into a free population. Consideration should be given to the specific characteristics of ASF epidemiology which include:

- the role of swill feeding;
- the impact of different production systems;
- the role of *wild* and *feral* pigs and African *wild* suids on the maintenance and spread of the *disease*;
- whether *Ornithodoros* ticks are present and the role they may play in the maintenance and spread of the *disease*;
- ~~the role of semen in transmission of the ASFV;~~
- the lack of pathognomonic gross lesions and clinical signs;
- the occurrence of ~~apparently healthy~~ carriers;
- the genotypic variability of ASFV.

Article 15.1.23.

General conditions and methods for surveillance

1) A *surveillance* system in accordance with Chapter 1.4. and under the responsibility of the *Veterinary Authority* should address the following:

   a) a formal and ongoing system for detecting and investigating *outbreaks* of ASF;

   b) a procedure for the rapid collection and transport of samples from suspected *cases* to a *laboratory* ~~for ASF diagnosis~~;

   c) appropriate *laboratory* testing capability for ASF diagnosis;

   ~~d~~e) a system for recording, managing and analysing diagnostic and *surveillance* data.

2) The ASF *surveillance* programme should:

   a) include an *early* ~~warning~~ *detection system* throughout the production, marketing and processing chain for reporting suspected *cases*. Diagnosticians and those with regular contact with pigs should report promptly any suspicion of ASF to the *Veterinary Authority*. The ~~*notification*~~ reporting system under the *Veterinary Authority* should be supported directly or indirectly (e.g. through private *veterinarians* or *veterinary para-professionals*) by government or private sector ~~information~~ awareness programmes targeted to all relevant stakeholders. Personnel responsible for *surveillance* should be able to seek expertise in ASF diagnosis, epidemiological evaluation and control;

   b) conduct, when relevant, regular and frequent clinical inspections and *laboratory* testing of high-risk groups (for example, where swill feeding is practised), or those adjacent to an ASF infected country or *zone* (for example, bordering areas where infected *wild* and *feral* pigs or African *wild* suids are present).

Annex 37 (contd)

Article 15.1.24.

Surveillance strategies

1. Introduction

The population covered by *surveillance* aimed at detecting *disease* and *infection* should include domestic, ~~and~~ *wild* and *feral* suid ~~pig~~ populations within the country or *zone*. *Surveillance* should be composed of random and non-random approaches using clinical, virological and serological methods appropriate for the *infection* status of the country or *zone*.

~~The practicality of *surveillance* in African *wild* suids should be considered following the guidelines in Chapter 1.4.~~

The strategy employed to establish the prevalence or absence of *infection* with ASFV may be based on randomised or non-randomised clinical investigation or sampling at an acceptable level of statistical confidence. If an increased likelihood of *infection* in particular localities or *subpopulations* can be identified, targeted sampling may be an appropriate strategy. This may include:

a) specific high-risk *wild* and *feral* suid ~~pig~~ populations and their proximity;

b) farms which feed swill;

c) pigs reared outdoors.

Risk factors may include, for example, temporal and spatial distribution of past *outbreaks*, and pig movements and demographics.

Member Countries should review their *surveillance* strategies whenever an increase in the *risk* of incursion of ASFV is perceived. Such changes include but are not limited to:

– an emergence or an increase in the prevalence of ASF in countries or *zones* from which live pigs or products are imported;

– an increase in the prevalence of ASF in *wild* or *feral* suids ~~pigs~~ in the country or *zone*;

– an increase in the prevalence of ASF in adjacent countries or *zones*;

– an increased entry of, or exposure to, infected *wild* or *feral* suid ~~pig~~ populations ~~of~~ from adjacent countries or *zones*;

– evidence of involvement of ticks in the epidemiology of ASF as demonstrated by *surveillance* implemented in accordance with Chapter 1.5.

2. Clinical surveillance

Clinical *surveillance* is the most effective tool for detecting ASF due to severe clinical signs and pathology associated with *infection* with ASFV. However, due to the clinical similarity with other *diseases* such as classical swine fever, porcine reproductive and respiratory syndrome and erysipelas, and those associated with porcine circovirus 2 *infection*, clinical *surveillance* should be supplemented, as appropriate, by serological and virological *surveillance*.

Clinical signs and pathological findings are useful for early detection; in particular, any *cases* where clinical signs or lesions suggestive of ASF are accompanied by high mortality should be investigated without delay.

Wild and *feral* suids ~~pigs~~ rarely present the opportunity for clinical observation, but should form part of any *surveillance* scheme and should, ideally, be monitored for virus as well as antibodies.

3. Virological surveillance

Virological *surveillance* is important for early detection, differential diagnosis and for systematic sampling of target populations. It should be conducted:

a) to investigate clinically suspected *cases*;

b) to monitor at risk populations;

c) to follow up positive serological results;

d) to investigate increased mortality when ASF cannot be ruled out;~~.~~

e) to confirm eradication after a *stamping-out policy* has been applied.

Molecular detection methods can be applied to large-scale screening for the presence of virus. If targeted at high-risk groups, they provide an opportunity for early detection that can considerably reduce the subsequent spread of ASFV. Epidemiological understanding of the pathways of spread of ASFV can be greatly enhanced by molecular analyses of viruses in endemic areas and those involved in *outbreaks* in ~~ASF free~~ areas previously free from ASF. Therefore, ASFV isolates should be sent to an OIE Reference Laboratory for further characterisation.

4. Serological surveillance

Serology is an effective and efficient *surveillance* tool. Serological *surveillance* aims at detecting antibodies against ASFV. Positive ASFV antibody test results can indicate an ongoing or past *outbreaks*, since some animals may recover and remain seropositive for a significant period, possibly life. This may include carrier animals. However, ASF serology is not suitable for early detection.

It may be possible to use sera collected for other survey purposes for ASF *surveillance*. However, the principles of survey design and the requirement for statistical validity should not be compromised.

Article 15.1.25.

Surveillance procedures for recovery of free status

In addition to the general conditions described in Articles 15.1.3. and 15.1.4., a Member Country seeking recovery of free status for the entire country or a *zone* ~~ASF free status~~, including for a *containment zone*, should show evidence of an active *surveillance* programme to demonstrate no evidence of *infection* with ASFV.

The domestic and *captive wild* pig populations should undergo regular clinical and pathological examinations and virological and serological testing, planned and implemented according to the general conditions and methods described in this chapter.

This *surveillance* programme should include:

1) *establishments* in the proximity of the *outbreaks*;

2) *establishments* epidemiologically linked to the *outbreaks*;

3) animals moved from or used as sentinels or to repopulate affected *establishments*;

4) all *establishments* where contiguous culling has been carried out;

5) *wild* and *feral* suid ~~pig~~ populations in the area of the *outbreaks*.

Article 15.1.26.

Surveillance for ASFV in wild and feral pigs and African wild suids

1) The objective of a *surveillance* programme is either to demonstrate that *infection* with ASFV is not present in *wild* and *feral* suids ~~pigs~~ or, if known to be present, to estimate the geographical distribution of the *infection*.

~~A similar approach should be taken with respect to African *wild* suids where appropriate. While the same principles apply, *surveillance*~~ *Surveillance* in *wild* and *feral* suids ~~pigs~~ presents additional challenges including:

a) determination of the distribution, size and movement patterns ~~associated with~~ of the *wild* and *feral* suid ~~pig~~ population;

b) relevance and practicality of assessing the possible presence of *infection* with ASFV ~~within~~ in the population;

c) determination of the practicability of establishing a *zone* taking into account the degree of interaction with domestic and *captive wild* pigs within the proposed *zone*.

The geographic distribution and estimated size of *wild* and *feral* suid ~~pig~~ populations should be assessed as a prerequisite for designing a population monitoring system following Chapter 1.4.

2) For implementation of the *surveillance* programme, the limits of the area over which *wild* and *feral* pigs range should be defined. *Subpopulations* of *wild* and *feral* suid ~~pig~~ may be separated from each other by natural or artificial barriers.

3) The *surveillance* programme may ~~should~~ include animals found dead, road kills, animals showing abnormal behaviour and ~~or~~ hunted animals, and may also include awareness campaigns targeted at hunters and farmers.

4) There may be situations where a more targeted *surveillance* programme can provide additional assurance. The criteria to define high risk areas for targeted *surveillance* include:

a) areas with past history of ASF;

b) subregions with large populations of *wild* or ~~and~~ *feral* pigs or African *wild* suids;

c) border regions with ASF-affected countries or *zones*;

d) interface between *wild* and *feral* pig populations, and domestic and *captive wild* pig populations;

e) areas with farms with free-ranging and outdoor pigs;

f) areas with a high level of hunting activity, where animal dispersion and feeding as well as inappropriate disposal of waste can occur;

g) other risk areas determined by the *Veterinary Authority* such as ports, airports, garbage dumps and picnic and camping areas.

Article 15.1.27.

Surveillance for arthropod vectors

Vector surveillance aims at defining the type and distribution of ticks of the genus *Ornithodoros*~~, the only known arthropod *vectors* of ASFV~~. Any species of *Ornithodoros* ~~ticks~~ should be considered a~~s~~ potential *vector* or reservoir of ASFV. The virus is generally transmitted transstadially~~, but transovarial~~ Transovarial transmission has ~~only~~ been observed only in ticks of the *Ornithodoros moubata* complex.

The *Competent Authority* should have knowledge of the presence, distribution and identity of *Ornithodoros* ~~ticks, also~~ taking into account climatic or habitat changes ~~which~~ that may affect distribution.

When *vector surveillance* is considered necessary, a sampling plan in accordance with Chapter 1.5. should take into account the biology and ecology of species present and, in particular, the favoured habitat of these species in burrows and structures associated with pig production. The plan should also take into account the distribution and density of pigs in the country or *zone*.

Sampling methods include CO_2 trapping and flagging, and vacuuming of burrows or structures.

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— Text deleted.

NOTE:

The rationale for this new chapter is contained in the February 2014 and September 2015 Scientific Commission meeting reports. (http://www.oie.int/en/international-standard-setting/ specialists-commissions-groups/scientific-commission-reports/meetings-reports/).

CHAPTER 15.X.

INFECTION WITH PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS

Article 15.X.1.

General provisions

The pig is the only natural host for porcine reproductive and respiratory syndrome virus (PRRSV).

For the purposes of the *Terrestrial Code*, porcine reproductive and respiratory syndrome (PRRS) is defined as an *infection* of domestic and *captive wild* pigs with PRRSV.

The following defines *infection* with PRRSV:

1) a strain of PRRSV has been isolated from samples from a domestic or *captive wild* pig;

OR

2) ~~viral~~ antigen ~~has been identified,~~ or ~~viral~~ ribonucleic acid specific to PRRSV, which is not a consequence of *vaccination*, has been ~~demonstrated to be present~~ detected in samples from a domestic or *captive wild* pig epidemiologically linked to a confirmed or suspected *outbreak* of PRRS, or giving cause for suspicion of previous association or contact with PRRSV, with or without clinical signs consistent with PRRS;

OR

3) antigen or ribonucleic acid specific to a PRRSV vaccine strain has been detected in samples from a domestic or *captive wild* pig that is unvaccinated, or has been vaccinated with an inactivated vaccine, or with a different vaccine strain;

OR

~~3~~4) ~~virus-specific~~ antibodies specific ~~against~~ to PRRSV that are not a consequence of *vaccination*~~,~~ have been identified in samples from a domestic or *captive wild* pig in a *herd* showing clinical signs consistent with PRRS, or epidemiologically linked to a confirmed or suspected *outbreak* of PRRS, or giving cause for suspicion of previous association or contact with PRRSV.

~~OR~~

~~4) the detection of a vaccinal or vaccine-like virus in a non-vaccinated domestic or *captive wild* pig.~~

For the purposes of the *Terrestrial Code*, the *incubation period* ~~for~~ of PRRS ~~is~~ shall be 14 days. Pigs are usually infective between ~~days 3~~ three and 40 days post-*infection*, but can remain so for several months.

~~A Member Country should not impose bans on the trade in *commodities* of domestic and *captive wild* pigs in response to information on the presence of *infection* with PRRSV in *wild* or *feral* pigs.~~ *Commodities* of domestic or *captive wild* pigs can be traded safely according to the relevant articles of this chapter, even if *exporting countries* inform the OIE of the presence of *infection* with PRRSV in *wild* or *feral* pigs.

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

Article 15.X.2.

Safe commodities

When authorising import or transit of the following *commodities* and any products made from these *commodities* and containing no other tissues from pigs, *Veterinary Authorities* should not require any PRRS related conditions, regardless of the PRRS status of the *exporting country, zone* or *compartment*:

Annex 38 (contd)

1) hides, skins and trophies;

2) bristles;

3) *meat products*;

4) *meat-and-bone meal*;

~~5) blood by-products;~~

~~6~~5) casings;

6) gelatine.

Article 15.X.3.

Country, zone or compartment free from PRRS

A country, *zone* or *compartment* may be considered free from PRRS when:

1) PRRS is a *notifiable disease* in the country;

2) an *early detection system* is in place;

3) *surveillance* in accordance with Articles 15.X.~~15~~13. to 15.X.~~18~~16. has been in place for at least 12 months, capable of detecting the presence of *infection* with PRRSV even in the absence of clinical signs;

4) no ~~evidence of~~ *infection* with PRRSV has been found in domestic and *captive wild* pigs during the past 12 months;

5) no *vaccination* against PRRS with inactivated vaccines has been carried out during the past 12 months;

6) no *vaccination* against PRRS with modified live vaccines has been carried out during the past 24 months;

~~6)~~7) measures are in place to prevent the introduction of PRRSV;

~~7)~~8) imported pigs and pig *commodities* comply with the requirements in Articles 15.X.5. to 15.X.~~14~~12.

Article 15.X.4.

Recovery of free status

Should a PRRS *outbreak* occur in a previously free country, *zone* or *compartment*, the free status may be restored three months after the disposal or *slaughter* of the last *case*, provided that:

– ~~by means of~~ a *stamping-out policy* or the *slaughter* of all susceptible animals in the infected *herds*, followed by cleaning and *disinfection* of the ~~farm~~ *establishments*, has been implemented. ~~a modified stamping-out policy with or without *emergency vaccination*. Free status can be regained three months after the culling of the last *case* or vaccinated pig provided~~

– *surveillance* ~~is~~ has been carried out in accordance with Articles 15.X.~~15~~13. to 15.X.~~18~~16. with negative results.

Where a *stamping-out policy* or depopulation by means of *slaughter* ~~*modified stamping-out policy* is~~ are not practised, ~~the provisions of~~ Article 15.X.3. applies.

Article 15.X.5.

Recommendations for importation from countries, zones or compartments free from PRRS

For domestic and captive wild pigs

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

1) showed no clinical sign of PRRS on the day of shipment;

2) were kept in a country, *zone* or *compartment* free from PRRS since birth or for at least the past three months.

Article 15.X.6.

Recommendations for importation from countries or zones not free from PRRS

For domestic and captive wild pigs for breeding or rearing

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

1) were kept, since birth or for at least three months prior to isolation in an *establishment,* in which no *infection* with PRRSV was detected within that period;

2) showed no clinical sign of PRRS on the day of shipment;

~~2~~3) have not been vaccinated against PRRS nor are they the progeny of vaccinated sows;

~~3~~4) were isolated by application of *biosecurity* and subjected to a serological test for *infection* with PRRSV, with negative results, on two occasions, at an interval of not less than 21 days, the second test being performed within 15 days prior to shipment.

Article 15.X.7.

Recommendations for importation from countries or zones not free from PRRS

For domestic and captive wild pigs for slaughter

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the animals showed no clinical sign of PRRS on the day of shipment.

The pigs should be transported directly with appropriate *biosecurity* from the *place of shipment* to the *slaughterhouse*/*abattoir* for immediate *slaughter*.

~~Article 15.X.8.~~

~~**Recommendations for importation of wild and feral pigs**~~

~~Regardless of the PRRS status of the country of origin, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the *animals:*~~

~~1) showed no clinical sign of PRRS on the day of shipment;~~

~~2) were isolated in a *quarantine station*, and were subjected to a serological test for PRRS, with negative results, on two occasions, at an interval of not less than 21 days, the second test being performed within 15 days prior to shipment;~~

~~3) have not been vaccinated against PRRS.~~

Article 15.X.~~9~~8.

Recommendations for importation from countries, zones or compartments free from PRRS

For semen of domestic and captive wild pigs

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

1) the donor ~~*animals*~~ males:

   a) were kept in a country, *zone* or *compartment* free from PRRS since birth or for at least three months prior to collection;

   b) showed no clinical sign of PRRS on the day of collection of the semen;

2) the semen was collected, processed and stored in conformity with the provisions of Chapters 4.5. and 4.6.

Article 15.X.~~10~~9.

Recommendations for importation from countries or zones not free from PRRS

For semen of domestic and captive wild pigs

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

1) the donor ~~*animals*~~ males have not been vaccinated against PRRS and either:

   a) ~~and either~~:

      i) were kept, since birth or for at least three months prior to entry into the pre-entry isolation facility in an *establishment*, in which no *infection* with PRRSV was detected within that period ~~without any evidence of PRRS~~;

      ii) showed no clinical sign of PRRS and were ~~serologically tested~~ subjected to a serological test with negative results on the day of entry into the pre-entry isolation facility;

      iii) were kept in the pre-entry isolation facility for at least 28 days and were subjected to a serological test with negative results ~~at least~~ no less than 21 days after entry;

      iv) have been kept in an *artificial insemination centre* where a statistically representative sample of all donor males is subjected ~~are all boars are subjected~~, ~~at least every month,~~ to a serological test for *infection* with PRRSV with negative results, at least every month. Donor males should be tested every 12 months and at least once during their stay;

   or

   b) ~~or~~ have been kept in an *artificial insemination centre* where all pigs

      ~~i)~~ ~~have been kept in an *artificial insemination centre* where all~~ ~~boars~~ were subjected to serologcial and virological examinations for *infection* with PRRSV, on serum samples taken ~~seronegative for PRRS~~ on the day of collection;

      ~~ii) a sample of semen from each collection for export has been tested for PRRSV nucleic acid with negative results or~~

2) the semen was collected, processed and stored in conformity with the provisions of the relevant Articles in Chapters 4.5. and 4.6.

Article 15.X.~~11~~10.

Recommendations for importation of *in vivo* derived embryos of domestic and captive wild pigs from countries, zones or compartments free from PRRS

~~Regardless of the PRRS status of the country of origin,~~ *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that:

1) the donor females were kept in a country, *zone* or *compartment* free from PRRS since birth or for at least three months prior to collection;

2) the donor females showed no clinical sign of PRRS on the day of collection ~~of the embryos~~;

3) the embryos were collected, processed and stored ~~in conformity with the relevant provisions of~~ in accordance with Chapters 4.7. ~~and~~ or 4.9., as relevant;

4) the semen used for the production of embryos complied with the provisions of Article 15.X.~~9~~8. or 15.X.~~10~~9.

Article 15.X.~~12~~11.

Recommendations for importation of *in vivo* derived embryos of domestic and captive wild pigs from countries or zones not free from PRRS

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

1) the donor females:

   a) showed no clinical sign of PRRS on the day of collection of the embryos;

   b) were subjected to a serological test for *infection* with PRRSV, with negative results, on two occasions, at an interval of not less than 21 days, the second test being performed within 15 days prior to embryo collection;

2) the embryos were collected, processed and stored in accordance with Chapters 4.7. or 4.9., as relevant;

3) the semen used for the production of embryos complied with the provisions of Article 15.X.~~9~~8. or 15.X.~~10~~9.

Article 15.X.12.

Recommendations for importation of fresh meat of domestic and captive wild pigs

~~Regardless of the PRRS status of the country of origin,~~ *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *fresh meat*:

1) either:

   a) comes from pigs that were kept in a country, *zone* or *compartment* free from PRRS since birth or for at least the past three months;

   or

   b) does not contain:

      – tonsils;

      – thymus;

      – lymph nodes of the head, neck, or thoracic or abdominal viscera;

2) comes from pigs that have been slaughtered in a *slaughterhouse*/*abattoir* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.2. with favourable results.

~~does not contain lymphoid tissues of the head and neck, and thoracic and abdominal viscera; and~~

~~2) comes from *animals* which:~~

   ~~a) showed no clinical signs suggestive of PRRS within 24 hours before *slaughter*;~~

   ~~b) have been slaughtered in a *slaughterhouse*/*abattoir* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.2.~~

~~Article 15.X.13.~~

~~**Recommendations for importation of fresh meat of wild and feral pigs**~~

~~Regardless of the PRRS status of the country of origin, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *fresh meat*;~~

Annex 38 (contd)

~~1) does not contain lymphoid tissues of the head and neck, and thoracic and abdominal viscera; and~~

~~2) comes from *animals* which:~~

~~a) have been subjected to a post-mortem inspection in accordance with Chapter 6.2. in an approved examination centre;~~

~~b) have been found free from any sign suggestive of PRRS.~~

~~Article 15.X.14.~~

~~**Recommendations for importation of offal**~~

~~*Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that the entire consignment of offal or products containing offal comes from pigs coming from *establishments* located in a PRRS free country, *zone* or *compartment*.~~

Article 15.X.~~15~~13.

Introduction to surveillance

The following defines the principles and provides a guide to the *surveillance* for PRRS, complementary to Chapter 1.4. This may be for the entire country, a *zone* or a *compartment*. Guidance is also provided for Member Countries seeking recovery of PRRS status for the entire country, for a *zone* or for a *compartment*, following an *outbreak* and for the maintenance of PRRS status.

Surveillance for PRRS should be in the form of a continuing programme designed to establish that domestic and *captive wild* pig populations in a country, *zone* or *compartment* are free from *infection* with PRRSV or to detect the introduction of PRRSV into a population already defined as free. Consideration should be given to the specific characteristics of PRRS epidemiology that include:

- the role of pig-to-pig contact;
- the role of semen in transmission of the virus;
- the ~~existence~~ occurrence of aerosol transmission ~~over short distances~~;
- the existence of two distinct genotypes of PRRSV, also with antigenic and virulence variability among strains of both genotypes;
- the frequency of clinically inapparent *infections*, particularly in older ~~*animals*~~ pigs;
- the occurrence of long-term virus-shedding even in the presence of antibodies;
- the lack of a differentiating test for vaccinal antibodies and the inherent risks associated with the use of modified live vaccines for PRRS.

Veterinary Authorities may have information on the genotype prevailing in the country but it should not be assumed that ~~the absence of~~ the other genotype ~~should not be assumed~~ is absent. Therefore, ~~molecular~~ virological and serological tests used for *surveillance* should be able to detect both genotypes and antibodies to both genotypes with similar sensitivity.

Article 15.X.~~16~~14.

General conditions and methods for surveillance

1) A *surveillance* system in accordance with Chapter 1.4. and under the responsibility of the *Veterinary Authority* should be in place and ~~including~~ include the following ~~aspects~~ elements:

   a) formal and on-going system for detecting and investigating *outbreaks* of PRRS;

   b) a system for recording, managing and analysing diagnostic and *surveillance* data.

2) ~~The~~ Any PRRS *surveillance* programme should:

a) include ~~a system for~~ the reporting and investigation of suspected *cases*. Diagnosticians and those with regular contact with pigs should report promptly any suspicion of PRRS to the *Veterinary Authority*;

b) implement, when relevant, regular and frequent clinical inspections and *laboratory* testing of populations at high risk of contracting or spreading *disease*, such as *artificial insemination centres* and nucleus *herds*, *establishments* in high pig density areas or with ~~low~~ lax *biosecurity* ~~measures~~.

Article 15.X.~~17~~15.

Surveillance strategies

1. Introduction

The objective of the *surveillance* is to demonstrate freedom from *infection* or to detect introduction of PRRSV as soon as possible.

Serology in unvaccinated populations is often the most effective and efficient *surveillance* methodology. In some ~~*animals*~~ pigs, antibodies against PRRSV can disappear after approximately three to six months in the absence of further exposure and this should be considered when interpreting serological *surveillance* results.

In the absence of a test differentiating infected from vaccinated animals (DIVA), serology in vaccinated populations is less useful.

In some circumstances such as clinical *disease* investigations and in high risk populations, virological *surveillance* may provide advantage through earlier detection.

The *surveillance* strategy chosen should be justified as adequate to detect the presence of *infection* with PRRSV in accordance with Chapter 1.4. and the epidemiological situation. Cumulative results of targeted and general *surveillance* will increase the level of confidence in the *surveillance* strategy.

2. Clinical surveillance

Clinical signs and pathological findings are useful for early detection. Episodes of high morbidity or mortality in young piglets and reproductive disorders in sows should also be investigated. Highly pathogenic strains may affect pigs of all ages and can include severe respiratory signs. In PRRSV *infections* involving low virulence strains, clinical signs may not be present or are seen only in young *animals*. Therefore, clinical *surveillance* should be supplemented by serological and virological *surveillance*.

3. Virological surveillance

Virological *surveillance* should be conducted:

a) to monitor at risk populations;

b) to investigate clinically suspected cases;

c) to follow up positive serological results.

Molecular detection methods are most commonly used for virological *surveillance* and can be also applied to large-scale screening. If targeted at high-risk populations, they provide an opportunity for early detection that can considerably reduce the subsequent spread of *disease*. Molecular analysis can provide valuable information on genotype circulating in the country and enhance epidemiological understanding of the pathways of spread in endemic areas and those involved in *outbreaks* in *disease* free areas.

Annex 38 (contd)

4. Serological surveillance

Maternal antibodies are generally detectable until four to eight weeks of age. The collection of samples should therefore take account of the type of *herd* and the age structure of the pigs, with an emphasis on older pigs. However, in countries or *zones* where *vaccination* has been recently discontinued, targeted serological *surveillance* of young unvaccinated ~~*animals*~~ pigs older than eight weeks can indicate the presence of *infection*.

Article 15.X.~~18~~16.

Additional surveillance requirements for recovery of free status

In addition to the general conditions described in this chapter, a Member Country declaring the recovery of country, *zone* or *compartment* PRRS free status should provide evidence of an active *surveillance* programme to demonstrate absence of *infection* with PRRSV.

This *surveillance* programme should cover:

1) *establishments* in the proximity of the *outbreaks*;

2) *establishments* epidemiologically linked to the *outbreaks*;

3) ~~*animals*~~ pigs moved from or used to repopulate affected *establishments*.

The pig *herds* should undergo regular clinical, pathological, virological and serological examinations, planned and implemented according to the general conditions and methods described in these recommendations. ~~To regain PRRS free status, the *surveillance* approach should provide at least the same level of confidence as within the original declaration of freedom.~~

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— Text deleted.

Annex 39

FUTURE WORK PROGRAMME FOR THE TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

General Topic		
Detailed issue or action (By priority order)	**By whom to be managed**	**Status and further steps**
Restructuring of the *Terrestrial Code*, including harmonisation of the *Terrestrial* and *Aquatic Codes*		
1) Work with AAHSC towards harmonisation, as appropriate, of the horizontal parts of the *Codes,* notably Glossary, User's Guide, notification and listed diseases, and section 6 Veterinary Public Health (e.g. AMR)	TAHSC & AAHSC & HQs	Ongoing
2) Work with BSC for accurate disease description and diagnostic in the *Manual* and case definitions in the *Code* and names of diseases and country and zone disease status	TAHSC & BSC & HQs	Ongoing
3) Revision and formatting of chapters (articles numbering, tables and figures), especially of Section 7	TAHSC & AWWG &HQs	Ongoing
4) OIE policy on wildlife	TAHSC & SCAD & WWG& HQs	Ongoing
5) Use of "Veterinary Services" and "Veterinary Authorities" and "Competent Authorities" in the *Code*	TAHSC & AAHSC & HQs	Ongoing
Glossary		
1) OIE standard, OIE guideline	TAHSC & AAHSC & BSC & SCAD & HQs	Reviewed and send for further MC
2) stamping-out policy	TAHSC	Reviewed and proposed for adoption
3) 'casings'	TAHSC	Reviewed and proposed for adoption
4) vaccination, vaccination programme, routine vaccination, emergency vaccination	TAHSC & BSC & SCAD & AHG & HQs	Pending next meeting of AHG
5) zone, free zone, infected zone, containment zone, protection zone	TAHSC & SCAD & HQs	Send for MC
6) Add reptiles to the definition of 'animal'	TAHSC	Proposed for adoption
Horizontal issue not yet in the *Terrestrial Code*		
1) CH on vaccination strategies	TAHSC & BSC & SCAD & AHG & HQs	Pending next AHG
2) CH on contingency planning, outbreak management and stamping-out policy	TAHSC & HQs	Preliminary discussions
3) CH on *Salmonella* in pigs and in cattle	TAHSC & APFSWG	reviewed and send for further MC
4) CH on working equids	TAHSC & AWWG	Draft CH (section 7): reviewed and proposed for adoption

General Topic		
Detailed issue or action (By priority order)	**By whom to be managed**	**Status and further steps**
***Terrestrial Code* texts on horizontal issues in need of revision: Section 1 Notification**		
1) Disease notification CH 1.1.	TAHSC & SCAD & AAHSC & HQs	Proposed for adoption
2) Criteria for listing CH 1.2. and CH 1.2.bis	TAHSC & SCAD & AAHSC & HQs	Proposed for adoption
3) Prescribed tests CH 1.3. delete CH because covered in *Manual*	TAHSC & BSC	Proposed for adoption
4) CH 1.4. on Animal Health Surveillance	TAHSC & SCAD	Send for MC
5) CH 1.6. on Status: reorganisation	TAHSC & SCAD & HQs	Ongoing
***Terrestrial Code* texts on horizontal issues in need of revision: Section 2 Risk analysis**		
Draft new CH on criteria for assessing safe commodities	TAHSC	Send for further MC
***Terrestrial Code* texts on horizontal issues in need of revision: Section 3 Veterinary Services**		
Revision of CHs of Section 3 in the light of the return of experience of the PVS Pathway	TAHSC &HQs	Preliminary discussions
***Terrestrial Code* texts on horizontal issues in need of revision: Section 4 Disease control**		
1) CH 4.3. on zoning	TAHSC & SCAD & HQs	Send for MC
2) CH 4.6. on semen collection	TAHSC &BSC	Pending experts' advice
3) CH 4.7. and 4.8. on embryos	TAHSC & BSC	Pending experts' advice
4) Global restructuring of Section 4	TAHSC & HQs	Preliminary discussion
***Terrestrial Code* texts on horizontal issues in need of revision: Section 5 Trade measures**		
CH 5.3. on SPS agreement	TAHSC &HQs	Reviewed and Send for further MC
***Terrestrial Code* texts on horizontal issues in need of revision: Section 6 Veterinary Public Health**		
New Introductory CH on Section 6	TAHSC & APFSWG	Preliminary discussion
Revision of CH 6.1.	TAHSC & APFSWG	Send for MC
Revision of CH 6.2.	TAHSC & APFSWG	Pending WG report
***Terrestrial Code* texts on horizontal issues in need of revision: Section 7 Animal welfare**		
1) CH 7.11. on dairy cattle production systems	TAHSC & AWWG	Proposed for adoption
2) CH 7.5. on slaughter		Proposed for adoption and for MC
3) CH 7.6. on killing		Proposed for adoption
4) CH 7.10. on broiler chicken production systems		Proposed for adoption

General Topic		
Detailed issue or action (By priority order)	**By whom to be managed**	**Status and further steps**
Diseases issues not yet in the *Terrestrial Code*		
1) New CH 15.X. on PRRS	TAHSC & SCAD	Send for MC
2) Non-tsetse transmitted Trypanosomosis (new CH on Surra and revision of CH on Dourine)	TAHSC & SCAD & AHG	Pending AHG
3) Crimean Congo hemorrhagic fever	TAHSC & HQs	Preliminary discussion
***Terrestrial Code* texts on diseases in need of revision: Sections 8 to 15, by priority order**		
Revised CH 8.8. on FMD	TAHSC & SCAD & AHG	Pending AHG and 2 Articles send for MC
Revised CH 14.7. on PPR	TAHSC	Proposed for adoption
Revised CH 8.16. on Trichinella	TAHSC	Proposed for adoption
Revised CH 15.1. on ASF	TAHSC	Send for further MC
Revised CH 12.10. on glanders	TAHSC	Pending experts' advice on surveillance
Revised CH 11.4. on BSE	TAHSC & SCAD & BSC & AHG	Pending AHG
Update and harmonise CH on vector-borne diseases: BT, EHD, RVF	TAHSC & HQs	Proposed for adoption and pending experts' advice
New CH 8.X. on tuberculosis to merge CH 11.5. & CH 11.6.	TAHSC	Pending experts' advice
CH 15.3. on *T. Solium*	TAHSC & APFSW	Revised and proposed for adoption
Update CH 11.11. on lumpy skin disease	TAHSC	Send for MC
Update CH 10.4. on avian influenza viruses	TAHSC & HQs	Pending work on zoning, outbreak management and vaccination
Update CH 10.5. on avian mycoplasmosis	TAHSC & HQs	Pending experts' opinion
Update/Revise CH 11.12. on theileriosis	TAHSC & SCAD	Pending AHG
Update CH 14.8. on scrapie	TAHSC	Review MC, seek expert opinion

Note: MC: Member Countries' comments; CH: chapter; Q: questionnaire; SURV: surveillance; ITD: International Trade Department; S&T Dept: Scientific and Technical Department; SIS: World Animal Health Information and Analysis Department.

Annex 39 (contd)

ITEM, ANNEX, CHAPTER NUMBERS AND CURRENT STATUS

Item	Annex	Chapter	Title	Action	Adoption at GS84
1			General comments	-	-
2	4		User's guide	A	O
3	5/23		Glossary	A/C	O/X
4	6	1.1.	Notification of diseases, infections and infestations	A	O
5	7	1.2.	Criteria for listing diseases	A	O
6	8	1.2.bis	Diseases listed by the OIE	A	O
7	9	1.3.	Prescribed and alternative diagnostic tests for OIE listed diseases	A	O
8	24	1.4.	Animal health surveillance	C	X
8	10	3.2.14	Evaluation of Veterinary Services	A	O
9	25	4.3.	Zoning and compartmentalisation	C	X
10	26	5.3.	OIE procedures relevant to the WTO/SPS Agreement	C	X
11	27	2.X.	Draft new chapter on criteria for assessing the safety of commodities	C	X
12	32	6.1.	The role of the veterinary services in food safety	C	X
13	11	6.8.	Monitoring of the quantities and usage patterns of antimicrobial agents used in food-producing animals	A	O
14	28/30	6.X.	Draft new chapter on prevention and control of *Salmonella* in commercial cattle production system	C	X
	29/31	6.Y.	Draft new chapter on prevention and control of *Salmonella* in pig production systems	C	X
	12	8.16.	Infection with *Trichinella* spp.	A	O
	13	15.3.	Infection with *Taenia solium*	A	O
15	14	Art 7.5.7. Point 2	Slaughter of animals	A	O
	33	Art 7.5.7.Point 3	Slaughter of animals	C	X
	15	Arts 7.6.6 - 7.6.18	Killing of animals for disease control purposes	A	O
	16	Art 7.10.4.	Animal welfare and broiler chicken production systems	A	O
	17	7.11.	Animal welfare and dairy cattle production systems	A	O
	18	7.X.	Draft new chapter on the welfare of working equids	A	O
16	19	8.3.	Infection with bluetongue virus	A	O
	20	8.7.	Infection with epizootic hemorrhagic disease virus	A	O
	21	8.14.	Infection with Rift Valley fever virus	A	O
17	34	Art 8.8.4.bis	Infection with foot and mouth disease virus	C by 31 May 2016	X
18	35	8.X.	Infection with *Mycobacterium tuberculosis* complex	C	X
19		10.4.	Infection with avian influenza viruses	D, E	X
20	36	11.11.	Infection with lumpy skin disease	C	X
21		12.10.	Infection with *Burkholders mallei* (Glanders)	E	X
22	22	Art 14.7.21.	Infection with Peste des petits ruminants virus	A	O
23	37	15.1.	Infection with African swine fever virus	C	X
24	38	15.X.	Draft new chapter on Infection with porcine reproductive and respiratory syndrome virus	C	X
25	39		Work programme	C	X
26	40		Report of AHG meeting on Salmonella in pigs and cattle	I	X
27	41		Report of APFSWG meeting	I	X
28	42		Report of AHG meeting on slaughter of animals		

A: proposed for adoption at 84th General Session; C: For Member comments; E: under expert consultation (*ad hoc* groups, Specialist Commissions, etc.), D: deferred to Sep 2015 meeting; I: For Member Country information.

List of abbreviations	
AAHSC	Aquatic Animal Health Standards Commission
AHG	ad hoc Group
AHS	African horse sickness
APFSWG	Animal Production Food Safety Working Group
AWWG	Animal Welfare Working Group
EHD	Epizootic haemorrhagic disease
FMD	Foot and mouth disease
PPR	Peste des petits ruminants
PRRS	Porcine reproductive and respiratory syndrome
SCAD	Scientific Commission for Animal Diseases
TAHSC	Terrestrial Animal Health Standards Commission

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Annex 40

Original: English
December 2015

REPORT OF THE MEETING OF THE OIE *AD HOC* GROUP ON *SALMONELLA* IN PIGS AND CATTLE

Paris, 8–10 December 2015

The OIE *ad hoc* Group on *Salmonella* in pigs and cattle (the *ad hoc* Group) met at OIE Headquarters in Paris from 8th to 10th December 2015.

The list of participants of the *ad hoc* Group, the adopted agenda, and the Terms of Reference are provided as Annexes 1, 2 and 3 respectively.

The *ad hoc* Group considered comments received from Argentina, Australia, Canada, Chile, China, European Union (EU), Japan, Mexico, Norway, New Zealand, Switzerland and the United States of America, as well as the International Feed Industry Federation on the two new draft chapters on "Prevention and Control of *Salmonella* in Commercial Cattle Production Systems (Chapter 6.X.)" and "Prevention and Control of *Salmonella* in Commercial Pig Herds (Chapter 6.X.)".

The *ad hoc* Group wished to note that they considered all comments on each chapter submitted by Member Countries and then reviewed both chapters, making further amendments, where required and relevant, to ensure alignment between the two chapters. The *ad hoc* Group wished to note that many of the amendments and much of the restructuring was to improve readability, provide clarification and improve cross-chapter consistency, where appropriate, rather than changing the intended meaning of the recommendations.

In response to Member Countries' comments regarding the purpose and scope of both chapters, the *ad hoc* Group wished to highlight that the chapters address the prevention and control of *Salmonella*, a zoonotic microorganism that can cause disease in both animals and humans.

The *ad hoc* Group agreed with several Member Countries' comments that there is no single biosecurity measure that can deliver effective *Salmonella* control but emphasised that a combination of measures will aid in the prevention and control of *Salmonella* in animals.

The recommended measures although general in nature, have been shown to assist in the prevention and control of *Salmonella* and many other infectious organisms in studies carried out in many countries. Economic considerations in relation to control measures are recognised, but these were not considered by the *ad hoc* Group, whose objective was to provide guidance on measures that can be implemented, where practicable, and that have been shown to be beneficial. The *ad hoc* Group amended text in the Article on 'Objectives of prevention and control measures' in the cattle chapter to clarify that the recommended measures provided in the chapter are aimed at reducing *Salmonella* in commercial cattle production systems and thereby reducing the likelihood of direct or indirect infection in humans. The *ad hoc* Group wished to emphasise that while control in the primary production phase can decrease the number of animals carrying or shedding *Salmonella,* controls after primary production are also important to minimise the contamination and cross-contamination of carcasses and meat products. The *ad hoc* Group added a similar article to the pig chapter to clarify this issue as the same applies to the prevention and control of *Salmonella* in pigs, and the value of post-harvest control is recognised and the point at which control measures are optimally applied may vary from one country to another.

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Throughout both chapters, the *ad hoc* Group reviewed use of the term 'risk' and agreed that it was not always used correctly as 'consequence' was not always addressed. Therefore, in these cases, they changed the term to 'likelihood'.

The *ad hoc* Group considered Member Countries' comments on articles on location and design of establishments, biosecurity, animal introductions, moving and mixing pigs (pig chapter only), on-farm management (cattle chapter only), and surveillance, and amended text where relevant to improve clarity and readability. The *ad hoc* Group also changed the placement of several of these articles in both chapters to ensure a more logical flow of information and to improve alignment between the two chapters.

The *ad hoc* Group noted the concerns of several Member Countries that the intention of the text regarding feed may have been unclear and may have been interpreted as attributing most *Salmonella* infections to feed. The *ad hoc* Group modified relevant text in the articles on feed to address these concerns. They also wished to note that different recommendations apply to different situations, depending of the regional prevalence of endemic *Salmonella* infection in food animal populations. In addition, some of the text and the format were amended in both chapters to enhance alignment when appropriate, e.g. feed and water were placed in separate articles and feed composition and formulation, which can influence colonisation and multiplication of *Salmonella* in the intestinal tract, was moved to follow-on from the section that considered feed.

Articles in both chapters that address additional prevention and control measures were amended, taking into account Member Countries' comments and also to ensure alignment between the two chapters.

In both chapters, several Member Countries commented on the length of time that newly introduced animals should be kept separate from the rest of the herd before mixing with other animals. The *ad hoc* Group did not agree to amend the existing text noting that in cattle, as well as in pigs, the example of four weeks was appropriate, where practicable. Risk factor analysis studies and in-vivo challenge models support this period as being suitable to allow for the shedding of high numbers of organisms after transport to subside to a level that is less likely to result in onward transmission of infection when these animals are introduced to the herd (Kranker *et al.*, 2003; Davison *et al.*, 2005; Rostagno *et al.*, 2011). This differs from the concept of applying a shorter observation period in which to detect clinical disease in newly introduced animals, since *Salmonella* infection is often sub-clinical, especially in pigs.

The *ad hoc* Group wished to note a number of amendments specific to the cattle chapter. The *ad hoc* Group agreed to delete the definition for 'semi-intensive cattle production systems' as this term is not used in the chapter, and agreed to add definitions for 'feed' and 'feed ingredients' for alignment with the pig chapter.

The *ad hoc* Group deleted the term 'wood' when used to describe the bison covered by this chapter because 'wood bison' often refers to a specific subspecies of bison in North America. The *ad hoc* Group agreed with several Member Countries' comments to delete the point on the use of probiotics, agreeing that there is insufficient consistent scientific evidence from field studies of their benefit in *Salmonella* control to support their recommended use. This is also in line with the outcome of a recent FAO/WHO expert meeting which considered the available evidence for some interventions for *Salmonella* in beef and pork.

The *ad hoc* Group added a new article on hide cleanliness, given its importance during housing, transport and lairage in reducing *Salmonella* contamination associated with hide removal at slaughter.

The *ad hoc* Group wished to note a number of amendments made specifically to the pig chapter. In response to a Member Country comment, the *ad hoc* Group agreed to amend the title from 'pig herds' to 'commercial pig production systems' to more accurately reflect the scope of the chapter and to align with the approach taken in the cattle chapter.

The *ad hoc* Group moved the definitions in Article to X.X.2. to align with the format used in other *Terrestrial Code* chapters and added a new definition for commercial pig production systems.

Annex 40 (contd)

Recommendations:

1) Given the importance of the correct choice of disinfectants and of procedures for disinfection, the *ad hoc* Group recommended that Chapter 4.13. "General recommendations on disinfection and disinsection" is revised to address this important topic in more detail. In addition the *ad hoc* Group noted that the definitions for 'disinfection' and 'disinfectants' are not aligned between the *Terrestrial* and *Aquatic Codes*.

2) The *ad hoc* Group recommended that the deletion of 'wood' bison be addressed in other relevant chapters in the *Terrestrial Code*.

3) Given the importance of alignment between the two chapters, the *ad hoc* Group recommended that when Member Countries read these draft chapters they consider them together.

The revised draft Chapter "Prevention and control of *Salmonella* in commercial cattle production systems (Chapter 6.X.)" is presented as a 'clean' version and in a 'track changes' version in Annexes 4 and 5, respectively.

The revised draft Chapter "Prevention and control of *Salmonella* in commercial pig production systems (Chapter 6.X.)" is presented as a 'clean' version and in a 'track changes' version in Annexes 6 and 7, respectively.

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Rostagno, M. H., Eicher, S. D., & Lay Jr, D. C. (2011). Immunological, physiological, and behavioral effects of *Salmonella* enterica carriage and shedding in experimentally infected finishing pigs. *Foodborne pathogens and disease*, 8 (5), 623–630.

…/Annexes

Annex 40 (contd)

Annex 1

MEETING OF THE OIE *AD HOC* GROUP ON *SALMONELLA* IN CATTLE AND PIGS

Paris (France), 8–10 December 2015

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Annex 2 (contd)

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Annex 40 (contd)

Annex 2

MEETING OF THE OIE *AD HOC* GROUP ON *SALMONELLA* IN PIGS AND CATTLE

Paris (France), 8–10 December 2015

Adopted agenda

Welcome

1) Consider Member Countries' comments received on the new draft Chapter 6.X. "Prevention, detection and control of *Salmonella* in pig herds" and amend text as appropriate.

2) Consider Member Countries' comments received on the new draft Chapter 6.X. "Prevention and control of *Salmonella* in commercial cattle production systems" and amend text as appropriate.

3) Draft a report of the *ad hoc* Group meeting to be considered by the Code Commission at their next meeting in February 2016.

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Annex 3

TERMS OF REFERENCE

MEETING OF THE OIE *AD HOC* GROUP ON *SALMONELLA* IN PIGS AND CATTLE

Paris (France), 8–10 December 2015

Purpose of the meeting

To review Member Countries' comments received on the new draft chapters "Prevention, detection and control of *Salmonella* in pig herds" and "Prevention and control of *Salmonella* in commercial cattle production systems" for inclusion in Section 6: Veterinary Public Health of the *Terrestrial Animal Health Code*.

Relevant considerations

- Ensure alignment between the two chapters, where relevant.
- Ensure alignment with the draft Codex Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Pork and Beef Meat, where relevant.

Relevant documents

1) A review of the scientific literature on the control of *Salmonella* spp. in food producing animals other than poultry (Simone Belluco *et al*., 2015).

2) FAO Systematic Review–Control of *Salmonella* in pork and beef.

3) Interventions for the Control of Nontyphoidal *Salmonella* spp. in Beef and Pork, FAO/WHO Expert meeting report, September 2015.

4) Draft Codex Guidelines for the Control of *Campylobacter* and *Salmonella* in Chicken Meat.

Annex 40 (contd)

Annex 4

[Note: this Annex has been replaced by Annex 30 to the report of the meeting of the OIE Terrestrial Animal Health Standards Commission which was held on 8–19 February 2016.]

Annex 40 (contd)

Annex 5

[Note: this Annex has been replaced by Annex 28 to the report of the meeting of the OIE Terrestrial Animal Health Standards Commission which was held on 8–19 February 2016.]

Annex 40 (contd)

Annex 6

[Note: this Annex has been replaced by Annex 31 to the report of the meeting of the OIE Terrestrial Animal Health Standards Commission which was held on 8–19 February 2016.]

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Annex 7

[Note: this Annex has been replaced by Annex 29 to the report of the meeting of the OIE Terrestrial Animal Health Standards Commission which was held on 8–19 February 2016.]

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Annex 41

Original: English

November 2015

REPORT OF THE MEETING OF THE OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP

Paris, 3–5 November 2015

The OIE Working Group on Animal Production Food Safety (the Working Group) held its 15th meeting at the OIE Headquarters from 3 to 5 November 2015.

The members of the Working Group and other participants are listed at Annex I. The adopted agenda is provided at Annex II.

Dr Bernard Vallat, OIE Director General, welcomed the Working Group and thanked them for their work, which was critical to the OIE achieving its objective of reducing food safety risks to human health due to infectious agents of animal origin. He commented on some topics relevant to the Working Group's agenda. Dr Vallat reported that at a recent meeting the Director General of the Food and Agriculture Organization of the United Nations (FAO) highlighted the importance of strengthening collaboration between the OIE and the FAO in the field of food safety, in particular the standard setting work of the Codex and OIE relevant to food safety.

Dr Vallat noted that the proposed review of Chapters 6.1. and 6.2. is a very important topic for the OIE because the Veterinary Services in the OIE's 180 Member Countries play a key role in meat inspection and other food safety activities. Dr Vallat emphasised that for the OIE, slaughterhouse inspection is not only for food safety since in the majority of our Member Countries, particularly developing countries, the slaughterhouse is the only location that provides animal disease information, because no information is available from the farm. Dr Vallat advised the Working Group to consider this when revising these chapters.

Dr Vallat informed the Working Group of the ongoing work of the OIE global capacity building programme including regional seminars for national APFS Focal Points, who are nominated by their National OIE Delegate. He noted that these seminars allow an exchange of information as well as building of networks. Dr Vallat highlighted the need to continue to develop strategies to assist the Veterinary Services at the national level to improve collaboration with other administrative authorities, for example INFOSAN. Dr Vallat noted that to date only 47 Veterinary Services have nominated their focal point in animal production food safety to serve as an INFOSAN contact, and that we must continue to assist countries to improve the cooperation and collaboration between different ministries at the national level.

Dr Stuart Slorach commended the Director General for his vision and foresight in forming the Working Group back in 2002 and for the support he has continued to provide throughout his term. On behalf of the Working Group members, Dr Slorach wished Dr Vallat well for his future.

1. Update on Codex Alimentarius Commission / WHO / FAO activities

1.1. Codex Alimentarius Commission (CAC)

Dr Annamaria Bruno, representing the Codex Secretary, provided an update on the work of CAC. Detailed information is provided in Annex VI.

Annex 41 (contd)

1.2. World Health Organization (WHO)

Dr Rei Nakagawa, representing the WHO, provided an update on the work of WHO. Detailed information is provided in Annex VII.

1.3. Food and Agriculture Organization of the United Nations (FAO)

Dr Daniela Battaglia, representing the FAO, provided an update on the work of FAO. Detailed information is provided in Annex VIII.

The Working Group was very positive about the excellent ongoing collaboration between the OIE and Codex, FAO and WHO, in the area of animal production food safety. The Working Group recognised the benefits that have resulted from the strong relationships forged between the OIE and Codex, and the relevant units at the FAO and WHO, which ensure continued close coordination of the relevant work of these organisations. Recent work on several standards developed by the OIE and Codex attest to the high level of integration and complementarity between relevant standards of both organisations in food safety.

2. Review OIE *Terrestrial Animal Health Code* chapters

2.1. Chapter 6.1. The role of the Veterinary Services in food safety

The Working Group reviewed Chapter 6.1. *The role of the Veterinary Services in food safety* and noted that there have been considerable developments and changes in the roles and responsibilities of veterinarians and Veterinary Services in food safety since the adoption of this chapter in 2008, which should be reflected in a revised version.

The Working Group developed a revised version of the chapter to include all the food safety areas that veterinarians are involved in, as well as incorporating a farm-to-fork system approach to ensure food safety and suitability. They also included text that describes a risk-based approach to food safety, where the outcomes in terms of likely risks to human health are the driver for regulatory and other activities at different steps in the food chain.

The Working Group removed some text that is duplicated in Chapter 6.2., in particular in the section of meat inspection, and ensured that Chapter 6.1. includes all relevant cross-references to other *Terrestrial Animal Health Code (Terrestrial Code)* chapters related to veterinary public health.

The Working Group also amended the text to provide a clearer description of the relative roles, supervisory activities and responsibilities of government and industry; a better recognition of the need for flexibility in regulatory systems as to inspection, verification and audit; current international practice and experiences; and recognition of the content of relevant Codex standards as they apply to the intent of the chapters. The Working Group used the existing text whenever possible but often edited it to improve readability or moved it to better fit into the revised chapter structure.

The revised draft Chapter 6.1. is presented at Annex III as 'clean' text. The tracked changes version has not been included because of the large number of amendments.

2.2. Chapter 6.2. Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection

The Working Group noted that Chapter 6.2. *Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection* is an important chapter that includes recommendations on veterinary involvement in ante- and post-mortem meat inspection which has not been reviewed since its adoption in 2006. The Working Group agreed that this chapter should be reviewed and updated, noting that all food safety aspects of a meat inspection system must operate as an integrated risk-based system, and the primary responsibility of industry for food safety. Additionally, implementation of food integrity aspects in a cost-effective and efficient manner needs to be considered. The Working Group did not have time during their meeting to revise this chapter, but plan to work out of session to progress this work.

While discussing the purpose and scope of the revised Chapters 6.1. and 6.2. the Working Group agreed that an introductory chapter in Section 6. Veterinary Public Health would be a useful addition and could provide an overview as well as outlining possible future chapters for this section. The Working Group requested that the Terrestrial Animal Health Standards Commission (Code Commission) consider this recommendation.

3. Parallel OIE and Codex work

3.1. *Salmonella*

3.1.1. OIE work

Dr Gillian Mylrea informed the Working Group that the Code Commission, at its September 2015 meeting, reviewed Member Countries' comments on the new draft chapters on the 'Prevention, detection and control of *Salmonella* in pig herds' and 'Prevention and control of *Salmonella* in commercial cattle production systems' and referred comments of a technical nature to the *ad hoc* Group which is scheduled to meet in December 2015.

Dr Gillian Mylrea noted that the Code Commission expects to review the *ad hoc* Group report at its February 2016 meeting, and will then circulate the revised chapters for Member Countries' comments in its February 2016 meeting report.

3.1.2. Codex work

Dr Annamaria Bruno informed the Working Group that the 47th Session of the Codex Committee on Food Hygiene, to be held on 9–15 November 2015, will consider the draft Guidelines for the Control of *Salmonella* spp. in Beef and Pork Meat (CX/FH 15/47/5), prepared by a physical Working Group. In considering the draft the Committee will take into consideration the comments received by Codex Members and Observers, and the outcome of the FAO/WHO Expert Meeting (held in September 2015) to review the technical basis of the mitigation and intervention measures proposed in the draft guidelines.

The Working Group applauded the parallel development of OIE and Codex guidelines on control of *Salmonella* in pigs and cattle, and pork and beef, respectively, and encouraged OIE Delegates to collaborate with their national delegations to Codex to ensure alignment of *Salmonella* standards under development by the OIE and Codex.

4. Cooperation between OIE and Codex

4.1. Discuss relevant work topics (current and future)

The Working Group did not identify any topics of relevance that were not already included in the current agenda. However, the Working Group emphasised the importance of OIE Delegates collaborating with their national delegations to Codex to ensure, at national level, alignment of their national approach to standards developed by the OIE and Codex.

5. Animal Production Food Safety pages of the OIE website

5.1. Working Group achievements document

The Working Group agreed that it was important to document and communicate its achievements since its inception in 2002 in order to highlight the progress made in the cooperation between the OIE and Codex.

The Working Group finalised the development of a document 'Achievements to date' and requested that it be uploaded onto the Animal Production Food Safety pages of the OIE website.

The document 'Achievements to date' is presented at Annex IV.

Annex 41 (contd)

5.2. OIE web document on 'Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection'

The Working Group noted that this document had been developed and uploaded onto the Animal Production Food Safety pages of the OIE website in 2005 to 'provide a discussion paper on which to base future development of OIE guidelines covering this important area where Veterinary Services serve both animal and public health needs'. Much of the text is now included in chapters of the *Terrestrial Code*. The Working Group agreed to review this document once the revisions of Chapters 6.1 and 6.2. have been completed.

6. Discussion paper on the approach taken in improving meat hygiene programmes around the world

At their 2014 meeting, the Working Group had agreed to develop a discussion paper on the approach taken in improving meat hygiene programmes around the world that focuses on the 'why/what/how /where' of meat hygiene activities, but not the 'who', i.e. competencies of people involved. The Working Group finalised this paper and proposed a number of options to ensure that this useful document could be easily accessed and used by Member Countries. The Working Group agreed to request that when finalised, the document be uploaded onto the Animal Production Food Safety pages of the OIE website, and that OIE should explore the possibility of publication in the OIE *Scientific and Technical Review* as well as drafting a short article on this topic for the OIE *Bulletin*.

7. Potential standard development in the area of animal production food safety

7.1. Control of Shiga-like toxin producing *E. coli* (STEC) in food-producing animals

Several members of the Working Group provided updates on the situation in their regions regarding Shiga-like toxin producing *E. coli* (STEC). The Working Group noted the differences between regions in the attribution of STEC to consumption of meat as well as approaches being taken to control this pathogen.

The Working Group reiterated that STEC is an important pathogen in cattle and potentially other species for both public health and trade reasons, and recommended that the OIE should maintain this item on its work programme and undertake relevant work when Codex undertakes new work.

8. OIE Biological Threat Reduction Conference

The Working Group was updated on the outcomes of the OIE 'Global Conference on Biological Threat Reduction' held in Paris from 30 June to 2 July 2015, which highlighted threats that result from or are exacerbated by infectious diseases of animals (including zoonoses) that may arise from natural or man-made disasters, laboratory accidents or from the deliberate manipulation or release of pathogens.

The Working Group noted the importance of this work and the possibility that food-borne diseases of animal origin could also pose a 'biological threat'.

9. OIE work on Antimicrobial resistance

The Working Group was updated on activities of the OIE in antimicrobial resistance and noted the adoption of Resolution No. 26 'Combating Antimicrobial Resistance and Promoting the Prudent Use of Antimicrobial Agents in Animals' at the OIE General Session in May 2015. The Resolution is available at:

https://web.oie.int/downld/SG/2015/A_RESO_2015.pdf

The Working Group appreciated this update and encouraged the OIE to continue this important work in collaboration with FAO and WHO in a holistic approach involving all relevant interested parties.

Annex 41 (contd)

10. Creation of an OIE platform for the collection and management of genomic sequences

The Working Group was informed that in response to rapid advances in complete genome sequencing for infectious disease diagnosis and management, the OIE initiated the development of a project on the collection and management of genomic sequences of infectious agents in animals. The Working Group noted the adoption of Resolution Number 33 'High Throughput Sequencing, Bioinformatics and Computational Genomics (HTS-BCG)' at the OIE General Session in May 2015. The Resolution is available at:

https://web.oie.int/downld/SG/2015/A_RESO_2015.pdf

The Working Group noted the importance of this work and the continuing involvement of international agencies.

11. Capacity building activities

11.1. OIE APFS Focal Point seminars

The Working Group was informed that an OIE regional seminar for National Focal Points in Animal Production Food Safety had been conducted during 2015 for the Americas region (September 2015) and that one is planned for the Europe region (April 2016). Representatives from Codex and WHO continue to contribute to these seminars.

During 2015, one training seminar for OIE National Focal Points for Veterinary Products will be held for the Africa region (December 2015).

The Working Group encouraged the OIE to continue to ensure that OIE Delegates understand the importance of the role of their Focal Points for APFS, which includes taking into account Codex standards, where relevant, when commenting on OIE standards.

11.2. World Bank Global Food Safety Partnership

The Working Group was updated on the OIE's participation in the Global Food Safety Partnership (GFSP), a public-private partnership and resource mobilisation mechanism, managed by the World Bank, dedicated to improving the safety of food in middle-income and developing countries (http://www.worldbank.org/en/topic/agriculture/brief/global-food-safety-partnership). The Working Group was informed that the GFSP Strategic Framework (2015–2020) has been finalised and that new governance arrangements have been agreed including the establishment of a GFSP Governing Council (GC) which will be the decision-making body for the GFSP. The Working Group was informed that the OIE, along with WHO and FAO, continue to engage in the work of the GFSP and will contribute to the GC.

The Working Group noted this initiative and the contribution of the OIE to this work.

12. Other business

12.1. Biofortification

The Working Group was informed that the upcoming meeting of the Codex Committee on Nutrition and Foods for Special Dietary Uses (November 2015) will consider the development of a definition for 'biofortification'.

The Working Group recommended that the OIE continue to follow developments in Codex on this topic but not undertake any specific work at this stage.

Annex 41 (contd)

12.2. Insects as food and feed

The Working Group reviewed the EFSA scientific opinion 'Risk profile related to production and consumption of insects as food and feed' (http://www.efsa.europa.eu/en/efsajournal/pub/4257) and agreed to monitor progress on this topic.

13. Work programme for 2016

The Working Group reviewed and revised its work programme.

The work programme for 2016 is presented at Annex V.

14. Next meetings

The Working Group agreed to conduct an electronic meeting prior to its next physical meeting, with the timing to be decided relative to possible agenda items.

The next physical meeting date is also to be confirmed.

…Annexes

Annex 41 (contd)

Annex I

OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP

Paris, 3–5 November 2015

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Annex 41 (contd)

Annex I (contd)

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Annex 41 (contd)

Annex II

OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP

Paris, 3–5 November 2015

Adopted agenda

Welcome by the OIE Director General

Adoption of the agenda

Report of the previous Working Group meeting

1. Update on Codex Alimentarius Commission / WHO / FAO activities
   - 1.1. Codex Alimentarius Commission (CAC)
   - 1.2. World Health Organization (WHO)
   - 1.3. Food and Agriculture Organization of the United Nations (FAO)
2. Review *Terrestrial Code* chapters
   - 2.1. Chapter 6.1. The role of the Veterinary Services in food safety
   - 2.2. Chapter 6.2. Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection
3. Parallel OIE and Codex work
   - 3.1. *Salmonella*
     - 3.1.1. OIE work
     - 3.1.2. Codex work
4. Cooperation between OIE and Codex
   - 4.1. Discuss relevant work topics (current and future)
5. Animal Production Food Safety pages of the OIE website
   - 5.1. Working Group achievements document
   - 5.2. OIE web document on 'Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection'
6. Discussion paper on the approach taken in improving meat hygiene programmes around the world
7. Potential standard development in the area of animal production food safety
   - 7.1. Control of Shiga-like toxin producing *E. coli* (STEC) in food-producing animals
8. OIE Biological Threat Reduction Conference

Annex 41 (contd)

Annex II (contd)

9. OIE work on Antimicrobial resistance

10. Creation of an OIE platform for the collection and management of genomic sequences

11. Capacity building activities

    11.1. OIE Animal Production Food Safety Focal Point seminars

    11.2. World Bank Global Food Safety Partnership

12. Other business

    12.1. Biofortification

    12.2. Insects as food and feed

13. Work programme for 2016

14. Next meetings

Annex 41 (contd)

Annex III

[Note: this Annex has been replaced by Annex 32 to the report of the meeting of the OIE Terrestrial Animal Health Standards Commission which was held on 8–19 February 2016.]

Annex 41 (contd)

Annex IV

THE OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP

– ACHIEVEMENTS TO DATE –

Since its inception, the Working Group has provided advice to the Director General of the OIE and to its Specialist Commissions. Through its published reports the Working Group also provides a rich source of technical information to other interested parties including governments, FAO and WHO.

The following is a brief summary of the main achievements so far.

Closer cooperation between the OIE and Codex

The Working Group has played an important role in strengthening cooperation between the OIE and the Codex and its subsidiary bodies. The OIE participates actively in the development of Codex standards through participation in relevant Codex Committees and Task Force meetings and by submitting written comments on draft Codex standards. Similarly, representatives of the Codex Secretariat and Chairs of Codex Working Groups, when relevant, are invited to participate in the development of OIE standards through participation in meetings of OIE *ad hoc* groups. The Director General of the OIE presents an update on relevant OIE activities to the Codex Alimentarius Commission meeting and a representative of the Codex reports on relevant Codex activities at the OIE General Assembly. In addition, there is regular contact between the Codex Secretariat and the OIE Headquarters in Paris. There are no joint OIE-Codex standards, but each organisation makes cross references to relevant standards of the other organisation in its own standards, as appropriate. The parallel development of OIE and Codex standards in areas such as *Salmonella* and food-borne parasites are examples of the much closer cooperation that has been achieved in recent years.

The Working Group has also emphasised the importance of cooperation between the OIE and Codex at the regional and national levels and encourages the OIE national Focal Points for Animal Production Food Safety to maintain close contact with the Codex Contact Points in their countries.

The Role of *Veterinary Services* in Food Safety

In 2003 the Working Group produced a document on "The role and functionality of Veterinary Services in food safety throughout the food chain". This was further developed and later adopted, in 2008, by the OIE World Assembly of Delegates as Chapter 6.1 "The role of Veterinary Services in food safety" in the *Terrestrial Animal Health Code (Terrestrial Code)*. This chapter outlines the role and responsibilities of national Veterinary Services in food safety and emphasises the need for cooperation with other authorities in the food production continuum to ensure the protection of both animal and public health.

Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection

Control of hazards of public and animal health importance through ante- and post-mortem meat inspection is a core responsibility of the Veterinary Services. In 2003 the Working Group produced a paper on this subject which complemented the Codex Alimentarius Code of Hygienic Practice for Meat (available on the OIE website at:
http://www.oie.int/fileadmin/Home/eng/Internationa_Standard_Setting/docs/pdf/Control_20of_20hazards_20of_20public_20health_20and_20animal_20health_20impo_E2_80_A6.pdf).

This paper was used as the basis for the *Terrestrial Code* Chapter 6.2. "Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection," which was adopted in 2006.

Annex 41 (contd)

Annex IV (contd)

Guide to Good Farming Practices for Animal Production Food Safety

In 2004 the Working Group developed a paper entitled "Guide to Good Farming Practices for Animal Production Food Safety". This was further developed by the OIE in cooperation with FAO and was published in 2010 jointly by FAO and OIE in English, French and Spanish. It complements existing guidance from OIE, FAO and Codex and serves as a generic guide to help Competent Authorities and stakeholders, particularly farmers, to meet their responsibilities to produce safe food of animal origin.

***Salmonella* in poultry, pigs and cattle and foods derived from them**

In 2006 the Working Group recommended the Director General of OIE appoint an *ad hoc* group to develop draft standards on salmonellosis in poultry to complement the ongoing work of the Codex. The Working Group reviewed the document produced by the *ad hoc* Group, which was adopted by the World Assembly of Delegates as Chapter 6.5. "Prevention, detection and control of *Salmonella* in poultry" of the *Terrestrial Code*. Later the Working Group recommended that OIE should initiate work on *Salmonella* in pigs and cattle to complement the work of the Codex on *Salmonella* in beef and pork ensuring a whole food chain approach.

Animal feed

In 2006 the Working Group recommended that OIE set up an *ad hoc* Group on animal feeding to develop OIE standards to complement the Codex Code on Practice on Good Animal Feeding. This led to the development and adoption of Chapter 6.3. "The control of hazards of animal health and public health importance in animal feed" in the *Terrestrial Code* and Chapter 4.7. "Control of hazards in aquatic animal feed" in the *Aquatic Animal Health Code*. The OIE has also taken an active part in the development of Codex documents on animal feed.

Priority pathogens for standard setting by the OIE

In 2008, the Working Group requested the preparation of a discussion paper on identifying the priority pathogens for future standard setting activities in animal production food safety. A short study, based on expert opinion and a literature review, identified the animal production food safety pathogens for which OIE could usefully develop standards. Prioritisation was based on a pathogen's impact on human health and amenability to control using on-farm measures. The findings of the discussion paper, 'Animal Production Food Safety: priority pathogens for standard setting by the OIE', have been used by the Working Group to inform subsequent work.

Review of draft OIE standards and other documents

One of the functions of the Working Group is to review draft OIE standards related to food safety and provide comments to the OIE Specialist Commissions, mainly the Code Commission. In addition to the subjects mentioned above, the Working Group has reviewed a large number of documents, including draft standards or other documents on bovine tuberculosis, *Brucella* spp., *Taenia solium*, *Trichinella* spp., *Echinococcus granulosus* and *Echinococcus multilocularis*, biosecurity procedures in poultry production, antimicrobial resistance, model veterinary certificates, identification and traceability of live animals, heat-treated pet food, veterinary education and veterinary legislation.

Annex 41 (contd)

Annex V

WORK PROGRAMME FOR 2016

The Working Group agreed that its work programme for 2016 would include:

1. Support current work:
   a) Revisions of Chapters 6.1. and 6.2. of the *Terrestrial Code*
   b) OIE standard developments for *Salmonella* in pigs and cattle
   c) Codex guidelines for *Salmonella* in pork and beef
   d) Drafting a paper for the OIE *Scientific and Technical Review* on 'Approaches taken in improving meat hygiene programmes around the world'
   e) Drafting an article for the OIE *Bulletin* on "Approaches taken in improving meat hygiene programmes around the world"
   f) Codex guidelines on the control of food-borne parasites
   g) Review the OIE web document "Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection" once revisions of Chapters 6.1. and 6.2. are completed.
2. Support potential future work:
   a) Development of guidance for STEC in cattle
   b) Development of a new chapter on VPH for section 6 of the *Terrestrial Code*
   c) Discussions on simplifying food safety risk assessment for international standard setting.
3. Monitoring and advice in relation to animal production food safety:
   a) Antimicrobial resistance
   b) The role of genome sequencing in animal production food safety
   c) Veterinary education
   d) Veterinary legislation
   e) Zoonoses at the human-animal-ecosystem interface ('One Health')
   f) Food safety aspects of the PVS Pathway
   g) Generic aspects of food safety control systems including microbiological target setting and linkages to Codex work
   h) Linkage between food safety and animal welfare
   i) Potential food safety implications of biotechnology vaccines
   j) Developments in nanotechnology

Annex 41 (contd)

Annex V (contd)

k) Emerging food safety hazards

l) Food integrity and food defence

m) Insects for food and feed

n) Feed safety

4. Relationship between OIE and Codex

a) Strengthen and promote continued close collaboration between the Codex Secretariat and the OIE Headquarters.

b) Promote and encourage enhanced OIE input into Codex texts and vice versa, including the involvement of relevant experts.

c) Promote and encourage coordination between OIE National Delegates and national delegations to Codex to facilitate alignment of relevant standards of both bodies and their effective implementation.

d) Identify areas of potential collaboration between OIE and Codex on the development of standards.

5. Communication

a) Support to the OIE regarding communication on animal production food safety.

b) Review and propose updates for the OIE webpages on animal production food safety.

Annex 41 (contd)

Annex VI

INFORMATION ON ACTIVITIES OF THE CODEX ALIMENTARIUS COMMISSION

CODEX SESSIONS SINCE THE LAST MEETING OF THE OIE APFSWG (28–30 OCTOBER 2014)

In the period 20 October 2014–25 October 2015, 18 sessions of the Codex Alimentarius Commission and its subsidiary bodies have been held. Among these sessions, those relevant to the work of the APFSWG are:

- 38th Session of the Codex Alimentarius Commission (CAC38), Geneva, Switzerland, 6–11 July 2015
- 42nd Session of the Committee on Food Labelling (CCFL42), Rome, Italy, 21–24 October 2014
- 46th Session of the Committee on Food Hygiene (CCFH46), Lima, Peru, 16–20 November 2014
- 9th Session of the Committee on Contaminants in Foods (CCCF9), New Delhi, India, 16–20 March 2015
- 22nd Session of the Committee on Residues of Veterinary Drugs in Foods (CCRVDF22), San José, Costa Rica, 27 April–1 May 2015
- 18th Session of Committee on Fish and Fishery Products (CCFFP18), Ålesund, Norway, 19–25 October 2015

In addition, in the reporting period have been held the sessions of the FAO/WHO Coordinating Committees for Asia (CCASIA19), Tokyo (Japan), 3–7 November 2014, for Latin America and the Caribbean (CCLAC19), San José (Costa Rica), 9–11 November 2014, for Africa (CCAFRICA21), Yaoundé (Cameroon), 27–20 January 2015 and for the Near East (CCNEA8), Rome (Italy), 1–5 June 2015.

In particular, the APFSWG may wish to note the following:

CAC37

- Was attended by 140 Member Countries, 1 Member Organization (European Union), and 33 international organizations.
- Adopted new and revised food quality and safety texts for application by Governments and inclusion in the Procedural Manual; agreed to hold the draft MRLs for rbSTs at Step 8 to provide further time to facilitate a possible consensus; and approved items for new work, including priority lists of veterinary drugs and pesticides for evaluation or re-evaluation by JECFA and JMPR, respectively.
- Re-elected as Chairperson Mrs Awilo Ochieng Pernet (Switzerland), and as Vice-Chairpersons: Mr Guilherme Antonio da Costa Jr. (Brazil), Ms Yayoi Tsujiyama (Japan) and Mr Mahamadou Sako (Mali); elected the seven Members of the Executive Committee elected on a geographical basis, i.e. Nigeria, Malaysia, Norway, Mexico, Lebanon, Canada (re-elected) and New Zealand (re-elected) and appointed the six regional coordinators, i.e. Kenya, India, the Netherlands (re-appointed), Chile, Iran and Vanuatu.
- Expressed its appreciation to FAO/WHO and the Secretariat of the Codex Trust Fund (CTF) for the effective management of the CTF1, and acknowledged the important financial and in-kind contributions made by the CTF1 donors. Expressed full support for CTF2 and agreed with the design of the project proposal including the concepts of the multi-year funding and tailor-made support, noting that the eligibility criteria for CTF2 were yet to be finalised.
- Was informed of the activities of international standard-setting organisations.

Full report: REP15/CAC

Annex 1 to this document provides a list of Codex texts and new work proposals relevant to OIE work that were adopted/approved by the CAC38.

Annex 41 (contd)

Annex VI (contd)

With regard to the sessions of the other subsidiary bodies, the following is an updated on matters particular relevant to the APFSWG:

CCFL42

– Agreed to defer discussion on issues related to the proposal to revise the *General Guidelines for the Use of the Term 'Halal'* (CAC/GL 24-1997).

Full report: REP15/FL

CCFH46

– Concluded work on Guidelines for the Control of *Trichinella* spp. in Meat of *Suidae* (adopted by CAC38).

– Agreed to continue work on Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites; Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Beef and Pork Meat (to be discussed by CCFH47).

Full report: REP15/FH

CCCF9

– Agreed to further consider the development of maximum levels for methylmercury in fish including the expansion of the ML proposals to fish species other than tuna that can accumulate high methylmercury concentrations and the conduct of an exposure assessment based on the different ML proposals.

Full report: REP15/CF

CCRVDF22

– Finalized maximum residue limits for derquantel (sheep tissues), emamectin benzoate (salmon and trout tissues) and monepantel (sheep tissues) and risk management recommendations for residues of dimetridazole, ipronodazole, metronidazole and ronidazole (adopted by CAC38).

  Updated the priority list of veterinary drugs to be evaluated by JECFA and continues work on: the database on countries' needs for MRLs and a global survey to provide information to the CCRVDF to move compounds from the database on countries' needs for MRLs to the JECFA Priority List.

  Agreed to consider at its next session (October 2016) papers on a rating system to establish priority for CCRVDF work and on unintended presence of residues of veterinary drugs in food commodities resulting from the carry-over of drug residues into feed.

Full report: REP15/RVDF

CCEXEC70

– Requested the Codex Secretariat to issue a Circular Letter asking Members information on: (i) the adoption and application of existing Codex guidance on antimicrobial and on major capacity development gaps and any other challenges they face in adopting and applying these standards; (ii) need to updated the existing Codex texts (CAC/RCP 61-2005 and CAC/GL 77-2011); and the need to request FAO, WHO and OIE to convene expert meetings to review any new scientific evidence related to the AMR in the food chain including risk management options for the containment of AMR in support of any revision of Codex texts.

– Requested the Codex Secretariat, in collaboration with FAO and WHO, to analyse the replies to the Circular Letter and prepare proposals as appropriate for consideration at the next session of the Commission (CL 2015/21-CAC was issued in July 2015 requesting comments by 31 December 2015).

Full report: REP15/EXEC

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CCFFP24

The Codex Secretariat will verbally report on the outcomes of CCFFP34.

FORTHCOMING CODEX MEETINGS (work relevant to the OIE APFSWG)

CCFH47 (Boston, United States of America, 9-11 November 2015) in addition to the consideration of the Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Beef and Pork and the Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites, will also consider a proposal for new work on the revision of the *General Principles of Food Hygiene* (CAC/RCP 1-1969) and its HACCP Annex.

Provisional agenda: CX/FH 15/47/1

CCFICS22 (Melbourne, Australia, 6–12 February 2016) in addition to the consideration of (i) Principles and/or Guidelines for the Exchange of Information (including questionnaires) Between Countries to Support Food Import and Export; (ii) Guidance for Monitoring the Performance of National Food Control Systems; (iii) the revision of the *Principles and Guidelines for the Exchange of Information in Food Safety Emergency Situations* (CAC/GL 19-1995); and (iv) the revision of the *Guidelines for the Exchange of Information between Countries on Rejections of Imported Food* (CAC/GL 25-1997), will also consider matters related to system comparability/equivalence, the use of electronic certificates by competent authorities and migration to paperless certification, as well as emerging issues and future directions for the work of the CCFICS.

Provisional agenda: CX/FICS 16/22/1

Other sessions:

– **CCCF10** will be held in Rotterdam (Netherlands) from 3 to 7 April 2016

– **CCFL23** will be held in Ottawa (Canada) from 9 to 13 May 2016

– **CAC39** will be held in Rome (Italy) from 27 June to 1 July 2016

The provisional agendas of the above meetings will be posted on the Codex website: www.codexalimentarius.org as soon as available.

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Annex 1

PART 1-LISTS OF STANDARDS AND RELATED TEXTS ADOPTED BY CAC38 RELEVANT TO THE OIE

Standards and Related Texts	Reference
Committee on Food Hygiene (CCFH)	
Guidelines for the Control of *Trichinella* spp. in Meat of *Suidae*	CAC/GL 85-2015
Committee on Residues of Veterinary Drugs in Foods (CCRVDF)	
Maximum Residue Limits (MRLs) for Derquantel (sheep tissues), Emamectin Benzoates (salmon and trout tissues) and Monepantel (sheep tissues)	CAC/MRL 2-2015
Risk Management Recommendations (RMRs) for Dimetridazole, Ipronidazole, Metronidazole and Ronidazole	
PART 2-LISTS OF NEW WORK APPROVED BY CAC38 RELEVANT TO THE OIE	
Committee on Food Import and Export Inspection and Certification Systems (CCFICS)	
Principles and/or Guidelines for the Exchange of Information (including questionnaires) Between Countries to Support Food Import and Export	REP 15/FICS, Appendix III
Guidance for Monitoring the Performance of National Food Control Systems	REP 15/FICS, Appendix IV
Principles and Guidelines for the Exchange of Information in Food Safety Emergency Situations (CAC/GL 19-1995) (Revision)	REP 15/FICS, Appendix V
Guidelines for the Exchange of Information between Countries on Rejections of Imported Food (CAC/GL 25-1997) (Revision)	REP 15/FICS, Appendix VI
Committee on Residues of Veterinary Drugs in Foods (CCRVDF)	
Priority List of Veterinary Drugs for Evaluation or Re-evaluation by JECFA	REP 15/RVDF, Appendix VIII

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Annex VII

ACTIVITIES OF THE WORLD HEALTH ORGANIZATION
(as of October 2015)

The Second International Conference on Nutrition (ICN2)

The conference met on 19–21 November 2014, adopted a Rome Declaration on Nutrition, which recognized that food systems need to contribute to preventing and addressing infectious diseases, including zoonotic diseases, and tackling antimicrobial resistance. The 68th World Health Assembly (May 2015) endorsed the Rome Declaration and the resulting Framework for Action for its implementation, which recommended to:

Recommended actions on food safety and antimicrobial resistance

– Recommendation 53: Develop, establish, enforce and strengthen, as appropriate, food control systems, including reviewing and modernising national food safety legislation and regulations to ensure that food producers and suppliers throughout the food chain operate responsibly.

– Recommendation 54: Actively take part in the work of the Codex Alimentarius Commission on nutrition and food – safety, and implement, as appropriate, internationally adopted standards at the national level.

– Recommendation 55: Participate in and contribute to international networks to exchange food safety information, including for managing emergencies.

– Recommendation 56: Raise awareness among relevant stakeholders on the problems posed by antimicrobial resistance, and implement appropriate multisectoral measures to address antimicrobial resistance, including prudent use of antimicrobials in veterinary and human medicine.

– Recommendation 57: Develop and implement national guidelines on prudent use of antimicrobials in food-producing animals according to internationally recognised standards adopted by competent international organisations to reduce non-therapeutic use of antimicrobials and to phase out the use of antimicrobials as growth promoters in the absence of risk analysis as described in Codex Code of Practice CAC/RCP61-2005.

(Rome Declaration on Nutrition. Available at http://www.fao.org/3/a-ml542e.pdf)

(ICN2 Framework for Action http://www.fao.org/3/a-mm215e.pdf)

* * *

The World Health Day 2015

WHO celebrated the World Health Day (WHD) on 7 April on the theme of Food Safety "How safe is your food? From farm to plate - make food safe". The launch of the WHD at the International Food Market in Rungis (France) with Director Generals of WHO and OIE, senior representatives from FAO, and French authorities represented the opportunity to give a strong signal of the need to involve all sectors to ensure food safety. The activities to mark WHD 2015 on food safety continued with a series of workshops at EXPO Milano 2015. WHO and the Swiss Pavilion hosted a series of workshops for general public on 7 and 8 October. 260 participants learnt about how to handle food safely while learning how to prepare their own chocolate. Sessions included the presentation of the Five Keys to Safer Food animated movie (widely disseminated all over the world by countries as part of WHD campaigns). It is expected that this type of cooking workshops will serve as a model to promote safe food handling behaviors. In many regions and countries local activities and workshops were held to celebrate World Health Day and raise awareness. Some examples can be found on the WHO food safety website.

* * *

Capacity building activities for surveillance of and response to foodborne diseases

1. A practical manual for strengthening surveillance of and response to foodborne diseases

   Given the vision of WHO that every country has a surveillance and response system where data on foodborne diseases from different sectors across the food chain is routinely shared to guide public health interventions so as to reduce the burden of foodborne disease in human, WHO has developed a manual for strengthening surveillance of and response to

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foodborne diseases. The manual contains advice for building a sustainable and functional surveillance and response system by strengthening the existing system, as opposed to creating new separate system. The approach taken in the manual recognizes that each country is different and uses a step-by-step approach. The manual breaks each action into small building blocks and each country then puts the building blocks together to make their own system. The key components of the surveillance and response system are introduced as indicator-based surveillance, event-based surveillance, rapid risk assessment of acute foodborne events, response, and multi-sectoral collaboration.

2. Strengthening foodborne disease surveillance and response workshops

For the purpose of rolling out the WHO Practical Manual for Strengthening Surveillance of and Response to Foodborne Diseases, WHO Regional Office for the Western Pacific (WPRO) and WHO Regional Office for South-East Asia (SEARO) in collaboration with headquarters organized, respectively, a "strengthening foodborne disease surveillance and response workshop". WPRO workshop was held in Pohnpei, Federated States of Micronesia on 2–4 September 2015, convening 16 participants from the national and state government levels. SEARO workshop convened ten participants from the neighbouring countries in the region on 20–21September 2015 in Kathmandu (Nepal). During the workshops, the current status of surveillance was assessed with particular focus on foodborne diseases, and options for strengthening foodborne surveillance and response were identified through discussions. At the end of the workshops, realistic work plans for strengthening such national systems were also developed for the next two years.

3. Whole Genome Sequencing (WGS)

WHO and FAO are planning to hold a joint consultation on the use of the whole genome sequencing of foodborne diseases, foodborne disease outbreak detection, food monitoring and data sharing at the global level from human, animal, and environmental and food samples. The objectives would be to identify the challenges and benefits of WGS technology in resources poor settings and how it can be most effectively utilised, and to engage developing countries in the discussion to develop the global sharing of genomic data and analysis to support public health food safety activities.

4. Food Safety Needs Assessment Tool

WHO and FAO have started the process of combining the WHO food safety needs assessment tool with the food control assessment tool that is being developed by FAO. The approaches are complementary with the FAO tool taking a much broader view of the food control system and WHO tool highlighting the public health aspects. The ultimate aim is to have a robust and comprehensive tool that countries can use either with external support or as a self-assessment which identifies gaps and helps direct planning, also providing indicators allowing to measure progress over time.

* * *

Antimicrobial Resistance (AMR) and WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (AGISAR)

1. Sixth Annual AGISAR Meeting

The sixth annual AGISAR meeting took place on 10–12 June 2015 in Seoul (Republic of Korea). It was co-hosted by the Korea Centers for Disease Control (KCDC) with funding provided by the Ministry of Food and Drug Safety of the Republic of Korea. The specific meeting objectives were: 1) to develop a five-year strategic framework based on the Global Action Plan for antimicrobial resistance that has been adopted at the 68th World Health Assembly in May 2015 (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_20-en.pdf), and 2) to review progress and lessons learned from AGISAR capacity-building projects. The AGISAR experts agreed on the new terms of reference and the five-year strategic framework for 2015–2019 has been developed. In order to facilitate the implementation of the strategic plan, five thematic working groups have been established, and specific activities and objectives were identified. In particular, the updating of the AGISAR Guidance on Integrated Surveillance of AMR and the development of a WHO guideline based on an updated version of the WHO List of Critically Important Antimicrobials will be the two priority outcomes for the coming years.

2. Global Action Plan (GAP) on AMR

Following the adoption of the GAP on antimicrobial resistance by the World Health Assembly in May 2015, AMR Steering Group, Global Technical Coordination Group for AMR, and the AMR secretariat were newly established so as to facilitate the implementation of the GAP. The AMR Steering Group was formed to make high-level recommendations and decisions to implement AMR policy, including direction setting, approval of the Organization-wide AMR work plan, and associated budget and fund allocation. Global Technical Coordination Group for AMR

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brings together HQ technical leads together with regional focal points, implementing action under the GAP. The Strategic and Technical Advisory Group on AMR (STAG-AMR) will continue to meet and provide expert strategic direction to its implementation including how the impact of interventions will be monitored. AMR secretariat, headed by Dr Marc Sprenger who joined WHO as Director in September 2015, will provide support to each of the above groups and will serve as a central point of reference on the global action plan initiatives for any of our colleagues working on AMR in country offices, at regional level and at headquarters.

3. World Antibiotic Awareness Week (WAAW): "Antibiotics: Handle with Care"

The first WAAW will be held from 16-22 November 2015. The campaign aims to increase awareness of global antibiotic resistance and to encourage best practices among the general public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance. This is an implementation of one of the key GAP objectives, "improve awareness and understanding of antimicrobial resistance through effective communication, education and training". WHO is encouraging its Member States and partners to join this campaign and help raise awareness of this issue. Web link: http://www.who.int/drugresistance/en/

4. Global Antimicrobial Resistance Surveillance System (GLASS)

The manual for the GLASS early implementation will soon be finalised and shared publically on the WHO website, followed by a technical consultation on 22–23 October 2015 with the WHO Collaborating Centre, and other technical partners and networks.

5. Tripartite Meeting

The sixth meeting of FAO-OIE-WHO technical focal points on collaborative activities related to AMR was held on 14–15 October 2015 in the FAO Headquarters in Rome (Italy). Tripartite focal points reviewed and shared information on ongoing and planned AMR activities, reviewed the recommendations FAO/ OIE/ WHO tripartite annual executive and coordination meeting, and discussed tripartite contribution to the implementation of the Global Action Plan.

* * *

Joint FAO/WHO Expert Meetings on Microbiological Risk Assessment (JEMRA)

Salmonella spp. in pork and beef

In response to the request from 46th Session of CCFH, WHO and FAO conducted a systematic literature review on measures for control of *Salmonella* in beef and pork and convened an Expert Meeting in Rome (Italy) from 28 September to 2 October 2015. The expert meeting considered any intervention for which there was available evidence that it could be applied to reduce or control *Salmonella* in the production and processing of fresh beef or pork. The results of the meeting will be presented to the 47th Session of CCFH on 9–14 November 2015 in Boston, Massachusetts (USA).

* * *

Developing country needs for Maximum Residue Limits of veterinary drug residues in food

In response to a request of Codex Committee on Residues of Veterinary Drugs in Foods (CCRVDF) for the assessment of a number of veterinary drugs the 81st meeting of JECFA will be convened in Rome from 17 to 26 November 2015. The list of substances scheduled for evaluation is available from the calls for data from the JECFA website: http://www.who.int/foodsafety/call-data-expert/en/

* * *

The Foodborne Disease Burden Epidemiology Reference Group (FERG)

Background

In 2006, WHO established FERG. The members of FERG are a multi-disciplinary group of internationally renowned scientists that are working with WHO to estimate the global burden of foodborne diseases.

The work carried out in the last seven years includes:

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- Epidemiological reviews for mortality, morbidity and disability in each of the major foodborne diseases
- Identification of models for the estimation of foodborne disease burden where data is lacking
- Development of source attribution models and expert elicitation methods to estimate the proportion of disease that is foodborne
- Development of user-friendly tools for burden of foodborne diseases studies and policy situation analysis at country level.

The expected results from FERG will be published in 2015 and will include:

- Burden of disease estimates for all relevant enteric, parasitic and chemically caused Foodborne Diseases published as a WHO report and Atlas
- A Peer-reviewed Paper Series in PLoS Medicine
- Foodborne Disease Burden and Policy Situation Analyses for the pilot country studies
- FERG toolkit to support countries in developing national burden of disease estimates.

* * *

The International Food Safety Authorities Network (INFOSAN)

INFOSAN is a joint FAO/WHO initiative which includes the participation of national authorities in 181 Member States (including veterinary authorities). The aim of the network is to promote the rapid exchange of information during food safety related events, share information on important food safety related issues of global interest, promote partnership and collaboration between countries, and help countries strengthen their capacity to manage food safety emergencies. To accomplish this, INFOSAN works with a number of partners at the international and regional level. INFOSAN receives information from its members and monitors for food safety related events of potential international concern to alert to its network members.

During 2015, the INFOSAN Secretariat has been involved in the coordination of information between network members during more than 30 food safety events with potential international implications.

The INFOSAN Secretariat has worked in collaboration with regional counterparts to organize the second regional meeting of INFOSAN members from the Americas in October. In November the third regional meeting of INFOSAN members in Asia will be hosted in Hong Kong. These regional meetings contribute to the enhanced participation of members in INFOSAN, particularly strengthening their ability to respond effectively during food safety emergencies.

The INFOSAN Secretariat has continued to encourage the designation of additional Focal Point from national veterinary services to ensure the full range of expertise is represented along the food chain.

More information about INFOSAN can be found at:

http://www.who.int/foodsafety/fs_management/infosan/en/index.html

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Annex VIII

ACTIVITIES OF THE UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION (FAO)

(as of October 2015)

Control of Non-typhoidal *Salmonella* spp. in Beef and Pork Meat

In response to a Codex request, FAO and WHO conducted a systematic review to provide preliminary inputs to the preparatory Working Group (pWG), which took place in Brussels (Belgium) on 6–9 May 2015. Due to the time constraints, the systematic review only included the publicly available scientific literature on mitigation/intervention measures to control *Salmonella* in fresh beef and pork meat. The review covered interventions from farm to the end of processing.

The pWG refined the request to the Expert Meeting to: 1) advise on the most appropriate point(s) of application of specific interventions and decontamination treatments; 2) verify, based on the available data, their efficacy in terms of reduction of *Salmonella;* and 3) advise where possible and with some level of confidence on the quantifiable level of reduction that the intervention achieves, and whether these are appropriate to include in the Codex guideline.

FAO and WHO convened an Expert Meeting in Rome (Italy) from 28 September to 2 October 2015. The expert meeting considered any intervention for which there was available evidence that it could be applied to reduce or control *Salmonella* in the production and processing of fresh beef or pork. The focus was on identified hazard-based interventions, however, the experts emphasized that these interventions must not be considered in isolation, but rather as an integral part of an overall meat hygiene programme. It was noted that there are a range of contextual factors that will guide decisions on whether a particular intervention is implemented and that efficacy will also vary according to the conditions at the point of implementation. It was agreed that all interventions should be verified at the point of application.

Hazard-based interventions during primary production and processing of beef

1) No *Salmonella*-specific interventions were identified in primary production of beef, although the experts agreed that biosecurity could contribute to general on-farm control of *Salmonella* and other zoonotic foodborne infections.

2) Decontamination treatments of cattle hides using chemical washes, including organic acids and other chemicals, were recommended for consideration as potential hazard-based interventions for the control of *Salmonella* when applied post-exsanguination and before dehiding. However, decontamination of the hides of live animals was not recommended for consideration due to a lack of confidence in supporting evidence and concerns for animal welfare.

3) Carcass decontamination treatments were recommended for consideration as potential hazard-based interventions for the control of *Salmonella* after hide removal and before chilling. Decontamination treatments recommended by the experts included hot washes and steam pasteurization that achieve a carcass surface temperature of at least 70°C and chemical washes (including organic acids and other chemicals with proven efficacy). Additionally, chemical washes with proven efficacy were recommended for consideration as potential hazard-based interventions for the control of *Salmonella* in fabricated beef.

Hazard-based interventions during primary production and processing of pork

4) The experts agreed that biosecurity is an important good farming practice that can help to prevent the introduction of *Salmonella* to *Salmonella*-negative farms and to reduce the *Salmonella* prevalence in finisher pigs in infected farms. Other potential on-farm hazard-based interventions for the control of *Salmonella* include feed management, such as feeding meal vs. pellets, and acidification of feed and water using organic acids. Vaccination could be considered as a potential hazard-based intervention for the control of *Salmonella* on farm; however, the experts also identified a number of factors that need to be considered if vaccination is used as a food safety measure. Moreover, if measures are taken only pre-harvest, then there may be a limited effect on the reduction of *Salmonella* on carcasses.

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5) Scalding and singeing are process steps that were recommended for consideration as potential hazard-based interventions for the control of *Salmonella* due to the extensive evidence for reductions in *Salmonella* concentration on pork carcasses during these process steps. Carcass decontamination treatments with proven efficacy were recommended for consideration as potential hazard-based interventions before chilling. These included hot water washes and steam pasteurisation achieving a carcass surface temperature of at least 70°C during treatment, and organic acid washes.

Good hygienic practices (GHPs) during primary production and processing of beef and pork

6) For both beef and pork it was acknowledged that other steps during processing are also important for reduction of *Salmonella*; however a lack of consistent and credible evidence and insufficient evidence of efficacy specifically for *Salmonella* meant that they could not be considered as potential hazard-specific interventions. Instead, several of these were considered as important GHP measures, including: hygiene during transport to slaughter and in lairage to limit the spread of *Salmonella*; hygiene during carcass dressing to minimize contamination; bunging to reduce faecal spillage during processing; carcass trimming and steam vacuuming to remove visible contamination; chilling to prevent growth of *Salmonella*; and practices to prevent carcass cross-contamination in the chilling room. In addition, during pork processing, GHPs should be applied during dehairing and polishing to reduce cross- and re-contamination of carcasses, and full carcass steam vacuuming was recommended for consideration as a GHP-based control measure in small establishments with limited resources.

Post-processing interventions for Salmonella control in beef and pork

7) During packaging, the experts recommended that irradiation should be considered as a potential hazard-based intervention for the control of *Salmonella* in beef and pork products. In terms of post-packaging interventions, it was noted that there were a number of interventions that could be applied from product distribution to consumption, but these varied widely and limited information was available for their consideration. However, the experts highlighted some key areas in terms of *Salmonella* control, including the importance of cold chain management and application of hazard analysis critical control point (HACCP)-based principles and hygiene prerequisites.

Antimicrobial resistance

The past year has also seen a lot of discussion on antimicrobial resistance (AMR) at international level on the urgent need to tackle this issue. Particular highlights of the past year include:

- Following the adoption by the 68th WHA in May 2015 of a Global Action Plan (GAP)[1] to combat antimicrobial resistance, the discussions by Member Countries of the role of FAO in addressing AMR at the governing body level that resulted in the adoption of an FAO Resolution on AMR in food and agriculture by the 39th FAO conference in June 2015[2].
- The recognition that food systems need to contribute to preventing and addressing infectious diseases, including zoonotic diseases, and tackling antimicrobial resistance was recognized in the Rome Declaration on Nutrition[3] and related Framework for Action adopted by the Second FAO/WHO International Conference on Nutrition (ICN2, 19–21 November 2014) and endorsed by the 68th WHA (May 2015) and 39th Session of the FAO Conference (June 2015).
- The continued implementation of country pilot projects on integrated surveillance of antimicrobial resistance in the Middle East, Asia, Africa and Latin America by WHO-AGISAR and FAO.
- The development of a technical paper on "The Global State of Antimicrobial Resistance in Food and Agriculture 2015: Impact, trends, data gaps and recommendations" which will be published in early 2016.

1 http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_20-en.pdf
2 http://www.fao.org/3/a-mo153e.pdf (See paras 43-45)
3 Rome Declaration on Nutrition. Available at http://www.fao.org/3/a-ml542e.pdf

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- The preparation of a 5-year FAO Action Plan

A key theme among the above in addressing AMR is the need to recognize that both the contributing factors and the consequences, including economic and others, go beyond health, and that a coherent, comprehensive and integrated "One Health" approach, involving different stakeholders and sectors such as human and veterinary medicine, agriculture, food and feed producers, finance, environment and consumers, and strengthened tripartite collaboration between FAO, OIE and WHO for combating antimicrobial resistance is required.

Joint FAO/WHO Expert Meeting on Hazards Associated with Animal Feed was held in Rome (Italy), 12–15 May

The objective of this meeting, which was convened in response to a request from the Codex ad hoc Task Force on Animal Feed, was to provide FAO and WHO Member Countries with an updated overview of the current state of knowledge on hazards associated with feed and feed ingredients (including feed additives, but not veterinary drugs), and particularly with feed sources and feed production technologies of increasing relevance, such as insects, former food and food processing by-products and biofuel by-products. The meeting also provided guidance on the most appropriate use of this information for risk analyses purposes; it identified knowledge gaps and highlighted future work needs relevant to the identification, assessment and management of potential hazards of key global concern from the perspective of human and animal health. The Executive Summary including recommendations is available online at http://www.fao.org/3/a-az851e.pdf.

Guidance on the design and implementation of modern risk-based meat inspection systems

FAO is in the process of completing the above mentioned guidance which aims to provide member countries with an up to date reference on the development and implementation of risk-based meat inspection systems. While acknowledging that innovative approaches and new scientific knowledge are continually leading to sharper insights and more targeted control measures, the guidance also aims to provide smaller and less developed countries and slaughterhouse facilities with key guidance for the modernisation of their meat inspection systems.

Food control system assessment tool

The work is continuing of the FAO/WHO food control system assessment tool, to assess, in structured, transparent and measurable ways, the performance of the food control systems across the whole food chain, to identify priority areas for capacity development as well as to measure and evaluate progress over time. This tool is conceived to be eventually operated in the context of self-assessment or with the support of adequately trained facilitators.

A first version of the tool has been pre-tested in the Gambia, Sierra Leone, Morocco, and Zambia, with positive and interesting results. As a result, a second version is being finalized. It has already been pre-tested in Sierra Leone, and will further field tested in several regions, like the Republic of Iran, Bangladesh, Brazil, and another country of the SADC region.

A technical meeting is organized by FAO in December 2015 to provide peer review of the tool's assessment criteria and approach to measure performance.

FAO International symposium on the impact of WGS on food safety management, 23–25 May 2016

FAO will organise and host an international symposium on the impact of Whole Genome Sequencing (WGS) on food safety management in conjunction with the ninth meeting of Global Microbial Identifier (GMI9), at the FAO Headquarters in Rome on **23-25 May 2016**. The symposium, which targets food safety managers and assessors around the world, aims to provide an opportunity to exchange information on the potential use and impact of WGS on food safety management, and discuss the opportunities, challenges, concerns and solutions it may present in the context of consumer protection, trade facilitation and food security. Specific considerations will be given to the potential benefits and impact of WGS for developing countries, with burgeoning food safety systems and limited resources. For more information please contact WGS@fao.org.

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Joint FAO/WHO Expert Committee on Food Additives (JECFA)

The next session (81st) of the Joint FAO/WHO Expert Committee on Food Additives (JECFA) to be held in Rome (Italy) from 17 to 26 November 2015 will address residues of veterinary drugs in foods in response to requests from the Codex Committee on Residues of Veterinary Drugs in Food. Substances to be assessed include diflubenzuron, teflubenzuron, ivermectin and zilpaterol hydrochloride, ethoxyquin and sisapronil. More information can be found at http://www.fao.org/food/food-safety-quality/scientific-advice/calls-data-experts/en/.

Work on shellfish sanitation systems

Technical Guidelines for development and implementation of bivalve sanitation programme FAO and WHO are undertaking a programme of work to develop technical guidance on the development of shellfish sanitation systems within the framework of Section 7 of the Codex Code of Practice for Fish and Fishery Products. In developing these guidelines, FAO and WHO are aiming to build upon the experiences and data of member countries to develop technically and scientifically sound guidance.

Following a call for data and the establishment of a core group of experts to support this work, an initial meeting of the Core Group of Experts was convened in Rome (Italy) on 26–28 November 2014 to develop the scope and annotated outline of the Technical Guidelines. This was presented for stakeholder consultation at the 10th International Conference on Molluscan Shellfish Safety held at Puerto Varas (Chile) on 15–20 March 2015. The preliminary version is expected to be finalized at an expert meeting to be held in Rome (Italy) on 24–27 November 2015. The scoping document can be accessed online.

Pilot implementation of the Technical Guidelines is being planned in selected countries in southern Africa and potentially in some countries in Latin America during 2016. Feedback from the pilot implementation will be taken into consideration in the finalisation of the guidance.

PUBLICATIONS

All the publications in Microbiological Risk Assessment (MRA) Series are available on the FAO (http://www.fao.org/food/food-safety-quality/scientific-advice/jemra/en/) and WHO (www.who.int/foodsafety/publications/micro/en/index.html) websites.

Forthcoming publications in this series include:

> *Risk-based examples for control of* Trichinella *spp. and* Taenia saginata *in Meat.* Microbiological Risk Assessment Series 24–FAO/WHO
>
> C*ontrol of nontyphoidal* Salmonella *spp. in beef and pork meat from primary production to processing: interventions and mitigations.* Microbiological Risk Assessment Series 30–FAO/WHO.

The committee consider requesting scientific advice as early in the standard setting process as possible and applying this in a more systematic manner to ensure that it can continue to adhere to its underlying principles of science-based standards.

Organisation Mondiale de la Santé Animale | World Organisation for Animal Health | Organización Mundial de Sanidad Animal

Annex 42

Original: English
October 2015

MEETING OF THE OIE *AD HOC* GROUP ON SLAUGHTER OF ANIMALS – WATERBATH STUNNING (WBS) METHOD FOR POULTRY

Paris, 29–30 October 2015

The OIE *ad hoc* Group on Slaughter of Animals – Waterbath Stunning (WBS) Method for Poultry (the *ad hoc* Group) met at the OIE Headquarters on 29–30 October 2015. Dr Antonio Velarde chaired the meeting.

1. Welcome and adoption of the agenda

The members of the *ad hoc* Group and other participants are listed at Annex 1. The adopted agenda is provided as Annex 2.

On behalf of Dr Bernard Vallat, Director General of the OIE, the Head of the International Trade Department, Dr Derek Belton, welcomed all members and thanked them for their agreement to work with the OIE on this important topic. He indicated how the work done in animal welfare is addressed by the OIE through its permanent Animal Welfare Working Group (Working Group), which provides advice to the Terrestrial Animal Health Standards Commission (Code Commission) and, for aquatic animals, to the Aquatic Animal Health Standards Commission. Draft texts are provided by the Code Commission to OIE Members for comment and consideration, with a view to final adoption in the *Terrestrial Animal Health Code (Terrestrial Code)*.

Dr Belton indicated to the *ad hoc* Group that a draft proposal of the article on electrical stunning of birds using a waterbath in Chapter 7.5. of the *Terrestrial Code* was prepared by an electronic consultation group last year. This proposal was rejected by the OIE World Assembly of Delegates at the last General Session, so the Director General proposed to convene this *ad hoc* Group, with the objective of finding a definitive solution to this issue.

Dr Velarde, on behalf of the *ad hoc* Group, thanks to the OIE for the opportunity to work in this important project.

An extract of the relevant section of the report of the September 2015 Code Commission meeting is presented in Annex 5.

2. Objectives of the meeting

Dr Velarde confirmed the objective of this meeting of the *ad hoc* Group to develop a new proposal for Article 7.5.7. point 3b) of Chapter 7.5. on 'Slaughter of animals' in the *Terrestrial Code*, taking into consideration the draft proposal presented during the last General Session and the written comments sent by the Member Countries prior to and since the General Session.

3. Terms of Reference (ToR)

Dr Velarde started the discussion on the proposed ToR prepared by the OIE Animal Welfare Working Group at its June 2015 meeting.

Annex 42 (contd)

Dr Sulivan Pereira Alves noted the importance of considering the welfare aspects of all operations prior to slaughter which may affect production system efficiency and meat quality. She further indicated that the private sector in Brazil together with the Ministry of Agriculture have conducted research to estimate the losses caused by the mishandling of birds prior to slaughter.

Dr Velarde and Mr Kevin Lovell noted that the OIE standard on the slaughter of animals does not include outcome-based measures covering the complete process cycle, from capture on the farm through to slaughter. The *ad hoc* Group considered that the current work on development of an ISO technical specification on animal welfare of animal food production systems could provide the platform for development of future ISO standards for industrial slaughter systems that deliver acceptable animal welfare outcomes.

The *ad hoc* Group agreed that the point 1 of the ToR is relevant to the final result of the complete process of slaughter, but covers much more than the waterbath stunning method. The *ad hoc* Group concluded they were unlikely to completely address this point in one meeting.

The *ad hoc* Group therefore recommended that OIE convene an *ad hoc* Group to undertake a complete review of Chapter 7.5. (which is now ten years old) taking into account all new scientific information, particularly in relation to relevant outcome-based measurables.

Dr Belton indicated that today design based measures with animal based measures are both used in the animal welfare chapters of the *Terrestrial Code,* as both could be used depending on their practicality in any particular situation.

Dr Zulkifli Idrus indicated that a critical aspect of this work is to ensure, as far as possible, that birds are unconscious after passing through the waterbath stunner. The *ad hoc* Group also agreed on the importance of using indicators that are practical to use, and at the same time reliably establish that acceptable animal welfare standards are achieved.

Dr Velarde noted that the current tables in Article 7.5.7. point 3 b) are also outcome based in the sense that the values given were derived from experimental studies where stunning efficacy was established by electroencephalogram (EEG) monitoring. If these tables can be complemented by other animal-based indicators, applicable under field conditions, the objective of achieving a good stun may be achieved in a wider range of settings than those currently provided for in Article 7.5.7. point 3 b).

Finally the Group decided to focus their work mainly on points 2 and 3 of the ToR, which are in line with the most recently developed animal welfare chapters of the *Terrestrial Code*.

The draft and the adopted ToR are presented in Annexes 3 and 4 respectively.

Meeting with Dr Bernard Vallat, OIE Director General

Dr Vallat, Director General of the OIE, joined the *ad hoc* Group on the first day of the meeting. He welcomed the *ad hoc* Group and thanked them for their participation. He stressed that OIE standards should be flexible, not prescriptive, and they should be both outcome and science based. It is important to list relevant scientific references in the report as science is the unique common denominator for OIE Members. Dr Vallat confirmed that he hoped a new draft of Article 7.5.7. point 3 b) would be proposed for adoption at the next OIE General Session in May 2016.

4. Discussion of working documents and other relevant documents provided by the *ad hoc* Group Members

The *ad hoc* Group noted that there are a number of common features in most of the documents. Most of the papers highlighted the need for further research on the welfare of animals at slaughter, and in particular on electrical stunning of birds using a waterbath.

The *ad hoc* Group agreed that the working documents provided were relevant to development of a new draft of Article 7.5.7. point 3 b).

Annex 42 (contd)

5. Review of Member Countries' comments on draft point 3 b) of Article 7.5.7. (February 2015 meeting of the Code Commission)

The *ad hoc* Group considered all comments from Member Countries sent prior to and since the OIE 83rd General Session of May 2015. They took particular note of the comments requesting the development of new text based on existing scientific information.

The *ad hoc* Group noted that more scientific information is needed to complete the proposed table on minimum average currents for use in waterbath stunning of laying hens, ducks and geese, especially when using high frequencies.

In order to verify the effectiveness of the stunning process, the *ad hoc* Group highlighted in the new draft text proposal the need to assess the state of consciousness of birds between the exit from the waterbath stunner and neck cutting (mechanical or manual), and again during bleeding.

The new draft proposal for point 3 b) of Article 7.5.7. is presented in Annex 6.

6. *Ad hoc* Group programme for further work

The *ad hoc* Group recommended that OIE in order establish an *ad hoc* Group to review and update all of Chapter 7.5 so that the latest animal welfare developments, particularly animal welfare outcome indicators can be included.

The *ad hoc* Group also recommended that OIE develop a system to make all the scientific information used to develop this text readily accessible to all interested parties.

7. Review and finalise the report of the meeting

The *ad hoc* Group agreed to complete their meeting report, including their draft proposal by the end of November 2015, for submission to the Code Commission during its February 2016 meeting.

8. Next meeting

It was agreed that if a second meeting of the *ad hoc* Group is needed, it could take place after receipt of Member Countries' comments on the proposed new draft of Article 7.5.7. point 3 b).

.../Appendices

Annex 42 (contd)

Annex 1

MEETING OF THE OIE *AD HOC* GROUP ON SLAUGHTER OF ANIMALS – WATERBATH STUNNING (WBS) METHOD FOR POULTRY

Paris, 29–30 October 2015

List of participants

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Annex 42 (contd)

Annex 2

OIE *AD HOC* GROUP ON SLAUGHTER OF ANIMALS –
WATERBATH STUNNING (WBS) METHOD FOR POULTRY

Paris, 29–30 October 2015

Agenda

1) Welcome and introduction – Dr Derek Belton.

2) Objectives of the meeting – Dr Derek Belton.

3) Confirmation of Terms of Reference and comments from the Group.

4) Discussion of working documents and other relevant documents provided by the *ad hoc* Group Members.

5) Review of the comments of Member Countries to the draft point 3 b) of Article 7.5.7. (February 2016 meeting of the Code Commission).

6) Programme for further work after this meeting.

7) Review and finalise report of meeting.

Annex 42 (contd)

Annex 3

AD HOC GROUP ON SLAUGHTER OF ANIMALS – WATERBATH STUNNING (WBS) METHOD FOR POULTRY

Paris, 29–30 October 2015

Draft Terms of Reference

1) Identify the main risks in terms of poor welfare during the process of slaughtering broilers from the capture process at farm to the unloading at slaughterhouse, including data on lesions and mortality and proposed outcome-based measures to reflect poultry welfare at slaughter. Measures may include % dead on unloading, % broken wings, % birds that miss the cutter, any birds that are alive when they enter the scald-tank.

2) Consider retaining the tables of electrical current in the *Terrestrial Code*, but develop appropriate text to contextualize the numbers, perhaps noting that these are values that have been shown to be most reliable at achieving an appropriate EEG response, but noting that effectiveness of current depends on several risk factors (e.g. equipment, line speed and the nature of the electrical contact between the line and the birds).

3) To consider a decision making process whereby (1) achieving the outcome targets is the preferred measure of compliance with the standard, but (2) conforming to the specified electrical current strength can be used where it is not feasible to use outcome-based measures. Regarding the use of outcome, provide the Working Group with advice on sampling and range of acceptable value, in a routine process, to warrant that welfare is ensured as far as possible.

Annex 42 (contd)

Annex 4

OIE *AD HOC* GROUP ON SLAUGHTER OF ANIMALS – WATERBATH STUNNING (WBS) METHOD FOR POULTRY

Paris, 29–30 October 2015

Adopted Terms of Reference

1) Consider retaining the tables of electrical current in the *Terrestrial Code*, but develop appropriate text to contextualize the numbers, perhaps noting that these are values that have been shown to be most reliable at achieving an appropriate EEG response, but noting that effectiveness of current depends on several risk factors (e.g. equipment, line speed and the nature of the electrical contact between the line and the birds).

2) To consider a decision making process whereby (1) achieving the outcome targets is the preferred measure of compliance with the standard, but (2) conforming to the specified electrical current strength can be used where it is not feasible to use outcome-based measures. Regarding the use of outcome, provide the Working Group with advice on sampling and range of acceptable value, in a routine process, to warrant that welfare is ensured as far as possible.

Annex 42 (contd)

Annex 5

EXTRACT OF THE REPORT OF THE MEETING OF THE OIE

TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

Paris, 10–19 February 2015

Item 11 Animal welfare

d) Report of the e-conference of the *ad hoc* Group on electrical stunning of chickens in Chapter 7.5. – Slaughter of animals

The Code Commission reviewed and edited new text prepared by OIE Headquarters and the *ad hoc* Group to revise point 3 b) of Article 7.5.7. in response to longstanding Member Countries' concerns.

The revised Chapter 7.5. is attached as Annex XII to be presented for adoption at the 83rd General Session in May 2015.

Annex 42 (contd)

Annex 6

[Note: this Annex has been replaced by Annex 33 to the report of the meeting of the OIE Terrestrial Animal Health Standards Commission which was held on 8–19 February 2016.]

Annex 43

TIPS FOR SUBMITTING EFFECTIVE COMMENTS

Introduction

These tips are intended to help Member Countries communicate effectively with the Terrestrial Animal Health Standards Commission (the Code Commission) and make their comments easier to read and understand.

Members Countries are requested to provide their proposal for amendments accompanied by the related rationale. Deletion should be presented in '~~strikethrough~~' and new texts should be presented in 'double underline'. A coloured background can be used to distinguish changes that had been proposed between at the current Code Commission meeting and its previous meeting.

Please note that the examples provided here are taken from comments submitted by some Member Countries.

Example 1.

Text as presented:

Article 11.4.15.

2) b) the bones have been subjected to a process which includes all of the following steps:

i) pressure washing (degreasing),

Proposed alternative text:

Article 11.4.15.

2) b) the bones have been subjected to a process which includes all of the following steps:

i) ~~pressure washing (~~degreasing~~)~~,

Rationale: We are advised there is no pressure involved in the degreasing step used by the gelatine industry.

Example 2.

Article 7.X.1.

Preamble

In many countries, working equids, used for transport and traction, contribute directly and indirectly to households' livelihoods and benefit communities as a whole.

Country comment

We would ask the OIE to consider moving the final sentence of the below paragraph here so that the first paragraph reads:
"In many countries, working equids, used for transport and traction, contribute directly and indirectly to households' livelihoods and benefit communities as a whole. Working equids may be of direct or indirect use in production and commercial activities."

Justification: The two sentences both seem to be appropriate as an introduction.

Annex 43 (contd)

Example 3.

Text as presented:

Article 1.2.2.

4 …

c) The *disease* has been shown to, or scientific evidence indicates that it would, cause a significant impact on the health of ~~morbidity or mortality in *wild*~~ *wildlife* ~~*animal*~~ ~~populations~~ taking into account the occurrence and severity of the clinical signs, including direct production losses and mortality, and ecological threats.

Clean text intended:

Article 1.2.2.

4 …

c) The *disease* has been shown to, or scientific evidence indicates that it would, cause a significant impact on the health of *wildlife* taking into account the occurrence and severity of the clinical signs, including direct production losses and mortality, and ecological threats.

Proposed alternative:

Article 1.2.2.

4 …

c) The *disease* has been shown to, or scientific evidence indicates that it would, cause a significant impact on the health of *wildlife* taking into account the occurrence and severity of the clinical signs, including direct production losses and mortality, and ~~ecological~~ any threat~~s~~ to the viability of a *wildlife* population.

Rationale: We do not like the phrase "ecological threats". We consider that the word "ecological" could too easily be interpreted more broadly than the mandate of the OIE, which is protecting animals.

Example 4.

Text as presented:

~~Article 15.1.17.~~

~~**Recommendations for the importation of litter and manure (from pigs)**~~

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

~~1) come from an ASF free country, *zone* or *compartment*; or~~

~~2) have been processed in an establishment approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of the ASFV, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.~~

Proposed alternative text:

Article 15.1.17. (Reinstated)

Recommendations for the importation of litter and manure from pigs

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

1) originated from domestic or *captive wild* pigs in a country, *zone* or *compartment* free from ASF and have been processed in an establishment approved by the *Veterinary Authority* for export purposes; or

2) have been processed in an establishment approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of the ASFV in accordance with one of the processes listed in Article 15.1.21tris, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

Rationale: We propose that a separate Article 15.1.17. be reinstated covering litter and manure and a separate article should cover bristles only. Bristles are traded much more widely internationally, and in greater volumes, than litter and manure. The commodities are so different, bristles compared with litter and manure, that lumping them together in a single article makes little sense.

Example 5.

Current OIE text

User's Guide

C. Specific issues

3. Prevention and control

Chapters 4.3. and 4.4. describe the measures that should be implemented to establish zones and compartments. Zoning and compartmentalisation should be used to control diseases and to facilitate safe trade.

Proposed alternative text

User's Guide

C. Specific issues

3. Prevention and control

Chapters 4.3. and 4.4. describe the measures that should be implemented to establish zones and compartments. Zoning and compartmentalisation ~~should~~ may be used to control diseases and to facilitate safe trade.

Rationale: 'Should' implies that using zones and compartments is desirable which may not always be the case. We suggest 'may'.