

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 natural arthropods 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 in samples from a suid epidemiologically linked to a suspected or confirmed outbreak of ASF, or 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 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 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 herds in the country, *zone* or *compartment*;
- 4) the *Veterinary Authority* has current knowledge of about the species of wild 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 15.1.27. 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 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 of disease spread including the presence of *Ornithodoros* ticks;
- 7) based on the assessed risk of spread within the wild and feral pig and African wild suid populations, and according to in accordance with Article 15.1.26., the domestic and captive wild pig population should be separated by appropriate measures from the wild and feral pig and African wild suid populations and from *Ornithodoros* ticks by appropriate measures.

Article 15.1.3.

Country or zone free from ASF free country, zone or compartment

1. Historically free status

A country or *zone* may be considered historically free from ASF without formally applying a specific *surveillance* programme if the provisions of point 1 of Article 1.4.6. are complied with.

2. Free status as a result of an eradication programme

A country or *zone* which does not meet the conditions of point 1 above ~~or a compartment~~ may be considered free from ASF in domestic and captive wild pigs when:

- a) there has been no *outbreak* of ASF 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*;
- b) no evidence of ASFV *infection* with ASFV in domestic and captive wild pigs has been found during the past 12 months;
- be) *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;
- ce) imported domestic and captive wild pigs and pig commodities comply with the requirements of in Articles 15.1.5. or to Article 15.1.617.

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 15.1.3.bis

Compartment free from ASF

The establishment of an 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 15.1.3.ter

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 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, 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.

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) showed no clinical sign of ASF on the day of shipment;
- 2) were kept in an ASF free country, zone or compartment free from ASF since birth or for at least the past 40 days three months.

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 an ~~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 no case of ASF has occurred in the past three years;
 - b) showed no clinical sign of ASF on the day of collection of the semen and for the following 40 30 days;
 - e) 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 ASFFor 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 ASFFor 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 compartment free from ASF since birth or for at least 40 days three months prior to collection in an establishment, in which no case of ASF has occurred in the past three years;
 - b) showed no clinical sign of ASF on the day of collection of the embryos and for the following 40-30 days;
 - e) 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 ASFFor 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 an ~~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 no case of ASF has occurred in the past three years and 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.

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) ~~have been killed in an ASF free country or zone;~~
 - b) have been subjected with favourable results to a post-mortem inspection in accordance with Chapter 6.2. in an approved examination centre 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. 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 relevant 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 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:

- 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 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 15.1.21bis, 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 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 15.1.21.ter, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

Article 15.1.17.bisRecommendations for the importation of skins and trophies

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 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 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 15.1.17.terRecommendations 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 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 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 maintained at a temperature of at least 90°C for at least 60 minutes, with continuous stirring; or
- 2) the swill should be maintained at a temperature of at least 121°C for at least 10 minutes at an absolute pressure of 3 bar.

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.

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 ($A_w < 0.80$), 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 15.1.21.bis

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 15.1.21.ter

Procedures for the inactivation of ASFV in manure and litter from pigs (under study)

For the inactivation of ASFV present in 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 do 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 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 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) 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 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).

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 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 ASF. 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 in wild and feral suids pigs presents additional challenges including:

- a) determination of the distribution, size and movement patterns associated with the wild and feral suid pig population;
- b) relevance and practicality of assessing the possible presence of infection with ASFV within 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.
- 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 as potential vector or reservoir of ASFV. The virus is generally transmitted transstadially but 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 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 CO₂ trapping and vacuuming of burrows or structures.

— Text deleted.