

CHAPTER 15.3.

INFECTION WITH PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS

Article 15.3.1.

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 the occurrence of *infection* with PRRSV:

- 1) PRRSV, excluding vaccine strains, has been isolated from a sample from a domestic or *captive wild* pig;

OR

- 2) antigen or ribonucleic acid specific to PRRSV, which is not a consequence of *vaccination*, has been identified in a sample from a domestic or *captive wild* pig epidemiologically linked to a confirmed or suspected *case* of PRRS, or giving cause for suspicion of previous association or contact with PRRSV, with or without clinical signs consistent with PRRS;

OR

- 3) a live PRRSV vaccine strain has been isolated or antigen or ribonucleic acid specific to a live PRRSV vaccine strain has been detected in a sample from a domestic or *captive wild* pig that is unvaccinated, or has been vaccinated with an inactivated vaccine, or with a different vaccine strain, showing clinical signs suggestive of PRRS, or epidemiologically linked to a suspected or confirmed *case*;

OR

- 4) antibodies specific to PRRSV, unless they are demonstrated to be a consequence of *vaccination*, have been detected 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.

For the purposes of the *Terrestrial Code*, the *incubation period* of PRRS shall be 14 days.

Commodities of domestic or *captive wild* pigs can be traded safely in accordance with 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 15.3.2.

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*:

- 1) hides, skins and trophies;
- 2) bristles;
- 3) *meat products*;
- 4) *meat-and-bone meal*;
- 5) blood-products;
- 6) *casings*;
- 7) gelatine.

Article 15.3.3.

Country, zone or compartment free from PRRS

A country, *zone* or *compartment* may be considered free from PRRS when the following conditions are met:

- 1) PRRS is a *notifiable disease* in the entire country;
- 2) an early detection system is in place;
- 3) *surveillance* in accordance with Articles 15.3.13. to 15.3.16. has been in place for at least 12 months;
- 4) there has been no occurrence of *infection* with PRRSV 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;
- 7) pigs and pig *commodities* are imported or introduced in accordance with Articles 15.3.5. to 15.3.12.

Article 15.3.4.

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:

- 1) a *stamping-out policy* or the *slaughter* of all susceptible animals in the infected *herds* followed by *disinfection* of the *establishments*, has been implemented;
- 2) *surveillance* has been carried out in accordance with Articles 15.3.13. to 15.3.16. with negative results.

Where a *stamping-out policy* or depopulation by means of *slaughter* are not practised, Article 15.3.3. applies.

Article 15.3.5.

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 15.3.6.

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 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;
- 3) have not been vaccinated against PRRS nor are they the progeny of vaccinated sows;
- 4) were isolated for 28 days 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 15.3.7.

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 15.3.8.

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 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 accordance with Chapters 4.6. and 4.7.

Article 15.3.9.

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 males have not been vaccinated against PRRS; and
 - a) 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 pigs have been vaccinated against PRRS and no *infection* with PRRSV was detected within that period;
 - b) showed no clinical sign of PRRS on the day of entry into the pre-entry isolation facility and were subjected to a serological test with negative results on samples collected on the same day;
 - c) were kept in the pre-entry isolation facility for at least 28 days and were subjected to a serological test with negative results on samples collected no less than 21 days after entry;
 - d) EITHER
 - i) have been kept in an *artificial insemination centre* where, at least every month, serum samples from a statistically representative number of all donor males are subjected, to an appropriate test for *infection* with PRRSV with negative results. The sampling scheme should be designed to ensure that all donor males are tested every 12 months and at least once during their stay;
 - OR
 - ii) have been kept in an *artificial insemination centre* where all donor males were subjected to serological and virological examinations for *infection* with PRRSV, with negative results, on serum samples taken on the day of collection;
- 2) the semen was collected, processed and stored in accordance with the relevant articles in Chapters 4.6. and 4.7.

Article 15.3.10.

Recommendations for importation of *in vivo* derived embryos of domestic and captive wild pigs from countries, zones or compartments free from PRRS

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;
- 3) the embryos were collected, processed and stored in accordance with Chapters 4.8. and 4.10., as relevant;
- 4) the semen used for the production of embryos complied with the provisions of Article 15.3.8. or Article 15.3.9.

Article 15.3.11.

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;
 - 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 4.8. and 4.10., as relevant;
- 3) the semen used for the production of embryos complied with the provisions of Article 15.3.8. or Article 15.3.9.

Article 15.3.12.

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* comes from pigs that have been slaughtered in an approved *slaughterhouse/abattoir* and have been subjected with favourable results to ante- and post-mortem inspections in accordance with Chapter 6.3.

Article 15.3.13.

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 should be capable of detecting the presence of *infection* with PRRSV even in the absence of clinical signs. *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 possible occurrence of aerosol transmission;
- 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 pigs;
- the possible 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 other genotype is absent. Therefore, virological and serological tests used for *surveillance* should be able to detect both genotypes and antibodies to both genotypes with similar sensitivity.

Article 15.3.14.

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 include the following elements:
 - a) formal and ongoing system for detecting and investigating *outbreaks* of PRRS;
 - b) a system for recording, managing and analysing diagnostic and *surveillance* data.
- 2) Any PRRS *surveillance* programme should:
 - a) include 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 lax *biosecurity*.

Article 15.3.15.

Surveillance strategies

1. Introduction

The objective of *surveillance* is to estimate the *prevalence of infection*, demonstrate freedom or detect introduction of PRRSV as soon as possible.

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

In some circumstances such as clinical disease investigations and in high-risk populations, virological *surveillance* may provide an advantage through earlier detection.

Virological *surveillance* should be conducted:

- a) to monitor high-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.

4. Serological surveillance

Serology in unvaccinated populations is often the most effective and efficient *surveillance* methodology. In some 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.

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 pigs older than eight weeks can indicate the presence of *infection*.

Article 15.3.16.

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) 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.

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