

CHAPTER 8.7.

INFECTION WITH EPIZOOTIC HEMORRHAGIC DISEASE VIRUS

Article 8.7.1.

General provisions

For the purposes of the *Terrestrial Code*, epizootic hemorrhagic disease (EHD) is defined as an *infection* of cervids and bovids with epizootic hemorrhagic disease virus (EHDV) that is transmitted by *Culicoides* vectors.

The following defines the occurrence of *infection* with EHDV:

- 1) EHDV has been isolated from a sample from a cervid or bovid; or
- 2) antigen or ribonucleic acid specific to EHDV has been identified in samples from a cervid or bovid showing clinical signs consistent with EHD, or epidemiologically linked to a suspected or confirmed case; or
- 3) antibodies to structural or nonstructural proteins of EHDV that are not a consequence of *vaccination* have been detected in a cervid or bovid that either shows clinical signs consistent with EHD, or is epidemiologically linked to a suspected or confirmed case.

For the purposes of the *Terrestrial Code*, the *infective period* for EHD shall be 60 days.

In the absence of clinical disease in a country or zone, its EHD status should be determined by an ongoing *surveillance* programme in accordance with Article 8.7.14.

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

Article 8.7.2.

Safe commodities

When authorising import or transit of the following *commodities*, *Veterinary Authorities* should not require any EHD-related conditions regardless of the EHD status of the ruminant population of the *exporting country*:

- 1) *milk* and *milk products*;
- 2) *meat* and *meat products*;
- 3) hides, skins, antlers and hooves;
- 4) wool and fibre.

Article 8.7.3.

Country or zone free from EHD

- 1) Historical freedom as described in Chapter 1.4. does not apply to EHD.
- 2) A country or a zone may be considered free from EHD when *infection* with EHDV is notifiable in the entire country, importation of animals and their semen or embryos is carried out in accordance with this chapter and either:
 - a) a *surveillance* programme in accordance with Article 8.7.14. has demonstrated no evidence of transmission of EHDV in the country or zone during the past two years; or
 - b) an ongoing *surveillance* programme in accordance with Article 8.7.14. and Chapter 4.4. has found no *Culicoides* for at least two years in the country or zone.
- 3) A country or zone free from EHD in which ongoing *vector surveillance* has found no evidence of *Culicoides* will not lose its free status through the introduction of seropositive or infective animals, or semen or embryos from countries or zones infected with EHDV.

- 4) A country or *zone* free from EHD in which *Culicoides* are present will not lose its free status through the introduction of seropositive animals, or semen or embryos provided that:
 - a) an ongoing *surveillance* programme has focused on transmission of EHDV in domestic bovids and farmed cervids and has demonstrated no evidence of transmission in the country or *zone*; or
 - b) the animals, semen and embryos were introduced in accordance with this chapter.

Article 8.7.4.

Zone seasonally free from EHD

A seasonally free *zone* is a part of an infected country or an infected *zone* in which for part of a year, *surveillance* demonstrates no evidence either of transmission of EHDV or of adult *Culicoides*.

For the application of Articles 8.7.7., 8.7.9. and 8.7.11., the seasonally free period is taken to commence the day following the last evidence of transmission of EHDV (as demonstrated by the *surveillance* programme), and of the cessation of activity of adult *Culicoides*.

For the application of Articles 8.7.7., 8.7.9. and 8.7.11., the seasonally free period is taken to conclude either:

- 1) at least 28 days before the earliest date that historical data show *vector* activity may recommence; or
- 2) immediately if current climatic data or data from a *surveillance* programme indicate an earlier resurgence of activity of adult *Culicoides*.

A seasonally free *zone* in which ongoing *surveillance* has found no evidence that *Culicoides* are present will not lose its free status through the introduction of vaccinated, seropositive or infective animals, or semen or embryos from countries or *zones* infected with EHDV.

Article 8.7.5.

Country or zone infected with EHDV

For the purposes of this chapter, a country or *zone* infected with EHDV is one that does not fulfil the requirements to qualify as either a country or *zone* free from EHD or a *zone* seasonally free from EHD.

Article 8.7.6.

Recommendations for importation from countries or zones free from EHD

For bovids and cervids

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

- 1) the animals showed no clinical sign of EHD on the day of shipment;
- 2) the animals were kept in a country or *zone* free from EHD since birth or for at least 60 days prior to shipment; or
- 3) the animals were kept in a country or *zone* free from EHD for at least 28 days, then were subjected, with negative results, to a serological test to detect antibody to the EHDV group and remained in the free country or *zone* until shipment; or
- 4) the animals were kept in a country or *zone* free from EHD for at least 14 days, then were subjected, with negative results, to an agent identification test and remained in the free country or *zone* until shipment; or
- 5) the animals:
 - a) were kept in a country or *zone* free from EHD for at least seven days;
 - b) were vaccinated at least 60 days before the introduction into the free country or *zone* against all serotypes demonstrated to be present in the source population through a *surveillance* programme as described in Article 8.7.14.;
 - c) were identified as having been vaccinated;
 - d) remained in the free country or *zone* until shipment;

AND

- 6) if the animals were exported from a free *zone* within an infected country either:
 - a) did not transit through an infected *zone* during transportation to the *place of shipment*; or
 - b) were protected from attacks from *Culicoides* at all times when transiting through an infected *zone*.

Article 8.7.7.

Recommendations for importation from zones seasonally free from EHD

For bovids and cervids

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

- 1) showed no clinical sign of EHD on the day of shipment;
- 2) were kept in a *zone* seasonally free from EHD during the seasonally free period since birth or for at least 60 days prior to shipment; or
- 3) were kept in a *zone* seasonally free from EHD during the seasonally free period for at least 28 days prior to shipment, and were subjected during the residence period in the *zone* to a serological test to detect antibodies to the EHDV group with negative results, carried out at least 28 days after the commencement of the residence period; or
- 4) were kept in a *zone* seasonally free from EHD during the seasonally free period for at least 14 days prior to shipment, and were subjected during the residence period in the *zone* to an agent identification test with negative results, carried out at least 14 days after the commencement of the residence period; or
- 5) were kept in a *zone* seasonally free from EHD during the seasonally free period and were vaccinated, at least 60 days before the introduction into the free country or *zone*, against all serotypes the presence of which in the source population has been demonstrated through a *surveillance* programme in accordance with Article 8.7.14. and were identified as having been vaccinated and remained in the free country or *zone* until shipment;

AND

- 6) either:
 - a) did not transit through an infected *zone* during transportation to the *place of shipment*; or
 - b) were protected from attacks from *Culicoides* at all times when transiting through an infected *zone*; or
 - c) were vaccinated in accordance with point 5 above.

Article 8.7.8.

Recommendations for importation from countries or zones infected with EHDV

For bovids and cervids

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

- 1) showed no clinical sign of EHD on the day of shipment;
- 2) were protected from attacks from *Culicoides* in a *vector-protected establishment* for at least 60 days prior to shipment and during transportation to the *place of shipment*; or
- 3) were protected from attacks from *Culicoides* in a *vector-protected establishment* for at least 28 days prior to shipment and during transportation to the *place of shipment*, and were subjected during that period to a serological test to detect antibodies to the EHDV group, with negative results, carried out at least 28 days after introduction into the *vector-protected establishment*; or
- 4) were protected from attacks from *Culicoides* in a *vector-protected establishment* for at least 14 days prior to shipment and during transportation to the *place of shipment*, and were subjected during that period to an agent identification test with negative results, carried out at least 14 days after introduction into the *vector-protected establishment*; or
- 5) were demonstrated to have antibodies for at least 60 days prior to dispatch against all serotypes whose presence has been demonstrated in the source population through a *surveillance* programme in accordance with Article 8.7.14.

Article 8.7.9.

Recommendations for importation from countries or zones free or zones seasonally free from EHD

For semen of bovids and cervids

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

- 1) the donor males:
 - a) showed no clinical sign of EHD on the day of collection;
 - b) were kept in a country or *zone* free from EHD or in a seasonally free *zone* during the seasonally free period for at least 60 days before commencement of, and during, collection of the semen; or
 - c) were subjected to a serological test to detect antibodies to the EHDV group, between 28 and 60 days after the last collection for this consignment, with negative results; or
 - d) were subjected to an agent identification test on blood samples collected at commencement and conclusion of, and at least every 7 days (virus isolation test) or at least every 28 days (PCR test) during, semen collection for this consignment, with negative results;
- 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 8.7.10.

Recommendations for importation from countries or zones infected with EHDV

For semen of bovids and cervids

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

- 1) the donor males:
 - a) showed no clinical sign of EHD on the day of collection;
 - b) were kept in a *vector-protected establishment* for at least 60 days before commencement of, and during, collection of the semen; or
 - c) were subjected to a serological test to detect antibodies to the EHDV group, with negative results, at least every 60 days throughout the collection period and between 28 and 60 days after the final collection for this consignment; or
 - d) were subjected to an agent identification test on blood samples collected at commencement and conclusion of, and at least every 7 days (virus isolation test) or at least every 28 days (PCR test) during, semen collection for this consignment, with negative results;
- 2) the semen was collected, processed and stored in accordance with Chapters 4.6. and 4.7.

Article 8.7.11.

Recommendations for importation from countries or zones free or zones seasonally free from EHD

For embryos of bovids and cervids

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

- 1) the donor females:
 - a) showed no clinical sign of EHD on the day of collection;
 - b) were kept in a country or *zone* free from EHD or in a seasonally free *zone* during the seasonally free period for at least the 60 days prior to, and at the time of, collection of the embryos; or
 - c) were subjected to a serological test to detect antibodies to the EHDV group, between 28 and 60 days after collection, with negative results; or
 - d) were subjected to an agent identification test on a blood sample taken on the day of collection, with negative results;
- 2) the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10., as relevant.

Article 8.7.12.

Recommendations for importation from countries or zones infected with EHDV

For embryos of bovids and cervids

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

- 1) the donor females:
 - a) showed no clinical sign of EHD on the day of collection;
 - b) were kept in a *vector*-protected *establishment* for at least 60 days before commencement of, and during, collection of the embryos; or
 - c) were subjected to a serological test to detect antibodies to the EHDV group, between 28 and 60 days after collection, with negative results; or
 - d) were subjected to an agent identification test on a blood sample taken on the day of collection, with negative results;
- 2) the embryos were collected, processed and stored in accordance with Chapters 4.8., 4.9. and 4.10., as relevant.

Article 8.7.13.

Protecting animals from *Culicoides* attacks

1) Vector-protected establishment or facility

The *establishment* or facility should be approved by the *Veterinary Authority* and the means of protection should at least comprise the following:

- a) appropriate physical barriers at entry and exit points, such as double-door entry-exit system;
- b) openings of the building are *vector* screened with mesh of appropriate gauge impregnated regularly with an approved insecticide in accordance with the manufacturers' instructions;
- c) *vector surveillance* and control within and around the building;
- d) measures to limit or eliminate breeding sites for *vectors* in the vicinity of the *establishment* or facility;
- e) standard operating procedures, including description of back-up and alarm systems, for operation of the *establishment* or facility and transport of animals to the place of *loading*.

2) During transportation

When transporting animals through countries or *zones* infected with EHDV, *Veterinary Authorities* should require strategies to protect animals from attacks from *Culicoides* during transport., taking into account the local ecology of the *vector*.

a) Transport by road

Risk management strategies may include:

- i) treating animals with insect repellents prior to and during transportation;
- ii) *loading*, transporting and *unloading* animals at times of low *vector* activity (i.e. bright sunshine, low temperature);
- iii) ensuring *vehicles* do not stop en route during dawn or dusk, or overnight, unless the animals are held behind insect-proof netting;
- iv) darkening the interior of the *vehicle*, for example by covering the roof or sides of *vehicles* with shade cloth;
- v) *surveillance* for *vectors* at common stopping and *unloading* points to gain information on seasonal variations;
- vi) using historical information or information from appropriately verified and validated EHD epidemiological models to identify low risk ports and transport routes.

b) Transport by air

Prior to *loading* the animals, the crates, *containers* or jet stalls should be sprayed with an insecticide approved in the country of dispatch.

Crates, *containers* or jet stalls in which animals are being transported and the cargo hold of the aircraft should be sprayed with an approved insecticide when the doors have been closed and prior to take-off. All possible insect harbourage should be treated. The spray *containers* should be retained for inspection on arrival.

In addition, during any stopover in countries or *zones* not free from EHD, prior to the opening of any aircraft door and until all doors are closed, netting of appropriate gauge impregnated with an approved insecticide should be placed over crates, *containers* or jet stalls.

Article 8.7.14.

Surveillance

This article is complementary to Chapter 1.4. and, for *vectors*, complementary to Chapter 1.5. and outlines the principles for *surveillance* for EHD applicable to Member Countries seeking to determine the EHD status of a country or a *zone*.

EHD is a *vector-borne infection* transmitted by different species of *Culicoides* in a range of ecosystems.

An important component of the epidemiology of EHD is the capacity of its *vector*, which provides a measure of disease *risk* that incorporates *vector* competence, abundance, seasonal incidence, biting rates, survival rates and extrinsic *incubation period*. However, methods and tools for measuring some of these *vector* factors remain to be developed, particularly in a field context. Therefore, *surveillance* for EHD should focus on transmission of EHDV in domestic bovids and farmed cervids.

The purpose of *surveillance* is the detection of transmission of EHDV in a country or *zone* and not determination of the status of an individual animal or *herd*.

The impact and epidemiology of EHD differ widely in different regions of the world and it is not appropriate to provide specific recommendations for all situations. Member Countries should provide scientific data that explain the epidemiology of EHD in the country or *zone* concerned and adapt the *surveillance* strategies for defining their status to the local conditions. There is considerable latitude available to Member Countries to justify their status at an acceptable level of confidence.

Surveillance for EHD should be in the form of a continuing programme.

General provisions on *surveillance* for arthropod *vectors* are in Chapter 1.5.

More specific approaches to *surveillance* for *Culicoides* transmitted *Orbivirus infections* are described in Chapters 8.3. and 12.1. Passive *surveillance* for clinical *cases* of EHD in *wild* cervids can be a useful tool for detecting disease, based on lesions of haemorrhagic disease combined with appropriate diagnostic tests.

NB: FIRST ADOPTED IN 2015; MOST RECENT UPDATE ADOPTED IN 2016.