Annex 26

**USA COMMENTS IN RED FONT**

Chapter 12.3.

Infection with *Trypanosoma equiperdum* (dourine)

Article 12.3.1.

General provisions

Dourine is a disease of equids caused by *Trypanosoma equiperdum* of the subgenus *Trypanozoon* mainly transmitted directly from animal to animal during coitus. It may also be transmitted vertically and iatrogenically. Dourine may manifest in acute, chronic or clinically inapparent forms.

After a transient blood multiplication, *T. equiperdum* invades tissues, especially genital organs and may also invade the nervous system.

For the purposes of the *Terrestrial Code*, dourine is defined as an *infection* of domestic and *captive wild* equids with *T. equiperdum*.

The following defines the occurrence of infection with *Trypanosoma equiperdum*:

1) Trypanosomes with *Trypanozoon* morphology have been observed in a sample from a~~n~~ domestic and/or *captive wild* equid~~s~~ showing clinical signs consistent with dourine and either a) linked to a suspected *case* of *infection* with *T. equiperdum* or b) found in an area where surra is not known to occur; or

2) trypanosomes with *Trypanozoon* morphology have been observed in a sample from a~~n~~ domestic and/or *captive wild* equid~~s~~ epidemiologically linked to a confirmed *case* of *infection* with *T. equiperdum*; or

3) nucleic acid specific to *Trypanozoon* has been detected in a sample from an equid epidemiologically linked to a confirmed *case* of *infection* with *T. equiperdum* ; or

4) antibodies have been detected in a sample from a~~n~~ domestic and/or *captive wild* equid~~s~~ epidemiologically linked to a confirmed *case* of *infection* with *T. equiperdum*.

**RATIONALE:** For clarify of meaning.

For the purposes of the *Terrestrial Code,* the *incubation period* of *infection* with *T. equiperdum* shall be six months. *Infective period* shall be lifelong.

For the purposes of this chapter, a temporary importation of horses refers to the introduction of horses into a country or *zone*, for a defined period of time, not exceeding 90 days, during which the *risk* of transmission of the *infection* is mitigated through specific measures under the supervision of the *Veterinary Authority.* Temporarily imported horses are re-exported at the end of this period. The duration of the temporary importation period and the destination after this period, as well as the conditions required to leave the country or *zone,* should be defined in advance.

Standards for diagnosis and information on the epidemiology are described in the *Terrestrial Manual*.

Article 12.3.2.

Safe commodities

When authorising the import or transit of the following *commodities*, *Veterinary Authorities* should not require dourine-related conditions regardless of the *animal health status* of the *exporting country* or *zone*:

1) pasteurised *milk* and pasteurised *milk products*;

2) hair, wool and fibre;

3) gelatine and collagen;

4) hooves;

5) *meat* from animals that have been slaughtered in a *slaughterhouse/abattoir* and have been subjected to ante- and post-mortem inspections with favourable results;

6) *meat products*;

7) hides and skins (except raw);

8) embryos or oocytes collected, processed, and stored in accordance with Chapters 4.8. to 4.10.;

9) *protein meal.*

Article 12.3.3.

Country or zone free from dourine

A country or *zone* may be considered free from *infection* with *T. equiperdum* when:

1) the *infection* is notifiable in the entire country for at least the past two years;

2) measures to prevent the introduction of the *infection* have been in place; in particular, the importations or movements of equids and other *commodities* into the country or *zone* have been carried out in accordance with this chapter and other relevant chapters of the *Terrestrial Code*;

3) and either:

a) the relevant provisions in point 2 b of Article 1.4.6. have been complied with; or

b) for at least the past two years, there has been no *case* in the country or *zone* and *surveillance* in accordance with Articles 12.3.11. to 12.3.14. has been in place in the entire country.

Article 12.3.4.

Compartment free from dourine

The establishment and bilateral recognition of a *compartment* free from *infection* with *T. equiperdum* should follow the provisions laid down in this chapter and in Chapters 4.4. and 4.5.

Article 12.3.5.

Recovery of free status

Should a *case* of *infection* with *T. equiperdum* occur in a previously free country or *zone*, its status may be recovered after the following:

1) all infected equids have been either isolated and slaughtered, or killed and appropriately disposed of;

2) equids which have been in contact with infected equids were tested and all positive equids were isolated and slaughtered, or killed and appropriately disposed of; and,

3) For six months after the last *case* was slaughtered or killed:

a) the equids in contact have undergone monthly repeated serological and agent detection tests with negative results in both tests;

b) *surveillance* in accordance with Articles 12.3.11. to 12.3.14. has been carried out with negative results;

c) appropriate *biosecurity* has been in place

Otherwise, Article 12.3.3. applies.

**Article 12.3.6.**

**Recommendations for importation of equids from countries, zones or compartments free from dourine**

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

1) showed no clinical signs of *infection* with *T. equiperdum* on the day of shipment;

2) were kept since birth or at least six months prior to shipment in the free country, *zone* or *compartment* of origin or were imported from a free country, *zone* or *compartment*.

Article 12.3.7.

Recommendations for importation of equids from countries, zones or compartments not free from dourine

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

1) showed no clinical signs of dourine on the day of shipment;

2) for at least 45 days prior to shipment were not used for breeding (including artificial insemination, semen collection, use as teasers) and did not have any direct or indirect sexual contact with other horses; and

3) during this period, all equids from the same group were subjected to an antibody detection test on samples taken on two occasions, with an interval of 30 days, with negative results.

Article 12.3.8.

Recommendations for the temporary importation of horses

When importing on a temporary basis for purposes other than breeding and rearing horses that do not comply with the recommendations in Article 12.3.6. or Article 12.3.7., *Veterinary Authorities* should:

1) require:

a) that the horses be accompanied by a passport in accordance with the model contained in Chapter 5.12. or be individually identified as belonging to a high health status *subpopulation* as defined in Chapter 4.17.;

b) the presentation of an *international veterinary certificate* attesting that the horses:

1. showed no clinical sign of infection with *T. equiperdum* on the days of shipments;
2. if not belonging to a high health status *subpopulation,* were negative in an antibody detection test within 15 days prior to departure from the country of origin ;

c) the duration of the temporary importation period, the destination after this period, and the conditions required to leave the country or *zone* be defined;

2) ensure that during their stay in the country or *zone*, the horses:

a) are not used for breeding (including artificial insemination, semen collection, use as teasers) and do not have any direct or indirect sexual contact with other horses;

b) are not subjected to any practice that may represent a risk of transmission of *infection* with *T. equiperdum.*

Article 12.3.9.

Recommendations for importation of semen from countries, zones or compartments free from dourine

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

1) the donor males:

a) showed no clinical signs of *infection* with *T. equiperdum* on the day of collection of the semen;

b) were kept for the six months prior to semen collection in a country, zone or compartment free from dourine;

2) the semen was collected, processed and stored in a *semen collection centre* accordance with Chapters 4.6. and 4.7.

Article 12.3.10.

Recommendations for importation of semen from countries or zones not free from dourine

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

1. the donor males:
   1. have been kept for at least six months prior to semen collection in an *establishment* in which *surveillance* in accordance with Articles 12.3.11. to 12.3. 14. demonstrates that no *case* had occurred during that period;
   2. showed no clinical sign of *infection* with *T. equiperdum* during that period;
   3. were subjected to an antibody detection test on a blood sample taken on two occasions, with an interval of 30 days, with negative results;
2. the semen was collected, processed and stored in a *semen collection centre* accordance with Chapters 4.6. and 4.7.

Article 12.3.11.

Introduction to surveillance

Articles 12.3.11. to 12.3.14. define the principles and provide guidance on *surveillance* for *infection* with *T. equiperdum*, complementary to Chapter 1.4.

The purpose of *surveillance* could be the demonstration of the absence of *infection*, the early detection of *cases*, or the measurement and monitoring of the *prevalence* and distribution of the *infection* in a country, *zone* or *compartment*.

The most important component of the epidemiology of dourine is sexual transmission, therefore sexually mature equids are considered the target population. Notwithstanding, iatrogenic transmission should also be considered.

The impact and epidemiology of dourine widely differs between different regions of the world, and between different type of animal production systems. For instance considering the presence or absence of other trypanosomes and therefore, it is not appropriate to provide specific recommendations for all situations. Member Countries should provide scientific data explaining the epidemiology of the disease in the country or *zone* concerned, such as host susceptibility (e.g. horse, donkey, mule) and co-infections with other *Trypanosom*a spp., 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.

Article 12.3.12.

Principles of surveillance for dourine

The following principles are complementary to Chapter 1.4. and should be applied by Member Countries seeking to achieve and demonstrate freedom from infection as well as being part for *official control programme* in countries where the disease is endemic.

In countries where other trypanosomes infection occur in equids, the diagnosis of dourine is challenging because the clinical signs are not pathognomonic, and diagnostic methods are not pathogenic species specific. As a consequence it is difficult to perform differential diagnosis between *Trypanosoma equiperdum* and other Trypanozoon infections.

**RATIONALE:** Not all species of Trypanosomes are pathogenic and the diagnostic methods available cannot differentiate between those pathogenic species; therefore, the diagnostic methods are not “pathogenic species specific.”

As an example of the use of the term “pathogenic species”, note the last paragraph of the section on Microbiology: “https://www.uptodate.com/contents/leptospirosis-epidemiology-microbiology-clinical-manifestations-and-diagnosis

That paragraph reads:

“Whole-genome sequencing of strains of the pathogenic species L. interrogans and L. borgpetersenii, and of the saprophytic species L. biflexa, has identified a series of genes possibly related to adhesion, invasion, and hematological findings in hosts.”

Surveillance for *infection* with *Trypanosoma equiperdum* should encompass not only clinical signs and relevant sampling and testing, but also information on animal husbandry practices and epidemiological context, including sexual contacts, breeding history of the equid, international and other animal movements, contact patterns, presence of other trypanosomes, and *vectors* (biting flies including tsetse flies). The *Veterinary Services* should implement programmes to raise awareness among farmers, owners, breeders and workers, who have day to day contact with equids, as well as *veterinarians*, *veterinary paraprofessionals* and diagnosticians. Those persons should observe and report promptly any suspicion of dourine to the *Veterinary Services*.

Under the responsibility of the *Veterinary Authority*, Member Countries should have in place a *surveillance* system in accordance with the Chapter 1.4. and, in particular:

* the formal and ongoing system for detecting and investigating *cases* should include all suspicions of *infection* with Trypanosomes;
* the procedure for the rapid collection and transport of samples from suspected *cases* to a *laboratory* for diagnosis should include the relevant types and methods of sampling for dourine as described in the *Terrestrial Manual*;
* the *laboratory* is approved for diagnosis of dourine.

Special attention is to be made to low susceptible animals such as donkeys and mules that can act as healthy carriers and reservoir of *Trypanosoma equiperdum.*

Article 12.3.13.

Surveillance for early warning of dourine

1) An ongoing *surveillance* programmefor dourine should be in place and be designed to detect the presence of dourine in the country or *zone* in a timely manner.

2) The dourine *surveillance* programme should include the following.

a) An *early warning system* for reporting suspected animals described in Article 12.3.12., in accordance with Article 1.4.5.

b) Implementation, as relevant, of regular and frequent clinical inspection of individual equids at risk of dourine that could, for instance, include equids that were imported from countries not free from dourine.

Article 12.3.14.

Surveillance for demonstrating freedom from dourine

1. Requirements for declaring freedom of the entire country, a *zone* or a *compartment* from dourine

Transparency in the application of different methodologies is essential to ensure consistency in decision-making, ease of understanding, fairness and rationality. The assumptions made, the uncertainties, and the effect of these on the interpretation of the results, should be documented.

The design of the *surveillance* programme will depend on the epidemiological circumstances and it should be planned and implemented in accordance with this chapter and Article 1.4.6. This requires the availability of demographic data on the equids population and the support of a *laboratory* able to undertake identification of dourine through parasite detection and antibody tests.

Data from different *surveillance* activities can be included to increase the sensitivity of the *surveillance* system. If this is to be done, data from structured (e.g. surveys and active *surveillance*) and non-structured (e.g. passive *surveillance*) sources should be combined.

The *surveillance* programme should include *surveillance* of different equids subpopulations (e.g. thoroughbred, saddle horses (riding horses), working horses, ponies, donkeys, mules).

Documentation of freedom from dourine should provide details of the equids population, the occurrence of suspected *cases* and how they were investigated and dealt with. This should include the results of *laboratory* testing and the *biosecurity* and control measures to which the animalsconcerned were subjected during the investigation.

In order to maintain freedom of an establishment within an infected country or zone and to demonstrate no case has occurred, passive surveillance relying on clinical observation alone is insufficient. Depending on the prevailing epidemiological situation and assessed risk for the introduction of *T.equiperdum*, samples should also be collected on a routine basis for parasite detection and antibody tests. There should also be systematic screening of horses that are introduced into the establishment for the absence of dourine.

2. Additional requirements for recovery of free status

In addition to the general conditions described in this chapter, a Member Country seeking recovery of country or *zone* free status, including a *containment zone* established in accordance with Article 4.4.7., should show evidence of an active *surveillance* programme (clinical inspection and serological surveillance) to demonstrate absence of dourine.

Populations under this *surveillance* programme should include:

1) *establishments* in the proximity of the *outbreak*;

2) *establishments* epidemiologically linked to the *outbreak*;

3) *animals* moved from or used to re-populate affected *establishments*.

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