

TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION

SEPTEMBER 2011 REPORT

CHAPTER 8.13.

INFECTION WITH *TRICHINELLA* SPP.

Article 8.13.1.

General provisions

Trichinellosis is a widely distributed zoonosis caused by eating raw or undercooked meat from *Trichinella*-infected food animals or game. The adult parasite and the larval forms live in the small intestine and muscles (respectively) of many mammalian, avian and reptile host species. Within the genus *Trichinella*, twelve genotypes have been identified, eight of which have been designated as species. These genotypes may vary considerably between localities, districts, regions and countries.

Trichinellosis can be fatal in humans but is clinically inapparent in animals.

Preventing transmission to humans currently relies on the provision of *Trichinella*-free meat for human consumption. Prevention of *infection* in susceptible domestic animals used for human consumption currently relies on the prevention of exposure of those animals to the meat of *Trichinella*-infected animals, including via food waste, rodents and wildlife. This can be achieved by adopting appropriate biosecurity measures.

Meat and meat products derived from wildlife should always be considered a potential source of *infection* for humans. *Trichinella* larvae found in meat and meat products of wildlife may be resistant to freezing (depending on the *Trichinella* genotype). Therefore untested, frozen game meat may pose a public health risk.

For the purposes of the *Terrestrial Code*, *Trichinella* infection is defined as an *infection* of suids or equids by parasites of the genus *Trichinella*.

This chapter deals with methods for on-farm prevention of *Trichinella* infection in domestic pigs (*Sus scrofa*) and for safe trade of suids and equids, and their products. This chapter complements the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005).

Methods for the detection of *Trichinella* infection in pigs and other animal species include direct demonstration of the parasite's larvae in muscle samples and indirectly demonstrating their presence by detecting *Trichinella*-specific circulating antibodies.

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

Article 8.13.2.

Safe commodities

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

1. hides, skins, hair and bristles;
2. semen, embryos and oocytes;
3. milk and milk products of equids;
4. pig meat and meat products processed to ensure the inactivation of *Trichinella* larvae in accordance with recommendations in the [Codex working document CX/FH/11/43/6].

Article 8.13.3.

Measures to prevent infection in domestic pig herds

1. Pigs kept under controlled housing

Controlled housing systems should be managed in a manner to prevent exposure of pigs to *Trichinella*.

- a) Construction of buildings and environmental barriers
 - i) Buildings used to house pigs should be constructed to prevent entry of rodents and wildlife, e.g. openings, such as those for air ventilation or water pipes should be covered with wire or specific devices;
 - ii) areas surrounding buildings used to house pigs should be free from debris that could provide rodent harbourage;
 - iii) a vegetation-free perimeter consisting of concrete, gravel or a similar material should be maintained around all buildings used to house pigs to facilitate monitoring rodent and wild or feral animal incursions.
- b) Feed and feed storage
 - i) Feed whether purchased or produced on-farm should comply with the requirements in Chapter 6.3.;
 - ii) feed should be stored and contained in closed silos or bins, which are constructed to prevent entry of rodents and wildlife.
- c) Rodent control
 - i) A programme for the control of rodents should be implemented, documented and audited, and corrective actions applied as required.
- d) Disposal of dead animals
 - i) Dead animals should be removed from buildings used to house pigs immediately after detection and disposed of as soon as possible, in accordance with the provisions of Chapter 4.12.

- e) Introduction of pigs
- i) Introduced pigs should originate from *Trichinella*-free herds; OR
 - ii) if obtained from herds of unknown *Trichinella* status, they should be held in isolation until serologically tested to demonstrate the absence of antibodies to *Trichinella*. Adult pigs should be tested serologically on arrival and weaner pigs should be tested five weeks after arrival.

If any of these pigs test positive, the entire introduced cohort should remain in isolation until slaughtered. The meat should be subjected to testing by digestion to collect information on the genotype of the *Trichinella* present and to support a decision on the disposition of the meat. Test results should be communicated to the farm of origin.

2. Pigs exposed to outdoor environments

Pigs exposed to outdoor environments, or under conditions that facilitate contact with wildlife may be at higher risk of *Trichinella* infection than pigs kept in controlled housing.

To minimise the risk of *Trichinella* infection, the recommendations in point 1. should be applied to the maximum extent possible.

Article 8.13.4.

Determination of the status of *Trichinella* infection in domestic pigs for a country, zone or herd

The status of *Trichinella* infection in domestic pigs in a country, zone or herd should be based on the following criteria:

1. *Trichinella* infection in all animals (domestic animals and wildlife) should be notifiable in the whole territory;
2. an animal identification and traceability system for domestic pigs should be implemented in accordance with the provisions of Chapters 4.1. and 4.2.;
3. appropriate provisions should be in place for tracing of meat from wild animals harvested for human consumption under commercial conditions;
4. the Veterinary Authority should have current knowledge of, and authority over, all domestic pigs in the country or zone;
5. the Veterinary Authority should have current knowledge of the population and habitat of wild and feral pigs in the country or zone;
6. appropriate surveillance, capable of detecting the presence and genotype of *Trichinella* infection in domestic pigs, and the risk posed by wild and feral pigs, and other susceptible wildlife, should be in place.

Communication procedures on the occurrence of *Trichinella* infection, including information about genotypes of the cases should be established between the Veterinary Authority and the Public Health Authority.

Article 8.13.5.

Country or zone with a negligible risk of *Trichinella* infection in domestic pigs

A country or *zone* may be considered to be of negligible risk if the following conditions are met:

1. Article 8.13.4. has been complied with for at least 24 months;
2. the surveillance provisions in Article 8.13.11. have been complied with for a period of at least 24 months and the results demonstrate the absence of autochthonous *Trichinella* infection in domestic pigs;
3. the risk for transmission of *Trichinella* infection from wildlife reservoir hosts to domestic pigs has been assessed and appropriate biosecurity measures have been instituted to protect the domestic pig population; this should include the systematic monitoring of wildlife for *Trichinella* infection in accordance with Article 8.13.11.;
4. introduced live pigs should come from a country or *zone* with a negligible risk of *Trichinella* infection or from a *Trichinella*-free *herd*.

Article 8.13.6.

***Trichinella*-free pig herd**

The *Veterinary Authority* may officially recognise pig *herds* complying with Article 8.13.5. as *Trichinella*-free if the following additional requirements are met:

1. at least two visits, a minimum of 6 months apart, have been made in the 12 months preceding recognition of the pig farms in the *herd* as *Trichinella*-free, to verify compliance with good management practices described in Article 8.13.3.;
2. muscle samples from all pigs sent for slaughter during the 12 months preceding recognition of the pig *herds* as *Trichinella*-free have been tested by a digestion method as described in the *Terrestrial Manual* and found to be negative for *Trichinella* infection;
3. an audit is carried out annually to verify compliance with good management practices described in Article 8.13.3.;
4. a survey of the pig *herd* is conducted annually including, if present, breeding pigs through the collection of sera or muscle samples on-farm or at the *slaughterhouse/abattoir*;
5. all management practices undertaken on farm are documented;
6. introduced live pigs come from a country or *zone* with a negligible risk of *Trichinella* infection or from a *Trichinella*-free *herd*.

If a pig tests positive for *Trichinella* infection by the digestion method or serology, the *herd* loses its *Trichinella*-free status. Confirmation of a positive test using serology should be done by the digestion method using no less than 100 grams of meat, as described in the *Terrestrial Manual*. An investigation should be carried out by the *Veterinary Services* to identify the origin of the *infection* and appropriate remedial actions to be implemented.

If the outcome of an audit is unfavourable, the *Trichinella*-free status should be withdrawn until appropriate remedial action has been taken. To regain *Trichinella*-free status, the *herd* should comply with Points 1 and 2.

If the *herd* is located in a country or *zone* of negligible risk, points 2. and 4. do not apply.

Article 8.13.7.

Recommendations for the importation of meat or meat products of domestic pigs

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat or meat products*:

1. comes from domestic pigs slaughtered in an approved *abattoir*;

AND

2. which:

- a) comes from domestic pigs from a negligible risk country or *zone* in accordance with Article 8.13.5.;

OR

- b) comes from domestic pigs originating from a *Trichinella*-free *herd* in accordance Article 8.13.6.;

OR

- c) comes from domestic pigs that tested negative by the digestion method for *Trichinella*, as described in the *Terrestrial Manual*;

OR

- d) was processed to ensure the inactivation of *Trichinella* larvae in accordance with the recommendations in the [Codex working document CX/FH/11/43/6].

Article 8.13.8.

Recommendations for the importation of meat or meat products of wild or feral pigs

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat or meat products*:

1. comes from wild or feral pigs inspected in accordance with the provisions in Chapter 6.2.;

AND

2. either:

- a) comes from wild or feral pigs that tested negative by the digestion method for *Trichinella*, as described in the *Terrestrial Manual*;

OR

- b) was processed to ensure the inactivation of *Trichinella* larvae in accordance with the recommendations in the [Codex working document CX/FH/11/43/6].

Article 8.13.9.

Recommendations for the importation of meat or meat products of domestic equids

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat or meat products* comes from domestic equids:

1. that were slaughtered in an approved *abattoir*;

AND

2. that tested negative by the digestion method for *Trichinella* as described in the *Terrestrial Manual*.

Article 8.13.10.

Recommendations for the importation of meat or meat products of wild and feral equids

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat or meat products* comes from wild or feral equids:

1. that were inspected in accordance with the provisions in Chapter 6.2;

AND

2. that tested negative by the digestion method for *Trichinella* as described in the *Terrestrial Manual*.

Article 8.13.11.

Surveillance for *Trichinella* infection

The objective of *surveillance* is to demonstrate the absence of autochthonous *Trichinella* infection in domestic pigs.

The *Veterinary Authority* should:

1. justify the choice of design, prevalence and confidence levels based on the objectives of *surveillance* and the epidemiological situation, in accordance with Chapter 1.4. The design should consider the prevailing, or historical, epidemiological situation, as appropriate;
2. ensure that, in addition to sampling of slaughter pigs, all breeder sows and boars and all domestic pigs exposed to outdoor environments are tested as described in the *Terrestrial Manual*;
3. ensure that all wild and feral pigs slaughtered for human consumption are tested as described in the *Terrestrial Manual*;
4. subject findings of *Trichinella* infection in wildlife, including wild and feral pigs, to an epidemiological investigation;
5. obtain data on *Trichinella* infection in wildlife through targeted surveillance or using samples collected for other purposes, such as hunted wild game, wild animal control programmes, studies of road kill, and independent research.