TERRESTRIAL ANIMAL HEALTH STANDARDS COMMISSION
FEBRUARY 2011 REPORT

CHAPTER 8.13.

TRICHINELLA INFECTION

Article 8.13.1.

Introduction

Trichinellosis is a cosmopolitan zoonosis caused by eating raw or undercooked meat from *Trichinella*-infected food animals or game. The parasite lives in the small intestine (adults) and muscles (larvae) of many mammalian, avian and reptile host species, including humans, pigs, rodents, horses, bears and walruses. Within the genus *Trichinella,* twelve genotypes have been identified, eight of which have been designated species. *Trichinella* genotypes may vary considerably between localities, districts, regions and countries.

Trichinellosis can be a fatal disease in humans and is clinically inapparent in animals.

Breaking the transmission cycle to humans currently relies on the provision of *Trichinella*-free meat for human consumption. This is achieved by post mortem inspection and inactivation of the parasite in domestic or wild sourced meat. Processing of meat which ensures inactivation of *Trichinella* includes cooking, freezing and curing of meat (using specified time-temperature combinations). In addition, appropriate measures should be taken to prevent the exposure of food animals to infected meat including uncooked food waste, rodents and other wildlife.

Game meats should always be considered a potential source of infection, and should be tested or cooked properly. *Trichinella* found in game meats may be resistant to freezing (depending on the genotype present) and therefore untested, frozen game poses a public health risk.

Testing methods for the detection of *Trichinella* infection in pigs and other animal species include either directly demonstrating the parasite in muscle samples or indirectly demonstrating the parasite by detecting specific circulating antibodies to *Trichinella* spp., although the latter method is not always reliable, because of certain situations where cross-reactive antibodies are present due to co-infections with other nematode parasites or infection is in the early stages and detectable antibodies are not yet present.

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

Article 8.13.2.

Purpose and scope

This chapter deals with methods for on farm prevention of *Trichinella* infection in pigs and for safe trade of *fresh meat* and *meat products* derived from pigs and equines. This chapter complements the Codex Alimentarius Code of Hygienic Practice for Meat (CAC/RCP 58-2005).

Article 8.13.3.

Prevention of trichinellosis in pigs

This article applies to pigs kept under confined conditions.

1. Constructing buildings and environmental barriers

   a) Buildings used to house pigs should be constructed to prevent entry of rodents (e.g. openings, such as those for air ventilation or water pipes should be covered with wire or specific devices) and wildlife.

   b) Areas within 100 metres of pig buildings should be free from rubbish and rodent harbourage.

   c) A 2 metre perimeter consisting of gravel or vegetation mowed to a height of less than 10 cm should be maintained around all pig buildings.

2. Feed and feed storage

   a) Feed should be stored and contained in closed silos or bins, which do not allow rodents to enter.

   b) Purchased feed should be obtained from an approved facility, which produces feed following approved Good Manufacturing Practices.

   c) Waste food containing meat products should be cooked to inactivate trichinae and in accordance with the provisions in the *Terrestrial Manual* (under development).

3. Rodent control

   An ongoing approved programme for the control of rodents should be implemented.

4. Farm hygiene

   a) Dead animals should be removed from pig buildings immediately after detection to prevent exposure to other pigs and rodents, and disposed of as soon as possible in accordance with the provisions of Chapter 4.12. Disposal of animals.

   b) Garbage dumps should not be located near pig farm(s) in order to minimise the risk of infected rodents entering the farm(s).

5. Identification and traceability

   An *animal identification* and *traceability* system should be implemented in accordance with the provisions of Chapters 4.1. and 4.2.

6. Introduction of animals

   a) It is preferable to obtain new animals from *Trichinella*-free farms or compartments; or

   b) if new animals are obtained from farms of unknown *Trichinella* status, they should be held in isolation and tested serologically to ensure the absence of antibodies to *Trichinella* (refer to the *Terrestrial Manual*). Adult pigs should be tested serologically on arrival and again five weeks after arrival. Weaner pigs should be tested serologically once five weeks after arrival.

If seropositive animal(s) are detected, all newly introduced pigs should be placed in quarantine and retested serologically. If positive, the animal(s) should be slaughtered and the meat processed or rendered according to national regulations on the handling of unsafe meat. The meat should also be tested directly by the pepsin digestion procedure (refer to *Terrestrial Manual*) to monitor the reliability of the serological test procedure and the validity of the test results.

Article 8.13.4.

Recommendations for pigs exposed to outdoor environments

While confinement production systems can be managed in a manner to reduce or eliminate the risk of exposure of pigs to *Trichinella,* pigs exposed to outdoor environments, or under conditions that facilitate contact with wildlife will always be at risk of *Trichinella* infection.

Pigs raised under these conditions should be tested at slaughter by detection methods, in accordance with the provisions in the *Terrestrial Manual.*

Recommendations in Article 8.13.3. for the prevention of *Trichinella* in pigs kept under confined conditions should also be applied where ever possible.

Article 8.13.5.

Official recognition for *Trichinella*-free pig farm(s) or compartment(s)

The *Veterinary Authority* may officially recognise pig farm(s) or compartment(s) already complying with Article 8.13.3. as *Trichinella*-free if the following additional requirements are met:

a) muscle samples from all pigs sent for slaughter during the 12 months preceding recognition of the pig farms within the compartment as *Trichinella*-free should have been tested by a digestion method and found to be negative for *Trichinella* (refer to the *Terrestrial Manual*);

b) at least two visits, at a minimum of 6 months apart, should have been made in the 12 months preceding recognition of the pig farms in the compartment as *Trichinella*-free and annually thereafter to verify compliance with good management practices described in Article 8.13.3;

c) a serological survey of the on farm pig population in the compartment should be conducted annually with a sample size providing at least a 95% confidence interval for detecting *Trichinella* (refer to the *Terrestrial Manual*)*;*

d) documentation of all management practices undertaken on farm.

If a positive animal is detected by a digestion method, or serology which is confirmed by digestion, the pig farm(s) or compartment(s) will lose its *Trichinella*-free status. An investigation should be carried out by the *Veterinary Services* to identify the origin of the infection and appropriate remedial actions to be implemented. Isolates that are obtained from an infected pig should be sent to an OIE Reference Laboratory for genotyping in order to provide epidemiological information.

Article 8.13.6.

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

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

1. comes from domestic pigs that have been slaughtered in an approved *abattoir*; AND

2. was subjected to post mortem sampling and the samples were subjected to a digestion assay for *Trichinella* with negative results, in accordance with the provisions in the *Terrestrial Manual*; OR

3. comes from domestic pigs that originated from a *Trichinella*-free farm(s) or compartment(s) in accordance with the recommendations in Article 8.13.5.; OR

4. has been processed to ensure the inactivation of the larvae of the parasite *Trichinella* in accordance with the recommendations in Article 8.13.10. (under development).

Article 8.13.7.

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

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

1. comes from wild pigs that have been inspected in accordance with the provisions in Chapter 6.2.; AND

2. was subjected to a digestion assay for *Trichinella* with negative results, in accordance with the provisions in the *Terrestrial Manual*; OR

3. has been processed to ensure the inactivation of the larvae of the parasite *Trichinella,* in accordance with the recommendations in Article 8.13.10. (under development).

Article 8.13.8.

Recommendations for the importation of fresh meat or meat products of domestic equines

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

1. comes from domestic equines that have been slaughtered in an approved *abattoir*; AND

2. was subjected to post mortem sampling and the samples were subjected to a digestion assay for *Trichinella* with negative results, in accordance with the provisions in the *Terrestrial Manual*; OR

3. has been processed to ensure the inactivation of all the larvae of the parasite *Trichinella* in accordance with the recommendations in Article 8.13.10. (under development).

Article 8.13.9.

Recommendations for the importation of fresh meat or meat products of wild equines

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

1. comes from wild equines that have been inspected in accordance with the provisions in Chapter 6.2; AND

2. was subjected to a digestion assay for *Trichinella* with negative results, in accordance with the provisions in the *Terrestrial Manual*; OR

3. has been processed to ensure the inactivation of all the larvae of the parasite *Trichinella,* in accordance with the recommendations in Article 8.13.10. (under development).

Article 8.13.10.

Inactivation of muscle larvae

(under development)