

Terrestrial Animal Health Standards Commission Report

New

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CHAPTER 2.9.X.

**AETHINA TUMIDA (SMALL HIVE BEETLE)
INFESTATION OF HONEY BEES**

Article 2.9.X.1.

For the purposes of this chapter, small hive beetle (SHB) is an infestation of bee colonies by the beetle *Aethina tumida*, which is an ectoparasite affecting populations of the honey bee *Apis mellifera* L. It can also parasitise bumble bee *Bombus terrestris* colonies under experimental conditions, and although infestation has not been demonstrated in wild populations, *Bombus* spp. must also be considered to be susceptible to infestation.

The adult beetle is attracted to bee colonies to reproduce, although it can survive and reproduce independently in other natural environments, using other food supplies as its nutritional source, including certain types of fruit. Hence once it is established within a localised environment, it is extremely difficult to eradicate.

The life cycle of *Aethina tumida* begins with the adult beetle laying eggs within infested hives. These are usually laid in irregular masses in hive crevices or brood combs. After 2-6 days, the eggs hatch and the emerging larvae begin to feed voraciously on brood comb, bee eggs, pollen and honey within the hive. The SHB has a high reproductive potential. Each female can produce about 1,000 eggs in its four to six months of life. At maturation (approximately 10-29 days after hatching), the larvae exit the hive and burrow into soil around the hive entrance. Adult beetle emerge after an average of 3-4 weeks, although pupation can take between 8 and 60 days depending on temperature and moisture levels (usually takes 3 to 4 weeks).

The life span of an adult beetle depends on environmental conditions such as temperature and humidity but, in practice, adult beetles can live for at least 6 months and, in favourable reproductive conditions, the female is capable of laying new egg batches every 5-12 weeks. The beetle is able to survive at least two weeks without food and 50 days on brood combs.

Early signs of infestation may go unnoticed, but the growth in the beetle population is rapid, leading to high mortality in the hive. Because *Aethina tumida* can be found and can thrive within the natural environment, and can fly up to a distance of 6-13km from its nest site, it is capable of dispersing rapidly and directly colonising hives. This includes following or accompanying swarms. It also does not require direct contact between adult bees to spread infestation. However, the movement of adult bees, honeycomb and other apiculture products may all cause infestations to spread to previously unaffected colonies.

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

Article 2.9.X.2.

The *Aethina tumida* status of a country or *zone* can only be determined after considering the following criteria:

1. a *risk assessment* has been conducted, identifying all potential factors for *Aethina tumida* occurrence and their historic perspective, including *disease/pest* incidence data from permanent official sanitary surveillance of apiaries programme;
2. *Aethina tumida* infestation should be notifiable in the whole country, and all clinical signs suggestive of *Aethina tumida* infestation should be subjected to field and laboratory investigations;
3. on-going awareness and training programmes should be in place to encourage reporting of all *cases* suggestive of *Aethina tumida* infestation;
4. the *Veterinary Authority* or other competent authority with responsibility for the health of honey bees should have current knowledge of, and authority over, all domesticated apiaries in the country.

Article 2.9.X.3.

Country or zone free from *Aethina tumida*

1. Historically free status

A country or *zone* may be considered free from the *disease* after conducting a *risk assessment* as referred to in Article 2.9.X.2. but without formally applying a specific surveillance programme if the country or *zone* complies with the provisions of Article 3.8.1.2.

2. Free status as a result of an eradication programme

A country or *zone* which does not meet the conditions of point 1 above may be considered free from *Aethina tumida* infestation after conducting a *risk assessment* as referred to in Article 2.9.X.2. and when:

- a) the *Veterinary Authority* or other competent authority with responsibility for the health of honey bees has current knowledge of, and authority over, all domesticated apiaries existing in the country or *zone*;
- b) *Aethina tumida* infestation is notifiable in the whole country or *zone*, and any clinical *cases* suggestive of *Aethina tumida* infestation are subjected to field and

laboratory investigations; a contingency plan is in place describing controls and inspection activities;

- c) for the 5 years following the last reported *case* of *Aethina tumida* infestation, an annual survey supervised by the *Veterinary Authority*, with negative results, have been carried out on a representative sample of apiaries in the country or *zone* to provide a confidence level of at least 95% of detecting *Aethina tumida* infestation if at least 1% of the apiaries were infected at a within-apiary prevalence rate of at least 5% of the hives; such surveys may be targeted towards areas with a higher likelihood of infestation;
- d) to maintain free status, an annual survey supervised by the *Veterinary Authority*, with negative results, is carried out on a representative sample of apiaries in the country or *zone* to indicate that there has been no new *cases*; such surveys may be targeted towards areas with a higher likelihood of infestation;
- e) all equipment associated with previously infected apiaries has been destroyed, or cleaned and sterilised to ensure the destruction of *Aethina tumida* spp., in conformity with one of the procedures referred to in Appendix X.X.X. (under study);
- f) the soil and undergrowth in the immediate vicinity of all infected apiaries has been treated with a soil drench or similar suitable treatment that is efficacious in destroying incubating *Aethina tumida* larvae and pupae;
- g) the importation of the *commodities* listed in this Chapter into the country or *zone* is carried out, in conformity with the recommendations of this Chapter.

Article 2.9.X.4.

Regardless of the status of the *exporting country* with regard to *Aethina tumida* infestation, *Veterinary Authorities* should authorise without restriction the import or transit through their territory of the following *commodities*:

1. honey bee semen and honey bee venom;
2. extracted honey, refined or rendered beeswax, propolis and royal jelly.

Article 2.9.X.5.

Veterinary Authorities of *importing countries* should require:

for individual consignments containing a single live queen honey bee, accompanied by a small number of associated attendants (a maximum of 20 attendants per queen)

the presentation of an *international veterinary certificate* attesting that the bees come from a country or *zone* officially free from *Aethina tumida* infestation

OR

the presentation of an *international veterinary certificate* including an attestation from the competent authority of the exporting third country stating that:

1. the bees come from hives or colonies which were inspected immediately prior to dispatch and show no clinical signs or suspicion of the presence of *Aethina tumida* or its eggs, larvae or pupae;
2. come from an area of at least 100 km radius where no apiary has been subject to any restrictions associated with the occurrence of *Aethina tumida* for the previous 6 months; and
3. the bees and accompanying packaging presented for export have been thoroughly and individually inspected and do not contain *Aethina tumida* or its eggs, larvae or pupae.

Article 2.9.X.6.

Veterinary Authorities of importing countries should require:

for live worker bees, drone bees or bee colonies with or without associated brood combs

the presentation of an *international veterinary certificate* attesting that the bees come from a country or zone officially free from *Aethina tumida* infestation, and the bees and accompanying packaging presented for export have been inspected and do not contain *Aethina tumida* or its eggs, larvae or pupae.

Article 2.9.X.7.

Veterinary Authorities of importing countries should require:

for eggs, larvae and pupae of honey bees

the presentation of an *international veterinary certificate* attesting that the products:

1. were sourced from a free country or zone (under study);
- OR
2. have been isolated from queens in a *quarantine station*; and
 3. are from hives or come from hives or colonies which were inspected immediately prior to entry into the *quarantine station* and show no clinical signs or suspicion of the presence of *Aethina tumida* or its eggs or larvae or pupae then and during the quarantine period.

Article 2.9.X.8.

Veterinary Authorities of importing countries should require:

for used equipment associated with beekeeping

the presentation of an *international veterinary certificate* attesting that:

1. the equipment:

EITHER

- a) comes from a country or *zone* free from *Aethina tumida* infestation; and
- b) contains no live honey bees or bee brood;

OR

- c) contains no live honey bees or bee brood;
- d) has been thoroughly cleaned, and treated to ensure the destruction of *Aethina tumida* spp., in conformity with one of the procedures referred to in Appendix XXX (under study); and

2. all precautions have been taken to prevent infestation/contamination.

Article 2.9.X.9.

Veterinary Authorities of importing countries should require:

for honey-bee collected pollen and beeswax (in the form of honeycomb)

the presentation of an *international veterinary certificate* attesting that :

1. the products:

EITHER

- a) comes from a country or *zone* free from *Aethina tumida* infestation; and
- b) contains no live honey bees or bee brood;

OR

- c) contains no live honey bees or bee brood;
- d) has been thoroughly cleaned, and treated to ensure the destruction of *Aethina tumida* spp., in conformity with one of the procedures referred to in Appendix X.X.X. (under study); and

2. all precautions have been taken to prevent infestation/contamination.

Article 2.9.X.10.

Veterinary Authorities of importing countries should require:

for comb honey

the presentation of an *international veterinary certificate* attesting that the products:

1. comes from a country or *zone* free from *Aethina tumida* infestation; and
2. contains no live honey bees or bee brood.