

CHAPTER 9.4.

INFESTATION WITH *Aethina tumida* (SMALL HIVE BEETLE)

Article 9.4.1.

General provisions

For the purposes of the *Terrestrial Code*, infestation with *Aethina tumida* (also known as small hive beetle) is an *infestation* of bee colonies (species of the genera *Apis* and *Bombus* and also stingless bees) by the beetle *A. tumida*, which is a free-living predator and scavenger affecting bee populations.

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

The life span of an adult beetle depends on environmental conditions such as temperature and humidity but, in practice, adult female beetles can live for at least six months and, in favourable reproductive conditions, the female is capable of producing up to a thousand eggs over a lifespan of four to six months. The beetle is able to survive at least two weeks without food.

Early signs of *infestation* and reproduction may go unnoticed. When the bees cannot prevent beetle mass reproduction on the combs, this leads to abandonment or collapse of the colony. Because *A. tumida* can be found and can thrive within the natural environment, and can fly up to 6-13 km from its nest site, it is capable of dispersing rapidly and directly invading new hives. Spread of *infestation* does not require contact between adult bees. The movement of adult bees, honeycomb and other apiculture products and used apicultural equipment may all cause *infestations* to spread to previously unaffected colonies.

When authorising import or transit of the *commodities* covered in the chapter, with the exception of those listed in Article 9.4.2., *Veterinary Authorities* should require the conditions prescribed in this chapter relevant to the *A. tumida* status of the honey bee and bumble bee population of the *exporting country or zone*.

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

Article 9.4.2.

Safe commodities

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

- 1) honey bee semen;
- 2) honey bee venom.

Article 9.4.3.

Determination of the *A. tumida* status of a country or zone

The *A. 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 *A. tumida* occurrence and their historic perspective;
- 2) the presence of *A. tumida* should be notifiable in the whole country, and all signs suggestive of *A. tumida infestation* should be subjected to field and *laboratory* investigations;
- 3) ongoing awareness and training programmes should be in place to encourage reporting of all cases suggestive of *A. tumida infestation*;

- 4) the *Veterinary Authority* or other *Competent Authority* with responsibility for reporting and control of *diseases* of honey bees should have current knowledge of, and authority over, all domesticated *apiaries* in the country.

Article 9.4.4.

Country or zone free from *A. tumida*

1) Historically free status

A country or *zone* may be considered free from *A. tumida* after conducting a *risk assessment* as referred to in Article 9.4.3. but without formally applying a specific *surveillance* programme if the country or *zone* complies with the provisions of Chapter 1.4.

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 *A. tumida* after conducting a *risk assessment* as referred to in Article 9.4.3. and when:

- a) the *Veterinary Authority* or other *Competent Authority* with responsibility for reporting and control of *diseases* of honey bees has current knowledge of, and authority over, all domesticated *apiaries* existing in the country or *zone*;
- b) the presence of *A. tumida* is notifiable in the whole country or *zone*, and any clinical cases suggestive of *A. tumida* infestation are subjected to field and *laboratory* investigations; a contingency plan is in place describing controls and inspection activities;
- c) for the five years following the last report of the presence of *A. tumida*, an annual survey supervised by the *Veterinary Authority* or other *Competent Authority*, with no positive results, has 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 *A. tumida* if at least 1% of the *apiaries* were infested 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* or other *Competent Authority*, with no positive results, is carried out on a representative sample of *apiaries* to indicate that there have been no presence of *A. tumida*; such surveys may be targeted towards areas with a higher likelihood of *infestation*;
- e) all equipment associated with previously infested *apiaries* has been destroyed, or cleaned and sterilised to ensure the destruction of *A. tumida*, in conformity with one of the following procedures:
 - i) heating to 50°C core temperature and holding at that temperature for 24 hours; or
 - ii) freezing at core temperature of -12°C or less for at least 24 hours; or
 - iii) irradiation with 400 Gy; or
 - iv) by any procedure of equivalent efficacy recognised by the *Veterinary Authority* of the *importing* and *exporting* countries;
- f) the soil and undergrowth in the immediate vicinity of all infested *apiaries* has been treated with a soil drench or similar suitable treatment that is efficacious in destroying incubating *A. 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 9.4.5.

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

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

- 1) the bees come from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

- 2) the bees come from hives or colonies which were inspected immediately prior to dispatch and show no evidence of the presence of *A. tumida* based on a visual inspection and the use of one of the methods described in the relevant chapter of the *Terrestrial Manual*; and
- 3) the bees come from an area of at least 100 km radius where no *apiary* has been subject to any restrictions associated with the occurrence of *A. tumida* for the previous six months; and

- 4) the bees and accompanying packaging presented for export have been thoroughly and individually inspected and do not contain *A. tumida*; and
- 5) the packaging material, containers, accompanying products and food are new; and
- 6) all precautions have been taken to prevent *infestation* or contamination with *A. tumida*, in particular, measures that prevent *infestation* of queen cages such as no long term storage of queens prior to shipment and covering the consignment of bees with fine mesh through which a live beetle cannot enter.

Article 9.4.6.

Recommendations for the importation of live worker and drone bees with or without associated brood combs

Veterinary Authorities of importing countries should require the presentation of an *international veterinary certificate* attesting that the bees come from *apiaries* situated in a country or *zone* free from *A. tumida*.

Article 9.4.7.

Recommendations for the importation of eggs, larvae and pupae of bees

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

- 1) the *commodities* come from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

- 2) the *commodities* have been bred and kept under a controlled environment within a recognised establishment which is supervised and controlled by the *Veterinary Authority* or other *Competent Authority*; and
- 3) the establishment was inspected immediately prior to dispatch and all eggs, larvae and pupae show no evidence of the presence of *A. tumida*; and
- 4) the packaging material, containers, accompanying products and food are new and all precautions have been taken to prevent *infestation* or contamination with *A. tumida*.

Article 9.4.8.

Recommendations for the importation of used apicultural equipment

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

- 1) the equipment:

EITHER

- a) comes from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

- b) has been thoroughly cleaned, and treated to ensure the destruction of *A. tumida*, in conformity with one of the following procedures:
 - i) heating to 50°C core temperature and holding at that temperature for 24 hours; or
 - ii) freezing at core temperature of -12°C or less for at least 24 hours; or
 - iii) irradiation with 400 Gy; or
 - iv) by any procedure of equivalent efficacy recognised by the *Veterinary Authority* of the *importing and exporting countries*;

AND

- 2) all precautions have been taken to prevent contamination with *A. tumida*.

Article 9.4.9.

Recommendations for the importation of honey

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

1) the honey:

EITHER

a) comes from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

b) has been strained through a filter of pore size no greater than 0.42 mm;

OR

c) has been treated to ensure the destruction of *A. tumida*, in conformity with one of the following procedures:

i) heating to 50°C core temperature and holding at that temperature for 24 hours; or

ii) freezing at core temperature of -12°C or less for at least 24 hours; or

iii) irradiation with 400 Gy; or

iv) by any procedure of equivalent efficacy recognised by the *Veterinary Authority* of the *importing* and *exporting countries*;

AND

2) all precautions have been taken to prevent contamination with *A. tumida*.

Article 9.4.10.

Recommendations for the importation of bee-collected pollen

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

1) the bee-collected pollen:

EITHER

a) comes from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

b) contains no live bees or bee brood; and

c) has been treated to ensure the destruction of *A. tumida*, in conformity with one of the following procedures:

i) freezing at core temperature of -12°C or less for at least 24 hours; or

ii) irradiation with 400 Gy; or

iii) desiccation by freeze drying or equivalent; or

iv) by any procedure of equivalent efficacy recognised by the *Veterinary Authority* of the *importing* and *exporting countries*;

AND

2) all precautions have been taken to prevent contamination with *A. tumida*.

Article 9.4.11.

Recommendations for the importation of beeswax and propolis

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

1) the *commodities*:

EITHER

a) come from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

b) contain no live bees or bee brood; and

c) are processed propolis or processed beeswax;

OR

d) contain no live bees or bee brood; and

e) have been treated to ensure the destruction of *A. tumida*, in conformity with one of the following procedures:

i) freezing at core temperature of -12°C or less for at least 24 hours; or

ii) irradiation with 400 Gy; or

iii) by any procedure of equivalent efficacy recognised by the *Veterinary Authority* of the *importing and exporting countries*;

AND

2) all precautions have been taken to prevent contamination with *A. tumida*.

Article 9.4.12.

Recommendations for the importation of royal jelly

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

1) the royal jelly:

EITHER

a) comes from *apiaries* situated in a country or *zone* free from *A. tumida*;

OR

b) is encapsulated for human consumption;

OR

c) has been treated to ensure the destruction of *A. tumida*, in conformity with one of the following procedures:

i) heating to 50°C core temperature and holding at that temperature for 24 hours; or

ii) freezing at core temperature of -12°C or less for at least 24 hours; or

iii) desiccation by freeze drying or equivalent; or

iv) irradiation with 400 Gy; or

v) by any procedure of equivalent efficacy recognised by the *Veterinary Authority* of the *importing and exporting countries*;

AND

2) all precautions have been taken to prevent contamination with *A. tumida*.

