



TROPILAEELAPS spp. mites

Latin name: *Tropilaelaps clareae*
Tropilaelaps mercedesae
Tropilaelaps koenigerum
Tropilaelaps thaii

Tropilaelaps mites are statutory notifiable pests in the European Union. Only *T. clareae* and *T. mercedesae* are known to use *Apis mellifera* as hosts. There is a legal requirement for any findings to be notified to regulatory bodies under EU legislation. *Tropilaelaps* is not yet present in Europe, however there is a serious risk of its introduction.

Damage in colonies: In colonies with high mite levels, *Tropilaelaps* causes damage similar to *Varroa*. Death occurs in both brood and adult bees. This leads to colony decline and collapse, and can cause bees to abscond from their hives. Colonies of *A. mellifera* can be killed within one year of infestation by *Tropilaelaps*.

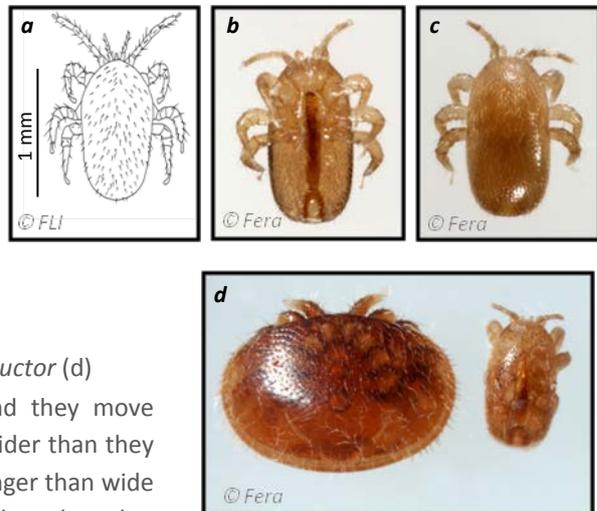
Beekeeper national registration: It is extremely important that **all beekeepers register on their national database**. If locations of colonies at risk of *Tropilaelaps* infestation are not known, then the chances of detecting its arrival, achieving eradication, or even managing longer term control in the event of an introduction are all seriously jeopardised.

EU legislation now prohibits (with the exception of New Zealand) imports of package bees or colonies from Third Countries. It is permitted to import honey bee queens from a very limited number of countries outside the EU. **The import regulations** are the main defence against the introduction of *Tropilaelaps* spp. It is therefore crucial that every beekeeper respects the EU legislation and ensures regular surveillance.

***Tropilaelaps* spp. cannot be eradicated once well established.**

How to recognize *Tropilaelaps* spp.?

- The mite has 4 pairs of legs. It holds its first pair of legs upright resembling antennae. The body appears unsegmented, having one single region (i.e. no distinct head, thorax and abdomen - a, b, c).
- Light-reddish brown body colour (b, c)
- Size: about 1 mm x 0.5 mm (a). *T. mercedesae* is slightly larger than *T. clareae*.
- Visible to the naked eye, but smaller than *Varroa destructor* (d)
- *Varroa* mites are larger than *Tropilaelaps* mites and they move relatively slowly. *Varroa* mites are crab-shaped and wider than they are long (d). In contrast, the body of *Tropilaelaps* is longer than wide and it is a fast-running mite, moving rapidly across the brood combs.



Biological cycle

The *Tropilaelaps* life cycle is similar to *Varroa*'s: the mites reproduce in the honey bee brood.

The length of the life cycle is about 1 week. The reproduction rate is higher than *Varroa*'s. Adult mites lay their eggs on honey bee larvae inside the brood cells. The subsequent mite larvae feed on the haemolymph (blood) of developing bees.

Tropilaelaps feed exclusively on honey bee brood. These mites cannot feed on adult honey bees, they are unable to pierce the cuticle. Therefore, they cannot survive more than 9 days without honey bee brood.

Means of spread. Dissemination between colonies occurs on adult honey bees (phoresy) by the natural processes of drifting, robbing, and swarming. The mites are also spread through the distribution of infested combs and bees during colony management. The principal and most rapid means of spread is by beekeepers *via* movement of infested colonies to new areas. It is essential to check the bees before moving the colonies to ensure that the bees are healthy.

Suspicion criteria/ Infestation consequences for the colony

Clinical signs of *Tropilaelaps* infestation are similar to those for varroosis:

- shrunken and deformed wings and legs
- deformed abdomen
- cappings with small holes
- spotty brood pattern (irregular brood)
- dead brood
- bees may be seen crawling at the entrance of the hive



How to check your hive

The main detection methods used for *Varroa* can be readily applied to *Tropilaelaps*:



- **Regular examination of floor debris and hive inserts:** 1. Maintain the colony on a mesh floor (commonly known as a *Varroa* floor) with a sticky board (f). 2. Remove floor debris regularly during the summer. 3. If there is a lot of debris (e.g. after winter), the mites will be very difficult to find. Examine the debris very carefully for dead mites – you can use the washing technique: put the debris into a fine sieve that will collect any mites and wash thoroughly in running water. Stand the sieve in a bowl of methylated spirits and the mites will float to the surface of the liquid.

- **Examination of the bee brood** (e.g. uncapping brood): 1. Select an area of sealed brood (drone or worker) at an advanced stage (pink-eyed), as this is least likely to disintegrate when removed. 2. Slide the prongs of a honey uncapping-fork under the cappings, parallel to the comb surface, and lift out the pupae in a single scooping motion (g). The younger mite stages are whitish and may be almost motionless while feeding on their hosts bodies, as their mouthparts and front legs are fixed to the cuticle of the bee host. Mature mites, which are darker, are easily seen against the pale bodies of the pupae.

- **Use of proprietary acaricide as a diagnostic tool:** 1. Use a mesh floor, or a sticky insert (plastic or card) to cover the existing hive floor, with a 3 mm mesh to stop the bees from removing dead mites. 2. Apply the acaricide treatment, following the label instructions. 3. Look for dead or dying mites on the floor after 24 hours.

It is crucial to detect atypical mites as early as possible.

What to do in case of suspicion?

As soon as possible, alert the competent authority, who will implement the adequate measures.

All suspect *Tropilaelaps* adults or larvae should immediately be sent to the national reference laboratory and /or competent authority **for identification.** Use a sealed container. Please provide as many details as possible - your name and address, the apiary name and location. **Do not send live mites in the post.** Kill them first by keeping them in a freezer overnight or by putting them in 70% ethanol.