



INFESTATION WITH TROPILAELAPS MITES

Latin Name:	Infestation with <i>Tropilaelaps</i> spp. is a statutory notifiable disease in the European Union
Tropilaelaps clareae	(EU). Under EU legislation, any detection must be reported to the competent authorities.
Tropilaelaps mercedesae	
Tropilaelaps koenigerum	Among the four Tropilaelaps species, only T. clareae and T. mercedesae are known to
Tropilaelaps thaii	parasitise Apis mellifera.

Tropilaelaps is **not yet present in the EU**. However, **there is a significant risk of its introduction** due to its recent spread in Central Asia and the Black Sea-Caucasus region.

Damage in Colonies: In colonies with high mite levels, *Tropilaelaps* causes damage similar to that of *Varroa*, another mite commonly parasiting honeybees. Both brood and adult bees suffer high mortality, leading to colony decline, collapse, or absconding. *Apis mellifera* colonies can completely collapse within two to three months of *Tropilaelaps* infestation.

Beekeeper National Registration: It is essential that **all beekeepers register in their national database**. If locations of colonies at risk of *Tropilaelaps* infestation are not known, the chances of detecting its arrival, achieving eradication, or even controlling it in the event of an introduction are severely compromised.

EU Legislation: Infestation with *Tropilaelaps* spp. is subject to surveillance within the EU and measures to prevent its introduction and spread between Member States.

EU legislation prohibits imports of package bees or colonies from Third Countries, except from Switzerland. **The importation of honeybee queens is allowed from a very limited number of non-EU countries**. These import regulations serve as the main defence against the introduction of *Tropilaelaps*.

Tropilaelaps can no longer be eradicated once it is well established. Vigilance is essential to early detection.

How to Recognise Tropilaelaps?



- The mite has four pairs of legs, with the first pair held upright, resembling antennae (a).
- Adult body colour: reddish-brown, lighter than *Varroa destructor* (b). Immature mites are whitish (c).
- Size: approximately 1 mm by 0.5 mm (a). Visible to the naked eye, but smaller than *Varroa* (b).
- The body of *Tropilaelaps* is **longer than it is wide**, in contrast to *Varroa*, which is crab-shaped (b).
- When examined under a magnifying glass, the mite displays characteristic chitinous plates on its ventral side (a).
- Tropilaelaps is a fast-running mite, whereas Varroa is moving relatively slowly.



Biological Cycle

• The life cycle of *Tropilaelaps* is quite similar to that of *Varroa*, as both mites reproduce within the honeybee brood.

It lasts approximately one week. Adult mites lay their eggs inside the brood cells, where the emerging immature mites (c) feed on the haemolymph (bee blood) of developing bees, causing multiple injuries and eventually transmitting viruses. Mating is not necessary for reproduction: unfertilised females can lay eggs. Females can reproduce without going through a phoretic phase on adult bees (time spent on adults).

These characteristics enable *Tropilaelaps* to multiply much faster than *Varroa*.

• Tropilaelaps feeds exclusively on brood and cannot feed on adult honeybees as it is unable to pierce their cuticle. As a result, it cannot survive more than six days without brood.



Means of Spread

Tropilaelaps disseminates between colonies through adult honeybees (phoresy) via natural processes such as drifting, robbing, and swarming. Beekeeping practices, such as dividing colonies, or transferring brood frames, also contribute to the spread of the parasite. **The principal and fastest route of long-distance transmission is the movement of infested colonies or packaged bees to new areas.**

How to Suspect Infestation?



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

- Spotty brood pattern (irregular brood), with dead brood, perforated cappings, and, in case of highly infested colonies, "bald brood" resulting from workers removing the cappings over pupae (d);
- Adult bees or pupae with malformations: e.g. shrunken abdomen, atrophied wings, deformed or missing legs (d);
- Weak, crawling bees unable to fly may be observed in front of the hive entrance;
- Small, fast-moving mites on frames, in brood or on adult bees (e).



How to Check your Hive?

Main detection methods	Brief description
 Examining Capped Brood ✓ High sensitivity X Time-consuming, induce brood destruction 	 Open 100-200 capped brood cells, preferably by using fine-nose forceps (instead of honey uncapping fork) to avoid damaging <i>Tropilaelaps</i>. Remove the brood from each cell. Inspect the brood and the inside of the cells for mites.
Examining Hive Debris ✓ High sensitivity × Time-consuming	 Use sticky boards placed at the bottom of the hive to collect <i>Tropilaelaps</i> naturally dropping from the colony. Protect the board with a mesh to prevent the bees from removing the dislodged mites. Leave the board in the colony for 24-72 hours. Collect and examine the debris for dead mites.
 "Bump test" Low/Moderate sensitivity ✓ Quite fast × Induce brood destruction 	 Select a brood frame containing capped brood. Remove all adult bees by shaking the frame over the colony. Firmly hit one end of the frame over a white metal pan. Rotate the frame and repeat the process three more times. Examine the pan for mites.
Examining Adult Bees ◆ Low/Moderate sensitivity √ Rapid, non-destructive method (if using icing sugar)	 Collect approximately 200–300 bees in a jar. To dislodge the mites from bees, treat them by the 'icing sugar roll' method. (or eventually wash them in ethanol/soapy water).

TIPS:

- ✓ Use a headlamp and a magnifying glass to spot *Tropilaelaps* among hive debris and other mites that may be present (f).
- ✓ To collect the *Tropilaelaps* mites, use a fine paintbrush wetted in honey or water, or a pair of fine tweezers.



What to do in case of suspicion?

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

All suspect *Tropilaelaps* should immediately be sent to the national reference laboratory and/or to the competent authority for identification:

- Please provide as many details as possible (i.e. your name and address, the apiary name and location);
- Use a sealed container to collect the mites;
- **Do not send live mites in the post**. Kill them first by keeping them in a freezer overnight.

EURL for Bee Health, Anses Sophia Antipolis Laboratory (France) - <u>eurl.bee@anses.fr</u> / <u>Welcome to the website of the EU RL for Bee Health!</u> | <u>EURL</u> Tropilaelaps leaflet - Version of June 2025