

DPI Primefact

Braula fly

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Elizabeth Frost, Technical Specialist Bees, Tocal

Braula fly is a wingless fly and minor pest of beekeeping with potential impacts on beekeepers specialising in honeycomb production

- Braula fly is endemic to New South Wales, Tasmania and Victoria.
- Braula larvae burrow under honeycomb cappings, potentially reducing commercial value.
- To control the larval stage, honeycomb should be stored in a freezer as soon as practical after its removal from a colony, for at least 48 hours.
- Freezing honeycomb and honey supers kills all stages of the braula fly life cycle.

Introduction

Braula (*Braula coeca*) is a wingless fly endemic to NSW, TAS, and VIC. This insect lives in honey bee colonies, but is not considered a significant pest or threat to honey bees. Adult braula live on the bodies of bees, holding tightly onto the adult bee with a set of comb-like structures on their front legs. To feed, the adult braula moves close to the mouth parts of a honey bee, and steals some of the food fed to it by other bees. Only when a colony is broodless, has a small bee population, or the queen is old is there a likelihood of finding braula on the queen bee.

Braula fly does not parasitise any stage of the honey bee life cycle. If a number of braula flies are observed on a single queen, the food available to the queen may be reduced and impact her egg-laying ability.

The main economic impact of braula fly occurs as a result of the larval stage burrowing under the cappings of honeycomb. The appearance of this burrowing activity can detract from the value of honeycomb intended for sale. As most honey is extracted mechanically, braula fly does not pose a threat to regular liquid honey producers.



Figure 1 Two adult braula fly on a honey bee worker's thorax.

Life cycle

Braula eggs measure 0.84 mm by 0.42 mm. They can be deposited in many locations, including empty cells, brood cell cappings, wax debris on the bottom board and on capped honeycomb. Only eggs deposited on capped honeycomb will hatch. Eggs hatch in 2–7 days, depending on the temperature.

The larvae hatch and tunnel under the beeswax cappings, leaving narrow tracks about 1 mm wide across the surface of the honeycomb. The tunnelling gives the honeycomb a fractured appearance, one of the indicators of braula fly presence in a colony.

The larvae progress through three instars (stages of development) before pupation. The larval stage can vary from 7–11 days. The pupa is creamy-white in colour, measuring 1.4–1.7 mm long by 0.5–0.75 mm wide. This stage only takes 1–3 days, before the adult hatches.

The development from egg to adult can take from 10 to 23 days, depending on the temperature, time of year, and, presumably, the availability of capped honeycomb in the hive. Adult braula survive over winter on adult bees; they are not known to survive without direct contact with adult bees.

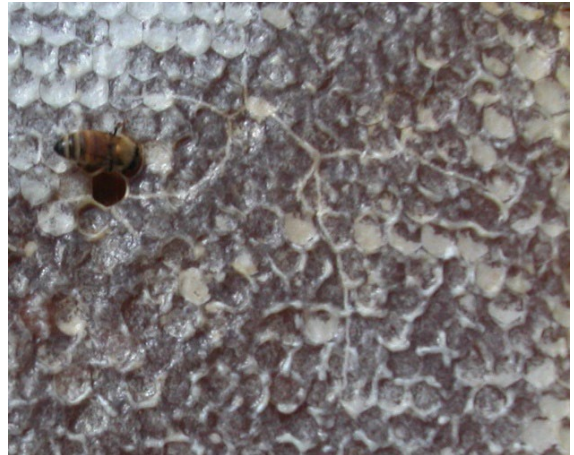


Figure 2. Evidence of braula larvae burrowing under honeycomb cappings.

Diagnosis and reporting

Simple observation of adult worker and queen bees, may reveal the presence of adult braula fly. Additionally, alcohol wash, soapy water wash, or sugar shake surveillance of a sample of 300 bees may reveal the presence of braula fly.

Suspect braula detections must be reported to the Emergency Plant Pest Hotline on 1800 084 881 to aid pest presence information for NSW.

Treatment and transmission

Treatment for braula fly is minimal. The standard practice of uncapping honeycombs in the extraction process is an effective means of controlling the larval stage of the braula fly. Honeycomb producers should control the larval stage through storage of harvested honeycomb in a freezer as soon as practical after its removal from a colony. Freezing for at least



Figure 3. Adult braula fly under magnification.

48 hours will ensure all stages of the braula fly life cycle are killed. This will also kill all stages of other bee hive pests, such as wax moth and small hive beetle.

Additionally, where Varroa mite (*Varroa destructor*) is established, Varroa control using chemical miticide treatments also decimates braula fly numbers.

Transmission occurs when the adult fly attaches itself to an adult bee and thus can be spread by swarms, drifting bees, package bees and queen bees. The larva can be spread by the removal and transport of infected honeycomb.

Acknowledgements

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Figure 1 courtesy of Harold Ayton
All other images NSW DPI

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