

Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua

European Foulbrood
(*melissococcus plutonius*)

What are European Foulbrood?

European foulbrood (EFB) is a brood disease of honey bees caused by the bacterium *Melissococcus plutonius.* EFB can be found in most parts of the world where honey bees are kept, New Zealand is one of the last few countries that remains free from it.

The bacterium mostly affects a honey bee larva before pupation. Larvae become infected after ingesting contaminated food. The bacterium then proliferates in the gut of larvae, competing for food which ultimately leads to death by starvation. EFB is often connected to colony stressors such as adverse weather conditions, seasonal change, and poor nutrition etc.

What should beekeepers look for?

Beekeepers should examine all brood frames for EFB. EFB mainly infects larvae before it is capped over and so beekeepers should inspect all uncapped brood for signs of disease. Other characteristic signs include:

- sunken, perforated cells
- patchy brood pattern.
- dead and discoloured larvae in uncapped cells.
- death usually occurs when the larva is still curled in a c-shape in the cell.
- dead larvae turn from white to yellow, then brown and liquefy
- over time the dead larvae dries out, becoming a dark brown coloured ‘rubbery’ scale that can easily be removed from the cell.
- unpleasant sour-like odour.
- unlike American Foulbrood (AFB), EFB is mainly seen in larval stages
- dead larvae when probed with a matchstick usually has a watery consistency and tend to not rope-out.





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What can it be confused with?

EFB can be confused with sacbrood virus, or Parasitic Mite Syndrome (a condition caused by *Varroa destructor*). EFB may also be confused with American foulbrood (AFB).

How does it spread?

EFB is mainly spread through the interchange of hive components and hive movement. EFB is also spread through bee behaviours such as robbing, swarming, absconding and drifting bees. Much like AFB, EFB is highly infective and can remain viable for some years, however, EFB does not possess the ability to form a spore. Survival is maintained in a vegetative state and by covert or concealed infections throughout a hive.

Where is it now?

EFB is present in all countries worldwide where honey bees are kept, except New Zealand.

How can beekeepers protect their hives from EFB?

EFB is **NOT PRESENT** in New Zealand and are a **NOTIFIABLE ORGANISM**. Beekeeper sightings of should be reported to MPI as soon as possible on our **Exotic Pests and Diseases Hotline 0800 80 99 66**. An MPI investigator will give you directions once you have made contact on the hotline.

Further Reading

AFB PMP (2020). https://afb.org.nz/european-foulbrood/

BBVA (2019). https://britishbeevets.com/foulbrood/

BeeAware (2020). https://beeaware.org.au/archive-pest/european-foulbrood/#ad-image-0

Bee health (2020). https://bee-health.extension.org/european-foulbrood-a-bacterial-disease-affecting-honey-bee-brood/

FAO (2015). http://www.fao.org/3/ca4051en/ca4051en.pdf

OIE (2018). https://www.oie.int/fileadmin/Home/fr/Health_standards/tahm/3.02.03_EUROPEAN_FOULBROOD.pdf