

# European Foulbrood

## Quick Facts

### What is it?

European foulbrood (EFB) is a contagious brood disease caused by the bacteria *Melissococcus plutonius*.

### What does EFB and healthy brood look like?

#### Healthy brood



Healthy open brood. Photo provided by Jeff Kearns.

#### Twisted or stretched larvae



Healthy larvae will be in a "c" shape at "bottom" of the cell not twisted throughout.

#### Spotty brood pattern



Capped cells may look sunken or perforated. Larvae appear light yellow to grey and eventually brownish black.

#### Dark brown scale



Scale will form once an infected larva dries out. Unlike AFB, it is easy to remove. The mid-gut of infected larvae may appear chalky white & the tracheae may be visible in each segment.

For more information, e-mail [bee@gov.ab.ca](mailto:bee@gov.ab.ca)

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## Prevention

### Monitor

- Inspect a minimum of three brood frames, every 7-10 days. Shake the bees off and look closely at the brood.

### Biosecurity Practices

Reference: [Honey Bee Producer Guide to the National Bee Farm-level Biosecurity Standard](#)

- Regularly clean and sanitize equipment (smoker, hive tool, gloves, extractor, hive parts, and supers) to prevent the spread of EFB between colonies.
- Cycle out old brood frames every three to four years. EFB is not spore-forming, but it can remain viable in the comb along with other brood diseases for a number of years. Getting rid of old frames can reduce the bacterial load in the colony, even when visible symptoms are not apparent.
- Be cautious when transferring equipment and combs between hives, specifically if colonies were historically treated with antibiotics, as colonies might not show clinical signs of EFB.
- Employ management practices to prevent drifting and robbing between colonies during a dearth.
- Queens, package bees, and infected feed (syrup, honey, pollen, and supplements) can be a source of EFB bacteria.
- Remove symptomatic colonies, dead-outs, and equipment from apiaries to reduce robbing and transmission of EFB and other diseases. Ensure equipment and frames are properly disposed of by burning.
- Quarantine swarms and new colonies (at least 5 km from other yards) to ensure they are disease-free before placing them in an apiary. Have a hospital apiary for diseased colonies.
- Do not over populate an apiary with colonies (average apiary has 32 to 40 colonies).

### Feed

- Supplement colonies with protein when the weather is unpredictable, during a dearth, or when moving apiaries.
- Ensure there are adequate food reserves and nurse bees to care for the amount of open brood (eggs and larvae) in the colony.

## Control

- If EFB infection is severe, destroy your infected colonies. Cold temperatures will not kill EFB bacteria
- Remove frames with clinical signs of EFB and dispose of them by burning to reduce transfer of diseases.
- [Irradiate](#) your comb (min. 15 kGy of radiation, compared to 10 kGy for AFB).
- Use the 'Shook Swarm' method for light infections. This method is only available as a control method until July. After July the colony will likely not recover as bees won't have enough time to build up their population before winter.
- The use of registered antibiotics should be restricted and only used on **strong colonies under the direction of your veterinarian.**

For more information on EFB see our full factsheet: [European Foulbrood](#)

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