

Factsheet #202

EUROPEAN FOULBROOD

European Foulbrood (EFB) affects bee brood and is caused by the bacterium *Mellisococcus pluton*. The disease has been reported worldwide and is generally not considered serious. EFB incidence is generally higher when the colony is under stress due to poor management, lack of forage, high colony density, etc. EFB most often occurs in spring but has also been reported in late summer.

Young honey bee larvae become infected with *M. pluton* when they are fed contaminated food. The bacteria multiply rapidly in the mid-gut of the young larva, resulting in starvation just prior to capping. Some larvae may survive and enter the pre-pupal stage but die shortly thereafter. The bacteria can remain viable for several years after the larva has died.

Symptoms

When the larva dies, it is in the coiled or twisted position and will turn yellow to brown. It is suspected that prior to death, the larva becomes restless and twists and turns. Approximately 10% of the larvae die after capping and this often leads to misdiagnosis because of the similarity to symptoms of American Foulbrood.

The odor of the infected brood is sour. Unlike American Foulbrood, EFB-infected larvae don't become ropy when a sample is collected from a brood cell. Over time, the decaying brood will dry up and form a rubbery scale, not brittle like AFB. The scale is easily removed from the cell and used for microscopic examination.

When in doubt, collect samples from several cells with a toothpick and place in a small plastic bag or plastic wrap. Place the sample in an envelope and mail to the Apiculture office in Abbotsford for identification. (Note: *M. pluton* is generally not microscopically identified but instead, the secondary invader *Bacillus alvei* is, characterized by its large spindle-shaped spores).

Management and Control

At the start of the main nectar flow, EFB mostly disappears or becomes non-detectable. The infestation may reappear in the fall. Re-queening seems to help because certain bee lines appear less susceptible than others (due to cleaning behavior), and the replacement of the queen involves a break in the brood cycle of the colony.

For cleaning up an active EFB infestation, all frames with significant numbers of affected cells should be removed and burned. The recommended amount of antibiotics should be dissolved in 250 ml of sugar syrup and sprayed or sprinkled onto the adult bees at least twice, 4 days apart (refer to **Factsheet #204** for dosage and handling).

Prevention

- Inspect brood frames regularly and be familiar with recognizing field symptoms.
- Inspect frames before transferring bees or combs between colonies.
- Minimize robbing by preventing syrup spillage. Do not barrel feed. Keep apiary clean and remove unused and old equipment.
- Establish hospital yards for colonies from different apiaries that have EFB. Clean hive tools, smoker and gloves after inspection of each apiary. Clean clothes regularly.
- Replace the queen every 1 – 2 years.
- Only feed clean pollen and honey to colonies.