

# European Foul Brood

## Description

European Foulbrood (EFB), a bacterial disease, is transmitted as the microbe is mixed with the bee bread, nectar or diluted honey replicating itself in the mid-gut killing the Larvae within 4 to 5 days.

Diagnosing EFB, due to secondary bacteria, may produce differing appearances depending infection severity. Nurse Bees with hygienic traits may remove larvae at a rapid rate.

The differences and variation in severity of the disease may be due to other factors such as climatic variations, variation in nutritional qualities of food and genetic variations of the host as well as variations in virulence in the pathogenic agent.

## Symptoms

- Spotty brood pattern, whitish-yellow to brown larvae, curled upward or twisted.
- Deflated larvae in the bottom of the cell with a defined tracheal system (usually greyish to brown in color with white trachea.)
- Sometimes ropes stretching up to 1.5 cm.
- Odors produced can be sour or fish-like, or no odor at all (different odors can come from secondary bacteria.) Scale is usually from brown to black sunken to the bottom of the cell.
- Outside frames of the brood nest are usually infected first.

## Testing

- Works like a home pregnancy test kit and reacts specifically to antibodies associated with the pathogen *Melissococcus plutonius* which causes EFB in honeybees.
- Extract a larva showing suspicious symptoms with the spatula. You can sample several larvae if needed, BUT don't put too much organic material in the sample bottle – it may clog the device. Only tiny samples are needed.
- Unscrew lid from the Extraction Bottle. Use the spatula to deposit sample in the bottle. Replace the lid and shake vigorously for about 20 seconds. BEWARE – the bottle contains buffer and sodium azide.
- Remove a Test Device from foil pack. WARNING Do not touch viewing window.
- Unscrew lid of Extraction Bottle and use the supplied pipette to remove a sample from the bottle. For best results remove the sample immediately after shaking to prevent bacteria from settling out of suspension.
- Hold the Test Device horizontally and gently squeeze two drops onto the sample well of the device.
- Keep device horizontal until extract is absorbed (c 30 seconds) and a blue dye appears in the viewing window.
- Wait until the control line appears (labelled C) and read the result (c1-3 minutes)