



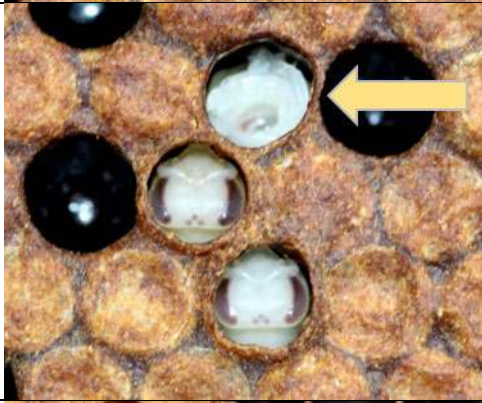







Recognizing signs of pests and disease

Correct and early identification of signs of pests and diseases in your colonies is essential for both preventive and remedial care. It does however take practice! Below are some of the more signs you should look for in your inspection notes. Visit beeinformed.org for more information.

| Abbreviation | | Description |
|---------------------------|---|---|
| Signs in the brood | | |
| AFB |  | <p>American foulbrood – bacterial disease (<i>Paenibacillus larvae</i>) infecting developing brood. Extremely contagious and resistant to disinfection attempts. Recognizable by sunken, greasy-looking, perforated cappings, under which lays a caramel-colored larval material (melted larvae), often stretching/roping out to an inch or more. In some cases, a dark scale on the cell floor can be observed.</p> |
| EFB |  <p><small>© Robert Snyder 2013</small></p> | <p>European foulbrood – bacterial disease (<i>Melissococcus plutonius</i>) infecting developing brood. Recognizable from the discolored larvae (yellowish or greyish to brown), with defined trachea (marked white lines) usually in a twisted, contorted pose. The larvae gets darker over time until melting down. Signs might vary as secondary infections will arise.</p> |
| Chalk. |  | <p>Chalkbrood – Common fungal disease (<i>Ascosphaera apis</i>) infecting developing brood. The “chalk-like” mummies of dead larvae vary in color depending on the stage of the disease. Starting with a yellow-white double coloring (“brie cheese”-like) turning to grey and black (when most infectious in the later stages). Mummies can also be found on the bottom board or by the entrance as workers clean them out.</p> |

| | | |
|----------------------|---|--|
| <p>Bald Brood</p> |  | <p>Bald Brood – Uncapped pupae. The cappings of cells containing pupae (white-eyes or purple-eyes stages) has been removed. This refers to the observation of a hygienic behavior, i.e. workers, having detected some issue in the brood, will uncap cells and sometimes start cannibalizing its content.</p> <p>← In this figure, the two purple-eyed pupae have been uncapped, judging by the uneven contour of the opening.</p> |
| <p>CDB</p> |  | <p>Chewed-Down Brood – Uncapped pupae in the process of being cannibalized. This refers to the observation of a hygienic behavior, i.e. workers, having detected some issue in the brood, will uncap cells and start cannibalizing its content. If the cannibalization has not start, the observation is named “bald brood”.</p> <p>← In this figure, the dead pupae on top is slowly pulled apart or ‘chewed-down’ by workers cleaning the hive.</p> |
| <p>Melted larvae</p> |  | <p>Melted Down Larvae – Deformed dead larvae, usually melted to the side of the cell, sometimes yellowish, resembling snot.</p> |
| <p>PMS</p> |  | <p>Parasitic Mite Syndrome – Condition associated with chewed down brood, deformed wings, and the presence of Varroa. The brood will show signs similar to other diseases, with discolored and decomposing larvae melted on the cells’ side. In some cases, mite frass (white crystals resembling salt) can be observed on the cell ceiling.</p> |
| <p>SBV</p> |  | <p>Sacbrood Virus – Viral infection affecting pupae, resulting in their failure to pupate. Often display a pointy “shrunken head” appearance. The pupa sometimes turn greyish-yellow to brown as it starts to dry out. When removed (using tweezers), the pupae look like a canoe-shaped bag of liquid.</p> |

Signs on the adult bees

CBPV



Chronic Bee Paralysis Virus – Virus infection affecting adult bees, transmitted primarily through feeding and contact. This virus renders bees often trembling, unable to fly with the appearance of bloated abdomens, black and hairless.

Shiny bees



Shiny bees – Bees with bald (hairless) thorax and abdomen. As the bee loses its hair, the blackness (and greasy appearance) of the thorax becomes evident. This might be indicative of a viral infection. Note: As bees also naturally lose hair as they age, they can share a similar black shiny appearance. Look at the bee's wings to differentiate between old bees (with frayed and tattered wings) and true "shiny bees" (younger bees, intact wings).

DWV



Deformed Wing Virus – Adult bee with non-functional wings due to the presence of a virus (vectored by Varroa mites) during the bee's development. The wings are shrunken and deformed.

Varroa



Varroa - Varroa mites should be monitored actively (e.g. by regular alcohol washes), but we usually record in the inspection notes when we directly see Varroa on adult bees, on larvae, in brood cells, or walking across the frame, as it is indicative of a high infection rate.

Signs on the frames

Entombed Pollen



Entombed Pollen – Pollen covered by a sheet of propolis. Using a sharp tool, the top propolis layer can be removed to expose the pollen, usually brick red in color. This might be indicative of spoiled and/or tainted pollen.

Dysentery



Dysentery – Bee feces in or onto the hive. Dysentery can result from multiple causes. It is common in the spring when bees have been restricted inside the hive for a long period of time. It can also indicate issues with moisture content in honey stores, certain types of nectars and/or other nutrition sources (weak pollen flow).

SHB adult



Small Hive Beetle (adult) – Opportunistic pest that will eat honey, stored pollen and bee larvae. Adult small hive beetles take advantage of weak colonies, and often hides in small interstices.

SHB larva



Small Hive Beetle (larva) – Opportunistic pest that will eat honey, stored pollen and bee larvae. The larvae of SHB will spoil stored honey by inducing fermentation, rendering honey frames bubbling and slimy.

Wax Moth



Wax moths (2 species: greater and lesser wax moth) – Opportunistic pest that will eat beeswax, stored pollen, remains of honey bee larvae. Very destructive to the equipment and comb.