

Differences Between American Foulbrood (AFB), European Foulbrood (EFB) and Parasitic Mite Syndrome (PMS)

AMERICAN FOULBROOD

Symptoms:

- Affects only capped brood.
- Spotty brood pattern.
- Larvae die in the upright position.
- Larvae turn from white to brown to black.
- Sunken, punctured cappings.
- Cappings may appear wet.
- Dead larvae exhibit “ropiness”. Select a brood cell that looks infected but not dehydrated (the prepupa/pupa structure is still evident and gooey). Take a stick or toothpick to swirl the contents of the cell and slowly withdraw it. If the contents draw out up to an inch in length (2.5 centimeters) then snaps back, the cell is most likely infected with AFB.
- “Pupal tongue” sometimes present. Extended pupal proboscis (false tongue) stretching from one cell wall to opposite cell wall (only see if death occurred in early pupal stage) – very positive sign of AFB but not always present.
- Dead larvae form black scales in the bottom of cells and are difficult to remove.
- May have distinctive sulfur-like smell.

Check List:

- Does this seem to affect only capped brood?
- Does the dead larvae “rope” out from a match or twig when it is inserted into infected larvae and then removed?
- Are scales present and difficult to remove?

EUROPEAN FOULBROOD

Symptoms:

- Affects predominately uncapped brood.
- Spotty brood pattern.
- Larvae are twisted and contorted in cell – in the “stomach ache position”.
- Larvae turn from white to yellow to brown. May see yellow streaks.
- Tracheal system visible.
- Royal jelly will appear yellow-brown.
- Dead larvae form a rubbery brown scale that is easy to remove and often crescent shaped.
- Capped cells appear normal.
- Odor may be mildly sour, but not the distinctive odor sometimes found with AFB.

Check List:

- Does this seem to affect predominately uncapped brood?
- Are the larvae curled or twisted?
- Are their tracheal systems visible?
- Are scales present and easy to remove?

PARASITIC MITE SYNDROME (PMS)

Symptoms:

- Affects ALL stages of larvae, prepupae, and pupae
- Spotty brood pattern •
- Larvae appear “melted down”
- Chewed down brood
- Lack of eggs and developing larvae
- Varroa mites seen on bees and comb
- Rapid decline of the adult bee population
- Supersedure cell often present
- May acquire an odor and become discolored when secondary bacteria set in

Check List:

- Is there a high Varroa mite load?
- Does it appear to affect all stages of larvae?
- Are there adults with deformed wing virus?
- Are there mites on bees and comb?
- Are chewed down brood and prematurely aborted larvae present?

Courtesy of Texas A&M Agrilife Research, Texas Apiary Inspection Service

<https://txbeeinspection.tamu.edu/files/2018/02/Identifying-Brood-Diseases-trifold.pdf>

Honey Bee Health Coalition

https://honeybeehealthcoalition.org/wp-content/uploads/2019/06/HBHC_AFB-EFB-Final-061119.pdf