

American Foulbrood

Description

American Foulbrood (AFB) is a bacterial disease caused by the bacterium, *Paenibacillus larvae*, which infects and kills larvae and pupae of the honey bee (*Apis mellifera*). If AFB is left untreated, it will often cause colony death by depreciating the number of adult honey bees over time. As adult numbers dwindle, the colony becomes more susceptible to robbing, weather, and starvation; or will die because adult honey bees are no longer being replaced within the colony. AFB spreads by spores, which can remain viable for 50+ years on bee-keeping equipment. Extreme caution should be used when purchasing or using old or pre-owned equipment.

Symptoms

- Sealed brood is discolored, sunken, and often has punctured capping
- Dead brood is dull white, becoming light brown, or almost black
- The dead brood is very soft and is sticky/ropy in consistency
- In advanced stages, the larvae will form a black scale and adhere to the side wall of the cell; pupae will adhere to roof of cell
- Smell may be slight or a very pronounced “dirty gym sock” odor



Photo credit: Montana Department of Agriculture



Photo credit: BeeBase

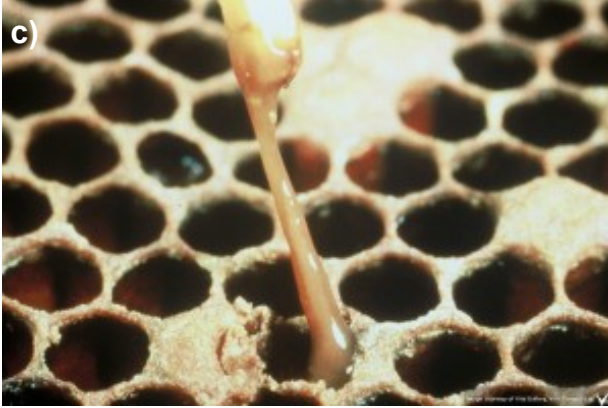


Photo credit: Texas Apiary Inspection Service



Photo credit: Blue Line Honey

Transmission

American Foulbrood is introduced to the hive from a number of variables. Bees from other colonies may introduce the bacterium through robbing or drifting, and beekeepers may introduce the spores via contamination of beekeeping tools or used equipment. Infection is spread through larvae and pupae within the hive when spores enter into food contaminated by AFB and then when it is consumed by developing larvae. Once the spores enter the midgut of the developing larvae, the bacterium takes over resulting in mortality.

American Foulbrood is extremely contagious and can spread easily through beekeeping tools and equipment. It is important to thoroughly clean all equipment when moving between hives during inspections. Spores of AFB have been known to stay active in equipment, colonies, and tools for as long as 50 years (perhaps longer), therefore, Montana Department of Agriculture also recommends not to purchase any used equipment, especially drawn-out frames and hive bodies.

Similar pests

American Foulbrood can be distinguished from other brood diseases by the characteristic adherence of desiccated larvae to the cell wall. The scale is often very difficult to remove from the wall, which is why adult bees within the colony often leave the scale behind.

However, European Foulbrood (*Melissococcus plutonius*) and Sacbrood virus can often be confused with AFB. Both EFB and Sacbrood share some common characteristics to observe within the hive. If a beekeeper is unsure if they have AFB in their hive(s), they should contact the Department immediately. The Department will either send an AFB test kit to the beekeeper or schedule an inspection.

Management

There is no cure for AFB, rather, beekeepers must take steps to prevent and infection from establishing itself within a beekeeping operation. Currently, there are two antibiotic treatments for AFB: Terramycin and Tylan. Effective January 1, 2017, both treatments must be prescribed by a veterinarian before purchasing, according to Rule #213 by the US Food and Drug Administration (FDA). This process of obtaining a prescription via a veterinarian is referred to as a VFD (Veterinary Feed Directive). Several hobby beekeeping groups in Montana are working together to provide a vet for their club. If you need assistance finding a vet or have questions about VFDs, please contact your local hobbyist group or contact the State Entomologist at:

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If AFB is positively recorded in one of your hives, Montana Law requires burning or charring of all beekeeping equipment and tools. The Department also recommends that you report all cases of AFB to the State Entomologist immediately upon detection. Recording the number of cases is important to bee health in Montana and can help in discovering a resistant strain of AFB to Terramycin.