American Foulbrood (AFB) is the most common and devastating of bee brood diseases. The condition is caused by a bacteria that produces spores, which infect honey bee larvae up to 3 days old. While the bacterium can be killed, the millions of spores it produces can remain viable in honey and beekeeping equipment for over 40 years.

Spread of the Disease

The disease is transmitted in various ways:

- Bees inadvertently spread the spores throughout the hive when they attempt to remove spore-laden dead larvae.
- Robber bees may take the pathogen back to their hives when they forage honey from a colony that is infected with the disease.
- Humans can transmit the disease by exposing a healthy colony to contaminated bees or equipment such as frames, boxes, or tools.

Prevention

Preventing a hive from becoming infected is the easiest and best method for managing the disease:

- When purchasing a bee colony, find out if it was treated for antibiotics. Although treatment can be prophylactic, medicines may be masking symptoms of an already infected colony; the hive will become symptomatic once treatment ends.
- Don’t purchase or accept used beekeeping equipment that has not been inspected and certified by the county bee inspector.
- Never switch frames, boxes, or other equipment from an infected hive to a hive that is healthy.
- Sterilize tools and Personal Protective Equipment before and after working in a hive you suspect is infected.
- Burn and bury frames and boxes that are infected with the disease.
Know the Symptoms

In order to make a proper diagnosis, be familiar with signs of the disease:

**Fig. 1:** Prepupae form dark “scales” in their cells, which the bees cannot remove.  
Photo by Clint Burfitt, UDAF

**Fig. 2:** Cell caps may appear sunken and dark in color and “ropy” when penetrated.  
Photo by Jack Wilkins, UDAF

**Fig. 3:** Spotty brood pattern with numerous, small perforations appear in the capping.  
Photo by Jack Wilkins, UDAF

Other symptoms include dead brood which turn from tan to dark brown, pupae found with extruded tongues, and a distinct, foul odor resembling animal glue.

Management

Treatments are available for AFB, however there is no cure. Medicines will only suppress symptoms; if treatment ceases, symptoms will reemerge and the hive will be infectious once again.

- Terramycin is an antibiotic that is approved for the treatment of AFB. It is effective in killing the bacteria, but not the spores. Treatment must continue permanently.

- Tylan is another effective drug approved for AFB. Like Terramycin it only treats symptoms and must be continuously applied for the life of the equipment.

- Since antibiotics only mask symptoms, in many instances it is preferable to properly destroy the colony and associated hive equipment.

Other Information

- Report all suspected cases of AFB to the UDAF.

- When using antibiotics strictly follow label instructions.

- For more information contact the UDAF: udaf-apiary@utah.gov

References: Bureau of Plant Industry and the Southern Region IPM Center, Virginia Tech and North Carolina University