

## **American Foulbrood**

One summer quite a while back, I went white water rafting for the first time. The guide dutifully described what we should do if we fell out of the raft. It sounded complicated, not so easy to remember, and sort of scary. I quickly resolved to stay in the raft and, so, did not listen as attentively as I might have. When I did find myself overboard, the shock and immediacy of the experience brought the instructions I thought I had only half heard sharply and vividly to my mind, and I followed them to the letter.

I had a similar experience on July 25, 2016, when I looked at a frame of brood while inspecting a hive in my yard. Its appearance immediately suggested AFB. A small stick poked into one of the suspicious looking cells drew out a caramel colored ropey thread, confirming my fears - it was unmistakable. Previous lessons on this topic came clearly to mind as I immediately went into action. Afterwards, I sat at my computer and consulted. Did I make the right moves? Is there more I needed to know and do? What about conflicting advice?

I am writing this in the hope that most beekeepers never need to put this information into effect but, if the need arises, enough of it comes vividly to mind so they know what to do. I want to start by simply describing my own experience.

### **What I saw:**

The frame had spotty brood with cells that had sunken caps and some pierced cells with caramel colored content. The caramel “stuff” in a cell roped out when I poked it with a stick and pulled the stick out. This is the classic diagnostic indication of AFB. (If the cells had contained dead larvae that were fairly solid and of colors other than caramel colored, I would have thought it to be parasitic mite syndrome.) Later, a black light shone on the frame clearly revealed the black scales of larvae that died of AFB.

### **What I did:**

I immediately shook the bees into a clean box with clean bottom board and cover and frames with undrawn foundation – no drawn comb. I kept the same location.

I secured all frames that were found in that hive by packing/wrapping them so that bees definitely cannot get to them.

I torched all the hive bodies, covers, and bottom board the bees were in, melting all the wax and propolis into the wood so none sticks up. I also torched my hive tool and cleaned my gloves and smoker.

I left the bees with nothing to eat for 24-48 hours so that they could use up all contaminated food they had in their stomachs through digestion and comb building. Then I fed sugar syrup so they could draw comb, continuing to feed until they could bring in their own nectar.

I treated all the hives in the yard with Terra-pro, a Terramycin mix I happened to have handy, having previously purchased it from Mann-Lake.

As soon as I find a safe place to do so, I will burn the contaminated frames in a responsible manner. Plastic frames and foundation cannot be safely burned. They can be wrapped in a heavy plastic bag and placed in a cardboard box and taken to a landfill where one can be sure it will be buried. The main thing is to protect it from being found by bees.

Two months later on August 27, an inspection showed no sign of further AFB symptoms. The hive bounced back very well. It had built out most of the frames and has stored food. There is beautiful healthy – looking brood. Also, none of the other hives in the yard have shown symptoms of AFB.

I inspect my hives regularly, so if something like this occurs, I find it early rather than late. This hive bounced back so well because it was still strong when I found the AFB. Many times the disease is discovered after a hive has died and been robbed out by neighboring bees, thus spreading the disease.

Besides the robbing of infected hives, one way AFB is spread is by sharing drawn comb. It is also a good idea to inspect any gift hive before bringing it into your own apiary.

There are times when one must make the heartbreaking decision to euthanize a hive rather than trying to save the bees.

#### **Consultation results:**

I received feedback from 4 beekeeping experts, Randy Oliver, Dr. Eric Mussen, Bonnie Morse, and Dr. Elina Nino, and was sent a copy of the California Food and Agricultural Code concerning AFB as well as an article on the “shook swarm” method of AFB management.

This is from the California Food and Agricultural Code concerning AFB:

#### **FOOD AND AGRICULTURAL CODE**

##### **SECTION 29200-29213**

**29204. “ Every infested apiary is a public nuisance. The owner or person in charge or possession of any apiary, upon finding an infestation [of AFB] to be present, or upon receiving notice an infestation exists in the apiary, shall abate the infestation without undue delay, pursuant to the requirements of law.”**

The law requires the bees to be burned, however, all 4 experts I consulted agreed that a shook swarm onto undrawn foundation would work to stop the infection and the bees can be saved.

One of the experts said the outer woodenware also needed to be burned. The others, including the California law, suggested proper torching is necessary and sufficient.

All insisted on the need to properly dispose of the frames, ideally by burning. The spores live forever and linger in the wax, propolis, beebread and honey. The honey itself can be extracted for human consumption, but cannot be fed to bees.

It was agreed that it would be best for me to treat all the hives with antibiotic due to the proximity of so many of them in the same yard. One needs to be aware that antibiotics can suppress symptoms but

does not kill the spores. Thus, such treatment is not sufficient by itself, and if done routinely, could hide a problem that should be related to more vigorously. Also, there is an issue of AFB resistance to Terramycin.

*“ Regardless of what you might hear, it takes a bit of inoculum, not just a single spore to get a larva infected. The questions are, how many bees from other colonies have been robbing from that hive and how much inoculum did they pick up? And here is an interesting footnote – colonies in your apiary are much less apt to be robbing your weak colony than are the colonies of your neighbors.*

*Probably, most beekeepers would treat their whole apiary if they are worried about seeing AFB in one colony. Although oxytetracycline hydrochloride (Terramycin) might be the choice of a number of beekeepers, much of the AFB in the U.S. is resistant to that antibiotic. Beekeepers had been using Terramycin, exclusively, since the 1950s. Now many beekeepers legally are using tylosin (Tylan products) for AFB control. You might wish to seek the opinion of a number of beekeepers on this matter. Lincomycin also is registered for use in beehives. “ \**

*Eric Mussen, Emeritus Extension Apiculturist, UC Davis.*

Another way to do the shook swarm is described by Bonnie Morse of Bonnie Bees in Marin County:

*“What we do is to put the bees in a cardboard box with a single frame. We leave them there for 24-48 hours and then come back and install into a new box. [The cardboard box is burned.] At this time of year, with a slow nectar flow, we then prefer to give them some built out comb (when available).”*

### **Conclusion – lessons learned**

American Foulbrood, though a serious bee disease, is quite manageable if you know how to deal with it and/or are willing to consult with fellow beekeepers who can advise you. It is a very big deal, however, if it is ignored and allowed to spread. This is a community issue. As beekeepers, it behooves us to educate and support each other and listen to good advice. Sifting through the few differences of opinion was not that hard. My personal AFB experience left me feeling grateful for beekeeper friends and confident in my own ability to be a responsible and effective beekeeper.

*\* More recently it was made legally necessary to obtain a prescription from a veterinarian to obtain any of the antibiotics mentioned.*