

STAHLMAN BEEKEEPING

NOTES FOR 2023

Issue # 13 April 1, 2023 Inspections Continued Part II

Diseases of the honeybee – What to look for! See the attachment: bee diseases.Pdf

Special topic: American Foulbrood

Beekeepers are dealing with many issues when opening a hive and examining frames.

There is a reason why we have state bee inspectors. One of the greatest threats to beekeeping in the 1800's especially after the introduction of hives with moveable frames was something called American foulbrood. Prior to that beehives could not be inspected and what happened within a hive was a mystery.

[Honey Bee Diseases: American Foulbrood \(psu.edu\)](https://psu.edu) This is an excellent site to check out pictures and descriptions of AFB as American foulbrood is called.

This is a contagious disease of honeybees. It can be spread by beekeepers moving frames from a hive with the disease to hives that were healthy. Hive tools, gloves, feeding honey from infected honey sources, and robbing bees are also ways the disease is spread.



Because of the bee inspection work done over many years (since the early 1900's) the disease has been reduced to it being found in 3% or fewer hives in many states in the U.S.

States with strong bee inspection programs have less AFB than states without strong programs.

I have had experience with it. I especially had an outbreak in my bees in the mid-1990s and I can vouch for

the reason to burn hive equipment and bees that are affected. Used equipment is one reason for possible spread. Buying bees on comb is another possibility for the spread of the disease. I was at one time an Ohio

IMPORTANT POINTS

From A.J. Cook's Manual of the Apiary published in 1878, "No bee malady can compare with this malignancy. This disease, said to have been known to Aristotle reduces colonies – whole apiaries and is a terrible plague."

The symptoms are as follows:

Decline in the prosperity of the colony, because of failure to rear brood. The brood seems to putrefy – becomes "brown and salvy" and gives off a stench, which is by no means agreeable, while later, the caps are concave instead of convex, and have a little hole through them.

Hot off the Press

A vaccine for Bees

In January, friends started notifying me that the U.S. Dept. of Agriculture had approved a vaccine for AFB, a fatal bacterial disease that destroys honeybee colonies. That is good news – But it is going to take some time for it to allow all honeybees raised to be able to be disease free.

First queen bees must consume the vaccine from royal jelly which is then deposited in her ovaries. Then the queen's larvae will be born with immunity to the disease. I can see the day when we can buy queens that have been vaccinated.

County bee inspector. It takes a good eye and a sense of something is not right about the look of capped brood. This is a brood disease!

Often one doesn't recognize the disease until it has caused the collapse of a colony. A hive may survive a year or more with the disease before it is weakened to the point that other bees will begin to rob it of its honey stores and spread the disease to other near-by hives.



Burning hives is the best way to deal with AFB. Killing bees and destroying equipment should indicate that this is not a disease that should be taken lightly.

This is the #1 reason beekeepers should have some knowledge about bee diseases other than Varroa Mites. When Varroa mites kill the bees in a hive they die as well. They do not contaminate the equipment. Hive equipment can be used over again and again. But AFB spores in equipment can

live for many years.

In years past there were various methods used to treat hives – but the treatment did not kill AFB spores. Up until 2017 beekeepers used chemicals that seem to clean up a hive but were ineffective on the dormant spores. These antibiotics are now illegal to use on all livestock without a prescription under the direction of a veterinarian.

With this little background I would ask you not to panic. Over 97% of those keeping bees will most likely never see it. Don't go by smell as a way to diagnose AFB. I am quite aware of the smell of some honey crops that might fall into the objective smell class. Goldenrod is one beeyard smell that comes to mind.

Good beekeeping practices will help prevent hives from exposure to AFB spores.

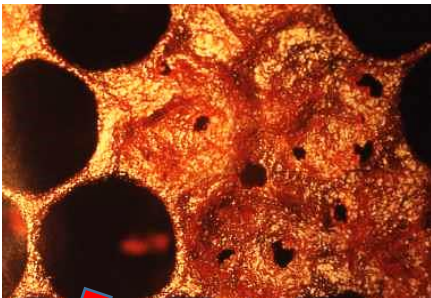
- Be a hygienic beekeeper. Clean tools and gloves often.
- Keep visitors from bringing their hive tool/gloves to your beeyard if they want to work your bees.
- Do not exchange equipment with friends – Avoid buying used bee equipment. Note, if one does buy used equipment all wooden ware can be disinfected and scorched. Frames and any comb in them should be discarded. Comb can be rendered into beeswax.

- Never feed honey or pollen if you do not know the source. Honey is an ideal carrier for AFB spores but the spores have no effect on humans who eat it.
- Drifting bees from near-by hives can spread the disease. Most likely if your bees get AFB the cause may be a nearby hive your bees robbed.
- The purchase of bee hives with drawn comb (nuc included) should always be from a reliable source that has a state inspection certificate. If a hive purchased does break down with AFB the source should be contacted as well as the state Department of Agriculture. It may take the symptoms months to show up but that is why we have state bee inspectors.
- If a hive seems to have a problem – Call upon a State Bee Inspector to take samples and send them in for a positive or negative report.
- Some suggest arranging hives in a beeyard so drifting does not happen as much, but let me say bees will always find a weak hive after the honey flow to rob – even if it is a mile or two away. If that weak hive has AFB, the disease can be spread to a number of hives within flying distance.

After all those words – Here are a few pictures to show what AFB looks like:



Dead larvae shortly after dying are brown often with the proboscis extended as shown here. Normal larvae are white. Larva die just after being capped over.



One trait that is seen is worker cells with holes in them. Another characteristic is the cells are sunken as Cook describes them as “**the caps are concave instead of convex.**”

Shortly after death, the larvae turns into a semi-liquid glue like substance of a dark brown color.



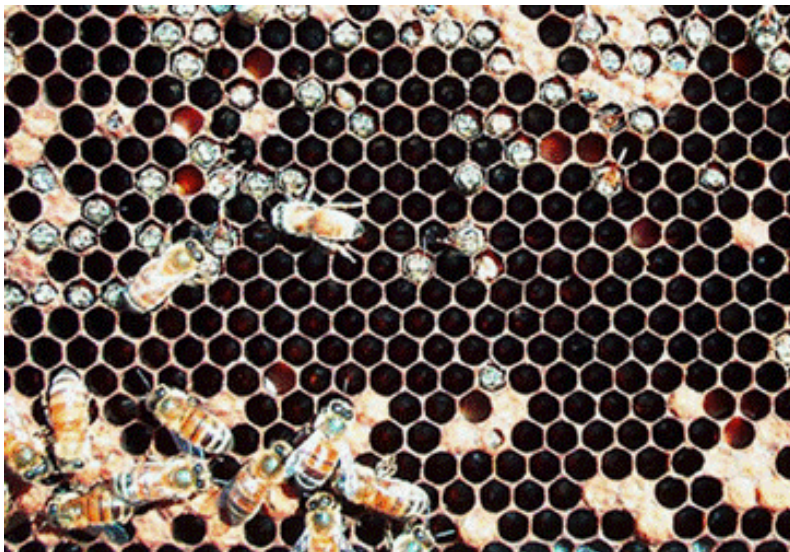
If a toothpick is stirred around in a cell, this liquid gooey stuff will stick to the toothpick and when the toothpick is removed will rope as shown here. This is considered a positive test for AFB but

samples need to be taken and submitted to determine that it actually is AFB.



One other indication that American foulbrood has infected a hive is a pepperbox appearance of the brood on a frame. Note the holes in the capped brood and what appears to be dark stuff under the holes. This is a sign that American foul brood is an issue, but the cells should be probed with a toothpick as shown

above to see if the dead brood ropes.



Other diseases can have a pepperbox appearance – see the one here:

This is not American foul brood but it is not a healthy frame of brood. Bald brood comes to mind but this is the kind of frame it would be good to call in a bee inspector to get an expert opinion. There are many virus diseases and these are increasing year to year. It is a fact that Varroa mites vector many diseases. I am not an expert but I can tell

something is wrong if I see this.

If one sees anything like this -- bee populations in a hive decline – sometimes very quickly.

Action to correct a problem may be a bit too late. The goal is to spot a problem by frequent inspections of all brood frames in a hive. It is best to be a step ahead of a problem rather than a step behind.

I will address other brood problems in the next issue of these notes and follow that up with pests of the honeybee. I have also included a Power Point presentation on bee diseases as an attachment to this newsletter.