

Stahlman Beekeeping Notes for 2022

Summer has arrived

Diseases of honeybees PDF



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I look at mid-summer as a time to reflect on what my plans are for the rest of the year. If a hive is in trouble, there is time to save it.

Bee colonies are in a stressful situation in many places without honey flows. I start my effort to get my bees thru the winter now! Those that are fortunate to have honey flows can continue to manage bees for honey production. Thus, beekeepers must be able to determine what is happening in the hive now! July issues of this series of notes will concentrate on these topics.

The major issues for bee survival in mid-summer:

- Disease
- Varroa – The number one killer of honeybees
- Pests that prey on honey bees such as wax moth and hive beetles are very active.
- Colony condition – Is the hive showing signs of early failure?
- Timing of beekeeping tasks.

Diseases:

Many new beekeepers have little experience with bee diseases. Often experienced beekeepers have trouble identifying a bee disease. Fortunately, most states have inspectors who have the knowledge and tools to diagnose disease symptoms. **If a beekeeper sees something like what I share – it is best to get a second opinion from a more experienced beekeeper, or state bee inspector.**

State Department Agricultural Apiary Divisions exist because in the late 1800's and early 1900's there was a bee disease causing havoc in the beekeeping community. It wasn't Varroa! It resulted because many hives had contracted American foulbrood and the disease spread across the U.S. like wildfire. Because of rules established in the early 1900's, the disease is largely under control.

I am enclosing a pdf file on bee diseases from my "Beekeeping 101, 201 and 301 cd last published in 2018". It contains many photos of various diseases and hopefully the information in the pdf file is useful to you.

I have noticed that the name of the bacterial larvae for AFB has been reclassified and I am including the updated information I found on the From Wikipedia, the free encyclopedia web pages.

American foulbrood (AFB, *Histolyasis infectiosa perniciosa larvae apium, Pestis americana larvae apium*), caused by the [spore-forming bacterium *Paenibacillus larvae*](#) (reclassified as one species without subspecies differentiation in 2006^[1] from *Paenibacillus larvae* ssp. *larvae*, formerly classified as *Bacillus larvae*^[2], and *Paenibacillus larvae* ssp. *pulvificiens*), is a highly infectious [honey bee](#) brood disease. It is the most widespread and destructive of the [honey bee brood diseases](#). It is globally distributed and **burning of infected colonied is often considered as the only effective measure to prevent spreading of the disease.**

[Paenibacillus larvae](#) is a rod-shaped bacterium, which is visible only under a high power microscope. Larvae up to 3 days old become infected by ingesting [spores](#) that are present in their food. Young larvae less than 24 hours old are most susceptible to infection. Spores germinate in the gut of the larva and the vegetative form of the bacteria begins to grow and multiply until the midgut is massively filled with bacteria and it comes to a shortage of nutrients ([commensal](#) non-invasive phase). This is when *P. larvae* breaks through the midgut wall and enters the hemocoel of the larva which is accompanied with the death of the larvae (invasive phase). Now, the bacteria take the nourishment from the dead larva and decompose it to a ropy mass ([saprophytic](#) phase). When it comes to another shortage of nutrients while the larva is decomposed, *P. larvae* produces millions of spores. The ropy mass dries down to a characteristic scale. This disease does not affect the adult honey bees but is highly infectious and deadly to bee brood. ^{[3][4]}

When cleaning contaminated cells, bees distribute spores throughout the colony. Disease spreads rapidly throughout the hive as the bees, trying to remove the spore-laden dead larvae, contaminate brood food. Nectar stored in contaminated cells will contain spores and soon the brood chamber becomes filled with contaminated honey. As this honey is moved up into the supers, the entire hive becomes contaminated with spores. When the colony becomes weak from AFB infection, robber bees may enter and take contaminated honey back to their hives, thereby spreading the disease to other colonies and apiaries.^[12] Beekeepers also may spread disease by moving equipment (frames or supers) from contaminated hives to healthy ones.

American foulbrood spores are extremely resistant to desiccation and can remain viable for more than 40 years in honey and beekeeping equipment. Therefore, honey from an unknown source should never be used as bee feed, and used beekeeping equipment should be assumed to be contaminated unless known to be otherwise.^[13]

I report on things as accurately as I can. The above information is accurate and better than words I could use. American foulbrood has never been completely eradicated and exists in many states. Most state inspection reports indicate it is found in about 1% or 2% of hives. If a neighbor has a hive with AFB and nothing is done about it, it will likely spread to your hive or hives. This is why we have laws and bee inspectors.

I have had some experience with AFB. For many years I was a commercial beekeeper and for a few years a county bee inspector in Ohio. I always had to be on the look-out for this particular disease. **In its advanced stages it is not hard to spot. And this is the time of year when it is spread to other hives. Robbing bees take advantage of any hive in a weakened condition.**

I have included the Disease pdf file on most of the diseases that are common to honey bees. Just a quick review of what is on the pdf file:

- There are a number of bee diseases pathogens: (virus, bacteria, and fungi)
- What does healthy brood look like!
- Many diseases are spread by beekeepers and failure to follow directions and over use of chemical treatment has led to resistance.
- Things a beekeeper can do to head off disease.
- A section on viruses.
- A section on fungal diseases.
- A section on bacterial diseases.

Pictures are worth a 1000 words they say. A second opinion is also worth more than a 1000 words. When anyone sees dead larvae and a failing hive, something is wrong. We can see most pests in a bee hive and know something is going on! **Diseases show symptoms.**

We are blessed as beekeepers to have state bee inspectors. They have experience and the ability to follow up on bee diseases in hives they inspect. Their services are state supported and free. Some states do have registration requirements!

In addition to state support for beekeepers, we have picked up support from Vet schools.

Since a new law was enacted regarding use of antibiotics we as beekeepers need to understand the value of getting to know a veterinarian. Vet schools are now involved in teaching and informing future vets about bee diseases. If we want to treat diseases rather than burn hives, we have another partner to help save the bees.