

The Buzzzz

The Monthly Newsletter of the Gilroy Beekeepers Association

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In this issue

Message from The President

Alternative Pollinators

January in the Beeyard

Drippings FromThe Extractor

Bee Plant of the Month

Calendar of Events

"Getting to Know Each Other" will return in February

President's Message

Since bee diseases and parasites can wreak havoc on our beekeeping pastime, the Gilroy Beekeeper's Association officers decided to feature each month an article about these problems, so that we are better informed and can take steps to alleviate these problems. Our first article is about:

American Foulbrood

From Wikipedia, the free encyclopedia

http://en.wikipedia.org/wiki/American_foulbrood



Field test for American foulbrood

American foulbrood (AFB), caused by the spore-forming *Paenibacillus larvae* ssp. *larvae* (formerly classified as *Bacillus larvae*), is the most widespread and destructive of the bee brood diseases. *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, taking its nourishment from the larva. Spores will not germinate in larvae over 3 days old. Infected larvae normally die after their cell is sealed. The vegetative form of the bacterium will die but not before it produces many millions of spores. Each dead larva may contain as many as 100 million spores. This disease only affects the bee larvae but is highly infectious and deadly to bee brood. Infected larvae darken and die.

History

Until 1906 the two foulbrood diseases were not differentiated and the condition was generally referred to as foulbrood. Thereafter, the terms European and American were used to distinguish the diseases. However the designations did not refer to the geographical

distributions but to the areas where they were first investigated scientifically. In 1907 it was demonstrated conclusively that a bacterium called *Bacillus larvae* was the cause of American foulbrood disease by fulfilling Koch's postulates. The geographical origin of AFB is unknown, but it is found almost worldwide. *[Editor note: European Foulbrood has begun a resurgence in California. More about this next month]*

Diagnosis

Lab testing is necessary for definitive diagnosis, but a good field test is to touch a dead larva with a toothpick or twig. It will be sticky and "ropey" (drawn out). Foulbrood also has a characteristic odor, and experienced beekeepers with a good sense of smell can often detect the disease upon opening a hive. In the photo above, some larvae are healthy while others are diseased. Capped cells with decomposing larvae are sunken, as can be seen at lower right. Some caps may be torn, as well. The most reliable disease diagnosis is done by sending in some possibly affected brood comb to a laboratory specialized in identifying honey bee diseases.

Disease spread

When cleaning infected cells, bees distribute spores throughout the entire colony. Disease spreads rapidly throughout the hive as the bees, attempting 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. 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 contaminated unless known to be otherwise.

Treatment

Antibiotics, in non-resistant strains of the pathogen, can prevent the vegetative state of the bacterium forming. Drug treatment to prevent the American foulbrood spores from successfully germinating and proliferating is possible using oxytetracycline hydrochloride (Terramycin). Another drug treatment, tylosin tartrate (Tylosin), was approved by the US Food and Drug Administration (FDA) in 2005.

Chemical treatment is sometimes used prophylactically, but this is a source of considerable controversy because certain strains of the bacterium seem to be rapidly developing resistance. In addition, hives that are contaminated with millions of American foulbrood spores have to be prophylactically treated indefinitely. Once the treatment is suspended the American foulbrood spores germinate successfully again leading to a disease outbreak.

Because of the persistence of the spores (which can survive up to 40 years), many State Apiary Inspectors require an AFB diseased hive to be burned completely. A less radical method of containing the spread of disease is burning the frames and comb and thoroughly flame scorching the interior of the hive body, bottom board and covers. Dipping the hive parts in hot paraffin wax or a 3% sodium hypochlorite solution (bleach) also renders the AFB spores innocuous. It is also possible to sterilize an infected hive without damaging either the structure of the hive or the stores of honey and pollen it contains by sufficiently lengthy exposure to an atmosphere of ethylene oxide gas, as in a closed chamber, as hospitals do to sterilize equipment that cannot withstand steam sterilization.

Alternative Pollinators

by Dave Stocks

We are all familiar with the importance of honey bees. They pollinate over 85 percent of plants and flowers and nearly a third of our foods. Common crops, such as almonds, onions and cabbage will not set seed without pollination. Feed sources for cattle, such as

alfalfa, also require pollination. We are equally aware of the plight of the honey bee. Some researchers predict that in the not so distant future the honey bee may not be available as a viable pollinator. In an effort to find a solution to the approaching dilemma, researchers are looking close to home for a solution: the native bee.

There are nearly a thousand species of native bees in California. These range from the common bumble bee and carpenter bee to the small *Andrena limnanthis* *Hesperandrena* which only visits a single flower found at the edges of California vernal pools. Of these thousand native species, only the mason bee is being used as a commercial pollinator. Other bees, such as the alfalfa leafcutter (*Megachile rotundata*) and the bumble bee (*Bombus impatiens*) are commercially used but are not California natives. The alfalfa leafcutter is an import from Europe and *Bombus impatiens* is only found in the eastern United States. Today we want to talk about mason bees.

There are two species of the Genus *Osmia* that are currently being used for pollination on a commercial level. They are *Osmia cornifrons*, an import from Japan, and *Osmia lignaria lignaria* (not a typo!) , a western United States and California native. A third, *Osmia californica*, although not used commercially, has great potential as a home orchard and garden pollinator. Let's concentrate on *Osmia lignaria*, or as it is more commonly called, the blue orchard bee or "BOB".



Blue Orchard Bee

The use of commercial pollination of blue orchard bees is relatively new, having begun in the 1990's. Before we assume that it is a

farming technique somewhat to the left of the mainstream, it should be noted that Paramount Farms, headquartered in Bakersfield , California, the largest almond producer in the world with over forty-five thousand acres in production, has begun using BOB's for pollination along with honey bees. The program, although still in its infancy, has shown very promising results. Unlike the honey bee, which pollinates a wide variety of plants, the blue orchard bee is more specific. Because of its life cycle, which we will discuss, BOB's are only active during the early spring, limiting their application to early blooming fruit crops such as apples, almonds and cherries. Although often advertised as a garden pollinator, this is rarely the case.

Unlike the honey bee, the blue orchard bee is solitary. Each female constructs her own nest without help from other members of her species. In the wild, they are found nesting beneath bark crevices, in tunnels made by wood boring insects or in the hollow stems of pithy twigs. These site requirements often limit the size of wild populations . However, these nesting requirements can be duplicated when managing the bee for pollination. Several options are available. In large scale operations, multiple blocks of wood are drilled with size specific holes (5/16"). In smaller operations, in addition to wood blocks, bundles of cardboard tubes or sections of reed or bamboo can be used. Like honey bees, BOB's need orientation landmarks to locate their nest. These can be range from hedgerows to fence post to brightly decorated nesting blocks.



Mason Bee Nesting Blocks

Like all insects, the blue orchard bee is susceptible to disease. Good sanitary practices need to be maintained at all times. Likewise, pesticide free environments must be provided if healthy populations are going to survive.

We need to do everything possible to maintain healthy honey bee populations. At the same time, we need to respect the presence of our native pollinators and do everything possible to protect them. The Xerces Society offers four ways of doing this: grow a variety of pollinator-friendly plants that bloom from spring to fall, protect and provide bee nest sites, avoid using pesticides, and lastly, talk to your neighbors about the importance of pollinators and protecting their habitat.

January in the Beeyard

As January begins, subtle changes begin in the hive. During the common cold days and nights, the bees will stay tightly clustered, rapidly consuming stored honey and pollen. However, on sunny days they will be out foraging on early nectar and pollen sources. The most common source for us in the Gilroy and Morgan Hill areas will be eucalyptus. More rural areas will see the beginning of the manzanita and buck brush bloom. Weather permitting bees may begin to rapidly build up stores.

As the month progresses, we should see the queen rapidly increase her egg laying rate and perhaps the rearing of the first drone brood. Be ready to add boxes as necessary.

The beekeeper should be monitoring the hive weight and feeding pollen and syrup as indicated. Avoid opening the hive while the bees are clustered during cold weather. However, when a warm day presents itself, begin checking for signs of disease, mites or stress. Remember, Nosema loves damp, cool weather. Check for and treat as necessary.

A consistent, year round water supply is vital. Establish it now so that the bees become familiar with and maintain it throughout the year. Finally, now is the perfect time to purchase new equipment or perform maintenance on old equipment. Once the

spring buildup begins, time will be precious. Get the jobs done now!

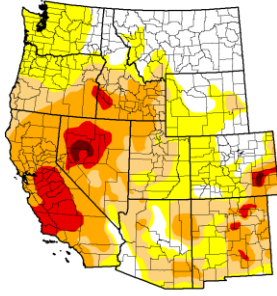
Drippings From The Extractor

On December 9th, long time beekeeper and member of the Santa Clara Valley Beekeepers Guild, Ray Hicks passed away of heart related issues. For the old time members of the Gilroy Beekeepers Association, you might remember Ray attending our meetings and field days. More recently, I reacquainted with Ray and his wife Gerri at the meetings of the Western Apicultural Society. Ray could always be found in the front row, camera in hand, photographically recording the events of the day. Ray's love of bees took he and Gerri to all corners of the world. His knowledge and friendship will be missed. Our deepest condolences go out to Gerri and the family.






Do any of you remember the Joni Mitchell tune that went, "They paved paradise to put up a parking lot." Well, it's happening again! Word on the street has it that the Morgan Hill Community Garden is being forced to move by the City of Morgan Hill. They want to make room for a parking lot. The first casualties were the garden bees. Citing the city ordinance that "prohibits" such things, the garden managers were told to remove the bees to another location outside the city limits. Does this bother anyone else but me? Not only are we losing a great educational tool in the garden, but we are also losing the opportunity to educate folks about bees. The City of Gilroy has a similar ordinance. Maybe it 's only time until the Gilroy Community Garden is met with a similar fate. Please share your thoughts and ideas at dave.stocks@yahoo.com.

Mother Nature is going to challenge us again. 2013 will go on record as being the driest year ever recorded since record taking began in 1848. Long range predictions, for what they're worth, indicate below average rainfall for the beginning Of 2014. The map below shows the dire situation we are in.

U.S. Drought Monitor West



Intensity:

	D0 - Abnormally Dry
	D1 - Moderate Drought
	D2 - Severe Drought
	D3 - Extreme Drought
	D4 - Exceptional Drought

What does this mean for the bees? Time will tell. Quite possibly we will see lower honey production, particularly in rural areas that depend on rainfall for flower bloom. Urban areas might also be affected as water tables drop and water rationing becomes a reality. Remember that bees need a consistent water source year round. Establish it now, and maintain it no matter what the situation

We have two classes planned for March. A top bar beekeeping class with Les Crowder is scheduled for March 15-16 and an Introduction to Queen Breeding and Rearing class is scheduled for March 22-23. If you're interested, please contact me at dave.stocks@yahoo.com.

Macon Sammons, a commercial beekeeper, is looking for hives to take to the almonds for pollination. I know GBA member Matthias Kim, among others, has worked with Macon in the past and has been very happy with the condition of his bees when they returned. If you're interested, please contact Macon at 408-607-6315.

Beginning with our January meeting, we will be in a new location. Exactly where is still not known. Please stay tuned!

I apologize for the newsletter being late. Leave it to the IT Department to go shopping just when the computer becomes cantankerous!

I wish everyone a happy and prosperous New Year.

Plant of the Month

This month we are starting what hopefully will be a regular part of *The Buzz*. We will highlight a plant that during a given month is a major pollen and nectar source for our bees. This month we feature the blue gum eucalyptus (*Eucalyptus globulus*). Although non-native, it is a common plant of both rural and urban areas.



The tree usually begins blooming around the new year, and provides a good early season source of both nectar and pollen. Strong colonies can produce surplus honey in a relatively short period of time. Unfortunately, it is a dark thick honey better suited for bees than us. Although I was unable to find any documentation, the leaves of the eucalyptus may have benefit as a smoker fuel. Similar plants with high oil contents have been proven to be effective in mite control.

Calendar of Events

Meetings

January 1,2014

Santa Cruz Beekeepers Guild - 6:30 pm
El Rio Mobile Home Park
N. Pacific Ave
Santa Cruz, Ca
<http://santacruzbees.com>

January 4,2014

Monterey Bay Beekeepers - 8 am
2450 N. Fremont St.
Monterey, Ca
<http://www.montereybaybeekeepers.org/>

January 6,2014

Santa Clara Valley Beekeepers Guild - 6:15 pm
1292 Minnesota Ave.
San Jose, Ca
<http://beeguild.org/>
Topics:
"Setting up a bee hive"

January 9, 2014

Beekeepers Guild of San Mateo County- 7 pm
1106 Alameda de Pulgas
Belmont, Ca
<http://www.sanmateobeeguild.org/>

January 14,2014

Gilroy Beekeepers Association - 7 pm
8191 Swanston Ln.
Gilroy , Ca
<http://www.uvasgold.com/gba/>
Topics:
Showing of the DVD "More Than Honey"

January 14,2014

Alameda County Beekeepers Association - 7:30
600 Bellevue Ave.
Oakland, Ca
<http://site.alamedabees.org>

Classes

Date: **March 15-16, 2014**

Topic: Top Bar Beekeeping

Instructor: Les Crowder

Location: TBD

Spaces in the class are available. Please contact Dave Stocks at dave.stocks@yahoo.com if you're interested

Date: **March 22-23, 2014**

Topic: In Her Majesty's Chamber's: Introduction to Queen Breeding and Rearing

Instructors: Melanie Kirby and Mark Spitzig

Location: TBD

Spaces in the class are available. Please contact Dave Stocks at dave.stocks@yahoo.com if you're interested