

# FCBA NEWS

Franklin County Beekeepers Association

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## Club Upcoming Scheduled Events

Currently we have no scheduled events due to Covid-19 regulations. Meeting places are hard to find that would allow GROUP gatherings.

Board member elections are being postponed until next year, following the PSBA example; current board members will remain in their positions until next cycle.

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Winter is almost here. Fall feeding has been completed. It's time to get about winter plans. Even, as I've been bee keeping for several years now, each year I think "How can I make it an easier winter on my bees?" So I'm always searching. Lately, I also wanted to learn more about the **fat bees** and the role they play. Below is what I have surmised from several articles.

### Fat Bees

Getting through the winter is a very different challenge than life in the summer. Bees are extremely well adapted to their environment at the best of times and they change their body make up to prepare for the worst of times. Specifically, the approach of winter creates so-called **fat bees**. Fat bees are winter bees - bees much better suited to get through the winter, as follows:

- ) A compound called **vitellogenin** helps bees store food reserves in their body. This is less necessary in the summer, when they can freely move to and consume food. But in the winter vitellogenin becomes more important, so a fat bee has more.
- ) Lower levels of hormones
- ) Enlarged food glands
- ) Higher level of sugars and fats in their blood

The end result is indeed a fatter bee, but also one better able to tolerate and survive the cold weather of winter.

### Pollen is essential too

Nectar provides energy, pollen provides everything else. You can't raise bees on sugar alone; they also need protein, fat, lipids, vitamins, minerals, antioxidants and

trace elements. Pollen contains all of these and more for your bees.

Without a diverse source of high-quality pollen, a colony will collapse. Such a colony can't produce healthy offspring and can't perform the many functions necessary for day-to-day life.

Everyday life in the bee colony is often faced with lean times. Pollen can become scarce during wet weather, dry spells and certainly over winter. Yet a colony doesn't store pollen on the same scale as it stores nectar. Most pollen storage is used almost as quickly as it is collected, so how does a winter colony survive?

The answer is the *fat winter bee*. We might think of pollen as occurring in the combs surrounding the brood nest, winter storage of protein actually takes place within the winter bee. The enlarged fat bodies, along with enlarged hypopharyngeal glands, gland of worker bees that contributes to the production of the royal jelly fed to queens and larvae, provide a vast storehouse for vitellogenin and other materials needed to produce brood food.

This hidden treasure is the reason a healthy colony can produce a batch of spring bees long after the last pollen flow has ended and long before the new one begins.

### **Even winter bees have their limits**

A winter bee is limited in size just like a cell is limited in size. As winter bees begin to feed brood, their fat bodies shrink and the glands produce less. Eventually they can run dry. In most situations, they have enough to get to spring.

The possibility of running out has a lot to do with the strength of the colony going into winter, the amount and quality of store food, the mite load, and the winter weather. For these reasons, many beekeepers find that a supplemental pollen source can make a world of difference in the strength of overwintered colonies.

Research has found that feeding supplementary pollen to colonies in late summer or early fall didn't boost the quality of the winter bees but increased the length of the normal brood rearing season. This makes sense since lower quality and availability of brood food is what triggers the production of the winter bees.

This suggests that supplemental feeding may be better served after the winter bees have emerged.

### **Winter hive warmth**

Bees are cold-blooded. However, they don't simply die off and leave nested eggs to continue the species through the winter. Neither do they hibernate. Instead they remain active all winter, eating and metabolizing honey throughout.

The queen is kept at a steady temperature by being "hugged" by workers throughout the winter. The worker bees will form a cluster - hence the name - around her, enclosing her in a small but warm space. They "shiver" their flight muscles, which creates heat. With thousands of worker bees this can create a considerable heat source.

There are some fascinating aspects to the winter cluster.

- ) Bees will be dispersed around the hive while the temperature is around or above 60 degrees
- ) When the temperature drops below that level, worker bees start forming a cluster around the queen
- ) The center of the cluster, where the queen resides, will be maintained at a temperature of around 92 F
- ) The "tightness" of the cluster will be adjusted, according to the outside temperature, with a denser cluster being formed as temperatures drop
- ) To ensure that workers on the outside of the cluster don't succumb to the cold, there is a constant movement of workers from the

outside to the inside of the cluster, effectively giving all workers a turn in the warmer inner cluster

- ) If the outside temperature climbs above 50 F, bees will often take advantage to leave the hive and defecate, thus helping the cleanliness of the hive. These are called *cleansing flights*.

### **Insulate and Ventilate**

Unfortunately, many beekeepers focus on insulation but often forget that ventilation is just as important. Without ventilation, the warm air the bees generate will rise, hit the top cover, and condense into water before falling back down on the bees.

As the temperatures drop, you can think about doing these things to ventilate and/or insulate:

- ) *Windbreak* – Consider building a windbreak, such as a bale of straw. Providing a windbreak is more important than wrapping your hives!
- ) *Wrap your hives* – Once the temperatures start to dip below freezing during the day, you may want to consider wrapping with either tar paper or a Bee Cozy Wrap. NEVER wrap your hive with tightly-wrapped plastic, as it will suffocate your bees. Beekeepers in central and southern climates almost never need to wrap their hives. When in doubt, use some of these other methods of insulation before wrapping. Wrapping should be a last resort!
- ) *Reduce hive entrances* – By reducing hive entrances, you will help keep the hive warm and

prevent other critters from entering the hive. You may even want to purchase a mouse guard to prevent rodents from damaging your comb.

- ) *Inner cover* – If you don't already, consider using an inner cover underneath your outer cover.
- ) *Solid vs. screened bottom boards* – This is yet another age-old beekeeping debate. Each has its advantages and disadvantages: Solid bottom boards keep in the heat better, but screened bottom boards provide better ventilation. It's your choice, depending on where you live and how your hives winter.

*Extra insulation* – consider adding some extra insulation underneath the outer cover of your hive, possibly a quilt box. This will help prevent heat loss from below. Newspaper, straw, and burlap are all great insulators, and they absorb moisture as well.

### ***President's Corner***

I recently visited a beekeeper with some very disappointing results.

This gentleman originally contacted me about becoming a member in August. I immediately offered to visit his apiary because he lives along a route I travel frequently. We finally agreed to have me visit in late October.

Upon arrival, we had a wonderful discussion where I shared a lot about what we (FCBA) recommend, which I could tell much of which was new and was not what he was doing. The more we talked, the more I could see he did many of the things that we (FCBA) totally recommend not doing.

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He got bees and equipment from a buddy who basically said “here you go”. He started with 6 hives & placed them in a lightly wooded area (full tree coverage, but grass on the ground). He had 2 deeps for brood chambers, a queen excluder and a shallow on top. He did have another friend visit and go through his hives very thoroughly mid-summer. He told me he recently lost one hive so now there were 5. My plan was to go through one hive explaining what I was looking for & give my thoughts. First I always observe the entrance activity, which looked good for the time of year. We popped the first lid & found the top box (shallow) didn't even have the wax fully pulled, nothing there. As we went into the brood chambers (below the excluder) there was some uncapped honey, some pollen and what appeared to be robber bees. We proceeded to tear his apiary apart finding every “hive” to be in similar shape, some with a little capped honey. The last hive we didn't open because the queen & a small group of attending bees were on the telescoping cover.

I really feel bad for this gentleman, I know he could have been in the same situation had he followed all of “our” recommendations, but I'm sure his odds of success would have been greater. Hopefully this gentleman does not give up on beekeeping and will implement some better practices to improve his success. I am a strong proponent of education. There are many good courses available. The course we traditionally offer in the spring is meant to be a good basic course for this area plus we offer follow up sessions and mentoring. Currently we are trying to figure out how we are going to offer our course because it appears Covid will still be an issue.

***Happy Thanksgiving!***

***Stay Safe and well!***