

Stahlman beekeeping notes for 2021

Issue # 26 Summer bee populations

First, let's understand that not all colonies of bees are equal! I just drove out to my Franklin County bee yard yesterday and noted some bearding on most of the colonies. The temperature was too hot to work bees – for me anyway. I have noted a bit of aggressiveness by the bees compared to just a few weeks ago.

What is going on? Let me say the honey flow right now is very slow. I do see some pollen being brought into hives but flight activity has slowed considerably.

I do a lot of reading and one of my favorite authors is Tom Seeley. He states in Honeybee Ecology that each colony can be thought of as an organism which rears 150,000 bees and consumes 20Kg of pollen and 60 kg of honey each year. Converted to pounds that is 44 pounds of pollen and 132.27 pounds of nectar to survive as an organism.

Because honey bees raise a lot of brood during the spring and summer season, a huge demand for nectar and pollen is required just to feed larvae as well as adult bees in the colony. Many beekeepers starting a hive will supplement a colony with pollen patties and sugar syrup. During spring, pollen patties are not going to help much because many trees and plants are in bloom.

One important factor for a colony of honey bees is location. A beekeeper needs to consider the food resources available to colonies. Locations are not equal!

Many commercial beekeepers move bees from one area to another making it possible for the colonies they manage to have flowers producing nectar and pollen throughout the summer season. I did that in Ohio by moving bees from bee yards that had little resources to farms that grew crops such as buckwheat, soybeans (at one time a good producing honey crop), and goldenrod. I have a New Jersey beekeeping friend moving bees from North Carolina, to the mid - Atlantic New Jersey area (a lot of field crops available such as blueberries) and then on to New York state finger lake region (vast fields of alfalfa, clover, buckwheat and loostripe).

I am now a fixed base beekeeper. I locate my hives where they can find available blooming plants thru mid-summer. I look for things like open range unfarmed land, farms raising something other than soybeans, tobacco, wheat or corn. Many beekeepers do not have that advantage. Fix-based bee yards located at one's home offer some advantages when it comes to inspecting and caring for bees. The downside is that often the location does not offer a wide variety of nectar and pollen for the bees. That is the situation I find with my hives located in my

backyard in North Raleigh. Once the privet and tulip popular have finished blooming and the weather heats up, the bees are left to survive on what they gathered in the spring and early summer. If I remove honey from a hive, I am going to have to feed that hive to make up for the loss of food that occurs during the summer dearth. There is a lack of natural foraging plants to sustain the life of the colony. I may see a few trees in bloom but the bloom doesn't last long, the clover dries up, yards are well taken care of – grass mowed on a weekly basis and treated for weeds.

My neighbor has planted a garden and grows a few flowering plants in the landscape but the bees require more than that. I am grateful for those homeowners that do allow a few dandelion and clover to pop up periodically.

Where is all of this going?

The stress of summer is great on a colony of bees in a fixed location.

I know the temptation is to remove honey before the bees can consume it during the summer dearth. The beekeeper gets a gallon or two of honey at what cost to the bees that produced it?

There was a time in which beekeepers took all the honey in a hive and allowed them to starve to death! The income from the honey removed more than covered the cost and effort to restart the hive in the spring. Some even practiced the art of "Sulfuring the bees"!

Honey bees have developed over the course of evolution to respond to changes in nature. They store the "bloom of nature" to live for the future which will not leave them foodless.

Thus, if we look at the life cycle of the honey bee we will notice that brood-rearing slows or ends completely by late summer and fall. Some races of honey bees in the United States such as Italian bees are very broody – which means the bees will continue to raise a large number of bees even when stores are low. The bees that survive generally reduce brood rearing as food sources become unavailable. Bees depend on stored honey in the summer just as they do when the winter season begins.



This is a picture I took from a web blog 6/22/21. The question asked was: Is this normal behavior of honey bees?

In very hot weather it is normal for bees to hang outside the hive. This is called bearding. One way to help the bees in this situation is to add an additional brood chamber and continue to add supers if the bee population grows to the extent that bees are living outside the hive. I would not be surprised that the brood nest in this hive is congested. Bees are very successful in storing nectar and pollen around the brood nest. But if available space is not provided, it would be normal for the bees to begin building queen cells. This swarming impulse results in a swarm issuing from the hive and reduces the bee population.

Just because it is summer, do not think that the bees are done swarming! Hive management during the summer is a balancing act between providing the bees with storage space, removing a honey crop, and leaving enough honey for the bees to survive. Plus, checking colonies for issues such as failing queens and treating for disease.

As long as honey bees are collecting nectar and pollen, supers should be added to provide ample room for the storage of surplus honey and population growth.

As we move into summer (it has officially begun) management of our bees must take into account more than just taking honey from the bees. I have noted many bee books discuss extracting honey, raising queens, making splits, checking on the health of the hive, winter preparation etc.

I find myself doing almost all of this right now.

Traditionally, I always thought of income flow from my bees. During spring build up, I raised queens, sold package bees and made hive increases. Late summer was wrapping up extracting and getting bees ready for winter.

Living in North Carolina has changed much of what I do. Ohio has four clear seasons – winter, spring, summer and fall. I have not seen a real Ohio winter in North Carolina. My bees are flying often during the winter season – yes, we have some cold but not 10 below zero! I find my bee season extended for both spring and fall beekeeping. My bees are not shut up in a hive for 5 or 6 weeks without a day to venture from the hive. Spring build up begins in January and winter weather conditions do not begin until November. Our weather is not like living in Florida or along the Gulf states because my bees on occasion do see winter and very hot summers.

So, in writing these articles, I will try to address a number of the things I am involved in doing.

We are in the extraction mode currently. I am back to extracting four frames at a time. I have an old hand crank extractor made of stainless steel. It has a basket which protects from blow-outs. It gets the job done. I have plenty of time on my hands. If I were handling more hives and honey supers, I would invest in a 12 - frame motorized extractor but that is not in the picture right now.

New beekeepers may ask about the need for an extractor. It is an expensive piece of equipment. One value of joining a bee club is the club may have an extractor available to use by members or a member of the club may do the extracting for you – may work for free or require some of the honey as payment for extracting.

Taking off the honey

Frames with honey should ideally be completely capped. See picture below:



Honey has a moisture content ideally below 18.6 %. When humidity is high bees have difficulty reducing the moisture content of honey. Thus, some beekeepers find that their honey sours (fermentation has taken place) when the moisture content of honey is higher than 18.6 %.

Honey should be removed and extracted from hives when the weather is warm – remember honey flows from comb much faster in high heat conditions.

One way to determine if the honey is ripe is to shake a frame with honey in it. If I give a frame a good shake and honey does not fall to the ground, I assume the moisture content of the honey is below 18.6 %. If the honey comes out of cells when the frame is shook, return it to the hive.

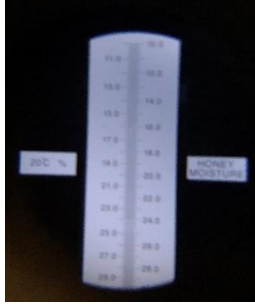
This shake method is useful if a frame is only partly capped.

Another sure method to check moisture content is an instrument called a refractometer. A refractometer is a sensitive instrument and must be recalibrated often. Another method is to fill a jar with honey. Turn the jar upside down and watch how fast the bubble of air rises from bottom to top. The bubble of air in the honey will rise very rapidly in high moisture honey.

The refractometer is the standard used to test honey moisture content.



Once it is calibrated, it will give accurate moisture readings of what is placed on the prism. Readings are then taken of the sample.



Looking thru the eye piece then reveals the moisture level. The refractometer I own has a range of 10% - 30%, a resolution of ~0.10% and accuracy of ~0.20%. Most beekeepers have no real need for this much accuracy.

However, I use the quick bubble test often and look for foam and bubbles on the surface of extracted honey when it is filtered into a 5 gal. bucket. If fermentation does take place, honey leaks around the lids of jars as well producing a shift in the taste of honey to sour. Foam on honey indicates air bubbles and they rise to the top of the honey.

The storage of honey matters: Honey is hygroscopic [means it absorbs moisture from air].

Honey should be placed in sealed containers – jars with lids, buckets with tight lids, or other containers that can be closed to prevent moist air from getting to honey.

Many commercial beekeepers have something called a hot room to store supers of honey as they are brought from the bee yard. A hobby beekeeper can reduce moisture in honey by placing the supers in a warm room with low moisture levels and good ventilation . There are plans available on the internet for building a box with light bulbs and a fan to set supers above allowing warm air to travel up and take away moisture from any uncapped honey prior to extracting.

There is one more piece of equipment not often mentioned in bee books that is helpful for those extracting honey. It is called a drip board. A drip board helps keep the floor clean. If supers are just placed on a floor, the beekeeper will have a mess of liquid honey to clean up. The drip board is designed to avoid that. For smaller operations, drip boards can be built so that a hand truck can move supers around. Top covers can be turned upside down and used as drip boards.

Clarification of honey

Most of us use a fine meshed cloth or a metal strainer to remove wax and other particles in honey that has been just extracted.

The extracted honey is drained using a gate of some sort. The honey will contain particles of wax, comb, propolis, and other foreign particles. Air is often incorporated in honey that is spun for too long or falls some distance from the honey gate. Thus, honey can take on a cloudy appearance and foam will collect on the top surface.

Warm honey from the extractor will pass through meshed cloth or metal strainers much quicker than if it is at air temperatures. Heating honey above (145 degrees F.) causes honey to become overheated and discolored. Most prefer not to heat honey at all but temperatures in the 110 – 120 F. degree range will provide better filtering and makes the clarification process of removal by finer meshed filters.

One way to determine honey quality is the use of a polariscope to discover very small dust particles, cleanliness, and crystallization of honey observed in a sample of honey. There are particles in honey that can not be seen with the naked eye - even soot from a smoker.

Bottling honey shortly after extracting honey often reveals foam and particles on the surface of honey just under the bottle cap. These foreign particles rise to the surface because they are lighter than the honey.

The easy way to clarify honey is to place extracted honey thru a fine mesh filter and let the honey set in a bottling tank for a period of time – several days. Bottling tanks are generally heat controlled and if kept at 100°F will allow foreign particles to rise faster.

A 5 Gallon pail/bucket with a plastic honey gate, and filters would be a good investment for an individual with several hives of bees. Most beekeeping supply catalogs will list a number of choices a beekeeper may consider to provide better filtration of the honey they extract.

Local produced honey has value added features that the cheap honey sold at some of the big chain stores can not match. Don't fall for organic honey! Bees pick up all kinds of stuff when they are collecting nectar and pollen – even close to home.

It is interesting to me that bees fly far sometimes to gather nectar and pollen. A study done in 1952 revealed the adulteration of honey and pollen with dust and soot near roads and towns¹. I was not aware that spores and molds could be discovered in samples but after giving it some thought, what is "not" affected by our environment. Just because a chemical is not used to treat the bees in a hive doesn't mean the bees have not been exposed to pollution in the air they fly through. One advantage of using the **organic** label when selling honey is -- ask several dollars more per jar.

Lets protect the term **Pure Honey!**

The newest gambit is the sale of something passed off as honey – Legally.



This jar of Premium Blended Honey Flavored Syrup 8 Oz. (277 g) is available for \$1.00 at your local Dollar Store! It looks like honey, it is sold in a what we call a honey bear, uses honey bees to illustrate the image of honey and it tastes like honey! It even has the warning against feeding to infants under the age of one. It is a product of Egypt.

Contents: Corn Syrup and honey

Designed and formulated in the USA

¹ The Pollen Loads of the Honey Bee, Dorothy Hodges, Bee Research Association, London, 1952