

The Traveling Beekeeper



WHAT I LEARNED THIS SUMMER . . .

by Dr. LARRY CONNOR

Wicwas Press, 1620 Miller Road, Kalamazoo, MI 49001

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LJConnor@aol.com to ask short questions to the author

As the weather chills toward winter, a few brief moments have popped up that have given me time to reflect on what we have learned working with bees this past season. My bees have taught me a lot, again this year, and I know that other beekeepers have had very similar experiences. So, like that report you once had to write when you returned to school, I'd like to reflect on what I learned this past season.

It was an unusual season here in Michigan, and I know that this is true elsewhere. Here a few of many observations I made:

Spring came early

Very early spring weather, following a relatively mild winter, produced some enormously strong colonies in March and April. After a very warm period in March we had a more seasonal period. This grew colonies quickly. The milder winter means that colonies were in pretty good shape in terms of their population.

Swarms

It seems that bees swarmed every month this year, from March to October—not every colony every month, but it was always some colony's turn to swarm. New colonies swarmed, packages, nucs, and nucs from nucs. As a result of the warm March and then confinement in April, colonies were under a strong stimulus to swarm, and this urge continued well into June. Then the weather became very hot, over 100 degrees F. for several days—the colonies were put into another set of stresses and stimuli. I made up five-frame nucs in June and took off for Alaska, only to return to find that many of them had swarmed as evidenced by swarm cells, emerged and un-emerged. The virgin queens we introduced had mated, laid the nuc up heavily, and then swarmed. There are swarm colonies around the farm with yellow-marked queens heading the colony. I suspect there are a huge number of purchased and home-reared queens that are in

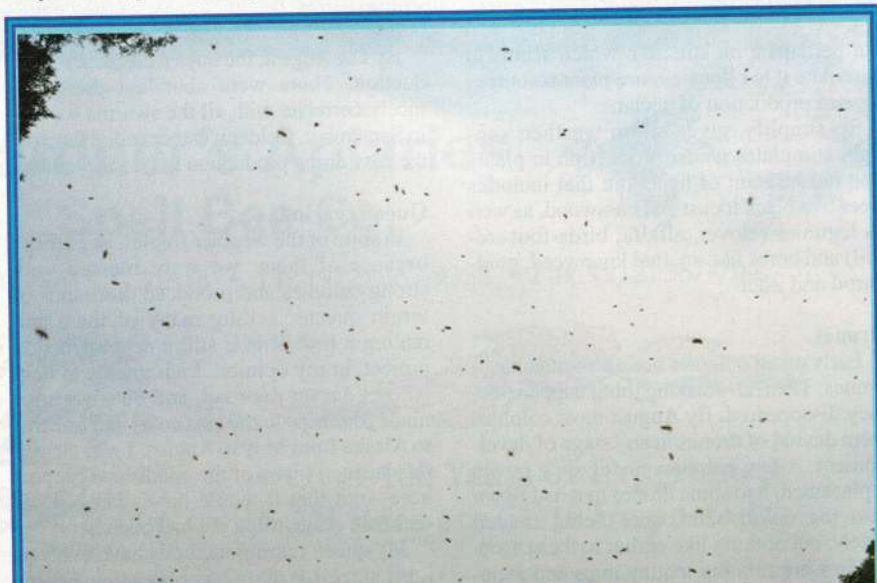
bee trees and related structures right now. We certainly did a great job of repopulating the bee trees this season.

Drought and nectar flows

Many newer beekeepers have asked me about the dry and hot weather and its impact on honey production. They assumed that this would end any nectar flow that was underway, and/or prevent one from happening. Yet, most of the beekeepers I consulted say they had a big honey crop this year, pulling

several gallons from each hive once or even twice during the season. Now, I must be clear, we had a moderate drought for part of the summer, not the season-long, waterless conditions others have experienced in other parts of North America. We had rainfall between periods of hot, dry weather. Perhaps this is the perfect set of conditions for nectar production.

For a plant to produce nectar in its flowers, it must be exposed to sunlight for most of the day. This sets up the physiological



The camera was at hand when I snapped photos of a swarm moving across the farm, and over the queen yard.



Mid-September brood frame corner to corner brood. Most colonies are filling the edges with honey and pollen at this time of the season.

process to convert solar energy into sugar, and then pump the nectar into the nectaries where it is released to reward foragers. A few past seasons were cooler and very cloudy, and the conditions for nectar production were poor. But with the hot and sunny weather interspersed with rain showers, we had plants that were growing well but perhaps a bit stressed, which seems to stimulate it to allocate more plant resources toward production of nectar.

To simplify, given warm weather, sunlight stimulates nectar production in plants that are tolerant of heat, and that includes trees like black locust and basswood, as well as legumes (clover, alfalfa, birds-foot-trefoil) and herbs like spotted knapweed, goldenrod and aster.

Drones

Early on all colonies had an abundance of drones. Then, an amazing thing happened—they disappeared. By August most colonies were devoid of drones in any stage of development. A few colonies undergoing queen replacement had some drones that had flown into the colony and were being treated nicely, but nothing like earlier in the season.

We were running mating nucs and experienced big beautiful queens that never mated during mid-August. I am pretty sure this corresponds with the drone-free period.

It was surprising to see the drones' numbers drop off like that when there was nectar and pollen entering the hive, first from the clovers and then from spotted knapweed. My theory is that the colonies were stressed by the high temperatures during June, and stopped drone production and started eliminating drone production.

By late August, the boys were back in production. There were abundant drones to nicely correlate with all the swarms we saw in September. Colder weather ended much of the new drone production in late September.

Queen rearing

In spite of the weather foibles, or perhaps because of them, we were blessed with strong colonies and produced thousands of virgin queens, selling many of them and mating a few. This is still a developmental project, in my opinion. I am unable to help when I am on the road, and considering I made four trips to the east coast and one trip to Alaska from May to August, I was clearly the cause of many of the conditions I report here—not that it would have changed the outcome of anything if I had been here!

My queen rearing methods have evolved a bit since I wrote *Queen Rearing Essentials*. I rely more on a dual-purpose breeder box which both starts and finishes queen cells. It also banks the cells until sold or

used. As a method production, the addition of a frame or two of brood to a queenless colony has been successful as a method of keeping top quality queens in production from May to August. We stopped grafting when the drones disappeared. We could have produced grafts for all the drones we saw in September. They would have made wonderful queens.

But I continue to learn that just having queens is one thing; selling them is the real challenge. We have hundreds of old virgin queens in alcohol, again this year.

Second spring

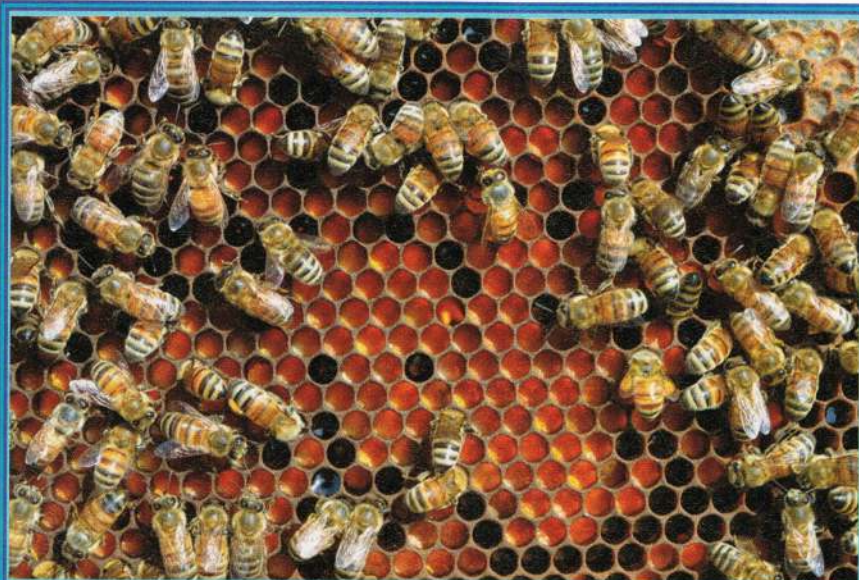
We have seen and used the charts of adult bee populations where the bee population peaks just before the time of major nectar flow (early June here in Michigan), and the population declines, with only a minor bump in August and September as the bees enter the fall nectar and pollen flows.

This year, there was a minor decline in bee population in July and August, that coincided with the hot and dry weather of late June and early July. But we saw something very different with the August to mid-September period—the population grew strongly and was nearly as powerful as the spring peak. Frames of brood in September looked like May frames, nearly corner to corner, and plenty of them. Some beekeepers report to me boxes of brood—colonies routinely had brood in two or more boxes this season—apparently stimulated by a slow-down of pollen during mid summer, followed with a strong pollen flow from goldenrod. Even the Carniolan colonies, which are noted for their reduction in late summer brood rearing, were producing many frames of corner to corner brood because of the abundance of nectar and protein rich pollen flowing into the hives.

Colonies filled frames with the bright yellow-orange goldenrod pollen, converting it to bee bread for immediate or for later winter consumption, depending upon where in the colony they stored the pollen. Just a few miles from my bees, other beekeepers produced boxes of goldenrod honey, with its bright yellow color and tangy after taste (what the wine people might call 'throat'). It is a variation from the other colors and flavors of honey the bees gathered this season.

While the goldenrod nectar is being collected and processed by the bees, the apiary develops a strong odor. Some people like this strong, musky odor. Others start looking for a dead squirrel. This odor does not become part of the final honey crop once it is fully ripened. A typical reaction of beekeepers who know the nectar flow and accurately identify the source say 'Wow! what a nectar flow!'

Compared to prior years, this is a dramatic difference. Just two years ago there was little nectar and only a small amount of pollen available for the bees to use to build winter bees. That winter, and the next spring there were heavy winter losses. Should the difference in the fall brood rearing predict a healthy population of young bees going into



A combination of plant stress and followup rain have produced nectar flows and a huge amount of pollen from Goldenrod and other plants.

the winter cluster. I hope so since I am trying to make sure they will have enough honey and pollen from the aster flowers to insure more than adequate winter reserves. It would be a shame to have these bees die because they are so strong that they eat up the reserves by early January! We will have to watch them carefully.

Differences in experience, differences in opinions

I will end with a pet peeve. Lots of beekeeping writers and presenters joke about

the difference of opinions among beekeepers, typified by statements like: "If you have 10 beekeepers in a room, you will have at least a dozen opinions on how to do something."

Why does this approach annoy me? Quite simply, I think it is possible that these people have all had very different experiences with their bees—even beekeepers located in a different part of the city or the county will have a different set of observations. We saw a lot of differences in bloom from different plants this year, from spotted knapweed to

goldenrod. Some beekeepers were waiting for the flowers to open, while others were seeing the activity of a fall flow. We routinely fail to give credit to all the microclimates we have, even within one area, and this significantly changes when and what the bees do.

A related aspect to this is the happy observation that more beekeepers are (finally) trying different stocks of bees for their colony queen source. I purchased ten package colonies from California, while others had packages from Georgia. We had different experiences with our bees. But even my ten packages went to three locations, and because of the differences in microclimate, there were different outcomes. Two colonies in the city built fast, but not at the same rate. The eight colonies in a county north of me developed quite differently, had a few problems associated with the lack of a nectar flow, and produced honey later in the season.

My point? Bees and climate are complex. We should study and be teaching WHY these colonies vary so much in what they do rather making a joke about the lack of intelligence within beekeepers.

Tomorrow night I will attend a local beekeepers' meeting. There I expect to hear from beekeepers who will clearly state that their bees never swarmed this summer, there were drones all season long, but they never got a honey crop.

So it goes.

Plan to attend the Serious Sideline Symposium at the ABF Convention in Hershey, PA in January.

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