



# B-PLUS

BEEKEEPING REPORT FROM MICHIGAN STATE UNIVERSITY

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## **POLLINATION LIST**

I am compiling a list of all Michigan beekeepers that provide colonies for pollination. The purpose of this list is to be able to send it to grower organizations, or County Extension offices, and they can pass the information onto each grower. They in turn would be able to contact the various beekeepers. If you want to be included in this list please contact me with the following information:

Name

Address

Phone; (& Fax )

Number of colonies for rent

Minimum order (if any)

County, region or area that you are willing to move bees for pollination. If the area is ~~yan~~ where in Michigan then so state it that way.

## **VARROA TREATMENT TIMING**

Between the different years and variable varroa populations it has been difficult to pinpoint what may cause treatment failures. If we have (had) a large number of feral, or wild, colonies that collapsed when their mites reached high numbers, this could cause different results. We certainly have had differences in weather, nectar flows and probably in the percent of tracheal mite infestation.

So what is the best, and possibly reasonable, treatment scenario that will allow us to not have large winter losses?

To me it looks like there has been different loads of collapsing colonies from one year to the next. For example, last winter we had a good (at least for recent years) winter and many beekeeper colonies produced swarms. These swarm colonies then produced lots of mites and the colonies then died in August and September. This did not happen in 1994. With the collapse of these colonies the increased load of mites into managed colonies was then so great that some of the controls that were applied were not sufficient. For example, if you used old or partially used Apistan<sup>®</sup> strips you may not have had the best control. There has been some recent data published that the strips are losing their effectiveness faster than we thought, and re-using them may not provide the control that is necessary. This may be especially true in those years when these feral colonies are adding to the problem.

We have had real differences in the nectar flows. If there is a late nectar flow from goldenrod and aster the bees that collect this nectar will be under more life-time stress than if they had not foraged. If these bees had also been parasitized by a varroa then their life would be all the more shortened. The bees have their lives shortened both by the foraging and by the mites, thus the colony dies in late fall or early winter. (By contrast, colonies parasitized by tracheal mites usually have the mite populations build up and then the colony dies in late winter.)

With the variable populations of mites, and other factors, what follows seems to be the best treatment practice that we can recommend at the moment.

- **Treat as early in the Spring as is possible.** The reason for this is that varroa will start reproducing as soon as the first worker larvae are produced, and we don't need these new workers to have any shorter life-span than necessary. Their life is already slightly shortened by the fact that they are trying to feed as many young larvae as possible.
- **Watch your colonies during the summer** as much as possible. Check them with sticky boards if there is any question in your mind about mite buildup. If the number of mites on a sticky board exceeds about 10 in a 24 hour period you may want to consider treating early.
- **Treat as early in the Fall as possible, as well.** This means either not collecting a fall crop, or putting on the strips after the flow in August, removing them during the goldenrod and aster flow, and then re-applying the strips in late September and October. This is extra work, and I understand that. The problem is that the mites no longer have drones to reproduce on in the fall. This means that all the mites concentrate on the worker brood. It is this feeding that shortens the life of the workers and the bees produced in the fall are those bees that we expect to live 120 to 150 days. If they have their life shortened by half, they will die in early winter, or before any replacements can be produced. We need to protect these winter bees.

If every colony in your area was treated at the same time, e.g., in the spring, then we might be able to get by on one treatment per year. Since I don't see every colony being treated, it will

mean that we will have to treat twice a year. If we could develop enough resistance within the bee population so as to slow the growth of the mite population, we might be able to treat just once a year.

All beekeepers need to be aware of the possibility of the mites developing resistance to the Apistan<sup>®</sup> strips. This has happened in Italy. So be on the lookout for any signs of good treatments that appear not to be working.

## TALES FROM THE LONESOME HIVE

The LH would appear on some counts to have had a good year. There may be some other factors that will cast some doubt on that picture.

First the good picture. When I left you last year, I had put on two Half-Comb Cassette supers and was waiting for a good nectar flow. Nectar had been coming in when I put the comb honey supers on, it just wasn't doing it very fast. I have said in the past that the best comb honey is made during a fast flow, or at least a reasonable one. In any event the colony did finish up the two supers quite nicely. (I am always amazed at how well they finish the boxes even to the edges of the super. This is true even if I don't have all the best, clear, follower boards that John Hogg would suggest.) I then removed the supers in late August, and had plans to begin treatment for roa.

I also helped a young (12 year old) beekeeper start beekeeping here in East Lansing. He has a colony in the very heart of town and had a very good year by producing over 120 pounds from a 3-lb. package. I think most of the honey was from the white-Dutch clover in the lawns in town. It was dry enough here that the home owners didn't mow twice a week and thus the clover was able to produce. I gave him my Apistan<sup>®</sup> strips to use after he took off his honey. It then took me too long to get replacement strips, and I didn't get them on until the first of October.

I did put on a third Half-Comb Cassette super during the golden-rod flow. I had hopes of getting the kind of crop that we produced in September of 1994. My hopes for a goldenrod crop spring from the fact that I have a couple of friends that think that goldenrod is the best honey that I produce. The flow did not happen – at least fast and strong enough to produce good comb honey, and so I am afraid that I produced mostly a partially filled super.

The total crop for the year was not bad, with about 75 cassettes that are salable and about 50 pounds of liquid honey.

Now for the not so good news. I don't think I put the Apistan<sup>®</sup> treatment strips onto the colony soon enough and the LH looked weak when I put them to bed for Winter about the middle of October. I have not been home much this winter when the weather was nice so I can't tell if the colony is alive now or not. Will let you know if I have to re-stock with a package come Spring.

For a good story, it would be nice if they survive, but it would also allow me to pursue with you all of the trials of that adventure too.

## **BREEDING PROGRAM FOR RESISTANCE TO VARROA**

The 1995 program went very well. This project is funded by a grant from the Michigan Department of Agriculture. Michigan State University and the Bee Breeding Laboratory at Baton Rouge, Louisiana worked together this past year to select and combine several stocks in the selection program.

In previous years we had been able to select stocks that had good grooming behavior. Some of the selected stocks killing 70 to 80 percent of the mites found on the sticky board. We also were able to select stocks that had hygienic behavior. It was known that bees that had good cleaning behavior would remove mites from the brood cells. So in 1995 I decided to join forces with Dr. John Harbo of the USDA Bee Breeding Lab as he had been working for some time on in selecting a stock that had a short post-capping period. The idea was that if we could combine all of these characters that we might be able to have some resistance. Dr. Harbo was able to artificially inseminate the queens for the crosses, and we introduced them into 'identical' nucleus colonies.

The results were more than we could have hoped for as we were able to find a couple of crosses that showed **total resistance to varroa**.

The way that we tested for this resistance was to first look for grooming behavior, second for hygienic behavior, next for the length of their post-capping period, and finally how well the mites reproduced within the brood cells. This last test was set up by first knowing how many mites we started with in each nucleus colony and then measuring how many mites we had at the end of the experiment. As I said some did not have any reproduction! This seems to be the major factor in the resistance mechanisms.

For 1996 we hope to expand the test and include larger colonies and to see if we can isolate the genetic characters that did not allow the mites to reproduce.