



# B-PLUS

BEEKEEPING REPORT FROM MICHIGAN STATE UNIVERSITY

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## Year of the Swarm?

I have examined about half of the colonies here at MSU on the 1st and 2nd of April, and the bees look as good as I have seen in many, many years. I had several colonies that had their covers pulled off by raccoons? and ate most of the honey out of the top super. Even many of these colonies were still very good. Now comes the real problem, how to prevent the bees from swarming. Some of these colonies are full of bees now. If we are not careful many of these colonies will be in the trees by mid May. My concern is that Michigan could possibly repeat what seems to have happened a year or two ago. That is, we have a good winter followed by lots of swarms, and then these swarms build up lots of mites that cause these feral colonies to collapse and infest the managed colonies next fall or the following year. then we have a large winter loss again

## Pesticide Losses ??

The American Beekeeping Federation is trying to verify losses caused by use, or by misuse of pesticides. It seems that beekeepers have generally keep this information to themselves since their is no longer any compensation for these losses. However, the problem is that the U.S. Government is now considering removing some of the warnings on pesticide labels since they have heard of few problems. If you have had losses and do not have a report form from the ABF, write to Gene Brandi, Chair, ABF Research & Technical Comm., 15346 South Johnson Road, Los Banos, CA 93635.

## Proposed Honey Board Legislation Changes

Amendments are being proposed to the Honey Research, Promotion, and Consumer Information Act – the statute under which the National Honey Board is organized. Once the Act is amended and the related order drafted, the industry will vote on the proposed order.

What the amendments will do is 1) require that the NHB allocate at least 8% of its annual revenue for beekeeping research; 2) allow the Honey Board to check for adulteration of honey; 3) add 1-cent/ lb. on honey packers; 4) add 2 more seats for packers. The vote will come at some later time.

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## Resistance to Varroa: Research Update

When we started to look for resistance back in 1992 it was decided that we needed to find colonies that had survived at least for some time without chemical treatments. The obvious first choice would be wild (feral) colonies. The difficulty with these colonies is that it hard to get at the queen. While the drones would supply some of the genes, you can not be certain that they come from the colony. Thus, we chose to use beekeeper colonies that had not been treated, either by neglect or by choice. The first characteristic that we screened these colonies was the percentage of damaged mites (grooming behavior) found on sticky boards. We were able to find several colonies with a relatively high index. It became clear after the first subsequent winter that this character was not sufficient to keep the colonies alive by itself. The research literature indicated that hygienic behavior (cleaning out brood cells that had mites) was also used by bees to rid the colony of mites. So we decided to add this character to the selection process. At this juncture we again decided that we needed more genetic traits to add to the arsenal.

Since mites reproduce during the sealed (pupal) stage of

growth, research had been directed at finding strains of bees that had a shorter post-capping stage. One of the leading researchers on this type of selection was Dr. John Harbo of the USDA Baton Rouge Laboratory. Thus, I decided to merge our selections with those of his. This way we might have three mechanisms of resistance – grooming and hygienic behavior along with short post-capping period. John is a world leader in artificial insemination, especially using a single drone for the source of sperm. In 1995 he made many crosses combining these different stocks. The queens were all single drone inseminated, to reduce the variability. They were introduced into nucleus colonies that were all started from bees taken from the same (50 lb.) package of bees. The bees put into each nuc were weighed to know how many bees were added, and sampled for the number of mites. Thus, we knew how many bees and mites we started with in each nucleus.

After about 40 days to allow the bees from each queen to populate the nuc we tested them for hygienic and grooming behaviors. Then after 70 days (1995) or 90 days (1996) we closed up the nucs at night and the following morning weighed the bees, took a sample of bees and brood. Then we could

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determine the final number of bees, total mites on adults, and by sampling the brood the number of mites in the brood. By calculating these totals we could determine how much the mite population grew during this period. Each cycle of reproduction (about 3 weeks) of a female mite could at least double the population. We should then expect (from what the research literature told us) 2.5 to 3 times as many mites at the end. We did have two or three of the stocks that actually had the same number or fewer mites! That was exciting. Then upon analysis we had a new surprise. The trait that was the most important was one that we had not developed. The character was one of non reproduction of the mites after the females entered the brood cell. Research is a little mixed as to what might be going on with these mites. Is it something that they pick up while feeding on adult bees, or is it something that they don't pick up? The result is fine– its just that at the moment we don't quite know why the mites don't reproduce.

What happened to all the traits that we put into these stocks? Well, here we were a little disappointed. In 1995 only short post-capping period showed any measurable effect. In 1996 hygienic behavior also had a significant addition to the

resistance. We are now thinking that it is possible that these types of characters may have to be at high levels in order to be effective. That is, that many, many bees would have to carry these traits in order to be very effective. And it may be that they are only ever going to be slightly additive to the overall varroa resistance.

Where are we now in the selection process? We have had two positive years of results, and we measured the heritability of the non-reproductive trait as 0.4 so it should be able to be increased in intensity through selection. John Harbo is now making additional crosses with the aim of increasing the frequency of these genes, and establishing the stock for release to beekeepers. Once these are reasonably fixed the stock will be released to queen breeders who will produce queens for your colonies. This release will now probably take place in 1998. Maybe none too soon. The tales of varroa resistance to Apistan<sup>®</sup> is increasing. The varroa resistant honey bee stock may not be the whole answer but it surely may allow us to cut down on the number and amount of chemicals that we are currently using to control this pest.

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## Tales From The Lonesome Hive

I managed to take a peek at the LH the week of Feb. 18th as the temperatures climbed up to the low 50°'s. I was not too encouraged with what I was able to see from the top. This opinion could change once the weather opens up enough to split the hive bodies apart. What I was able to see was a cluster that was not as large as I would have expected from their condition last October. The colony had about five frames of bees. The trouble with a cluster that size is that they have trouble keeping very much brood warm. Thus, these sized colonies tend to go down in strength rather than increase. They just can't keep up with the loss of bees that occurs because of old age. My plans are to put on a pollen supplement patty next week to help provide additional protein to the cluster. I don't want the colony to cut back on brood rearing for any reason. Sometimes they can become short of pollen (protein) *within* the cluster area. If that happens then they will stop brood rearing.

I also plan on putting a sticky board under the colony as soon as the weather permits some activity. I want to know what the status of the mite population is this spring. I had treated the

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colony with Apistan<sup>®</sup> strips last September, but maybe not as early as I should have put them on to get good control of the mites. In any event I want to assess the population – probably more for my information than anything. I will treat with Apistan up to just prior to honey flow, as this treatment timing appears to be one of the best measures for control of the mites for later in the season.

This is a later update on the LH. I examined the hive yesterday, April 1st, and what I tell you is not a joke. I was worried about the size of the cluster when I put on the pollen supplement patty the end of February. I should not have been concerned, as what I apparently saw earlier was only the bees that were in the top hive body. Right now the colony has about 20,000, or more bees and growing very fast. I had bees in four 3/4 hive bodies.

Currently I am in the midst of moving the colony to another location. A new subdivision in the field behind my house makes it important to move them to the yet-to-be built garden house. So I am moving them a few feet at a time. Yesterday they came out from behind the little fenced yard where they have been located for many years. Then I will slowly move them 150 ft. in the next few weeks.

**Intern. Symposium:  
Apiculture for the 21st  
Century**

**W**e have completed the program for this meeting that will occur in Kellogg Center Auditorium on Friday and Saturday, June 27-28, 1997.

We have speakers coming from Germany, Italy, Mexico, Brazil, Canada as well as the United States. They will be speaking to four main topics during the two-day symposium. One half-day for each topic. The subject areas are: *1) Genetics and Breeding; 2) Behavior; 3) Populations of Bees; and 4) Parasitic Mites.*

The format for the meeting will follow in this general pattern. A keynote speaker (the organizer of each section) then followed by four additional speakers on the subject area. Then a general discussion from the participants and the audience. Then a break for lunch and an new subject area for the afternoon.

On Friday afternoon there will be a tour of the Horticulture Gardens. After dinner there will be a poster session for three hours for topics submitted by various apiculture scientists. This format allows the individual and the author to talk one-on-one about the paper.

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There is a luncheon on Friday and a closing Banquet on Saturday evening. The cost of the full symposium is \$60 with a printed proceedings. Luncheon is \$13 and the Banquet is \$20. Rooms are available in Kellogg Center or air-conditioned dorm rooms at \$25 single, or \$35 for a double. **Beekeeper visitors will be welcome** at a cost of \$25, or \$13/day for the conference. Cost of the Luncheon and Banquet are the same. Send reservations for the conf. to: Linda Gallagher, Dept. Entomol., MSU, East Lansing, MI 48824-1115. Phone: 517-355-2143; Fax 515-353-4354.