



# B-PLUS

BEEKEEPING REPORT FROM MICHIGAN STATE UNIVERSITY

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## **SWARMING**

It seems that with the early warm weather, and maybe a winter that gave mixed results, there are colonies ready to swarm. We are finding that the good colonies are VERY good. Some program of population reduction, colony equalization, or making more space available in the brood nest seems in order. The old Demaree system that removes some brood from the lower hive body and replaces the comb with foundation does help in reducing congestion in the brood area. It is the young bees, that do not have enough work to do until the honey flow begins, that cause the colony to swarm. Giving these house bees the job of drawing foundation, and at the same time providing clustering space in the brood nest, will make them less likely to start the swarming behavior. Young queens also help reduce the swarming problem. It seems that space within the brood nest is critical to the prevention of the swarming behavior. Remember that the actual control of the bees leaving the hive does not necessarily mean you have prevented the swarming instinct, and once the bees are intent on swarming they are difficult to re-direct. It pays to start the prevention techniques early.

## **LOWERING THE MOISTURE CONTENT OF HONEY**

During the summer months Michigan generally has high humidity, and beekeepers have to be careful in removing and extracting honey so that the final product is below 18.6 percent moisture. (The upper limit for USDA No. 1 honey.) Honey is hygroscopic, which means that it picks up water, and will do so through the wax cappings that cover the honey. Actually, honey picks up water when the relative humidity is above 60 percent and loses it when it is below 60 percent, though this equilibrium changes with temperature. At hive broodnest temperature (95° F.) the R.H. where honey picks up moisture is above 75%. The best time to lose the moisture is either in the hive or while it is still in the comb. If the small beekeeper would like to lower the water content of the honey the easiest way is to simply put a small light bulb under the stack of supers in a relatively small room along with a dehumidifier. With the extra heat and lower humidity the honey will lose moisture. Be careful to shield the bulb so as to not overheat the wood or wax. It will take 12-24 hours to bring 19% honey to an acceptable value in the 18+ % range. The warming of the honey will also aid in the extracting since the overall effect will be to lower the viscosity even though the loss of moisture has the opposite effect. Most large beekeepers have a warming room for heating their honey supers prior to extracting. While in some cases they are designed to remove moisture, most are to aid in extracting and at the same time to keep the honey from absorbing more water. What can a person do if

the honey is above 18.6% and already in the can or barrel? The honey can be heated to lower the moisture, but in so doing much of the flavor will be lost and some darkening will occur. A better approach is to heat a small amount at a low temperature (120oF) in shallow pans to remove the water and add that to the larger batch. For example, if you had a barrel of honey that was 19.0% moisture, you need to remove 0.4lb of water for each 100 lbs. of honey to bring it to the legal limit of 18.6%. For a 600 lb. barrel this would amount to 2.4 lbs. of water. If a beekeeper removed 60 lbs. (10%) of the honey from the barrel and reduced the 19.0% to 15.0% by warming it to drive off the water and then added it back to the barrel the final reading should be 18.6%. While the final product would be slightly darker it is a small price to pay to prevent fermentation of the honey. One final note. The honey in the barrel would have to be liquid and be remixed to accomplish the overall reduction in water content.

## TRACHEAL MITES

Much has been written about this parasite that invades the larger tracheal trunks of the honey bee. It certainly will be found in Michigan eventually, and it may already be present. Very early mite infestations of the colony (1% of the bees or less infested) are very difficult to diagnose. There have been many opinions as to the effect of the mites will have on U.S. Beekeeping. I suspect we will have to wait until we have experienced it to know just how much these mites will affect the colonies and in the end how much reduction in honey production, or winter loss can be attributed to these mites. In a recent publication, Dr. L. Bailey (1985) (Bee World 66(No.3):99-104) seems to think that the effect of the mite is minimal. However, I was interested in his figure on the decline of infestations over the last 60 years. I have reproduced this figure below for you to examine too. Obviously, the mites infested many more bees and many more colonies in the early years than they do now. The percentage of infested bees dropping from above 50 percent to less than 10 percent. Colonies from near 20 percent in 1945 to approximately the same level of infestation as in individual bees or between 5 and 10 percent. If my assessment of this data is correct, the beekeepers have either selected those bees that have shown such resistance through greater production, or the susceptible colonies died out and therefore did not reproduce. In any event, unless we already have such resistance in our bees, we may be in for a "few" years of greater effect, before we select out those colonies that have resistance.

## SUPERING

A few years ago, Dr. T. E. Rinderer of the U.S.D.A. Baton Rouge, Louisiana Bee Breeding Laboratory found that bees would produce more honey if you had more storage space available (supers) on the colony. Obviously a beekeeper could take this concept to an extreme, and there needs to be a compromise between what is practical and what is theoretically possible. No one wants to extract 10 supers that each have 15 pounds in them rather than 3 supers each with 40 pounds. The extra honey is just not worth the effort or the cost of the equipment. However, the concept is still valid, and that is that it is better to error on the side of having too much room rather than too little. There is one caution to this rule. Do not put too much foundation on a hive at one time. The bees sometimes tend to chew holes in it before they begin to draw out the comb. When do bees need a new super? That is a question that beginning beekeepers often ask. My best rule is to watch the top bars of the super. When you begin to see white beeswax being deposited along the wood, then you need to add more room. You also need to consider the state of the honey flow when you do this. If it is near the end, then you should look at the super with a little more care to see if there might not be enough room and adding an extra super would be unwise.