



B-PLUS

BEEKEEPING REPORT FROM MICHIGAN STATE UNIVERSITY

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CANDY BOARDS FOR WINTER FEED

During cold days of winter when the bees cannot move any great distance for honey, candy boards placed over the upper combs have saved bees from starvation. Bees normally move upward during the winter as the heat from the cluster allows this movement more readily than laterally. If the bees reach the top of the hive before spring weather allows them to move or expand sideways they can starve with honey on the outside frames. The use of candy boards will allow bees to survive this period when the temperature is too cold for lateral movement. Thus these boards are in some sense a temporary measure, or to some beekeepers as an "insurance" because they may have taken away too much honey, or have the colony organized with the honey poorly placed. The boards can be placed on the colonies in just a few seconds and thus save a colony that would otherwise die. The making of these candy boards is relatively easy, and once the actual board is made the yearly operation of adding the sugar candy is routine. The board itself is made with the same outside dimensions as the hive. The board looks like an inner cover without the hole, and usually has somewhat higher sides to hold more sugar. We use 1/4 inch tempered or hardened particle board with 3/4" side boards.

The formula for the candy is as follows:

15 lbs. sugar
3 lbs. white corn syrup
4 cups water
1/2 tsp. cream of tartar

Dissolve the sugar in water and stir while heating the mixture to 240°F. Let the syrup cool to about 180°, then beat until thickened and pour into the board to harden. Once the candy is hard they can be put onto the colonies, candy side down, over the top frames. Some beekeepers pour the candy into waxpaper lined molds instead of making regular boards, and then put these molded blocks on top of the frames while the inner cover is placed over them. The blocks must therefore be no thicker than the depth of the inner cover rim. If the bees do not use the candy, the boards can be saved, or the sugar melted and used for spring feeding as syrup.

COLONY INSPECTION IN WINTER

Sometimes when I talk to beekeepers about opening their hives when the temperature is below 55° F. (cluster temp.) they are quite concerned about killing the colony. First it is important to remember that the bees don't heat the inside of the hive except for the amount that escapes from the cluster. Secondly, it certainly would be better to "damage" the bees a little if your inspection prevented the colony from dying because of lack of food. A quick peek under the cover to look at the position of the cluster and the amount of food still present takes only a minute or two, and to move a frame of honey next to the cluster will disturb it but the alternatives are not very favorable. It generally is best to select the day that you examine the colony such that the temperatures are maybe in the 30's or 40's, however, even colder temperatures have been used when necessary.

We routinely examine our colonies the last part of February when we add our pollen substitute patties. If we have colonies that we suspect might be getting low on food we will examine them earlier and add honey or candy boards to the colony.

What should you expect when you open a colony in winter? A little would depend when you did the examination and how many hive bodies were being used to hold winter stores. If the bees are already to the top of the colony in early to mid January then I suspect they will not have enough honey for the cluster to survive, and feeding will be in order by using candy boards or adding a super of honey. Bees eat and metabolize the honey in order to heat the cluster. The metabolic heat escaping from the cluster allows the bees to gradually move upward. Therefore, the movement of bees has somewhat of a "chimney" or central core effect. If temperatures are still very cold when they reach the top of the hive, the colony will starve even though there is still honey in the hive. So if the bees are not at the top of the hive when you examine them in the winter, it generally is a good sign.

The size of the winter cluster (number of bees) has a direct relationship to winter survival as a large cluster can cover more honey from side to side in the hive, and thus not starve as easily as a small cluster. The colder the temperature the smaller the cluster will be relatively speaking. That is, given the same number of bees the colder the temperature the smaller the cluster will be.

Food consumption within a winter cluster is also dependent upon the temperature in a U shaped curve. Food use per bee goes down as the temperature drops until it gets to approximately 45° F., then food use begins to rise again as the temperature continues to drop. This is one of the reasons that specially built wintering houses keep the temperature in the low to mid 40 degrees. At this time (early January) the bees have been using more honey than normal since we had such a cold December. It might pay to look at your colonies a little earlier this year.

BOOKS

There are a couple of new books that I would like to bring to your attention. First a rather technical book on honey plants, "Directory of Important World Honey Sources", by Eva Crane, Penelope Walker and Rosemary Day of the International Bee Research Association. This book attempts to collect into one place all the information regarding the amount and kind of nectar in the flower, records of honey and the type of honey produced by colonies located nearby the crops or plants.

The next is a book on beeswax by William L. Coggshall and Roger A. Morse. This is a, more or less, popular (beekeeper) book on the subject. There are several places in the book that the authors could have been more concise since the information was essentially not important or pointing out a lack of information. It is probably the most complete book on the subject. If you are only interested in candles or similar products then there are better sources. Publishers Directory of Important World Honey Sources. International Bee Research Association. Hill House, Gerrards Cross, Bucks. SL9 0NR, UK. Price, \$44.00 pp. Beeswax. Wicwas Press, 425 Hanshaw Road, Ithaca, NY 14850. \$9.95 softcover, \$14.95 hardcover, pp.