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MANAGEMENT OF BEES

CARE OF BEES IN SPRING

By Francis Jager, Division of Bee Culture

Have young prolific queens; encourage late brood rearing in the fall; winter your colonies in a dry, warm, dark, and quiet cellar; prevent drifting and robbing in the spring; feed your bees at home in the spring; and protect your hives against cold and wind. By doing this you will have plenty of bees to raise a large quantity of brood in the spring; your colony will grow rapidly; and when the honey flow finally arrives, in June, you will have your colonies in the best condition to take full advantage of the crop.

The principal honey flow in Minnesota comes from clover and basswood, during the latter part of June, and the colonies must build up quickly in the spring to be ready for it. A strong colony of bees will store a large surplus of honey, while a weak one will hardly store enough for its own use. In the willow herb regions of the north, the honey flow comes from five to six weeks later, and medium strong colonies will have time to build up to take advantage of it.

In Minnesota the colonies of bees come from their winter quarters early in April in a rather weak condition and the beekeeper has only about two and a half months in which to build them up and make them strong for the clover and basswood honey.

Colonies are made strong by large production of brood and young bees. All spring management of bees must tend toward the largest possible production of brood. The beekeeper must constantly bear in mind that the colony will not raise more brood than the bees can take care of. The smaller the colony the less brood it will raise. It therefore naturally follows that factors which decrease the size of the colony will also decrease the production of brood; that a loss of bees from the colony will be accompanied by a proportionate loss of brood, and ultimately the loss of the honey crop.

DWINDLING

All causes of death or disappearance of bees in the spring, decreasing the size of the colony, have been summed up under the vague term, "spring dwindling." They may be separated into: (1) Natural death; (2) spring drifting; (3) robbing; (4) cold rainy weather and high winds; and (5) starvation. It is in the power of the beekeeper to remove these causes, either entirely or in large part, by wisely applied remedial measures. The result will be strong colonies in June.

Natural Death

Bees die fast in the spring from old age. Bees live from six weeks to seven months or more, in proportion to their activities. The more they rest the longer they live. It follows that bees hatched in September or October will live longer than those hatched in August, and that bees that are perfectly quiet during the winter will live longer than those that are excited. Bees that are hatched late in the fall and are wintered quietly will not die a natural death until after the colony has been made strong by a large production of young bees in April and May.

To secure this result, the beekeeper must have young and prolific queens in his colonies the year before. It is a well-known fact that young queens will sometimes lay eggs until in October. A modern beekeeper will feed his bees late in the fall with just enough sirup every day to stimulate even his older queens to raise brood late in the fall. He will remove from the hive combs of pollen-laden fall honey and honey dew (black honey) and replace them with clover honey or sugar sirup. From experiments made it is advisable under any circumstances to feed the bees ten or fifteen pounds of sugar sirup the last thing in the fall. He will provide for them a good cellar in which to winter and keep them from excitement during the winter period.

Drifting

Drifting, which causes most harm in colonies of bees, occurs in the spring, during the first flying days after the bees are set out. Bees from many hives, returning from their cleansing flight, club together and enter one or two hives in the bee yard, making them strong in bees but leaving the rest of the colonies weak. To prevent drifting, remove bees from the cellar in the evening, contract the entrances to the hives to a two-bee passage, and face the colonies in different directions. Straight, unbroken rows of hives, an arrangement practiced by most beekeepers in Minnesota, is the worst possible for drifting, and also for a quick spread of foul brood. Colonies should be arranged in groups of three or four. Distinguishing marks should be put on the front of the hives to help the bees in locating their homes. Different colors for the hives are also good guides.

Robbing

Robbing is caused by removing the bees from the cellar on different days, those that have had a flight being in advantage over those just brought out; by the presence of dead and weak colonies in the yard; by exposing honey where the bees can get at it; and by irregular feeding.

To prevent robbing, all bees should be taken from the cellar at the same time, and the entrances should be closed to a minimum. All dead colonies should be removed. No honey should be left accessible to bees outside the hive. Outdoor feeding of sirup, if practiced, must be constant and in the same place where begun until the bees quit it themselves.

Bad Weather and Winds

Bad weather and high winds will kill bees both outside and inside the hive. The bees perish in the open when taking advantage of good weather to go in search of water, pollen, and honey. Leaving the shelter of their homes they encounter strong spring winds and are blown to the ground, or they roam over miles of surrounding country in search of flowers, when a cloud will cover

the sun or the wind will change to a cold quarter or a sudden shower will come up. The chilled bees fall to the ground and perish.

To prevent this, probably the most serious loss of bees, the modern beekeeper will feed his bees at home. Rye flour, scattered on a board with a few drops of perfume will attract bees and make them work on it. Thin sugar sirup, fed in a warm sheltered place, will keep thousands of bees at home and out of danger until they can find natural honey.

Inside the hive, cold will kill bees in spring by lowering the inside temperature and the wind by blowing through the cracks of the hive. The cluster of bees will contract to keep warm and the brood nest will shrink accordingly. As the bees must generate an enormous amount of heat to keep the brood at a temperature of 98 degrees Fahrenheit, they exert themselves and die. The queen stops laying, and even after the weather becomes warm again and the wind ceases to blow it will be several days before egg production will be normal again. In some bee yards the bees suffer many such checks every spring.

To prevent such losses, the apiary in the first place should be located in a sheltered place with either natural or artificial windbreaks against prevailing winds, especially cold winds. The hives should be air tight. The top of the hive should be covered with some insulating material to prevent escape of heat. The cluster of bees should be divided from the cold uninhabited part of the hive by a division board. The cheapest division board is a newspaper. Lowered down edgewise between two combs until it reaches the bottom board, it is then bent over the frames occupied by the colony and inserted beyond between two combs, reaching again the bottom board on the other side. Being just about the right width, it will enclose the bees in a small, warm, snug compartment where they can breed in comfort. Some beekeepers cover the whole hive with insulating paper or patent insulating board. Others use carpets or sacks. Others use deep telescope covers, which they push down over several thicknesses of newspaper or other insulating material. Individual ingenuity will suggest other means of protecting bees from wind and cold during the trying period of early spring.

Starvation

Starvation of bees in spring will cause the queens to stop laying. There are two kinds of starvation. One is absolute, when the bees have no honey. This means death. The other is relative, when the bees have so little honey and pollen that they can not raise brood.

The wise beekeeper prevents starvation by giving his bees in the spring solid frames of honey from the preceding season, and by feeding them with Boardman or Alexander feeders whenever the weather is such that they can not fly.

PRODUCTION OF COMB HONEY

General Recommendations

- a. Comb honey should be produced only during a strong honey flow.
- b. Comb honey should be removed immediately when finished.
- c. Nothing but A 1 sections should be used with full sheets of thin foundation and three-eighths inch thin bottom starters.
- d. Only strong colonies must be used which have at least eight frames of brood and the brood chamber overflowing with bees at the beginning of the honey flow.
- e. Bait sections should be used in the first super given.

Management of Bees for Comb Honey

Miller plan.—Look through your colonies every ten days and cut out every queen cell. Add comb honey supers as soon as the harvest opens.

Natural swarm plan.—Put comb honey supers on all strong colonies at the beginning of the honey flow. In due time most of these colonies will cast a swarm. Hive the swarm on foundation or starters (or drawn comb if you have nothing else). Place in the center of th hive one frame of unsealed brood to prevent the swarm from deserting the hive. Place the swarm on the old location and give it all the comb honey supers from the parent colony. Put the parent colony next to the swarm but facing away at right angles. The sixth day after move the parent colony to the other side of the swarm in the same relative position. After another six days move the parent colony at noon to a new location at least ten feet away.

Modified Doolittle plan.—Give strong colonies room for work by adding an extracting super as soon as needed. Let them store honey in the extracting super well into the honey flow until the super is three fourths full. Then on some clear day when the bees are at work move your two-story colony a little to one side. In the vacated place put a bottom board, and on it put the extracting super from the removed colony. In the center of this extracting super, place a frame with some unsealed brood and the queen, after removing the lightest honey comb to make room for it. This is going to be the new brood chamber. Place now on top of it two comb honey supers. Shake from the combs of the removed brood chamber all bees in front of the prepared hive, also all bees that still cling to the box. The queenless and beeless brood is stacked up on top of one of the weak colonies. Proceed in the same manner throughout the strong colonies, giving from three to five supers of beeless brood to weak colonies.

PRODUCTION OF EXTRACTED HONEY

At the beginning of the honey flow, which is also the beginning of the swarming season, when your colony of bees has grown strong enough to fill all spaces between the combs, place on top of the hive a queen excluder and add one extracting super filled with frames of drawn comb or full sheets of foundation. Lift into this super from the brood chamber below all combs containing honey but no brood. Such frames are found next to the walls of the hive. Into these empty places next to the wall move frames of young brood, and replace vacancies by drawn combs or full sheets of foundation. If an occasional swarm issues, hive them as described above in the "Natural Swarm Plan," substituting "extracting" supers for "comb honey" supers.

When the first extracting super is three quarters full, insert another super next to brood chamber. Add a third super on top if necessary later in the season.

Extracted honey should not be removed from the bees until nearly all cells are capped over and the honey has acquired the proper body. It is best to leave it with the bees for at least two weeks after the honey flow. When ready to remove it, do it by means of the Porter Bee Escape. On account of robber bees it is safest to remove the honey in the evening or at some time when bees do not fly. The honey should be extracted immediately while it is still warm. The bee house where extracting is done must be closed and bee tight, else robbing may cause serious trouble. Extracted combs should be stored in a well closed place and fumigated against the moths once every ten days until freezing weather sets in. It does the combs good to freeze in winter, as cold will destroy the larva of the bee moth.

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