

Swarm Prevention

Swarm prevention is often the goal with the beekeeper, and swarm promotion is often the goal with the hive. Nature's way of propagating the species often gets in the way of the production of honey. The beekeeper's goal is to get the population of the hive as high as possible without triggering the swarm. It is the bees that gather the honey, and the more of them, the more they will gather. A certain number of bees are necessary to maintain and care for the brood nest. For the sake of argument let's say that a brood nest is at full size of 8 deep frames and it takes 3 to 4 pounds of bees to cover and tend it. This comes to about twelve to fifteen thousand bees. These are the consumers of the hive. They are fed and kept alive by the efforts of the foragers, a work force of about forty to fifty thousand bees. Because there are three times as many producers (foragers) as there are consumers more food is brought in than is used up, and that is the good news for the beekeeper. It is about at this population level that the bees tend to reach full strength and decide to swarm out in search of a new home (taking half of the hive with them and a couple of pounds of honey with them). The house bees stay behind because there is still all that work to do. It is the extra foragers who go off to start a new home. If we look at the population dynamics of the hive after the swarm we now have about the same number of consumers as we have foragers and the income of food does not greatly exceed its consumption as it used to do. In fact it may be that the bees eat up the surplus that they have while raising another batch of foragers. Therefore, there is no surplus for the beekeeper to take advantage of. This is why it is bad news for the beekeeper to have a swarm if they are in the honey business. If the intent of the beehives is strictly for pollination then it makes little difference because the bees are still in the area but are now in two homes. Knowing the signs of swarming and being able to predict it helps the beekeeper keep ahead of the bees and will increase the honey yield. As far as I know bees can't count. They need to rely on some other method to let them know when the population is large enough to be able to split the hive into halves and go their own way. It is suspected that bees rely on a combination of things that give them the idea that the hive is becoming crowded. Increased congestion and lack of good airflow are certainly factors. To the beekeeper this means that the bees are filling up all the spaces between the frames with their bodies. Loss of ventilation and air circulation will lead to a buildup of carbon dioxide and heat. If the bees have no space to expand into to relieve this congestion, the bees are very likely to swarm. A common method for providing more room is reversing supers. By this the beekeeper takes the lower super that is empty of brood and places it above the brood nest. Queen cells generally form along the bottom bars and around the edges of the comb during swarming time. A key point to remember is that it takes a queen 16 days to go from egg to emerging queen. Swarms leave the

nest prior to the emergence of a new queen. For practical purposes, this means that when a swarm cell has an egg deposited in it, there are approximately 14 days before the bees swarm. To the beekeeper, this means that if part of the swarm prevention measures that the beekeeper employs includes removing queen/swarm cells. The beekeeper must remove the cells within this 14 day time period. The presence of queen cells indicates to the beekeeper that the bees think something is wrong with their home. If swarm cells are present, add a super to give more space. The beekeeper should also keep in mind that all developing bees spend three or four days as an egg or young larvae that is basically indistinguishable from any other type of bee. For practical purposes this leaves only a ten day period in which a beekeeper can find a swarm cell before it is too late.

In my personal swarm prevention program, I provide extra supers for the bees to move into before they become crowded. Religiously inspect the hive once every ten days. I remove all queen cells even the empty ones whenever I find them. I have noticed that I rarely get swarm cell before the middle of June. After the middle of June, my hive inspections are more detailed and thorough as I carefully examine all frames in the brood chamber. Caging the queen will also prevent swarming but only after the hive has been inspected a few days later for emergency queen cells that can be found anywhere in the brood nest. Make a very careful inspection here; emergency cells can be very hard to find because they may not stick out too far from the face of the comb as the bees can reshape the cells under the queen cell to give room for its shape.

Drawing Comb

Almost every beekeeper will find a need to draw some new comb at one time or another. I thought that I would take a few moments to set down on paper a few of the things and principles that I have either read about or have experienced myself. I have noticed that the bees will draw comb the best when they do it quickly and they seem to make fewer mistakes. Here are some of the principles that I have used to draw comb out.

Bees need to be warm to draw comb. I have read that a bee has to be at about 85 degrees to produce wax. The beekeeper can take advantage of this by trying to do the wax thing later in the season if at all possible. Spring packages of bees placed on foundation have a particularly tough time drawing comb partly because of this. The center of the cluster of bees that is in your new super of foundation is very likely to be above this temperature but the bees that are on the outside edges are non productive in this process. Insulated supers will help out in

temperature conservation as well as entrance reduction to keep the heat in place. I use Styrofoam over the super in place or in addition to the inner cover to add some insulation to the hive.

Young bees produce wax better than older bees. Wax glands in bees are the most productive in bees that are about two weeks old. They remain productive for a short while (in human perspectives) and as the bee moves from house duties to foraging the glands become non-productive altogether. They can be restimulated to produce wax if the needs of the hive require it. Such times would be during a nectar flow when there may be a need to construct and cap comb for storage of honey.

Wax is produced by the honeybee at the expense of sugars that would normally be used for storage in the form of honey or used in the hive for the production of brood. Therefore it is necessary to have a good supply of either nectar coming into the hive or it is necessary to feed the bees during the time when wax is being produced. Small hive feeders are not very efficient in delivering the quantities of food that the bees need to have to do a good job in drawing comb. Multiple feeders or other feeding methods than your normal feeders may be necessary to use to accomplish the task.

Unlike humans who need a fair bit of space to work in whenever we try to build something bees seem to do their best construction when they are packed together fairly tightly. I am not sure if it is a factor of the increased heat that is present in a large tightly packed cluster or the ability of the bees to do whatever measuring that they seem to need to do to decide where to draw their comb.

Bees have a particular spacing that they have built into their house plans. Combs must be positioned to take advantage of this pre-arranged design. Place 10 frames in a box tightly together or the bees will draw comb in the wrong direction or they may draw comb parallel to the foundation between the frames. If this happens it is necessary to remove the comb that is not right and have the bees do it again, be sure to remove more than the minimum necessary because if you leave the beginnings of the malformation the bees will generally do the same thing again. You will be time and energy ahead to take more than necessary in your corrections than to allow the bees to repeat the same mistakes.

Swarms

Earlier in the newsletter we talked about swarm prevention and the importance of keeping the hive all together. In spite of our best efforts an occasional swarm will get by us and our bees will leave the nest. Once this has happened we have a couple of options available to us. Chances are pretty good that we can call it quits for honey production from the hive that the swarm came from. This is because of the timing of the nectar flow and the fact that we have no late flow of nectar to take advantage of like they do in other areas of the country. Dividing the hive during the nectar flow places many of the foraging bees back into the housekeeping role and they act as consumers rather than producers. Here are some options that you might try to use in that portion of beekeeping that we deal with swarms.

First of all you must catch the swarm. Remember that you are in a time limit. As you get ready to capture the swarm the scout bees are busy checking out future homes for the new hive. Remember that the spot that the swarm settles is just a resting place for the queen to hang out till the new home has been approved by enough bees to make the final move.

Once you have gained access to the swarm you can temporarily put it into a box. If you are able to clip the branch that the swarm was resting on that is really good and

you can place the swarm in the box in a relatively undisturbed condition. If you are really lucky you can use a deep super for your swarm box and lay the swarm directly on the top of the frames. I have had bees move right down into the box with a very light puff of smoke to the top of the swarm. If you can't take the branch with the swarm then shaking the swarm into your box is the next best thing. A good sharp shake to the resting place can knock the bees off their perch, so don't be timid about your shake. The object is to get the queen into the box. If you miss her, the bees won't stay. Don't be surprised if some of the bees that are flying around land where the swarm used to be because it still smells like the queen is there. If your box is still under the swarm site you might pull the lid and give another sharp shake. You will never get all the bees and very likely the bees that are left out of the process will wind up back in the same hive that they came from. So which hive was that??? I have never tried it but if you wanted to I suppose you could mark a number of the bees that remain and see where they end up during your next hive checks. Logically the first thing that you would look for is the hive that has fewer bees in it but it may not be obvious which one it is.

The biggest question of what to do with the bees once you have caught them depends on what goals you have with your apiary. If you have intentions of expanding your operation then it might be a good idea to put them to work with drawing comb for next year's operation. When bees swarm, they really go into the wax production mode and can be really useful for this purpose. Put some feeders

on them and let them work. You will be surprised how quickly they can draw comb. Remember the basic principles of drawing comb and try to set things up for maximum production. Give lots of food and keep the space down to a minimum. When they finish drawing a super of comb don't just add another super but instead pull out some finished frames and replace them with some foundation.

The other option is to try to combine the bees with another hive or perhaps even with the original hive. This will entail setting up the hive and running it as a two-queen system with an excluder between the two hives. Don't simply put the bees back into the hive they came out of, it won't work. The bees left that hive for a reason and they won't stay there if you just dump them back in. Here is one common method of combining a hive with another one. Place a screen between the hives so that the bees can't mingle with each other but the hive can have the same airflow and smells for a few days. Reduce the entrances of both hives so that there is a small enough entrance for the bees to defend for robbing behavior. Remove the screen and replace it with a queen excluder over which you have placed a couple of sheets of newspaper. Make a few slices in the newspaper to allow the bees to chew through the barrier and intermix slowly. At this point I would not mess with the hive for at least a week to give the bees a chance to adapt to the new queen. The problem with this second approach to the placement of the swarm is that there is the possibility that one or both of the queens could be lost in the process. If the hive that you are combining is going back onto the original hive and you can find the new queen, it may be a thought to get rid of her since she is unlikely to become fertile and reproductive until the second half of the flow, or even after the flow. This is bad timing unless you have intentions of wintering your bees. In this case you can skip the excluder and allow the bees to become one larger hive. They likely needed another hive body after all

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