Apis.m¡ Esoteria 19

Frame Management

The reason for rotating your frames is to reduce the pollution build up in the wax. Beeswax is hygroscopic¡ It absorbs moisture and all the ambient air pollution that passes by the hive, including non-lethal doses of pesticides. This pollution builds up in the wax over the years. This accumulation may not kill the bees and larvae but it cannot be “good” for them. The pesticides will at least weaken the larvae which develops in such close proximity to the pesticides. Your bees will be born weak and not work as hard or live as long as possible.

The frames should be cycled out of the hives on a three-to-five-year program.

As the comb in the brood chamber gets older (and more brown) the cell holes get smaller. After each birth the bees clean the cell, reline it with a very thin cocoon type web, and coat it with a thin layer of wax to sterilize the cell. You can see the thicker cell walls on really old wax. One problem with really old comb is the cell holes are so small, only small bees can develop. They will only grow as big as the cell allows. Small bees carry less nectar and pollen.

When rotating out brood comb, I like to leave the center three frames alone during the egg laying season. This gives the queen a “home base” to work in. I will add foundation frames at the edge of the working cluster where the bees are putting up honey and pollen. This encourages rapid comb pulling as the bees need the new comb to put up food. As the brood pattern increases in size, I will have fewer opportunities to add frames to the outside, until the box is full.

I like to only keep as many frames in a hive as the bees will work on. In the spring that may be 5-6. If the wintering cluster is on the 4 center frames, I will remove the outer frames, leaving the 6 center ones. One more on each side than the bees can work. This reduces the hiding spaces for hive beetles and wax moths. As the brood area expands, I will replace frame at the rate of one more on each side of where the bees are working.

When I put a foundation frame in the box, I try to put a frame of pulled comb on either side of it (or the outer edge of the box). This keeps the bees from pulling the new comb too wide. Sometimes when you put all new foundation in a box the bees get a little exuberant about pulling comb on the outer side of the frame and the next frame facing it won’t be pulled out far enough. This makes your comb lopsided. To fix this frame I will use a manual decapping knife and slice it back to the width of the frame, even during the active summer.

In the honey super you want to change out the wax because dark wax can cause your honey to darken. There is also the pollution situation.

There have been studies done to determine if bees like wax foundation better than plastic and if they like new comb better than old comb. The bees will use what they are given. I think they like new comb on wax foundation. When the frames are mixed (wax and plastic) my bees seem to go to the wax more quickly. They will avoid plastic foundation, even skipping over it, until the very end when they must draw it out. Once the comb is drawn out on the plastic the bees don't seem to differentiate. Many times, on plastic foundation you will see that the comb will not be drawn all the way to the corners because they did not need that space. Sometimes the bees will not attach the drawn comb to the plastic foundation leaving a pathway where bees and beetles can hide. This is a sign that the plastic foundation may not have had enough wax coating applied.

The key to drawing wax is to have enough bees to do the work. It takes about 8 pounds of honey to draw one pound of wax. The foragers must bring in enough nectar. Then it must be converted to honey. Then it must be converted to wax. There must be enough bees in the hive to stand shoulder to shoulder covering the area where comb is being pulled to get the job done.

This means that your first job as a beekeeper is to grow bees. Do everything possible to create a strong healthy colony. The queen will only lay as many eggs as the nurse bees can tend to. The wax maker bees are a group of young bees that are excess to those bees needed as nurse bees and storage bees (those putting up honey). You can see this work pattern in a weak or mediocre hive where larvae come first then food (pollen and honey) for the brood. Then excess honey storage. At the same time lots of pollen is packed in. Then the bees go to work cleaning frames and pulling wax around the extremities of the brood space. Sometimes there are not enough bees to pull comb. The colony is expanding and there will be a small area of pulled comb on the next foundation where honey is put up before the comb is pulled to full length. If there are too few frames in the hive sometimes the queen will even start laying eggs in an unfinished frame. Eventually everything catches up and evens out. You hope!

When should you "grow wax"? Once you have lots of bees. You can use a large colony to draw the frames for a smaller colony. In the Spring, I use comb pulling as an anti-swarming technique. The bees won't swarm (yeh, right) as long as there is work to do in the hive. Remove some pulled comb and replace it with foundation frames. Keep a pulled frame on each side of the foundation frame to get it drawn in a balanced manner. Place the foundation frame right on the outer edge of where the bees are putting up brood or honey. They will think they have made a mistake and go to work pulling the comb before continuing to store honey not too much farther from the center.

After you remove the honey supers at the end of nectar flow there are too many bees for the space in the colony. This will trigger swarming. Take advantage of all these bees and place a new hive body or honey super full of foundation frames. Feed 1:1 syrup to simulate a continued nectar flow and the bees will work like crazy to draw that comb and fill it with honey. You can use this as stored winter food or remove the super when all the frames are pulled. Set the super out in the field about 100' from the apiary and the bees will rob out whatever honey there is in it cleaning it for winter storage. Next year use these new combs to cycle out old ones. By the time the bees are done drawing out the comb the colony population will be shrinking naturally to the winter size. Now the hive won't swarm. Using syrup to draw wax keeps you from forfeiting sellable honey as wax.

Don't let bees rob out syrup honey at the same time as you are trying collect nectar honey. You can't tell the difference in the honey, but it may not be the best ethical practice to sell mixed syrup honey as "honey".

A "shook hive" (as in Shaken) is a good technique for drawing comb. This simulates colony swarming. The first thing the colony does upon arriving at the new nesting location is to pull comb so the queen can start laying again. The honey carried with the swarm goes to wax. Then the foragers start bringing in nectar and pollen. Then after a few days the queen starts laying again. I recommend feeding the new "shook" hive 1:1 syrup.

When working frames on two levels (double hive bodies or honey super over hive body), if you "checkerboard" foundation frames and pulled comb frames between the two layers you can stimulate the bees to work faster on pulling the comb on the empty frames. That is, place a foundation frame over a frame with comb and on each side of the foundation, place a comb frame. This alternating pattern helps speed up comb making.