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## Getting Ready for Winter or the Wet Season

by Les Crowder, edited by Heather Harrell

The bees have been sewing innumerable invisible threads through the air from millions upon millions of flowers to the hives. They have carried nectar and pollen by drop and pellet to the hive and distilled and packed and ripened and sealed a treasure of your neighborhoods scents and the taste of the sun, rain, and soil, translated through the plants of the vicinity. Those plants will now have a future generation, thanks to the bees buzzing back and forth with their pollen dusted, busy working bodies. I have harvested many gallons of honey, eaten and sold pounds of pollen, and poured many 5 gallon buckets of hot pure beeswax through strainers. And it is still a marvel to imagine how a 30 gallon tank could be filled by honey bees, one eighth of a drop per trip to the flowers and back. They have been faithful to us and the flowers. Now we have to be faithful to them. We must take care that they are healthy and the queen is fertile. There must be enough of the honey they made to keep them alive and healthy until the next flowers begin to break out of their buds next spring or dry season.

The last harvest is often the most difficult if it is occurring after the last main honey flow is over. You will need to work quickly and carefully to keep robbing from becoming a problem. Try not to spill any honey on the out side of the bucket or on top of the hives. This is one time of the year when I find working a little early, while it is still cool and the bees are gathered in a fairly tight cluster around the broodnest, is a good idea. Often the honey combs have relatively few bees on them and the “robber” bees are still not out seeking the honey you are exposing. Some times I set my smoker a little up wind so that the smoke rises up around the harvesting bucket to keep the robber bees out of the bucket when I open it to drop honey combs into it. If robbing gets going too fiercely it is best to quit and come back the next morning.

Actually most of the work has been done. You have let them build combs in their broodnest and left them in the hive to fill as they could. There should be at least 12 combs full of honey, pollen and brood at the front of the hive. (You might want to leave them as

many as 15 combs if you live in a land of long winters.) You have been checking the brood to see if it is healthy and that the queen is laying eggs in a reasonably tight pattern. This time of the year there will usually be less and less brood. If there is a comb full of all or mostly all drone size cells it is often filled with honey and pollen and not brood. That is one comb I might be tempted to take out of the middle of the broodnest and put at the back or the front. (Not only are they not raising more drones but they may be evicting any adult drones that are in the hive.) Other than that I leave the combs just as they are so the bees can arrange the honey and pollen in the pattern that they need for the winter cluster to eat its way through when it is cold or wet and there are no flowers. Trying to build up a hive population after the honeyflow is over is like paddling upstream in a boat. The energy may all be wasted because it is just too late in the season and there is not enough natural resources to help the hive get ready for the cold or wet season. Going with the flow is much easier. Expand in the spring, contract in the fall.

Varroa mites are usually the most damaging this time of the year. As the bee population drops to its off season low, the mite population in the hive becomes more significant. If I see a lot of mites in a hive during the last harvest, and can't get a queen to requeen it so late, I smoke the hive with a plant smoke that won't hurt the bees and will kill the mites. I would then mark that hive for requeening next year. Signs that the mites are becoming a problem are bees in the hive with shriveled wings, stunted bees and mites visibly walking all over the bees.

Brood disease this time of the year is often a fatal problem. It is possible that the bees will survive until next spring but don't depend on it. You can't save every beehive. Hopefully any disease will have made itself evident before the last harvest and the problem was solved earlier, when there was still time to requeen.

It is possible to take some combs from a hive that is strong and made honey and give them to a hive that didn't make enough honey to survive the winter. If a hive seems healthy and the queen is laying a tight pattern but they didn't have time to build enough combs, they may be able to survive the winter with combs given to them from another hive. Those combs won't go into your honey harvest this year but if both hives survive until the next bloom the combs dedicated to helping a hive survive will contribute to next years divides and honey production. The problem with giving a small weak hive a lot of comb from another hive is that they may not be able to take care of it. This is most evident with brood but is also true with honey combs. If a small hive has two combs of brood and I give that hive five combs of brood from another hive, the few bees in the small hive will not be able to keep all the donated brood warm and fed and most of it will die. I should give a weak hive only one small comb of brood that they can keep warm. If the brood is mostly capped they won't have to feed it and capped brood is less sensitive to temperature fluctuations. It will soon hatch and the new bees will increase the hive's population. Then they will be able receive more help latter or they may reach the "critical mass" and begin expanding on their own and no longer need help. (This again should be done before the honey flows are over.) Even giving a hive more honey combs than they can take care of will often prove disappointing. Even though they don't have to feed or keep it warm they do have to keep the wax moths at bay and giving them more the 50% of the combs they have is often not a good solution to the problem of helping a small hive survive the winter. (Example; imagine a hive only 6 combs. They need twelve to survive the winter. 50% of six is 3. If you give them more than three they may not have the bee population to take care of the combs you gave them and the wax moths will destroy many combs and become so numerous that they destroy even some of the three you gave them that they could have taken care of.)

A possible solution to the problem is to combine two weak hives that will not likely survive the winter into one strong hive that will. This brings new comb into the hive with the bees needed to take care of it. I usually look for a small hive that may have just finally gotten a good queen and did not have enough time during the honey flow to build up a population and make honey and combs. I then find a hive that has a poor queen, or possible laying workers, and combine them.

There are several methods for combining two hives of bees. The problem is that the bees are not friendly to each other and will fight if just put together. But if we slow their mixing and confuse them enough they will often combine and get along well enough. And if a hive has a very poor queen or laying workers they are often very demoralized and will fairly easily begin working with bees that have a queen and future.

No matter which method you use the best idea is usually to put the bees from the less desirable hive into the rear of the more desirable hive. This leaves the more desirable hive the least disrupted. It is still in its original location, so its field bees are still trained to come and go as usual and the hive will simply get new bees and honey and possibly brood. The less desirable of the hives is the most disrupted. You could say it has been destroyed and its resources have been given to the better hive. The hive with the poor queen is picked up and taken next to the better hive. The queen should be located and killed, but that may not be possible. (Sometimes a poor brood pattern and drones appearing in worker cells means that there is no queen and the workers are laying or there may be an intercast queen that is very hard to see as she looks a lot like a worker.) Then the combs are lifted out of the inferior hive and put into the better hive behind the built combs of the better hive. The bees in the hive box of the inferior hive can be shaken or brushed into the back of the better hive. The field bees of the inferior hive will go back to where their hive was and find it is gone. I wonder how they deal with this. I might be like finding your village has been destroyed while you were away. Where would you go? The bees tend to go to the nearest hive and go through a process of getting accepted to that hive. (They cower and protect themselves from being stung by the guard bees of the hive they are attempting to enter illegally. The guard bees chew the hairs off their thorax. Eventually they are allowed into the hive, presumably marked as hairless indentured servants.) If enough field bees storm the gates of a neighboring hive they seem to overwhelm the defenses of the near by hive and are just let in with out any scrutiny.

The bees on the combs that have been put into the new hive have been put in past the defense system of the superior hive. This is a little like injecting someone else's blood into your body. If the body does not recognize the blood it will attack it as a foreign organism. The bees of the superior hive will attack the foreign bees. There are several ways to diffuse this attack all based on the fact that the bees recognize each other by the scent of their bodies.

One way is to slow down the mixing of the bees with a partition of paper. The scents of each hive will mingle before the bees mingle and the bees will get temporarily confused and eventually used to the combined scent of their hives. To do this I get a sheet of paper big enough to form a partition from top to bottom and side to side. I wet it with a little water to make it form easily to the shape of the hive. I press it lightly against the topbar of the last comb of the better bees and the sides and bottom of the hive box. I put a few slits in the paper to allow air to move between the hives and give the bees a place to begin tearing at the paper. I press the topbar and comb of the inferior hive against the paper and the rest of the combs in behind the paper, shake the bees out of the inferior hive, and close up the combined hive. The bees will mix slowly after they chew away some of the paper. I may get

back in a few days and clear away the remaining paper, but if I don't, the bees will eventually clear it themselves.

I have actually had good luck using a lot of smoke on both sets of bees and getting them so scent confused that they could not distinguish between the bees of one hive and the bees of the other. A friend told me that he had sprinkled strong smelling baby powder onto both sets of bees and that had confused them enough to let them mix peaceably. Baby powder may have ingredients that are not good for bees, and any dry powder that touches the skin of larva bees will often create a dry spot on the larvae and eventually kill the larvae. Emmett Marx lightly sprayed scented (lavender?) water on the bees and combined two hives successfully.

If you combine a hive with 8 combs with another with say 7 combs you may wind up with more combs than you wanted but that is better than not leaving them with enough. And the inferior hives combs may not have as much honey in its combs as a strong hive would.

It is possible that you won't have honey combs to help a hive acquire enough honey to survive the winter. If the bees are only a few combs short of the right amount for your area (12-15 combs) you may be able to feed them enough to fill out the hive's off season reserves. Feeding them honey is usually best in my opinion but most books will tell you to never feed bees honey as it may contain spores of the bacteria that may cause foulbrood. Feeding them sugar syrup will keep them alive and it may be your only option.

I feed the bees crystallized honey. It is very easy. I simply get a scoop (maybe 1 -3 pounds) of honey out of a five gallon bucket and place it in the empty back of the hive near the last comb. The bees soon smell and taste it and begin licking it up and moving it to the combs. I like to feed the bees inside the hive because then only the bees of that hive have access to the feed. If I feed them outside the hive other bees, ants and wasps may all eat the feed and it may start a bit of a robbing frenzy. Recently I brought bees back from California with very little honey in the hives. They were nearly starving. There were 150 hives in one place and rather than feed each hive I decided to buy a 55 gallon barrel of honey from a beekeeping friend and place it in the beeyard with many sticks shoved down into the honey to keep the bees from drowning in the semi crystallized honey. I put the barrel down and opened it on a Tuesday afternoon and returned Thursday morning to an empty barrel! I probably fed some bees from the neighboring bee yard, but I did keep my bees from starving.

Liquid honey and liquid sugar syrup is a little more difficult. If you just put a jar or bowl of it open in the hive they will crawl up and into it but often many bees will fall down into the liquid and drown. Liquid is better fed in a jar that will fit inside the hive behind the combs. One way is to put some sticks into the jar that will give the bees that fall into the liquid a way to crawl up onto the sticks and get out of the liquid. Another way is to put the tight fitting lid, with 10 small nail holes poked through it, on a jar filled with the liquid. Placed upside down over some 1/2 inch sticks it becomes a vacuum feeder that the bees can crawl under and drink from without drowning. See drawing.

If I have to feed sugar syrup to the bees I generally feed them syrup made from two parts sugar to one part water in the fall. That more approximates the consistency of ripe honey and gives them less work ripening it, and puts less water in the hive during the fall and early winter. (At the contracting time of the year the bees need less water as they are not raising much or maybe any brood, and as the hive cools moisture in the hive actually becomes a problem because it condenses on the cool combs and drips and can allow mold to form.) If a hive needs feeding in the spring I feed it a more watery sugar syrup made of 1 1/2 parts

sugar to 1 part water because in the spring the bees are using the water to humidify the hive for the expanding brood nest and the hive is warming up and condensation is not a problem at that time of the year here in our dry climate. I haven't fed bees sugar syrup in more than 10 years. I feed them honey.

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