



Deformed wing virus.

Evaluating Your Colony & Your Queen

Jennifer Berry

Check Now For Problems So They Don't Come Up And Bite You Later

When the calendar page is turned and the 1st week of March appears, we southerners realize that crunch time is upon us. There are only a few short weeks to get our colonies set and ready to go. Otherwise nectar will be left untouched and therefore unprocessed into honey. Hopefully we didn't spend the winter months goofing off but instead got plenty of work accomplished. Old equipment was repaired, ratty, black comb replaced, honey supers primed and ready for action and new, pristine apiary sites selected. If expanding operations then plenty of hammering, wiring, gluing, and painting were part of your Winter activities. If starting those first colonies then queens, packages or nucs have been ordered already. Whatever your plan of attack is I hope you are ready because the bees surely are.

Now that the equipment is in order let's see how the bees survived the winter. The first thing you will want to undertake this month is to inspect your colonies. Don't procrastinate! It is easy to put this off with other Spring-time chores breathing down your neck, but your bees may need you sooner than later. During the month of March there should be numerous opportunities to inspect your colonies. The earlier you finish this task the better. Assuming your colonies are ok by just observing bees flying in and out of the hive means nothing. On your first hive inspection of the year you really must open the hive and check each individual frame when the temperatures allow. Later in the year hive inspections don't need to be so thorough but you need a good idea how each colony is faring before the season begins.

So what are you looking for? Here are the basics. Is there a queen? How does the brood pattern look? Are there any signs of disease? How much honey and pollen is available and where is it located? How do the bees look? Are there signs of mites? And don't forget your notebook and pencil! Records on each individual hive are important information you will want to have, especially if something

goes wrong down the road.

Let's begin the inspection with the most important issue; is there a queen and if so is she performing? If the colony is queenless then you may want to combine it with another colony, especially a weaker one. If you didn't order queens last year, getting one this Spring maybe almost impossible, especially this early. Now inspect the brood area. Brood patterns should be tight, with little to no skipped cells. The larvae should be pearly white. Discolored larvae could be a sign of disease or chilled brood. If you suspect a brood disease like AFB or EFB and are unsure how to diagnosis it, contact an experienced beekeeper or your county agent. The sooner a positive diagnosis can be reached the better. Chilled brood occurs when the brood nest expands too quickly for the bees to keep warm. The brood is exposed to cold temperatures and dies.

There should be an equal arrangement of eggs, larvae and capped brood. If the brood pattern is spotty, and the population low, at this point the best recommendation is to combine these colonies with others. There is no need allowing a colony to limp along if they aren't going to survive. These colonies are susceptible to disease, wax months, and robbing. By combining colonies you not only save the bees but the equipment as well. Just don't forget to kill the poor performing queen first before you combine. However, there are exceptions (doesn't there always seem to be exceptions when it comes to the world of beekeeping?). Some strains of bees will build up slower or faster depending on their genetics. Russians for instance are slower coming out the gate but will rapidly build up, catching or even surpassing your best colonies. You need to know the nature of your colony. In the past I've contemplated whether or not to combine certain weaker colonies. I didn't because the brood pattern was solid even though it was small. In a few cases the decision was a good one. They built up nicely and ended up making a substantial amount of honey. That is why good notes are



Solid frame of brood.

an important asset. It helps you remember exactly what is happening in each colony.

Ok, the queen and brood appear to be in good shape, so how about the honey stores? Spring weather in the south can be very unpredictable. Last year we had one of the warmest Springs on record however that late two day Easter freeze in April wiped out not only the newly formed tender vegetation but colonies as well. Dramatic shifts in temperatures can separate the cluster from the food. Warm days the bees become active, then with sharp temperature drops the cluster can find itself separated from the honey stores. The bees may be only an inch away from the food but unable to retrieve it when temperatures plummet. The colony then starves before warmer temperatures arrive.

Even though the nectar flow is just around the corner don't count on it solely if honey stores are depleted. Colonies at this time are rapidly consuming food. Feeding each of those individual larvae takes a considerable amount of honey and pollen. They are nothing but little eating machines, made up primarily of a midgut and hindgut. And to think there are thousands of them per frame! So how much food is enough? This can be difficult to determine. However, the rule of thumb at our lab is too much is better than none. If our full size colonies are down to less than a half a super with no honey frames

Strong cluster of bees.



in the brood chamber, we feed. If we have surplus honey frames we add those, if not we use gallon baggies with syrup. Even though nectar flows may be only weeks away, inclement weather may keep the bees from flying and hence gathering nectar. Another thing to examine is the placement of the honey. As the cluster moves up into the honey supers during the Winter, honey is depleted in those areas. Move full frames of honey around the cluster. Frames of honey at the end of a super are worthless if the bees can't access them during cold spells.

And don't forget to check pollen stores. Here in the south the continued drought wreaked havoc on plant and animal life (as well as Atlanta's water supply). Little to no pollen was produced or collected. Mid Winter inspections of our colonies revealed absolutely no pollen. Not a single cell's worth. Therefore, add pollen patties now if your inspection reveals the same situation. There are numerous pollen substitute products available. Some are even pre-packaged into ready made patties which eliminate the hassle of having to mix it yourself. Pollen is the protein source needed for larval development. If there is little to no pollen, then brood production is reduced.

Even though the mite populations have decreased over the Winter months due to the decline in brood rearing, mites are still present. Examine the newly emerged bees to see if there are signs of deformed wings. If you see a considerable amount of deformed wings then treating should be on the horizon. However, we are nearing a nectar flow so chemicals are out of the question. A non chemical approach to knock back mites is to dust adult bees with powdered sugar. The powdered sugar dislodges the mite from the adult bee. Used in conjunction with bottom screens or a sticky sheet, the mite is then removed from the hive. You will have to repeat this method several times in order to eliminate the mites emerging with workers and drones. The powdered sugar will not penetrate the wax cappings and therefore will not affect the reproductive or immature stage of the mite.

After your inspection make sure you put the frames back in the order you removed them. You don't want to leave brood frames at the end of the hive because they'll be susceptible to colder temperatures.

Since we are only a few weeks away from the start of our nectar flow there is another issue we must consider. Overcrowded colonies are just itching to hit the trees once pollen and nectar start coming through the front door. If you want to make a substantial honey crop you need to discourage this natural, swarming tendency. One larger colony of 60,000 individuals has been shown to produce more honey than the honey combination of two smaller colonies with 30,000 individuals. Swarm prevention and control is important. There are many ways to accomplish this task but none are foolproof. Plus, once a colony has it in their mind to swarm, they will. The methods we choose is splitting, equalizing and cutting queen cells.

Colonies that are "boiling over" with bees, (eight to 10 frames bees and brood) we split. We take four frames bees and brood (with eggs) and place them into a four to five frame nuc. If we have no queens available we allow the nuc to rear their own (which will take several weeks before the virgin queen will emerge). First of March in our area is a little early for queens to mate but by the end of March there should be ample drones and warm weather for mating. If there are weaker colonies in need of a frame

or two of brood we take them from our stronger colonies and give it to them. Basically we rob Peter to feed Paul. Since we can't allow our breeder colonies to swarm we regularly cut queen cells. It's a painstakingly long process but until we have made our final selections we can't afford to lose a single queen.

Retiring old, tired queens also helps to discourage swarming. Since my preference is to re-queen in the Fall the queen is only six months old when the swarm season hits. Another positive for Fall re-queening, there is no disruption to the colony just before the one and only nectar flow we experience. Our flow is short and sweet so we don't have time to mess around. There are Summer nectar flows to our north and south but this involves transporting hives. And finally, I already have a pretty good idea which queens are superior and which aren't so hot (because records are kept for each colony).

One more recommendation for swarm prevention, make sure the colony has plenty of room to expand. If you have empty, drawn deep frames drop those into the brood box. It gives the queen more cells to deposit eggs. Place these empty frames on the edge of the brood area. It's not a good idea to divide the cluster too early unless the colony is extremely strong. Removing old brood comb and replacing it with new wax foundation keeps the bees busy. Adding supers upstairs will also help ease congestion.

The last thing to discuss is site selection. This can be a difficult and time consuming chore but well worth the reward. If you have a few colonies and want those in your backyard, great. Just make sure they are facing south-east and aren't sitting in a low spot. Hive entrances facing the morning sun will warm up quicker thereby stimulating the colony to forage earlier (the early bird really does get the worm). Numerous nectar bearing plants only have nectar in the morning hours so you want your bees in the sky at first light. Other issues to be aware of when finding a site for your bees; Is there heavy agricultural activity in the area and if so what pesticides are being applied and when? Is there a clean source of water? Is it easily accessible, especially after it rains? How far is it? Are there wind breaks? Is it in a flood plain or water

way? I have had to move my bees several times out of what seemed to be the perfect apiary site, but unfortunately no honey filled the supers. Then other sites which didn't look promising at all produced like mad. But don't get discouraged if you don't make honey the first year. You need to take into account weather conditions that year or the previous year. Give it a few seasons before abandoning a site.

Next month I'll discuss package installation since most packages are being produced and shipped at the end of March here in Georgia. But there is one final touch you can add to your empty hive bodies if packages are on your calendar for delivery soon. Here in the south we are constantly battling small hive beetles. One thing we try to do with our newly constructed equipment is to caulk cracks, crevices and seams in the interior of the hive. They make perfect breeding grounds and hiding places for beetles. By sealing these areas the beetles are forced out in the open more often which in turn keeps the bees on their tails. Get those girls ready cause the flow is a coming.

See ya! **BC**

Jennifer Berry is the Research Coordinator at the University of Georgia Bee Lab.
