

Stahlman beekeeping notes for 2021

6 Issue: 2-7-21 A weak hive in the middle of Winter?

The theme of this week's notes comes from a question asked of me by Dave Landers of Raleigh. It is important to know that this question-- is one you have or likely will face if you keep honey bees.

The question: You have a weak hive in the middle of winter. Let them be or give them first aid. How?

We have just been thru what may have been the coldest period of this past winter. If you live in Ohio, February offers more winter challenges than weather presents to beekeepers here in North Carolina.

But the answer to this question applies to all:

What is a weak hive? This may vary somewhat when one talks to several beekeepers. But my definition is this: A weak hive is one that does not have enough bees to cover the brood (eggs, larva and capped brood) being raised by the colony. Let me illustrate this:



This is a frame I took out of a hive several years ago.

The frame adjacent to it had bees on it as well and the hive had no more than two cups of bees.

One other problem this hive had -- it had no queen.

One will see something like this in January or February.

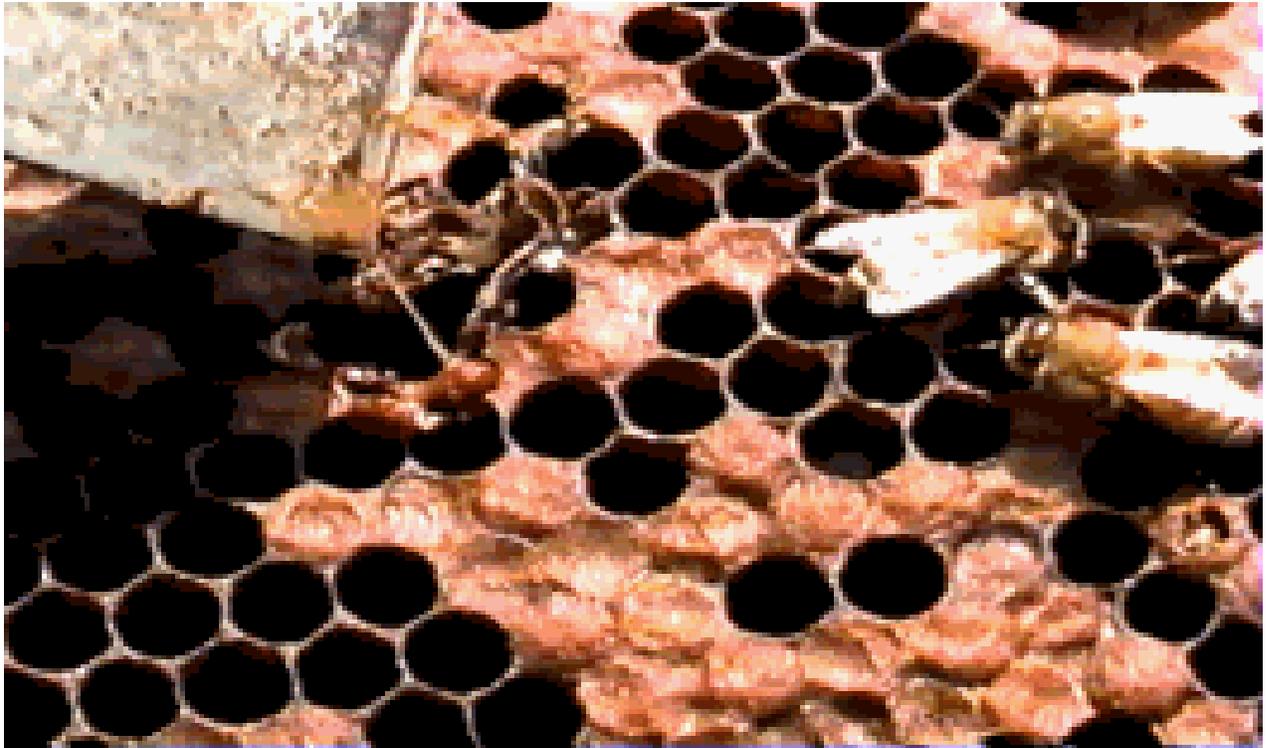
The problem: A hive like this has no brood for the bees to cover. Without brood and a queen, this hive is

doomed. You will notice that this frame has a lot of pollen and honey stored in it. Getting a queen even if one were available will not save this hive.

Why you may ask: The life cycle of the bees in this colony is just about up. If a new queen were available and given to this hive, any egg she lays will take 21 days to develop into a new young bee. By that time many of the bees in this small population will die. Thus, the bee population will continue to decline even if the queen starts laying eggs.

Let them be? No not at all. I would combine this hive with a hive needing food resources thus saving some of the bees from certain death and provide a boost to the hive receiving honey and pollen stores. Starvation with this hive is not an issue! The only issue to consider in this case is the weak hive carrying bees with a lot of varroa mites or even a more serious problem (AFB) American foulbrood!

Not many hobby beekeepers will see (American foulbrood) because of the good work done by state apiary inspectors. But just in case you have some questionable capped brood cells with small holes in the capped sunken dome, it would be important to get an opinion from a state apiary inspector.



If sunken cells are observed, a simple test is to uncap one of the suspected cells and see if the dead larval material is coffee colored. If it ropes (strings out) like shown in this picture, you had better get an official determination but the indication of this is most likely American foulbrood. I would suggest using a toothpick or something similar to put into the coffee-colored mess. If it is AFB, this hive tool is contaminated and when used on another hive will contribute to the spread of the disease.

Continued from above

If the bees were allowed to die naturally, a hive with frames like this would provide a new package of bees an ideal head start. In that case a package for this hive should be purchased as early as packages delivery in your area is available. This frame has both honey and pollen resources and drawn comb. New bees with a new queen could not ask for much more of a head start than being installed on combs without disease problems.



Here is another example of a small cluster of bees. This hive is also what I would consider doomed. Without removing a frame it is obvious that there are not enough bees in this hive to make a good colony of bees by the time spring rolls around.

It may or may not have a queen but what I observe is this:

The bees have chosen to cluster near an outside wall of the hive body. The bee cluster covers at most just the upper two inches of comb on two or three frames. Again honey is present and the frames in this hive could be of use by a colony needing food.

Question: Could a hive like this be combined with another weak hive as in the above photo?

No because the bee population would not be large enough to survive winter. Two weak hives joined together usually still end up still being a weak hive.

Without the ability to raise new bees for the hive's survival, a colony of old bees with or without a queen is doomed. I would take off its bottom board and set this hive directly above one of the strongest hives in the bee yard. Strong healthy hives need food stores and the two hives illustrated had plenty of food. If left alone they would die and contribute to a robbing situation as soon as other strong hives of bees found them. Note: if this hive has a queen, one might find and remove her before combining hives. Otherwise, the bees in the strong hive will kill her. I suggest to new beekeepers -- the best thing to do with the old queen is put her into a small bottle so one can show others what a queen looks like. Placing rubbing alcohol in the bottle will kill her and preserve her for future showings.

When combining hives, the question of spreading disease comes up. This is another issue one must consider if combining hives of honey bees. Many of you will be buying nucleus hives this spring. Any time frames are moved from one hive to another, it creates the possibility of spreading disease. This is why you should be asking about inspection reports from your state apiary inspectors done on the bees you are buying!

Conclusion: If the weak hive has been queen-less for any period of time, some of the bees will become drone laying workers. Thus, it will be very difficult to introduce a new queen. If the weak hive is set on a strong receiving hive the bees in the stronger hive will take care of any laying workers right away. Later in the spring, the strong hive can be split, a new queen introduced to one of the splits and the beekeeper will be back to replacing the dead-out hive with a much better chance that the new hive can provide the beekeeper with some surplus honey.

Cluster size may be a bit harder to determine in real cold weather. This is true in double deep hives. One can get an idea that a hive has live bees in several different ways, but hearing buzzing is not the same as determining cluster size.

A winter cluster -- to be considered for survival during early February -- should cover at least four frames. On a warm day it is possible when bees are flying to open a hive to check for the cluster size. I

have seen hives with only three frames of bees survive a winter but the hive fails to build up and eventually requires requeening if it is to survive at all. Small clusters could be a result of several things:

- If a hive is starving, the bees will feed the last bit of food to the queen. Starving bees reduce food to the queen and she will stop laying eggs due to a reduced diet. Honey bees turn to cannibalism. The bees may be seen eating larva. Dead larva on the landing board is a bad sign – anytime!
- Failing queen
- Varroa mites
- Stress from other diseases

If you find something like this:



We are not looking at coffee-colored dead larva. There are some pin holes in the capped cells, but the dead larva is not slimy gluey stuff that will rope. This represents a hive most likely weakened by Varroa mites/virus. Usually, the beekeeper will see few bees left in a hive. One might even wonder where all the bees went?

To use again? Bees will clean up the dead bees in this comb and reuse it. Current research indicates that even though the Varroa mite are gone (they die when the bees die), virus may continue to exist and affect new bee colonies placed on comb like this. Over the years I have reused frames with comb like

this but my thinking is changing. It would most likely go into my solar wax melter this summer. Covid-19 is changing the ways I think about diseases. **More thoughts on that as the season progresses!**

Without pulling any frames during cold weather, you will note that this is a good cluster of bees.



I can tell from looking at the bees in this hive that many of the bees are new bees. If I see new bees, I know the hive must have a queen.

This hive may have a problem but it is not a population problem. At this time of the year, a strong hive like this has consumed much of the winter stores to raise brood.

Dave asked about first aid. This hive needs a feeder. I don't see much in the way of capped honey in the outside frames. This hive needs food! And quick!

Emergency feeding for such a hive can consist of pouring dry granulated sugar around the hole in the inner cover. A division board feeder could replace two outside frames. The division board feeder usually will add more moisture to the hive in cold weather and thus, I prefer sugar patties. One can make them from the many formulas found on internet sites, or buy them. Colonies with pollen stores do not necessarily need pollen patties, and in North Carolina my experience indicates that using pollen patties just invites small hive beetles to your hives.



This is another frame one might find in a bee hive. No bees in the hive and the cell edges of the comb are ragged. This clearly indicates the hive was robbed out – likely earlier in the winter. Just a few bees on the bottom board and all capped honey gone. Wax chips will also litter the bottom board.

On warmer days bees could be observed flying into and out of a hive that is being robbed. Observing bees flying to and from a

hive might give a beekeeper the idea the hive is alive and all is good. That could be a false assumption if the hive is not opened to examine the winter cluster. Anytime I check a bee hive and the weather allows me to pull a frame or two, I look for eggs. I look for capped brood and young bees. If not present, the hive has a problem. I can determine this situation quickly. The question then becomes what action should I take.

But first:

What do new bees look like? What do old bees look like?



This is a picture of a young bee. Notice the body hairs and wings.

One can observe the bees on a frame taken from a hive. Older bees are more defensive than younger bees and often will appear on the top bars of frames when the inner cover is removed.

But seeing capped brood at this time of the year is a clear indication that new bees should be seen if the hive is healthy. Young bees tend to the brood – cleaning cells, feeding larvae and thus, are more likely to be seen where there is brood. I might add that the queen of the hive should also be in the area where brood is observed.

An old bee. It has less body hair, has a darker color, and the wings are worn.



The most obvious thing about the older bee is the lack of body hairs. The thorax is almost devoid of body hairs—it will have a smooth shiny appearance.

If only older bees are observed, the hive has no brood, and it appears that the hive has no queen – the conclusion I take from this situation – **the hive is doomed**.

Usually, queens are not available in February except from Hawaii. Placing a queen in a hive like this is questionable! There is the possibility that the beekeeper with another very good hive could move a frame of brood from that hive to give to this hive. I don't see much success in doing that this early in

the season.

The action I would take: First – Do a mite sample count of the old bees! If the mite level is low, this hive might be combined with another hive – especially a hive needing bees. One might treat the old bees with Oxalic acid vapor before trying to save them. Just remember adding a population of mite ridden bees to a good hive **is not a wise course of action to take.**

New bees are the life of a colony of honey bees – always.