



STAHLMAN

BEEKEEPING NOTES

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Strong Hives Part II

The Boy Scouts have a motto: Be Prepared. If you have strong hives of bees you need to be prepared! Anyone with a strong hive needs to be alert to what bees do! I always remark that the bees don't ask me if they can do anything – they just do it. Mites are a problem but so is swarming. The greatest concern every year I have been involved with bees has been swarming. In that respect, nothing has changed in beekeeping.

The goal of every beekeeper is to have good strong hives. The problem is good strong hives are prone to swarming.



Beekeepers face the following issues in the spring, feeding bees, adding room for the bees to expand brood populations, and dealing with the problem of swarming. Current beekeeping also has the added issues of Varroa mite and viruses control.

In continuing this topic on strong hives, inspections can not be overlooked.

Many strong hives of bees miss the coming honey crop because the colony of bees swarmed and the replacement queen either fails or is not as good as her mother – it leaves a hive weaker and less able to gather the amount of honey expected from strong hives. Swarming is an interesting topic – books have been written about it. Some beekeepers are not bothered at all. Their view is let the bees be bees and let nature take its course.

Many of you may never have seen a queen emerge from a queen cell. I remember a few years ago of bringing a queen cell into the kitchen. My wife Judi filmed the entire event. She was so excited to see the queen chew the cap off the cell, work hard at pulling herself from the cell, and then begin to move about. Judi actually named the queen and made me promise to put her into a nuc so we could watch her and protect her. That worked for about three days and then the queen and the bees in the nuc just took off. We did not see them leave! Judi said something to me about how ungrateful the queen and bees were. "Why did they leave?" she asked me. It was her nuc and now Judi had an empty box with plenty of syrup, some drawn comb and no bees. Thinking back, I should have put a frame with some brood to keep the bees from leaving. But I overlooked that important point. Some of you installing a package of bees into a new hive may have had the same thing happen. Putting drawn comb with brood into a hive will almost always help retain the bee population. It also gives new introduced bees & hive a boost.

A Strong hive:

I am going to share a few photographs with you and add comments. But first normal spring management includes the following:

- Add supers – supers with drawn comb are best. New foundation will not stop a hive from swarming but will give bees something to work on – Spring is the time to get new foundation drawn.
- Use something called “Checker boarding” to reduce congestion in the the brood chamber – adding empty drawn or new comb frames to replace removed frames. I like to move brood frames to a box above a queen excluder in the hive.
- It is possible to shake all bees on brood frames in front of the hive. This makes finding the queen unnecessary because she and the bees will re-enter the hive below the queen excluder.
- Young bees will move up to the brood to feed and keep brood warm.
- Dividing hives is also practiced in the spring. The word equalizing means much the same – moving frames of bees and brood from strong hives to weak hives.

If one wants to manage a hive to control swarming – the following may work.

- There is a method called the “Demaree System” which is similar in principle to checker boarding. This method is explained in most resource books such as Dadant’s The Hive and the Honey Bee and The Beekeeper’s Handbook. It can also be found with an internet search.
- One can wait until they see swarm cells and every 9 days go into the hive to remove them. This is very labor intensive.
- Making up new hives with queen cells is effective in swarm prevention.

Let me describe hive congestion. In beekeeping it is defined as the queen has no cells available to place her eggs. With all the pollen and nectar coming into the hive, this happens quickly. Cell space to a growing hive population is some what like trying to put 100 people into a room created to hold 25 people and it has only 25 chairs.

I take a lot of pictures and find them useful when I share information. Pictures are better than words.



The first photo is the bottom of a brood box/super.

Looking at the bottom side of a brood chamber helps illustrate something about hive growth.

- Bees build brace/burr comb between the bottom board and bottom bars as well as between bottom bars and top bars.
- These are bridges bees use to travel about the hive.
- They are also the places bees build queen cells.

It is easy to remove an upper super and tilt it upward to see the bottom bars. It could be set in the top cover as shown here. Or used like a hinge – the box to be examined is moved back and inch or so and then raised to see the bottom boards.

During swarming season – we are there now in North Carolina. Inspections should include checking the bottom bars of frames.

What should we be looking for?

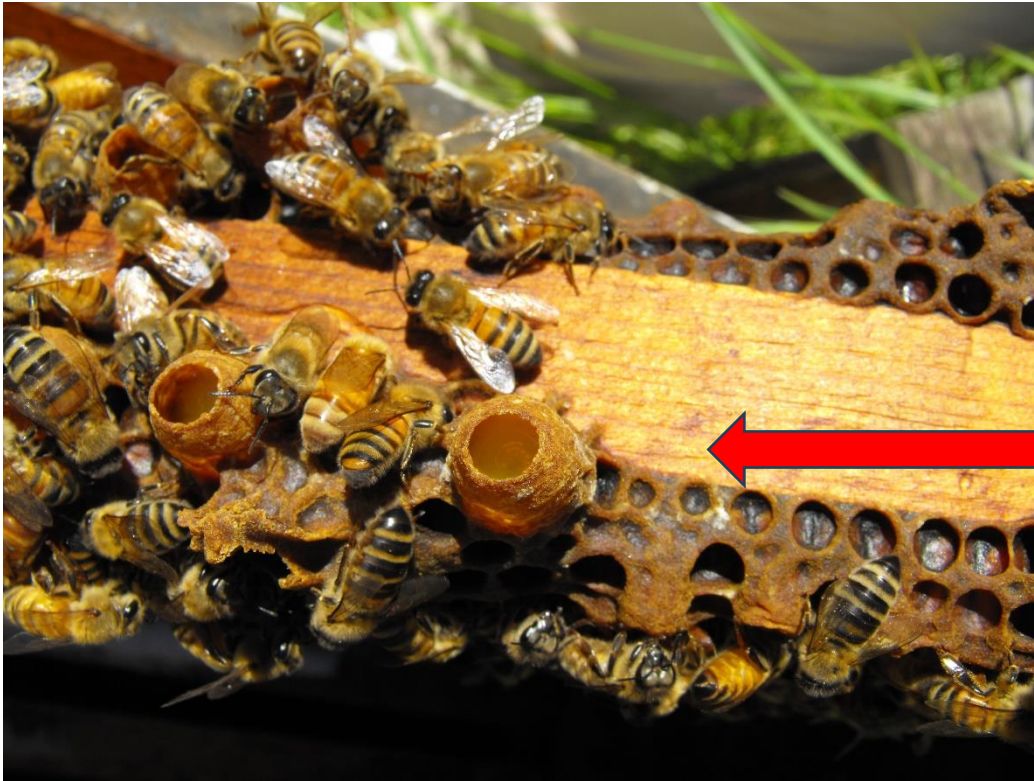
- Evidence the bees have started queen cells.

Well before you see queen cell cups a number of things have been happening in a strong hive.

- Bees build drone cells and when drone cells and drones are seen it is an indication that the bees are thinking of swarming!
- Other things happening at the same time require nurse bees to be very active.



- It is a big job feeding young developing larvae when swarming season arrives. Pollen and nectar arrives on a regular bases and the nurse bees provide the food needed to feed larvae.



The first sign of swarming is to find a number of drone cells being built and eggs laid in them.

- This is also associated with new white wax burr comb being constructed between frames especially near the bottom of frames and in any gap that violates the bee space rule.
- The major sign is the appearance of new queen cell cups.

An easy way to check for swarm cells in a hive is to examine the bottom bars.

- Once a cell is constructed, the queen will lay an egg in the cup. The bees will enlarge the cell and

feed the young larva a white milky substance called “royal jelly”.

At this point in the overall development of a queen cell, the beekeeper can do things to take advantage of the bees swarming impulse.

- Remove frames with swarm cells to start nucleus colonies. (Sometimes called man made swarms).
- Use queen cells to raise queens. This is the best time of the year to raise new queens. If a queen is removed from a hive building queen cells, the hive and bees can be converted into a cell building colony. There are many methods used to raise queens. I would suggest one find information about methods such as 1) the Miller method and 2) the Alley method. Neither require the grafting techniques used by most commercial beekeepers.

It is possible to estimate the time to swarming by checking the development of queen cells.

Remember your queen bee biology: It is a time that varies very little [Day 1 a fertilized egg is laid by the queen – 16 days later an adult queen will emerge from her queen cell.] There may be some variation when temperature drop but 16 days is the time it takes for a new queen to leave her cell and join the hive.

A hive sends out scout bees well before a new queen emerges from her cell.

It is hard to stop a hive from swarming when the bees are sending out scout bees and queen cells are present in a hive.

Allow me to share a few more pictures:

When doing a hive inspection, some things may cause one to do a double take:

A swarm has already left a hive by the time you see queen cells like this.



This is a queen cell with a virgin queen. She is dead. Bees have not yet removed her but they will and carry her out of the hive.

One of the virgin queens in the hive emerged and sought out other virgin queens to kill. Virgin queens do not tolerate each other and this queen was unlucky enough to be unable to defend herself.

I am going to be doing a series on Queen Rearing this year and will use a number of photos to show the steps required to raise queens.

If you see queen cells in a hive and want to use them in nucs, splits or to replace a poor queen, it is too late if you see this.



This is a queen cell from which a new virgin queen will emerge within a few minutes to an hour or so.

The bees have removed the wax from the cocoon of silk during larval development. This is called a “cap.” From inside the cocoon the queen will begin to cut her way out with her mandibles. Often one can hear a virgin queen “piping” a noise like a short high pitch clicking.

If you see an exposed cap on a queen cell, the new queen will be emerging from the cell within an hour or so. Once you see her mandibles cutting a the cap, it will be minutes for her to stick her head out and begin to push and pull her body out of the queen cell.

Swarm cells can be used when trying to restore a weak hive to a hive of strength!

That story next week.....