

Stahlman Beekeeping Notes for 2022

Queenlessness & Laying worker bees



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A number of beekeeping issues face all beekeepers in the spring. Weather is one. Inspecting hives is one. Many decisions must be made. I am fortunate to have many of you asking questions. Those of you that live in colder regions than Raleigh, face cold weather and one issue I would like to address early in the bee season is problems with queens.

B.J. Weeks a long time ago put an idea in my mind when he gave a presentation to new beekeepers at the Cherokee County bee school in northern Georgia. He said, "Getting a new package of bees is like bringing a baby home from the hospital." That is a great illustration that we as beekeepers face with package bees. They are going to demand a lot of attention.

All colonies of bees face problems but new package bees need attention. The first week is especially challenging. It is obvious that the bees in the package are all adult bees and the queen in her separate queen cage is not their mother. Thus, most instructions start with the introduction of the queen.

I commented in last weeks' article that the most important skill a beekeeper has is to see eggs in cells. Thus, the successful start of a colony of bees rest solely on the queen. Finding a queen in a colony may give one the feeling that all is good.

But queens vary in many ways. Some are going to be very good. Some are going to be poorly mated and the effect on the colony will be disastrous unless the beekeeper recognizes a problem. Thus, like the baby coming home from the hospital, a beekeeper must look for signs to check on a colony's progress.

The first three or four days in the life of a new colony is critical. (This applies not only to package bees but any swarm, split, nuc, or hive.)

Spotting a problem is extremely important--- One of the greatest challenges of beekeeping is getting new hives off to a good start.

Since the life of a hive depends on a good laying queen, I am going to share some thoughts on hives with queen problems. The first is Queenlessness! It is a problem that can be resolved by a beekeeper.

The symptoms of Queenlessness:

Normal bee development begins with eggs. A good hive with a good laying queen will thrive. A hive without a queen will surely fail. Something I have seen over years is the assumption that bees can take care of themselves! Without inspections, a beekeeper has no idea of the issues going on inside a hive of bees.

One situation that can happen is the loss of a queen. Queenlessness is defined as a colony without a queen. If no attempt is made to requeen a hive that has lost its queen, a major problem (event) in the life of a colony happens.

This shows up about three to four weeks after the loss of the queen.

This could happen to a package when a queen is not accepted, by a hive that swarms and the new virgin queen is lost, and by a colony due to mismanagement by its keeper.

Some biology: If a hive becomes queenless and eggs or larvae are present, the bees will try to raise a new queen. Usually this is seen as the bees become somewhat agitated and restless for a period of a few days. The beekeeper in this case will see emergency queen cells built over worker brood cells. This would be considered normal for a healthy colony of bees naturally trying to replace a queen.

This is not supersedure – The bees in that situation are not queenless. The bees set about to replace the existing queen that might be failing. Often one might find both the old queen and her replacement still in the hive together.

Hives become queenless often by error or a series of errors made during the manipulations of the hive. Queenlessness may often happen during the winter months when the queen dies during a period of broodlessness.

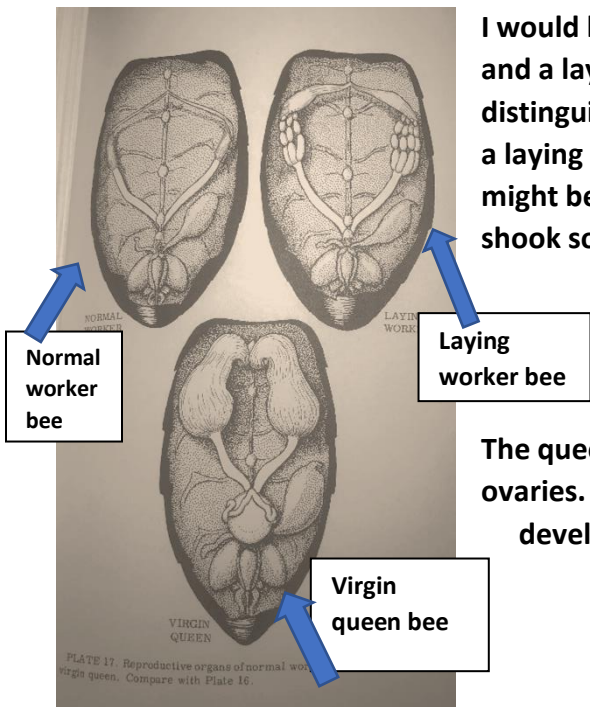
The result:



The picture to the left has three eggs in it. This is not normal in a hive with a laying queen.

Worker bees are females. They have ovaries just like the queen which can produce eggs. But the worker bee lacks the organs for mating thus all eggs produced by a worker bee will be unfertilized and become drones.

I like a book in my collection called Anatomy and Dissection of the Honeybee by H.A. Dade. It was published by The Bee Research Association, London in 1962. The plates in this book are illustrations of various physical features of the honeybee. I am including Plate 17 from the book to show the difference between normal worker, laying worker and virgin queen bees.



I would like to share the difference between a normal worker bee and a laying worker bee. In actual practice a person cannot distinguish a normal worker bee from a laying worker bee other than a laying worker bee may seem to have a bit fuller abdomen. This might be the reason many believe that if laying worker bees are shook some distance from a hive they are too heavy to fly.

The reason a hive may have laying worker bees is the inability of the colony to produce an emergency queen cell or to successfully raise a new queen.

The queen pheromone inhibits the development of a worker's ovaries. When the queen pheromone is absent, worker bee ovaries develop and some workers start laying after about 21 days.

A photo that illustrate what a beekeeper sees in a hive of laying worker bees.



By the time a colony has been without a laying queen most of the adult worker bees will be old.

As can be seen here the brood is dome shaped – drone eggs laid in worker size cells.

The bee population has dwindled considerably.

The brood is scattered and irregular.

Such a hive is difficult to requeen – some say impossible.



This is what laying worker brood looks like from another angle. These cells will produce only drones.

Eventually, one might find a laying worker hive full of drones and no worker bees. I have been told that these drones can mate but I consider them dwarf and most likely well populated with Varroa mites.

A colony that has reached this state is a waste of time and effort to save!

Methods used to deal with a laying worker hive:

- **I do not support this idea but will put it out there if someone wants to try it. It has been suggested that one can take the frames off some distance and shake all the bees off the frames. Those returning back to the hive could then be given a new queen. I really don't buy this. It is a costly way to try with little chance to be successful.**
- If caught early, it might be possible to introduce a queen cell to the colony. Some have tried to introduce frames of brood and larvae in the hope that the bees will raise a new queen.
- The laying worker colony could be united with another colony using the newspaper method. However, there is the possibility that the queen in the hive might be killed by laying worker bees. It has been suggested that to prevent that, the queen in the hive might be caged for a few days and then released. Again this requires some effort.
- The method I use: I combine the laying worker hive with the strongest hive I have in my apiary. I do not use the newspaper method. I set a laying worker hive above a strong hive and let the worker bees in the strong hive seek out the offensive laying workers. This is fast and easy. It does cause some fighting but the strong hive does prevail.
- I consider a laying worker colony as a useless hive that is not worth wasting time and effort to save. A few weeks after uniting a queenless hive with a queenright hive, I am usually in the position to make a split and this offers the best chance to introduce a new queen to the split.