



STAHLMAN BEEKEEPING

NOTES FOR 2025

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Published free as a public service to anyone interested in honeybees. Email me to be added to my mailing list. stahlmanapiaries@aol.com

Determining the reason bees died during the winter season

I hope you notice that I look for photos to include with each heading of this newsletter. Honeybees are displayed on many coins indicating their value to people in various countries. You will be seeing some stamps that feature honeybees as well. Many beekeepers have collections of beekeeping related things. Stamps and coins take up far less space than big items such as smokers and bee hives. Coming up in future articles are things beekeepers collect.

We are getting close to being able to work bees. For those of you who have bees, I would suspect that you by now know if the bees have survived the winter season. Traditionally, many hives fail in early spring for various reasons. The winter 2024-25 has been hard on many of us hoping our bees would make it through the winter.

Let me say it is important to determine "Why they died."

- Queen failure
- Starvation
- Mites
- Poor management

THE COMMON REASONS ARE LISTED
HERE!

When inspecting a dead out hive, dead bees often are clustered between frames. When frames are removed some of the dead bees will fall to the bottom board. I always like to determine if the dead colony had a queen. Marked queens help beekeepers find dead queens as well as live queens.

This is a photo of a screened bottom board, the queen is spotted lying among a group of bees in a dead hive.



The marked queen is dead among her bees.

During the winter season bees always cluster around the queen and brood if it is present.

Finding the queen will at least answer the question of, "did the hive have a queen going into winter?" If no queen is found the question why the hive died can be answered with other details the comb and frames can reveal.

Let me start with poor management. Good management for bee survival begins in Late Summer when actions to prevent any of the above issues can be addressed. Time runs out on the ability of bees to replace queens, gather nectar and pollen, and keep the nest dry and well populated with bees. Once cold weather sets in, bees in trouble need help especially with the mite problem and food being available where they can use it. Deciding to combine weak hives is one way to help bees when one recognizes a colony in trouble. Let me say that anytime one decides to nurse a weak hive through the winter season - the result is usually not good.

Queen failure:

An interesting thing about queens is they are often replaced by their own bees in what is called the Emergency queen response. If one examines comb in frames, old queen cells where brood is usually raised indicate the bees tried to raise a new queen from worker larvae. Those cells could be emergency queen cells or Supersedure cells. Swarm cells are usually located on the lower parts of a frame.



These are old emergency queen cell cups built directly over a worker cell. Thus the bottom of the queen cell is a worker cell expanded to allow for the growth of a queen. These cells indicate that bees tried to replace a queen missing for some reason in the hive. If no queen can be found among a small population of bees at this time of the year, it might be reasonable to think the colony is on the verge of dying because the queen did not successfully mate – especially late in the fall. Result: No viable queen = no brood. No brood = no bees. It would be easy to see that the queen issue was responsible for the reduced bee population with no way to produce brood for the continuation of life in the colony.

Another possibility is a drone laying worker bee or queen:



A frame from a dead out hive may have a number of drones among dead bees and some drone capped brood as illustrated here. A colony may have honey stores but the bees may be either head first in cells or dead on the bottom board. This is an indication that the colony had laying worker bees and no queen going into the winter season. It is also possible that if a queen is present among the dead bees, she was a drone laying queen.

A small dead cluster may indicate something else besides queen failure.



This is a typical small cluster of bees that died. Note the lack of bee population and the lack of honey stores where the bees clustered to die. If no honey is near the cluster one might assume the bees died of starvation but the fact that the cluster is small is most likely it has something to do with disease – most likely the varroa mites. Check to see if you can find varroa mites on bees and if a queen is in the cluster – she is usually the last to die and is found in the middle of the cluster.



This is definitely not a case of starvation.



Check out the mites located on the bees with red arrows. Another indication of K-wings is shown by the blue arrow.

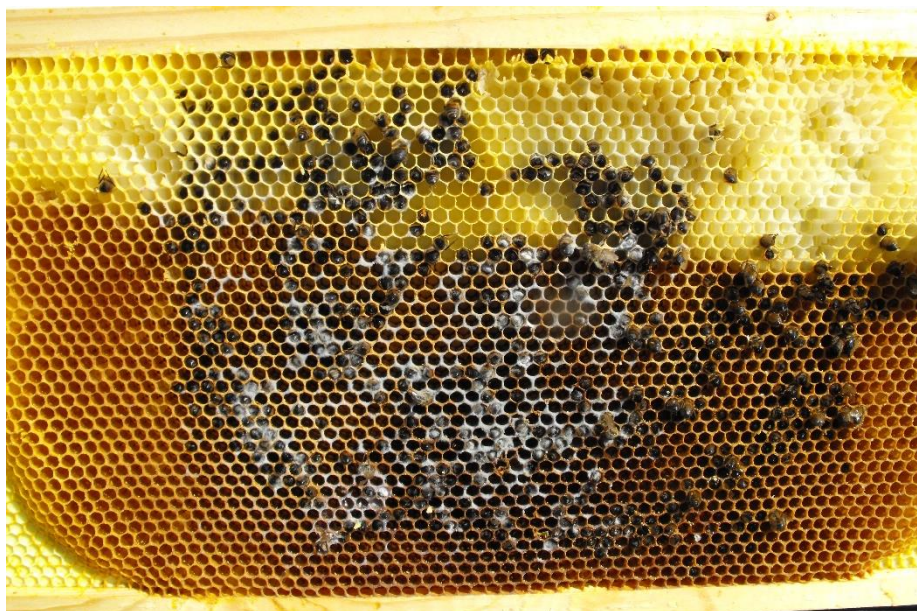
This is caused by high levels of infection of **deformed wing virus** (DWV), which is transmitted between bees in several ways: by trophallaxis, by mites feeding on bee larvae, pupae, and adults, and by vertical transmission from queen to offspring.

A new word to learn is **trophallaxis**. An action by bees which involves the exchange of food and pheromones which provide information about colony energy status and food needs between two bees. (From *The Hive and the Honey Bee* published in 2018 page 85).

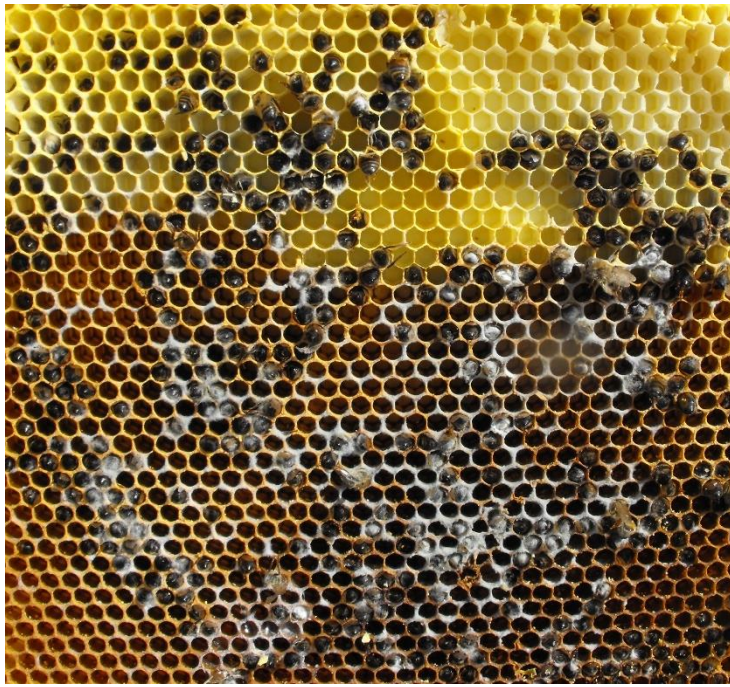


Honey Bee published in 2018 page 85).

Starvation:



This is a frame that held a large cluster of bees. Note the number of bees with heads in cells and the lack of honey stores. When this frame was removed from the hive body, a large number of bees fell off this frame disclosing this.



Note the large number of dead bees head first in cells and mold growing on the walls of comb and the dead bees. Moisture was in the hive but that is not what killed the bees.

They starved to death. With a large colony this was completely avoidable.



This is the clump of dead bees below the frame above. Simply put, it is a shame they died because it would have made a very good hive going into spring. A hive like this may have had honey in it but the bee could not move to it. All the honey close to the bee cluster had been used by the bees to stay alive. When it got cold the bees were unable to move to outside frames to get it.

I would like to point out hefting hives (lifting them to see if they have honey stores) is not the best way to determine if the bees are okay. Honey stores are really necessary when a colony begins to raise brood and in the above pictures that had not yet begun. So this colony died early into the winter season or was queenless when the honey stores were used up.

This last photo will illustrate a point:



Honeybees with brood during winter cover it to keep it warm 92°F. They will not abandon the brood to move the cluster to where honey is stored. Bees must move to honey stores and return to the cluster to remain alive.

Thus, it is very common to find dead colonies with a lot of honey stores but the honey is out of reach of the honey bees. **They die protecting the brood.** Honey stored in outside frames are of little use to wintering honeybees if they cannot travel the two or three inches to reach it. Food immediately above or next to the winter cluster will keep the bees alive and the brood protected.