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# *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.  
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#### **Welcome February & Dead Out Hives**

Winter survival has always depended upon:

- Does the colony have a laying queen?
- Does the colony have enough bees to maintain brood temperatures?
- Does the colony have sufficient stores to take it through the winter season?
- Does the colony have any disease issues?
- Does the colony have a dry protected home?

**I know several beekeepers who have given up after all their bees have died for the third straight season. How do I know who they are – easy – they have bee equipment for sale.**

**Fact: A colony of bees with high varroa mite counts going into winter is most likely not going to survive. Now is the time to discover that truth.**

There are periods of time when inspections can be made in February. The first question to be answered with an inspection is, are the bees alive. However, just because a hive has bees alive is not always a sign that everything is going well.

Second, since the introduction of Varroa mites into the U.S. over 30 years ago, it has been a challenge to keep bees alive. In fact, it wasn't that honeybees did not die over winter in years before they arrived. The list above is a guideline for making an effort possible to keep bees alive.

New beginning beekeepers and those having bees for a long period of time face a number of issues with keeping bees alive. With this article, I will try to provide some information to help one decide what went on within a colony that is on the verge of dying or has already died.

It is normal to see bees flying from the hive entrance on a warm day during winter – the temperatures are above 50 and the sun has warmed up the front of the hive. This sign gives one hope that the bees are doing okay. On the other hand, when bees are not flying from a hive on a warm period of several

days during winter something is not good. If one keeps bees long enough, they will encounter bee losses. I can look back to years in Ohio when colony losses might reach 25% of the hives owned. A good beekeeper was one who had less than a 10% loss. Times have changed!

Starvation and loss of a queen were the reasons most colonies did not survive the winter season. Some of the losses could be placed on poor beekeeping practices but even colonies with heavy winter stores still died.

It is easy to understand that when a queen dies during the late fall or during the winter season, the hive can not replace the dead queen because:

- 1) No drones to mate with the queen.
- 2) No brood is available during the time the queen dies.
- 3) And if eggs were available to raise a virgin queen, she could not mate.
- 4) Because the queen die, the hive does not dies immediately. It is a slow and gradual loss of bees.

The purpose of this newsletter is to help answer questions such as why a colony dies. I have had the opportunity to examine a few hives that have died. I have found some very interesting things to share with you.

It is easy to say the Varroa mites are the reason! Many years ago I was a speaker at a Michigan bee school and did a segment on "Why my hive died?" Beekeepers were invited to bring hives in that had died. It was an interesting session and challenging each time I spoke. Varroa mites were just something that we didn't worry so much about.



This is a classic picture showing a pile of dead bees below frames that held the winter cluster. Some bees could be found head first in the comb above this pile of bees as shown here.



This was a strong colony of bees that died from starvation. A check of frames near the bees clearly have no honey stores near the cluster. Often honey stores can be found in outside frames but the bees could not move to the honey stores. At very low temperatures bees cannot move to honey located as much as inches away. This is the reason for placing sugar syrup or candy above the cluster.

Starvation usually occurs after the queen begins laying eggs and food to feed larvae is used up at this time of the year.



When I find a dead colony of bees, I want to know why they died.

One thing I look for in a colony is the number of bees on the bottom board. In the age of the varroa mite, this is one very easy way to determine did the hive die from varroa mites or some other reason.

When bees die during the winter season, many drop to the bottom

board and plug up the entrance to the hive. This prevents live bees from using the entrance. Bee books often list cleaning the hive entrance as one of the tasks for winter management. Some honeybees die during the winter season --- that is a fact. They will be replaced by brood being raised in the colony during late winter. One can blame this loss on hive management. Had the bees been supplied with food in time, it would have been one strong hive going into spring.

Added to the various reasons colonies die during winter is varroa mites. This #1 reason for bees dying was introduced into the U.S. in the late 1980's. The mites have overcome many of the treatments beekeepers use to treat colonies to kill them. One thing about mites killing bees is when they do succeed in killing bees, they also die. Some colonies survive with mites and those survival mites then continue the destruction in coming years by spreading to other colonies. In fact, I would say what many others have said, "varroa mites can be found in any hive of bees" and are spread throughout the United States by those moving and selling bees. I will touch on treatment and methods one can use to deal with the varroa mite issue in upcoming articles. Almost any bee magazine since the 1990's has articles published on a regular basis about the varroa mite. Staying up with the latest products and research is important if you intend to keep bees alive.

### **Varroa Mites**

For honeybees, death is slow while during the winter season a cluster gets smaller and smaller. The bee population just shrinks down and disappears. Bees generally do not die in a hive – if old or sick they fly out of the hive to die. If a bee dies within the hive, other bees remove them – carry them out of the hive and deposit them away from the hive entrance.

I am not an expert on varroa mites. From what I read and learn, varroa mites are responsible for introducing viruses and viruses weaken bees and shorten their life span. When bees are in a tight winter cluster, virus can be spread quickly.

Thus, if asked what caused a colony to die, I look at the bottom board and look for a cluster of bees. A lot of dead bees below the cluster is an indication that the bees were unable to move and stayed in that one warm location as long as they could. As bees starve they fall directly downward to other frames or the floor board when they die.



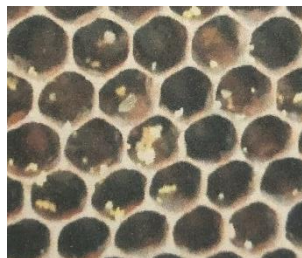
bottom boards of hives killed by **varroa mites**.

**Shown below are the bottom boards of colonies killed by varroa mites.**



Note that the dead bees are scattered on the bottom boards or do not exist on the bottom board. Wax capping and hive debris is present but a pile of dead bees is not present. You may also detect small hive beetles on bottom boards. The lack of bees is an indication that when the bees were about to die, they were not clustered to drop straight down from the cluster. A unique characteristic of varroa mite diseased bees with a virus is the bee leaves the colony to die. Thus, one can ask what happened to all the bees in a hive when only just a few are present on the bottom board. They are not in a cluster or head first in a cell.

A look at comb in the hive will also reveal some interesting signs left behind.



This is an enlargement of a one square inch of comb. Those white crystals are not wax, honey or crystalized sugar. Varroa mites defecate in cells. What you are looking at is irregular shaped, dry crystals stuck to the walls of the cells.



Another indication of varroa mites being the cause of this colony death is brood that dies in the later stage of development. Varroa associated viruses affect brood at the time they are about to emerge from their cell. If anything like shown below is seen, Varroa should be suspected as the vector that introduced something called parasitic mite syndrome into the hive. Some call this bald brood. (PMS) is one of the only diseases where bees die right as they are about to emerge.

All this indicates varroa mites are the cause of this hive dying.

This is a colony of bees dying from varroa-associated viruses.



It has a small population of very weak bees sick with various viruses. It may even have a very small queen.

It would be a mistake to put these bees – so few of them anyway – into another hive of bees. I consider a hive as shown here as lost.

This group of bees have plenty of honey stores. From what I have researched, the honey in these frames can be used to feed other bees or extracted for human use.

Some may ask what to do with them.

If you don't like the idea of killing them, place the frames they are on in a nuc box

isolated from all other bees. There was a small queen not laying eggs in this small cluster. In fact, the cluster is so small it could not maintain the heat required for larval development. I would not shake them off frames near other hives of bees. This quarter cup of bees will not make it thru to March. I would bet money on it. Viruses are spread from one person to another by direct contact. The same with bees.