

# Honey Bee Colony Hive Autopsy

- ☐ **When was the last time you saw the hive alive?** \_\_\_\_\_
- ☐ **What was the date of the last mite test?** \_\_\_\_\_
- ☐ **What was the mite load from that test?** \_\_\_\_\_

## Spring-Summer Death

- ☐ **Are the dead bees inside the hive?**  
Lots of dead bees inside the hive can indicate several things, including starvation, pesticide exposure, pests and disease.
- ☐ **Are the dead bees outside on the ground in front of the hive?**  
Many dead bees outside the hive can indicate several possible culprits including pesticide exposure, disease, pests, or viral infection.
- ☐ **Is there honey and pollen in the hive?**  
If there are not adequate stores, your bees may have died from starvation. Bees are often found with their heads buried in the cells.
- ☐ **Did the colony have a queen? Was she healthy?**  
Your hive may have lost its queen and was unable to replace her. An improperly mated or old queen will lay unfertilized eggs that become drones. Over time the population in a hive with a problem or missing queen will dwindle until nothing is left.  
**Signs that a colony might have lost or had an inferior queen are:**
  - no queen found along with the dead bees
  - no eggs or brood present
  - lots of drones, and/or
  - many emergency queen cups or cells
- ☐ **Does the brood look healthy? Is it discolored or melted? Does it smell?**  
A spotty brood pattern is common in failing hives. As adult populations decline, brood care is neglected. If the brood is discolored, melted or smells, it may be a sign that the brood died from neglect or something more serious like European or American Foulbrood. Look further at the brood. Does the larva “string out” if you insert a toothpick into the cell? Are cappings sunken and discolored? Your bees may have American Foulbrood. Send your comb in for testing at the USDA Beltsville Bee Lab and speak to a State Apiary Inspector. All equipment associated with American Foulbrood must be burned to keep it from infecting other colonies.
- ☐ **When you remove bees from cells are there mites in the brood cells?**
- ☐ **Do you see white crystals stuck to the top of the cell walls of empty comb?**  
White crystals that look like someone sprinkled salt into the comb are varroa feces. The feces combined with visual detection of adult mites means your hive may have suffered from varroa collapse.
- ☐ **Do adult bees appear with deformed and shriveled wings?**  
Bees with deformed and shriveled wings show symptoms of Deformed Wing Virus, (DWV) which is vectored by Varroa. DWV is associated with high varroa mite levels in the hive.
- ☐ **Are the bees hairless or greasy and black?**  
Hairless, greasy, black bees are the generic symptoms of one of the many viruses that honeybees have. Many viruses are associated with high varroa mite levels in the hive.

## Fall Death

☐ **Is there honey and pollen in the hive?**

If there are not adequate stores, your bees may have died from starvation. Bees are often found with their heads buried in the cells. Continue looking through the hive to rule out other possible causes.

☐ **Were there ample stores of honey/pollen recently that suddenly disappeared?**

☐ **Are the cappings where honey was stored ripped and jagged?**

☐ **Are jagged capping pieces littering the bottom board?**

Your bees could have suffered a robbing incident.

☐ **Did the colony have a healthy queen?**

Your hive may have lost its queen and was unable to replace her. An improperly mated or old queen will lay unfertilized eggs that become drones. Over time the population in a hive with a problem or missing queen will dwindle until nothing is left.

**Signs that a colony might have lost or had an inferior queen are:**

- no queen found along with the dead bees
- no eggs or brood present
- lots of drones, and/or
- many emergency queen cups or cells

☐ **Does the brood look healthy?**

A spotty brood pattern is common in failing hives. As adult populations declines, brood care is neglected. If the brood is discolored, melted or smells, it may be a sign that the brood died from neglect or something more serious like European or American Foulbrood. Look further at the brood. Does the larva “string out” if you insert a toothpick into the cell? Are cappings sunken and discolored? Your bees may have American Foulbrood. Send your comb in for testing at the USDA Beltsville Bee Lab and speak to a State Apiary Inspector. Combs and equipment may need to be burned to keep it from infecting other bee colonies.

☐ **Are there only a handful of bees, brood and the queen remaining in what was once a strong hive?**

This hive may have suffered from varroa collapse. Often when varroa levels get high, viruses sicken the bees. The sick bees will leave the hive to die, reducing the spread of disease to their sisters. Eventually the number of bees is too small to survive and the remaining bees die. Look for other symptoms of varroa to confirm.

☐ **Are there varroa on the bottom board or on brood removed from cells?**

☐ **Do you see white crystals stuck to the cell walls of empty comb?**

White crystals that look like someone sprinkled salt into the comb are often varroa feces. The feces combined with visual detection of adult mites means your hive may have suffered from varroa collapse.

☐ **Do adult bees appear with deformed and shriveled wings?**

Bees with deformed and shriveled wings show symptoms of Deformed Wing Virus, (DWV) which is vectored by Varroa. DWV is associated with high varroa mite levels in the hive.

☐ **Are the bees hairless or greasy and black?**

Deformed bees with stubby abdomens and missing or deformed wings may have deformed wing virus which indicates high varroa levels in a hive. Hairless, greasy, black bees are the generic symptoms of one of the many viruses that honeybees have. Many of them are associated with high varroa mite levels in the hive.

## Winter Death

☐ **Does the hive seem wet inside? Is there excessive moisture on the inner cover and walls of the hive? Is there white or green fluffy mold in the hive?**

One common cause of winter death is not cold but moisture. Bees in the winter cluster are very active (feeding, generating heat, rearing brood, etc.) and a by-product of this activity is moist air. Warm moist air rises and escapes out of the top of the hive. If there is no escape route, the water condenses on the inner cover and rains down on the bees, chilling them. Excessive moisture buildup can happen in a hive when the bottom entrance is blocked by snow or dead bees preventing bees from circulating the air properly or if there is not a top entrance that allows moist air to escape.

☐ **Is there a cluster of dead bees in the hive or are they scattered throughout the hive?**

If there is a single cluster, how small is it? If your colony was small going into winter, there may not been enough bees to create enough warmth to withstand cold temperatures. If you are seeing several small clusters spread around the hive it could have been a case of death by broken cluster. On warm days, bees will break cluster to move around the hive, feed, and take cleansing flights. If there is a sudden drop in temperature (30+ degrees in a couple of hours) the bees are sometimes unable to reform their cluster properly. Each of the small clusters formed are too small to survive the cold and die.

☐ **Is the dead cluster in a hive devoid of honey? Is the cluster separated from honey stores?**

Your hive may have died from starvation. A hive with no food stores likely died from starvation. Bees can also die of starvation in a hive with plenty of honey stores. This can happen if the weather has been very cold and the bees are unable to break cluster to move new honey stores or if the hive suffered a loss of adult bees in late fall/early winter and the small cluster can't generate enough heat to allow for movement to honey stores.

☐ **Are there brown or yellow stains on the outside of the hive, around the hive opening, and/or inside the hive?**

This could be dysentery or Nosema infection. Look for spores using a microscope or send your bees in to the USDA Beltsville Bee Lab for Nosema testing.

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☐ **Are the dead bees on the bottom board intact or are they ripped apart?**

☐ **Are there large sections of comb missing or damaged?**

You may have had shrews or mice in your hive. Mice and shrews feed on the bees in a hive, leaving behind the less tasty bee parts. Mice nest in hives and you will often find old nesting materials along with urine and feces inside the hive. You may even find the mouse. Shrews do not live inside hives but will visit daily to feed on the bees. Both mice and shrews damaged comb but in slightly different ways. Mice will chew through comb to make space for nests while shrews only chew the wax to the foundation and do not burrow through it.