Apis m. Esoteria 38

Winter Colony Inspection

In the mountains of Northeast Georgia where there are some winter days with the temperature in the 65° F range, sunny, and no wind:

Why would you want to open the hive in the winter?

What would you be looking for?

With the fluctuating temperature between October and February the cluster breaks up and the bees fly. There are short purging flights on some days and long foraging flights on other days. The results are the same. The bees expend energy and come home hungry. They eat more winter stores (honey and bee bread) than a colony in Minnesota.

This can result in the colony starving in January and February.

Best beekeeping practices have taught us to feed our bees sugar syrup (or some other honey substitute) to make sure there is enough honey to get through the winter (end of February). This is about 90 lbs. of stored honey.

Honeybees need two nutritional components, honey (carbohydrate) and pollen (for bee bread and stored fat in the "fat bodies"). We can feed powdered pollen substitute in a field feeder on any warm day the bees are flying.

Now the bees have a balanced diet. Is the food stored in a location close to where the cluster will be when it reforms on the cold night? The cluster might reform and remain so for a couple of weeks. Are the food stores above the upward moving cluster?

As an ambitious beekeeper it is hard not to look and see how the bees are doing. When the temperature is below 60°F (even below freezing) you can pop the telescoping and inner covers and look between the top bars to determine if you have a good cluster. Maybe you can even determine if it is alive. DO NOT break the cluster. It may be too cold for it to reform. The undisturbed area outside the cluster is the same temperature as the ambient air temperature outside of the hive. Leave the cluster alone and the bees won't even notice that you looked. It can be a little warmer on the inside of a wintering hive box because the sun is beating down on it raising the temperature. However, this will not be a lot hotter than the ambient air temperature.

With the temperature above 65° and windless you can disassemble the hive and inspect every aspect of honeybee life. Is the Queen still alive? The cluster forms around the queen. If she is gone the cluster will be irregular allowing the bees to "chill kill". Maybe they won’t all die at the same time but without the queen attracting the workers to her they all will

surely die before spring. A queenless cluster can be added to another hive on a day warm enough for the bees to fly. This heat allows the two clusters to join up. You don't need to be too careful about the joining up process because the queenless cluster has no pheromone memory of the old queen. Before the bees start to fly in the morning place the queenless hive body on the hive with a queen. As the cluster expands, they will join up.

Where is the food in relation to the cluster which is usually in the middle of the hive boxes? As the cluster eats food in the center of the warm cluster during the winter it gradually moves upward eating only the food directly in front of the warmest bees. On a warm day the cluster can loosen up and eat honey and bee bread a little farther out. They move up one inch and recluster as the night temperatures drop. If the temperature drops real fast some bees can be caught in the periphery of the frames and the chill will kill them. You will find these little satellite clusters dead when you inspect.

You can move food that is in frames 1 & 10 or 2 & 9 to the center of where the cluster will be when it reforms. You can also place frames in the center of the upper hive body where the cluster will be moving to later in the winter. You can move frames of honey from your already dead hives to the live colonies as extra food. Make sure the dead colony did not die from disease.

Winter feeding the bees in the center above the colony is the best location as that is the direction of movement of the cluster. You can adapt your telescoping/migrator covers by drilling a hole that will hold a canning jar with small holes in the lid. You can put an empty hive body under the outer and inner covers and place canning jars upside down on the top bars above the bees. You can use a 1-2" spacer and place zip lock bags like pillows ¾ full of syrup, on the top bar (with several small slits for the bees to lick the syrup through). I stay away from tray feeders and frame feeders because of the large amount of moisture they introduce into the hive in the winter. Bordman feeders are less than the best because the bees must travel down and to the front door during cool weather.

As the cluster moves up you must monitor so it does not hit the inner cover and stop feeding. You must have also removed your queen excluders back in August. If the cluster moves through a queen excluder the queen will be left behind and die. This can also happen when crossing the gap between lower and upper hive body. This does not happen often but can occur. When the beekeeper is extra hygienic and removes all the bridges the honeybees diligently made to help cross the gap, maybe the queen can't make it.

Bees will not produce honey below about 50° F. or less. Maybe the interior temperature of the hive rises above 50° for 2-3 hours on a sunny day. The bees might make some honey to

store but, they probably will eat 6 hours' worth of honey. So, your stored honey is still going down.

You want to look for obvious varroa mite symptoms. Crinkle wing virus is easy to spot. K-wing and black hairless bee virus stand out. Sick bees are not as industrious as healthy ones and they die earlier. When spring arrives, there are not as many bees left in the colony to start the spring build up. The colony either builds up very slowly or just continues to die.

Apivar strips are a good winter varroa mite treatment here in the mountains. It is a contact process that lasts about 6 weeks. On warm days the bees will walk around and rub on the strips.

Oxalic acid fumigation is a viable method of mite control in cool weather. If it is too cold and the bees are even lightly clustered the only bees being treated by the warm vapors are on the outside of the cluster. The treatment is over in 10 minutes. You have not killed very many mites.

Thymol, and formic acid jelly paddies don't work at under 65° F.

Sometimes you still have brooding in December and January. You think this is wonderful and the spring build up will be fabulous. It may not be a good idea to encourage this winter brooding. Creating a brood break is a natural way to help control varroa mites. Winter brooding also takes a lot of food for the small number of larvae. It takes 7 cells of honey to raise one larva. This may be just the amount you needed to get the colony through to the end of February. Stop extra feeding to induce a brood break of about 30+ days. Then restart the feeding in early February before the local weeds start blooming.