

Beekeeping information from: Philcrafthivecraft.com
Honey bee hive management

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Helping our bees make it through the winter

While it is possible for bees to prepare themselves for winter without the intervention of a beekeeper – feral colonies have been doing so for eons – with good management, beekeepers can make hives better prepared for the hardships of winter. And by doing our job as beekeepers, we can improve on the survival rates of managed colonies over that of unmanaged (feral) colonies.

So what can we do? The areas that experts agree are critical in honey bee colonies surviving through the winter are:

- Having a queen-right colony (having a viable queen)
- Having a strong colony population
- Having sufficient food stores
- Having healthy bees (as disease and parasite free as possible)

Details on these issues:

Having a queen-right colony (having a viable queen)

A colony cannot properly prepare for winter without a queen present and laying eggs in the fall. Bees that emerge in the fall, especially September and October, are crucial for the winter survival of that colony. The fall months are important for the rearing of young bees as part of the colony's winter preparation. These "fall bees" are the bees that we will see next spring. These are the bees that will beat that "six week" normal honey bee life span.

Do not worry about seeing the queen. The presence of eggs or even of young larvae is sufficient. They tell us that the queen was there and laying eggs very recently, and that is good enough. Seeing all stages of brood (eggs, larvae and pupae) is also an overall indication of colony health. Unhealthy colonies cannot easily rear lots of new bees. This time of year, I want to see a lot of brood in my hives.

Having a strong colony population

A colony should go into the winter with a minimum of about 20,000 bees. This is about a deep box full (all frames covered with bees) of bees. This colony strength allows plenty of bees for efficient clustering during cold weather and movement of the cluster to honey stores. Even in the best of circumstances, colonies will lose bees during the winter. A cluster that is too small at the beginning of the winter can lead to the loss of the colony. It is better to combine weak colonies in the fall. While it is possible to winter smaller populations of bees (I know a beekeeper who winters nucs in Vermont), this is trickier and requires balancing food stores, bee populations, and hive construction. So my advice is: Have AT LEAST a deep box of bees.

Having sufficient food stores

In Kentucky, honeybee colonies need about 50-55 pounds of stored food (honey or stored sugar syrup) by the end of the nectar flow early November. The amount of stored honey will be more if you live further north and less further south, ask other beekeepers in your area or your state apiary specialist or bee inspector. So how to estimate stored honey in your hive? Here are some *approximate* capacities of FULL frames of stored honey (sugar syrup is pretty much the same):

- 1 Deep Frame = 6 pounds
- 1 Shallow Frame = 2.5 pounds
- 10 Deep Frames = 60-plus pounds
- 10 Shallow Frames = 25- 30 pounds

Most beekeepers maintain colonies in hives using two deeps as brood boxes. It's easy to see from the above figures that a hive, with the top deep full of food stores, has close to sufficient food for the winter in the top box alone. But to know if your hive is increasing its food stores or has sufficient food stores, you **MUST LOOK** in your hives.

Having healthy bees (as disease and parasite free as possible)

Healthy bees live longer than unhealthy bees. The greatest threats to our hives are varroa mites and nosema disease. While I'm not high on preventative treatments for honeybees, I'm convinced that the danger from these two threats is extremely serious and warrants such treatment unless the beekeeper has 1) been monitoring for varroa, 2) has a high degree of confidence that the mite numbers are low enough to pose no problem, and 3) has had his or her hives tested for nosema disease with a negative result. High varroa numbers and nosema disease are major contributing factors in winter colony losses.

We have a number of products available for the control of varroa mites. Varroa mites have developed varying degrees of resistance to two of these products: Apistan and CheckMitePlus. For this reason, I advise avoiding these products. There is a newer generation of varroa control products that are effective and safer for our bees. Ask your state apiary specialist or bee inspector for advice or contact me for more information on this topic.

Fall is an excellent time of year to treat for varroa, but be wary of nonconventional treatment methods that are generally less effective. If you do attempt to control varroa by a method other than the application of a commercial varroa control agent, you must actively monitor varroa levels, both before and after treatment, to ensure that your varroa numbers are down.

Nosema disease: Nosema is a disease of the honeybee's digestive tract caused by a micro-organism. It is controlled by the antibiotic fumigillin (now sold under the trade name Fumigillin-B), which is purchased in powder form and fed in sugar syrup. Treatment is accomplished by mixing one teaspoon of the antibiotic in a gallon of syrup and feeding it to our colonies. Feed one to two gallons depending on hive strength. Do not mix it in hot syrup, and avoid leaving the syrup in sunlight or using in an entrance feeder outside the hive because fumigillin degrades when heated. See directions that accompany the medication. Fall feeding it is an excellent opportunity to control potential outbreaks of this disease. Fumigillin is the only proven way to control Nosema. Again, seek advice in your home state about treating for nosema, in Kentucky a fall treatment is recommended.