

# **BEEKEEPING INFORMATION**

## **Hive management**

Kentucky Dept of Agriculture, State Apiarist's Office

100 Fair Oaks, Suite 252

Frankfort, Kentucky 40601

Office phone: (502) 564-3956, cell phone: 502-330-0797

Email: [phil.craft@ky.gov](mailto:phil.craft@ky.gov)

State Apiarist's Web page: [http://www.kyagr.com/state\\_vet/bees/index.htm](http://www.kyagr.com/state_vet/bees/index.htm)

### **KDA State Apiarist Information sheet**

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#### **Cold weather feeding tips**

Cold weather will discourage bees from breaking their cluster and consuming sugar syrup. However, in Kentucky we often have brief periods of warm weather (above 50°F) throughout the winter, when we can do some emergency feeding of sugar syrup.

There are a couple of considerations to keep in mind when feeding bees during cooler. The first is to feed THICK syrup - "thick" syrup is two parts granulated sugar to one part water. If feeding high fructose corn syrup, feed it undiluted. Thinner syrup must be dehydrated by the bees, which is difficult or impossible for the bees to accomplish in cooler weather. And I recommend feeding inside the hive (especially in cool or cold weather), not outside the hive. Outside feeding is done with an open container or by using an entrance type feeder. Feeding at the entrance or open feeding often means that you're feeding bees from hives that do not need to be fed. Or you may be feeding your neighbor's bees or bees from feral hives – we're seeing a return of feral bees in Kentucky. A seasonal issue with feeding late in the year is that bees will more readily go to feeders inside the hive during cooler weather.

There are several varieties of top feeders sold by beekeeping suppliers, and these work well. However purchased top feeders are not cheap. A common "cheap beekeeper's" method of top feeding is to remove the outer cover, and place an empty (no frames) deep hive body or two shallow supers on top of the inner cover. Pail feeders (pails with holes in the top), or jars (any size) with small holes in the top on top of the inner cover, can be placed over the inner cover. Bees will go through the hole in the inner cover to the syrup. Raise the feeders or jars slightly with a couple of small pieces of wood (1/4" high) or small twig so the bees can get at the holes on the bottom of the container. You can also use entrance feeders (even several at a time) in this manner. Then place the outer cover on top of the empty hive body. Canning jars may be used as feeders, plastic tubs, purchased pail type feeders and use them in this way. I've known people to purchase new empty paint cans and use them as feeders. Beekeepers even use quail watering devices in this manner – similar to automatic chicken waterers, but smaller.

Jed Davis – Blue Grass Beekeeper Assoc. Secretary - advocates an even "cheaper beekeeper's" method. Jed uses zip lock bags (I would suggest gallon bags) filled with syrup, and placed directly on the hives top bars of the top brood box. Inside as described before, but with the inner cover removed and an empty shallow box is all that is needed. A razor bag slit is then made in the top of the bag. The syrup will not pour out, and the slit allows the bees to access the syrup. You can go to the website of Texas beekeeper John Caldeira (*John's Beekeeping Notebook*) for a photo and information on plastic bag feeding: <http://outdoorplace.org/beekeeping/feeding.htm>. John also has some other photos of feeding bees, and other beekeeping information, at his nice beekeeping website.

Another popular feeder are division board feeders which replace a frame in the brood box. With these feeders there are no jars to fill, and they are relatively inexpensive, \$3-\$4. Many beekeepers complain about drowned bees in these feeders. But you can minimize drown bees by placing small pieces of wood as floats in the feeders. And by placing the feeders in the bottom brood box, they can be filled by just moving the top brood box over slightly – just enough to expose the end of the feeder - and quickly fill them from a 5-gallon bucket. They hold a gallon of syrup, and several feeders can be re-filled in just a few minutes. I install these feeders in the fall, and remove them in the spring.

### **“Emergency” winter feeding of bees with fondant (sugar candy)**

I consider most feeding of bees, with the exception of feeding nucs or conducting what's called “stimulate” feeding in the early spring, as emergency feeding. (Stimulate feeding is slowly feeding a thin sugar syrup mixture to bees to artificially stimulate the queen to begin egg laying early in the spring.) We're better off in any season if our bees are able to collect enough nectar to meet their needs without feeding. But a lot of years Mother Nature just doesn't cooperate. Either the nectar is not available for them to gather, or we have a hive that is weak for some reason and doesn't have the bees to bring in sufficient nectar. In that case it is necessary for the beekeeper to feed the hive. Without a doubt, feeding during the cold winter months falls into the category of emergency feeding because of the difficulty of getting bees to collect the feed when it's offered, and of providing food in a form that they can utilize. In addition, when feeding honey bees during cold winter weather we are adding moisture to the hive, which may be harmful. The common methods of feeding syrup to the hive can be difficult (though not impossible) in the winter. To avoid the difficulties, beekeepers will sometimes make fondant, or sugar candy, for cold weather feeding. Fondant is made much like fudge or cooked candy. Here are a couple of recipes. Others can be found in beekeeping books or on the Internet.

*A small-batch fondant recipe: Mix 2 cups granulated sugar, 1.5 cups of water, 2 tablespoons corn syrup, and 1/8 teaspoon cream of tartar. Stir until sugar dissolves and continue to heat without stirring until the mixture reaches 238 degrees F. (Use a candy thermometer.) If you use bottled corn syrup from the grocery store, make sure it is “light” corn syrup, not “dark”. Dark corn syrup has molasses in it, which should not be fed to bees. Pour the mixture onto a cool surface and let it sit until cool enough to touch. Then beat the candy until it is thick and pour it into a thin container or mold, like a cookie sheet lined with wax paper, to harden. The candy can be broken up and placed over the inner cover. Alternatively, an empty honey super can be placed on top of the brood chamber and the candy placed on stick supports on the top of the brood bars. Some beekeepers will make a special small fondant feeder similar to an inner cover, but deeper (1 inch or more). The candy can be poured into this feeder and placed over the brood box upside down. Another recipe for larger batches calls for 15 lbs. sugar, 3 lbs. corn syrup, 4 cups water, and ½ tsp. cream of tartar. Make the candy in the same manner as the small-batch recipe. Cooking and beating are the keys.*

Another emergency winter feeding method often used by beekeepers is to place dry granulated sugar on the inner cover. Sometimes the bees will take it, and sometimes they will not. Sometimes they'll decide the sugar is foreign matter and will carry it out of the hive. This is definitely emergency feeding, but beekeepers have told me that they have saved hives from what they thought was certain winter starvation by offering them dry granulated sugar.

If you need further advice on feeding do not hesitate to contact me.

Phil Craft  
Kentucky State Apiarist

Kentucky Dept. of Agriculture