

## **Assessing colony health based solely on the level of ‘bee traffic’**

I encourage beekeepers to observe their hives from the outside on a weekly or even daily basis. There is useful information to gain by doing this. You may observe if your bees are bringing pollen or even catch a pesky ant invasion. It's also a good idea to make yourself familiar with what is ‘normal’ for your bees in terms of traffic (the number of bees flying in and out of the hive), also in regards to the number of dead bees near your hive. That way you can recognize any changes if and when they happen.

Despite these merits, observation from the outside is no substitute for hive inspections. Often if a problem is noticeable from the outside of the hive, it has progressed too far to be remedied. Inspections, when done properly, will catch problems early and give the beekeeper a chance to fix them before too much damage is done. Inspections also provide new beekeepers with the opportunity to learn. For that reason, I recommend that new beekeepers inspect their hives once every 2-4 weeks, but no more often than that. Inspections are stressful for bees and they disturb the carefully controlled atmospheric conditions within the hive. Many experienced beekeepers perform less frequent inspections on their older, more established colonies because of this. To a new beekeeper, this can sound like a catch-22, but I firmly believe new beekeepers should inspect their hives regularly for learning purposes and because it is likely that their colonies are therefore less stable because they are new and from an unrelated bee package.

This was my first big mistake as a new beekeeper and I do my best to make sure others avoid it. Many new beekeepers have the misconception that colonies that lose their queen will alter their behavior in such a dramatic way that it will be obvious that something is wrong. They observe plentiful bee traffic at the entrance, they inspect and find lots of honey and bees inside! They make the mistake that everything is going well, because they are not looking carefully at their bees. So what happens when your colony loses it's queen? At first everything will look normal to the untrained eye. The population will remain close to the same, bees will continue to forage, build comb and feed larvae. However, without a queen to lay eggs, your hive's population will gradually decline. The first sign will be a lack of

eggs, then a lack of young larvae, eventually your colony will have no brood at all. A beehive cannot survive without its queen. Every day worker bees will die of old age and they will not be replaced. The population will start to noticeably drop. You may see an increase in honey and pollen because without any larvae to care for the bees can focus entirely on foraging. If your colony is queenless for too long, they hit a point of no return. This is why I make all of my students learn to recognize eggs. Finding eggs in your hive tells you not only that you had a queen as of at least three days ago, but it tells you that she is laying! Her one, all-important function. I check for eggs every single time I inspect a hive and encourage all of my students to do the same. This one rule has saved so many of my students from losing their colonies.

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According to the Beekeeping equipment company, Dadant, once you know that your queen is out of her cage and released into the hive, you can check for eggs larvae with your mentor. You can check the colony again, 2-3 weeks after you have hived the package of bees. BUT you must continue to feed the colony sugar syrup during this time. So you will have to open the hive to check on the sugar water level and keep it consistent.

Sugar syrup is usually made in two different ratios depending on the time of the year. Light syrup or spring syrup is 1 part sugar to 1 part water by either weight or volume. Heavy syrup or fall syrup is made from 2 parts sugar to one part water.

The rationale behind these sugar syrup ratios is that light syrup is similar to nectar. The availability of nectar stimulates the production of brood in the spring, and light syrup tends to do the same thing. With a ready supply of nectar or light syrup, the workers will build comb and the queen will lay eggs. Some people advocate the use of 1 part sugar to 2 parts water to stimulate brood rearing, although this isn't as common as it used to be. Fall syrup resembles honey and bees tend to store it for winter. It is used in the fall if the beekeeper feels there is not enough honey stored in the hive to make it through the winter. One gallon of heavy syrup (2:1) may increase colony reserves by about 7 pounds.

It is important to use just plain white granulated sugar, not brown sugar, molasses, sorghum, or fruit juices as these all have impurities that can cause dysentery in bees. Confectioner's sugar has corn starch in it, which is also not good. Some older recipes recommend the use of cream of tartar (tartaric acid) to keep fall syrup from crystallizing, but this practice has been largely abandoned because it, too, may be bad for bees. Bee dysentery is not a disease caused by a pathogen but a condition caused by poor quality food. It appears as spots of feces around the hive entrance, or inside the hive, and is easily confused with *Nosema*, which *is* caused by a pathogen. The source of the plain white sugar doesn't really matter. Refined table sugar (sucrose) is a disaccharide derived from glucose and fructose, and has the molecular formula C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>. It is the same whether it came from cane or beets.

In the spring, discontinue syrup when the hive is strong and the nectar is flowing, when the bees lose interest in syrup, or when you install a honey super. In the fall when the weather gets cold enough, the bees will simply stop taking the syrup. *When that happens, remove the remaining syrup to prevent fermentation or moisture build-up in the hive.*

*Excerpts taken from "The Top 10 Mistakes Most Newbie Beekeepers Make"*

*by Hillary Kearney, June 14, 2016*