Maximizing Honey Production with Effective Spring Management

George W. Imirie, Maryland Master Beekeeper.*
Gleaned from an 1999 ABF Presentation in Nashville, TN

It is a well known fact that it requires about 42 days from the deposit of a fertilized egg by a honey bee queen to the point where a worker bee becomes a forger. Worker bee brood spend 3 days as eggs, 5.5 days as larvae, and 12.5 days as pupae before they emerge from the cell. For the next 21 days the average new bee works within the hive feeding larvae, cleaning cells, packing pollen, processing nectar, guarding the hive entrance, and so on. Only after these 42 days have elapsed do honey bees begin their foraging work. If nectar flow first occurs in, say, early-April, then brood production needs to begin at least six weeks before that -- by late February -- if there is to be the required number of foraging bees to bring in the nectar for maximized honey production. It is also a well-known fact that a colony of 60,000 bees will significantly out produce two colonies of 30,000 bees. This is due to the fact that the first 15,000 or so bees in a hive are required to service the queen, to nurse brood, and to perform the chores of housekeeping. With twice the number of colonies, there are twice the number of nurse bees. So, with one colony there are only 15,000 nurse bees (25% of total population), whereas with two colonies there are 30,000 bees (50% of the total population) tied up with nursing duties. With one hive there are 45,000 bees foraging; with two hives there are only 30,000 bees foraging. Which situation will yield more honey is clear. With this in mind, how can one maximize honey production? It's simple. Build up large colonies, but build them up in advance of the main nectar flow -- not on it!

Feed nectar and pollen substitutes early. The influx of nectar and pollen stimulate the workers to begin feeding the queen excessively which, in turn, promotes egg laying. Feeding 1:1 sugar water serves as a nectar substitute. Pollen substitute can be purchased commercially (Imirie suggests *BeePro,* and none other) and may be fed as patties placed upon the top bars. The powder of the substitute may be mixed either with 1:1 sugar water or with high fructose corn syrup. Liquid vegetable oils may be incorporated to keep the pollen substitute from drying out.

Work to avoid swarming. As noted above, one key to maximizing honey production is to have large colony populations. It is therefore imperative to control swarming. Swarming management includes reversal of hive bodies, timely supering, and keeping young queens. These practices have been described elsewhere. (See, especially, *Controlling Swarming: A Guide for Experienced Beekeepers* written by Carl Wenning and available from the author.) Requeen only during the fall if possible, around the time of Labor Day. By replacing a queen during the spring build up for the main nectar flow, the egg laying and brood rearing processes will be interrupted. This will, in turn, reduce the colony population and, consequently, the honey production.

Super early and to excess. Unripe honey, which contains a large percentage of water, requires much more space than it will occupy after it has been processed into ripe honey. If you suspect that your bees will produce three supers full of honey, then provide them five supers to store and convert nectar. Put your supers on by tax day -- April 15th. Put all your supers on at once to encourage nectar collection and to dissuade the bees from swarming. Early supering implies that you need to get required medications in and then out at least 30 days prior to supering for honey.

Install Imirie shims or openings in supers. An Imirie shim is inserted between every two supers, and is included at the top as well. These shims -- nothing more than a wooden frame of a queen excluder with the wire rack removed and a notch cut in one side -- are designed to provided openings for the foraging bees, and to reduce entrance way congestion without cutting holes into the wood of the supers and hive body. (The openings also allow for better ventilation.) A queen excluder (George is "a strong believer" in queen excluders) is positioned under the lowest super to keep the queen from laying eggs in the bridge comb that may be drawn out in the area of the shims. (Bridge comb is much less likely IF there is adequate supering.) As bees return to the hive with nectar, there is no reason why they should have to fight their way through the brood chamber to turn over their nectar load to the house bees. This only adds to the congestion of the brood chamber. Let those bees bringing in the pollen for brood production use the main entrance way. Reducing the congestion of the brood chamber will help to keep the swarming urge at a minimum. *Note that holes drilled in the ends of supers can serve the same purpose as Imirie shims without resulting in bees producing wasteful bridge comb. Such openings can be closed off with a cork when they are no longer needed or wanted.*

Use captured swarms to draw out foundation. Never put undrawn foundation in a hive used for honey production. Bees won't draw out comb unless there is an immediate need, and if they are in need of a place to store nectar, drawing out comb will be a real impediment to honey production. Drawing comb consumes inordinate amounts of time and honey (bees consume about 8 lbs. of honey to produce 1 lb. of wax), and slows down honey production. Use captured swarms that have the propensity for drawing out foundation quickly to create storage cells. After the comb is drawn, kill the old queen found in the swarm and replace it with a new queen, or else join the bees with another colony using the paper method. Without a doubt, the beekeeper's most valuable asset is plenty of drawn comb.

Put one hive in your apiary on a scale -- permanently. Watch for the first signs of nectar flow. An increase in weight of 15-20 pounds per day is a much better indicator of the beginning of the nectar flow than flowers on trees, bushes, and plants. Learn to distinguish swarm season from nectar season. Bees behave differently during these two times; they have different "modes." Bees are most likely to swarm immediately before the main nectar flow. Once the nectar flow commences, bees are much less likely to swarm. Bees have different behaviors during these times, and beekeepers must work the bees differently.

In the end, the goal of spring management is to help the bees do what they naturally want to do. They have a propensity for hoarding honey that can be taken advantage of if you learn to understand the bee. You'll really have to learn to think like a bee if you expect to maximize your honey production. As George Imirie says, you need to change from a beeHAVER to a beeKEEPER in order to optimize honey production. Of course, you will have no control over the weather and nectar sources, but these too can and do affect honey production.

George W. Imirie has been keeping bees since 1933. During this time he has managed to achieve an average of 132 pounds per colony per year. This is rather amazing in light of the fact that the nectar flow in Maryland rarely exceeds six weeks in length!

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* The above thoughts are based upon my recollection of Mr. Imirie's presentation, and my own understanding of beekeeping and its practices. If I have misrepresented Mr. Imirie's thoughts, it is only through my own fault. I accept full responsibility for any misrepresentation of facts and inaccuracies in the expression of Mr. Imirie's thoughts.