

## George's PINK PAGES

January 2002

It is a NEW YEAR, so some changes have been made. Let us start off with an INDEX of this month's PINK PAGES subjects:

### 1.) Reversing Brood Chambers

Perhaps the most important technique to prevent swarming, but it has to be started in February.

### 2.) Feeding: Why? When? What? How Much?

Many beekeepers just don't feed their bees. Are they uninformed, lazy, or too cheap?

### 3.) Which Month Do Most Bees Starve?

Many people guess January or February because it is so cold, but they are wrong.

### 4.) November and First Half of December have had 70F and 80F Days

Is this unseasonable warm weather good or bad for your bees and their winter stores of honey?

## Reversing Brood Chambers

Of all the many techniques and management systems used to prevent swarming, REVERSING THE BROOD CHAMBERS is perhaps the most important manipulation, but the time to do it is VERY IMPORTANT. In our Washington, DC area, I like to make my first reversal on the first day in February when the temperature exceeds 50°. YES, I said February!

WHAT is "reversing" the brood chambers? During the course of the late fall and winter (November through March), the cluster of bees in the lowest brood body slowly move UPWARD into the top brood body, leaving the lower brood body empty. For some strange reason, when the queen has no more egg laying space in the upper body, the bees either stop the queen from laying or they swarm rather than going to the empty lower body to lay. Bee scientists cannot explain this characteristic, but know it exists. In these cool months, even though the bees can fly outside on warmer days, bees just want to keep their brood area moving UPWARDS, rarely down. Hence, a "smart" beekeeper helps his bees by reversing the positions of the almost-full top brood body with the empty lower brood body. This does not require moving individual frames, but just switching positions of the brood bodies.

How many reversals are necessary in a season? There are many, many variables

involved here, e. g., what size brood bodies, hive population, weather temperature, race of bees, queen fecundity, food availability, etc.; and therefore, one cannot say "reverse every 2 weeks", or "once a month". Reversals are made WHEN NEEDED. The hive population is extremely important, because there must be a large number of bees to protect the brood from being chilled. I use ALL MEDIUM bodies (no deeps), and the 2nd reversal is usually about 3 weeks after the first reversal, whereas reversals done in April or May might be needed as often as 10 days apart. If you use deep bodies for brood and make the first reversal in February, you will probably make a total of 3 reversals before the nectar flow is strong in May. If you are using medium bodies, 6 5/8", you will probably make 4-5 total reversals.

What does one have to be CAUTIOUS about? NEVER REVERSE WHEN THE OUTSIDE TEMPERATURE IS BELOW 50F. You don't dare "split the brood", or some of it will chill and die. What is "splitting the brood"? If brood is in BOTH the top body and the lower body, DON'T reverse because the brood will be split away from being close together into two "islands" of brood wide apart, one island close to the bottom board and the other island close to the inner cover. Wait a few more days until you find 90%-100% of the brood in the top body and almost zero brood in the lower body, and then, REVERSE.

There are many people who just "can't be bothered to do all this reversing" in the cool months of February and March, and then WONDER WHY their bees did not make a sizable honey crop while nearby beekeepers enjoyed a record breaking crop. In our Maryland area, our nectar flow starts quite early, about April 15th and is almost always over by June 1st or June 10th. Gathering as much as 20-25 pounds of nectar per day to make a high yield honey crop requires a LARGE number of FORAGING AGE bees (FORAGERS, not just bees). A foraging age bee is a bee older than 19 days old! The gestation period of a worker bee is 21 days, and it spends the first 18 days of its life doing hive duties, mainly being a nurse bee of the brood larvae; and does not go out foraging for nectar or pollen until it is 19 days old. 21 days gestation period plus 19 days of hive duty equal FORTY DAYS between the time its egg was laid and foraging. Therefore, if you want a foraging age bee ready for foraging at the start of a major nectar flow on April 15th, the queen had to lay "it's" egg 40 days prior to April 15th, meaning before MARCH 6th! March 6th! March 6th!

One might say: "All the above is very nice, but how do you get a queen to lay eggs in the cold of February and early March? Bees do not use calendars, but their actions are predicated by the weather conditions. When the skunk cabbage, alders, and maples start producing pollen in late January, followed by a small amount of weak nectar from maples or dandelions, these are signals to the bees that spring time is just around the corner; and that means nectar collecting to make honey for next winter's survival and that require a tremendous number of worker bees to gather that nectar. Hence, the worker bees start heavy feeding of their queen to produce large quantities of eggs, plus cleaning and polishing of thousands of brood cells for the queen to lay eggs in. Again, the "smart" beekeeper helps his bees by "tricking" them in the belief of an early spring by feeding them a light sugar syrup, 1 pound of sugar in 2 pints of

water, and adding a teaspoon or so of pollen substitute to the tops of brood frames. The worker bees interpret this light sugar feed and pollen substitute as the real thing of nectar and pollen, and get "Mother Queen" rapidly laying eggs in cold February.

Reversing brood chambers plus feeding egg laying stimulants sugar and pollen substitute is a very positive way of increasing brood production and heavy colony population which is the basic key to making a large honey crop, provided that the colony does NOT swarm. What else is necessary to help prevent swarming? Of course, we now know that a major deterrent to swarming is to have a queen that is less than 12 months old. Another swarm deterrent is to have super space on the colony for nectar storage that relieves the brood chamber of being crowded with stored nectar. Having a young queen means requeening the colony every year, and I personally prefer to do this every September 1st rather than stress my bees in the spring and interrupt honey production. However, having just one super of drawn comb on the colony ahead of the major nectar flow is a good insurance policy against swarming. However, so many people complain that the bees won't go through the queen excluder to make use of the super, and some unknowledgeable people have even referred to a queen excluder as a "honey excluder". They are unknowledgeable because they don't know how or just refuse to "BAIT" a super so that bees will not resist going through a queen excluder to get to the super. Baiting a super is very simple! On April 1st, set a super directly on the top brood body WITHOUT a queen excluder, and inspect it at the end of a week. After you find two or three frames of that super partially filled with something, either nectar or maybe brood, make sure the queen is back in the brood chamber and add a queen excluder under that super, because the super is now baited and the bees will freely go through the excluder now to do their jobs. Of course, you should have an upper entrance in the front edge of the inner cover so that forager age bees can come and go from the super without having to travel through the queen excluder causing congestion in the brood chamber, or you might use an Imirie Shim if you do not have an upper entrance slot in the inner cover. I use BOTH: an Imirie Shim between supers #1 & #2, a second Imirie Shim between supers #3 & #4, and an upper entrance slot in my inner cover, so my foraging bees have can come and go to the supers via 3 entrance holes without ever going through the brood chamber area. I put the first super, the bait super, on about April 1st and add another 4 supers of drawn comb on April 15th. I don't stop the continuous feeding of light sugar syrup until April 15th when I add the 4 supers, because the nectar flow should take over now.

If you do all this help for your bees, reversing, feeding artificial nectar and pollen, providing plenty of super space EARLY, and having a queen, you have lessened the chance of swarming and greatly enhanced the production of a superior yield of honey. Isn't that what you want to do?

Of course, we still have those who say: "Ma Daddy didn't do all that stuff"; and they are probably correct, but Daddy's bees rarely produced more than 25-50 pounds of honey per season instead of the 120-150 pounds/year that my bees normally produce.

With pound jars of honey selling for \$3.50 or \$4.00 each, that 120-150 pound

yield sure looks better to me than a 25-50 pound yield. Like leading a horse to water, it is up to him whether he drinks or not; so I have explained REVERSING in great detail, now the rest is up to you.

Don't just HAVE bees - be a PROUD beeKEEPER!

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Feeding: Why? When? With What? How Much?

You have to eat, don't you? Your dog has to eat, doesn't it? Your car has to "eat" gasoline, or it won't run. Cockroaches eat your birthday cake crumbs unless they are cleaned up. Varroa mites "ride around" on worker bees and feed on the bee's "blood", injuring the bee. Even germs and bacteria have to feed to stay alive. When anything doesn't get fed, it becomes weak or sick, and can no longer work very well or it dies.

MUCH TO OFTEN, a colony of honey bees does not get fed by the beekeeper and it gets weak or dies. Package bees, a swarm, a nuc, or a split is put in a hive of foundation and the bees are expected to make that foundation into drawn comb, and the beekeeper provides them with a pint of sugar water - ONE PINT! Bees have to consume 8 pounds of honey to make 1 pound of wax. TOO MANY beekeepers believe that nature is going to provide enough nectar that the bees can do all of this work without any supplemental feed. Can bees gather nectar in cold weather, rain, nighttime, or during a dearth? If you want the bees to produce honey for you, don't you think that you owe them the feed to help them build the comb (furniture), a large population of workers to get through the winter, something that contains Fumadil-B to prevent Nosema disease, and some Back-Up food stores in case the fall nectar flow is meager? Have you forgotten that bees positively will not build comb (draw foundation) without a nectar flow, or an artificial nectar flow of sugar syrup? Are you in good spirits when there is "nothing to do"? Don't try to requeen a hive when the bees have "nothing to do" like out foraging, so you feed bees when you try to requeen. Brood rearing requires a tremendous amount of feed to raise all those eggs and larvae into adult bees, so if you want your queen to heavily lay eggs, feed your bees!

Basically, when you want your bees to do something that you have dreamed-up and it did not come to pass naturally, like requeening, building foundation into comb, getting them to eat certain medicines, or increasing their population, FEED THEM and feed them long enough to get the job done.

Starting a new colony in April with a package of bees is a good example. That colony is going to require the building of at least 20 deep frames of foundation into drawn comb that will hold a minimum of 70 pounds of honey to get it through the coming winter, and all this work will require a large population of bees to get it done. Yet beekeeper after beekeeper only feeds this new colony maybe one jar of sugar syrup. The proper way to prepare a really strong colony is to feed it CONTINUOUSLY, WITHOUT STOPPING, from the day it began in April for another 4 months into

September! You might even get some foundation drawn for supers. This might require about 50 pounds of sugar which costs about 30¢/pound or \$15. Isn't building a real strong colony ready to really produce a large honey crop next year worth an extra \$15, rather than have a pitiful weak colony that might not make it through the winter? Are you a beeHAVER or a beeKEEPER?

WHAT do you feed? Just plain table sugar is by far the best feed you can use. Any thing else, such as honey, high fructose, coke syrup, left over candies, molasses, or you-name-it might have disease germs like Foul Brood spores, or starches or indigestible minerals that give a bee diarrhea. Just plain sucrose (table sugar) dissolved in water is absolutely the BEST feed. Someone is going to ask: Why not honey that they made themselves, and hence it is their "favorite" food. Honey is NOT the favorite food of a bee! Honey is an emergency food used in the winter when no nectar is available. NECTAR, which is a watery solution of primarily SUCROSE (table sugar) is the favorite food of a bee!

Sugar syrup can be made up into three different strengths, and you use different strengths for different purposes and at different times of the year, as follows:

- 1:2 - 1 pound of sugar dissolved in 2 pints of water is primarily used as a egg laying stimulant for the queen in late winter and early spring
- 1:1 - 1 pound of sugar dissolved in 1 pint of water is primarily used as an artificial nectar to get bees to build comb and feed brood larvae in spring and summer
- 2:1 - 2 pounds of sugar dissolved in 1 pint of water is a winter feed substituting for honey in the fall or early winter

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### Which Month Do Most Bees Starve and Why?

Records show that more colonies of bees die of starvation during the month of March than any other month, with February running a close second. Many beginners think that January is the most difficult month because it is so cold, and the bees have to eat more honey to keep warm. That is not true, and what is the reason that March is so bad?

Bee scientists have investigated this for 200-300 years, and all have shown that bees actually eat practically nothing during November, December, and early January when they are generally tightly clustered to maintain body warmth, and there is little or no brood being raised during this time. But when the queen starts laying eggs in January, brood rearing requires a lot of "heat", because the brood nest must be kept at a temperature of 91F-96F for the queen to lay eggs, and feeding all those thousands of bee larvae for 6 days when their weight increases from 1 milligram to about 100 milligrams each requires a tremendous amount of feed. By the time March gets around, the queen is laying at an accelerated pace, maybe 1500 eggs per day, and this means the bees have to warm a much larger area brood nest to 91F-96F and feed

a tremendous number of larvae each of which increases its egg weight 100 times in 6 days. There is a tremendous use of food supplies in February and much more in March; and there is very little nectar available in March to replace that stored winter honey.

If you remove the telescoping top cover of a colony during the winter months and you see a large number of bees through the inner cover hole, immediately begin to be concerned that the colony is SHORT of honey stores, because the bees should not have eaten honey that far up in the colony before the spring nectar flow. Immediately (not tomorrow) put a feeder of sugar syrup over that inner cover hole. On the next day (not the next weekend) that the temperature is over 50F, take off that inner cover and inspect the frames in that top body for stored honey. If the outside frames have honey, but the center frames are almost empty, switch these frames. When it is cold and the bees are clustered, bees will NOT move to the outside frames for honey, but starve to death on the center frames. A bee cluster moves UPWARDS in a colony like smoke in a chimney, and does not spread out sideways.

Why do I insist that you do something IMMEDIATELY, or the first day the temperature is over 50F and NOT wait for a weekend? 24 hours may be the difference between live bees or dead bees, and if they died because they were short on stored food, it was not an Act of God or an unusual cold spell, but rather, IT WAS YOUR FAULT! You killed your bees, because you did not have a full 70 pounds of honey in the colony by December 1<sup>st</sup> for them to get through the winter!

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#### 70 and 80 degree Temperatures in December!

I was removing the last few strips of Apistan from my colonies during the first week of December when the temperature hit 80F, and I found frames with open brood in quantities the size of my hand! Is this good or not good? It is good to have nice young new bees going into the cold winter, because they will have a longer life span to warm the brood nest when the queen starts heavy laying in February. However, it is bad to have weather warm enough to have brood, because it opens the door to female varroa mites to lay new mite eggs with the bee larvae, and these new adult mites will feed on the new adult bees during the winter. This unseasonable warm weather plays havoc with the winter feed stores for the bees, because it is brood rearing that uses so much stored honey. KEEP A CLOSE EYE ON YOUR WINTER FOOD SUPPLY.

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