

'Bout a 100 – Sideline Beekeeping

SUMMER NUCLEUS HIVES AND PRE-WINTER MANAGEMENT

Success Means Attending To Details Before, During And After . . .

Larry Connor

Last month I went into detail about the preparation of nucleus increase colonies during the peak swarm season for your area. This month we will concentrate on one beekeeper's application of this theme that gives you details of this process. This will give me a chance to discuss the role of nighttime temperature and how you go about making decisions on when to make up increase colonies.

In mid-May I dropped by the Lake Shore Beekeepers Association meeting in North Judson, IN for a Spring Field & Nuc Clinic. The meeting was held in a park directly across the road from the home of Scott Pajor, a 50 ± colony sideline operator with hopes

of growing the number of colonies to a full-sized sideline operation of 200-300 colonies. He showed the members how he makes nucs, and the simplicity of the system is just as I discussed in last month's article.

The day before the meeting Pajor checked the hive he planned to make increase from and discovered that they were actively producing queen cells for swarming. It was, of course, mid May and the statistical peak of the swarming period for Northern Indiana. It was at the end of the fruit bloom and there were many different plants in bloom. Pajor had been capturing one or two swarms a day. He removed the colony's queen and installed her into a hive of her own

in order to save her. While this is not what he had planned, it gave him a hive with lots of queen cells for the demonstration.

Pajor starts out with an empty hive body (he uses deep frames) with a screened bottom board attached. He had both frames of drawn comb as well as frames of foundation. Since he is in an expansion period in his beekeeping, and had been catching swarms, much of his extra equipment, including new hives, had already been put to use.

Here's a photo essay showing beekeeper Scott Pajor's method of how to set up late Spring and Summer increase.



Indiana beekeeper Scott Pajor discusses his method of making increase colonies with the members and visitors at the Spring Field & Nuc Clinic sponsored by the Lake Shore Beekeepers Association. If you live in the area from Chicago, IL to Grand Rapids, MI, including northern Indiana and southwestern Michigan, contact Dave Laney at 574-276-5278 or davelaney@kconline.com. This is a relatively new organization that has been meeting in different areas of the region every month or so.



Pajor had selected a strong colony with bees in two deep hive bodies as the donor of an increase nucleus. Since he found queen cells the day before, and had removed the queen from this hive, he did not need to search through the combs. There is, of course, an excellent chance that the hive has a queen that has emerged and is prepared to leave with a swarm. However, since Pajor found the old queen and the queen cells were just sealing, he was probably able to catch the hive a day or two before the old queen left with a prime (first) swarm. As these photos show, the colony had a large bee population, and brood was in both hive bodies.



Working from one side of the brood nest, Pajor minimizes the disturbance to the colony while it is working the spring flow. Here he is inspecting one of the frames he will add to the increase colony.



Pajor moves the first frame he has selected to the its new home. This frame contains sealed queen cells and brood of a variety of ages, but most of the brood was older larvae approaching the sealing stage. This balances the brood age of the next frame, which contains older sealed brood.



Pajor moves the second frame from the parent hive to the increase unit. He has selected a frame with good honey reserves at the top of the comb, and a solid brood pattern in the center of the comb. Much of the brood was near emergence, and there is good bee coverage on this frame.



This is a food frame containing capped honey and open cells of pollen. This provides the increase colony with adequate food on days it is unable to forage, and will guarantee colony growth. As the pollen is removed by the nurse bees and consumed to make brood food to feed developing larvae, the cells will be polished so the queen will lay into them. New beekeepers must not think that frames are always used for the same function all season. The bees maintain a very dynamic method of optimizing comb for the needs at that moment in their development. As colonies expand they will consume stored honey, then use the cells for pollen storage (which needs to be very close to the brood area for full utilization), and then be used for brood rearing. As the season ends the reverse may happen, with last worker bee emerging in the late Summer, then used for pollen storage, and finally used for honey storage for the Winter.



Once all the combs used in the increase colony have been removed from the parent hive, Pajor inserts frames with drawn comb or foundation for the strong colony to draw out and utilize for brood production or food storage, as needed by the hive. He keeps the placement of the frames at the same location where the brood and food frames were removed. Pajor is on a program of replacing comb every five years, so each hive body needs to have two new frames added each season.



Pajor uses screened bottom boards as part of his mite management plan, and has fastened this screened bottom board to the increase colony. While it would be okay to leave the colony like this for a day or two, it is better to fill the spaces to the left and right of the three frames of bees with frames of drawn comb. This will allow the bees and queen to quickly expand into the comb. If you do not have drawn comb, you must add foundation in frames. The bees will have to work harder to build the comb, but new increase colonies often do a fine job of building worker combs.



Every beeyard visit has something you can learn from. Here old roofing material has been snatched from the landfill and is being used as a labor and chemical free method of controlling weeds in front of the colonies. Also note the hive stands; they get the hives off the ground and out of any standing water. It also saves the back from so much bending. The stands sit on cement blocks.



Pajor adds the third frame to the increase colony. He has found an outside frame of pollen and stored honey on this frame. As described above, the bees will be able to use the resources on this frame and then use the comb for brood rearing.

I spoke to Pajor a few days after he set up this colony. He reported that he had not moved the increase colony, yet is still had a good population of bees. This is good. It means the bees that were moved with the combs were primarily young nurse and house bees and not old field bees. Older bees that have had flights are likely to return to their home where they have carefully orientated. If the colony had been extremely weak, he could have added additional bees by shaking them from the brood frames onto the front of the hive. Or he could have added a swarm that he caught to the colony. That would give the colony a laying queen from the start, and would not need to wait for the queen to develop, mate, and start laying.

How cold is it tonight?

Springtime buildup in beehives is more dependent on nighttime temperature than many of us want to know. If the nighttime temperature is in the 20s and 30s (degrees F) most evenings, it is very difficult for the bees to build the brood nest rapidly. More experienced beekeepers have seen entire frames of drawn comb filled with eggs in a day or two. If the temperature in the brood nest in such a rapidly expanded colony is stable, then the colony will explode in size. But if the colony is weak, in a cold exposure location, or subjected to cold nighttime temperatures, it will be hard for the colony to develop. The instinct of the bees is to expand rapidly when seasonal factors are in agreement.

A colony of bees generates its own heat, and a large colony will keep a standard hive body or two warm when the temperature drops. And if the combs and stored honey are also



Pajor positions the combs so they are the proper distance from each other. He positions the brood in the center of the box so it is able to expand in both directions. Last month I described a method where the brood is put at one side of the hive body. I'll get back to this matter at the end of this photo essay.

warmed by colony metabolism and daytime temperatures, there will be a lag time where heat is released over the evening hours, perhaps enough to protect those fragile eggs and young larvae.

For this reason beekeepers like Scott Pajor make up early Spring increase colonies stronger than they do with late Spring and Summer colonies. In late April and early May Pajor will make up increase colonies with five frames of brood and food. This helps insure better stability overnight, so when new bees emerge the colony can support and equalize temperatures days and nights.

Bees enter clustering behavior at 57/58°F. I add about 15° for small colonies and 20 degrees for large colonies and add that to the temperature at night. If the temperature reaches 42° at night, I would expect even the smaller colony to survive without any affect on the brood production.

But if the temperature reaches 20° during the rapid Spring buildup and stays there for hours, I'd expect to see considerable brood loss in expanding Spring colonies, especially smaller, rapidly growing colonies that have gambled with expansion. Even with the additional 15-20° due to colony metabolism, we will have temperatures inside the hive of 35-40°F, forcing the bees into cluster and off the brood combs at the outside of



The final arrangement of combs in the new increase colony shows the use of newer combs and solid frames. From the top the combs are: Food frame with honey and pollen. Frame of sealed and ready to emerge brood with honey stored at the top of the frame. The older larvae close to sealing with a newly sealed queen cell. If there were not queen cells, a beekeeper could add a queen cell that was locally produced, or add a queen from any number of sources. Pajor used a combination of drawn comb positioned next to the brood and bees, and then filled the empty space in the hive body with frames containing foundation. Adding combs of drawn comb will make it easy for the colony to expand during the nectar flow, but because he is short on such a resource, he adds a bit of both to average things for all his new colonies.

the colony.

Well, we had 30° weather after the meeting in Indiana. Pajor had the same weather, and was pleased that the low temperatures did not hurt the colony shown in the photos. Perhaps it was the short time period of cold exposure – even eggs can take some cooling. But it is risky to exposure bees to extremes in temperature, especially those small increase colonies. It is another reason to make up colonies when the weather is warmer and more stable. Then our tropical bees can grow unimpeded.

Heat conservation is a factor in how you position frames of brood within the hive or nucleus box. When a deep or medium hive body is divided into two parts, the brood should be placed against the common wall. This conserves heat of both small colonies by creating one thermal cluster. When the temperature is warmer at night, and the brood rearing is rapid, a placement in the center of 10 or eight-frame equipment allows the bees to expand in both directions while keeping a solid thermal core. **BC**

Dr. Connor's books, including Increase Essentials, are offered for sale through many bee supply dealers, and at his website, www.wicwas.com. A PayPal store is available on that site for those who want to have the convenience of purchase via this option.