



by JAMIE ELLIS

Gahan Endowed Associate Professor
of Entomology
Honey Bee Research and Extension Lab
Dept of Entomology and Nematology
University of Florida
jdellis@ufl.edu
www.ufhoneybee.com



Inspecting Your Newly Installed Colonies for the First Time

I shared how to install packages and nucs in my April 2015 article. Quite frankly, that is the easy part. The work begins once you put the bees in the hive. For all the parents out there, keeping bees is not as difficult as raising children, but it is the same principle. Babies are easy to raise, before they are born. The work begins after they are born. Colonies are the same.

Your new colony needs attention. Of course, you could ignore the bees altogether. After all, bees have done a good job at “keeping” themselves for thousands of years. However, times have changed. The honey bees we keep face a number of pests and pathogens that they do not host ordinarily. Furthermore, the various environments where we keep bees may not favor their survival. Finally, honey bees face a number of stressors, stressors that require beekeeper attention. All of these issues must be addressed by you, the beekeeper.

It is important to know what to look for in, and what to do for, your new colonies. The colonies should be inspected about one week after installation, every two weeks for a couple of months, and then as needed thereafter. What follows is a checklist of sorts, one that can help guide your early colony inspections. These are items that one should look for or things that you should do when working newly installed colonies for the first time, about one week after colony installation. Consider this your first inspection checklist. The checklist is not exhaustive, but it does include most of the pertinent inspection considerations.

1) The new colony should have normal activity at the hive entrance. This simply

means that bees should be coming and going from the nest entrance (Figure 1) in a manner that is appropriate for the time of the year and comparable to activity levels of other colonies. In early-to-mid spring, colonies should have a lot of activity at the nest entrance, unless weather conditions are



Figure 1. The entrance of the hive. The number of bees flying at the nest entrance of a newly installed colony should be comparable to the number of bees flying at the nest entrances of other colonies in the apiary or consistent with that which would occur ordinarily at the given time of the year (i.e. more flight activity in spring, less in winter, etc.).

otherwise unfavorable for bee flight. Comparatively high colony activity occurs into summer, but tends to wane as nectar and pollen resources become scarce. Flight activity decreases significantly in mid fall and through winter.

2) There should be no, or only a few, dead bees at the hive entrance. A large number of dead bees at the nest entrance (i.e. 50+ dead bees) can indicate that the colony is struggling in its new environment. It could mean that the installation process damaged the bees. It also could mean that bees from neighboring colonies are trying to rob the new colony, more on that in point 3. Regardless, bees in new colonies should experience normal mortality rates, at least mortality rates consistent with bees from other, neighboring colonies. Incidentally, there is a cohort of bees in the nest whose job it is to perform undertaker services. These bees carry the dead bees some distance away from the hive. Consequently, there should never be a large number of dead bees at the nest entrance unless the undertaker bees are not doing their job or unless the colony is being robbed heavily.

3) There should be no robbing at the hive entrance. Robbing occurs when nectar resources are low in the surrounding environment. Strong colonies in search of nectar/honey may begin to infiltrate weaker, neighboring colonies in an attempt to rob the nectar/honey available within. Robbing manifests itself at the nest entrance as bees attacking one another. Furthermore, robber bees (bees from the robbing colonies) fly around the hive and look for other ways to get into the hive. For example, they may cluster around the seams between supers,

around the hive lid, or around any external hive feeders. Newly installed colonies are particularly vulnerable to robbing behavior and should be protected. To reduce robbing behavior: (1) reduce the colony entrance to restrict robber bee access to the nest, (2) make sure that the outside surface of external feeders is kept free of syrup, (3) minimize the length of time spent working colonies, (4) seal all cracks/crevices around the nest, and (5) be willing to move the hives if robbing does not cease.

4) Any external feeders present on the hive should be checked for the level of feed they contain. External feeders are useful because one can monitor syrup use in real time and easily provide more syrup without disturbing the colony. On the other hand, external feeders are more prone to incite drift, especially if their outside surfaces are sticky. Internal hive feeders often hold more feed, minimize the occurrence of robbing, and come in a variety of styles. However, they take up hive space that otherwise could be devoted to combs and can only be filled when a colony is opened. Regardless, hive feeders need to be monitored frequently in newly hived colonies.

5) Bees should blanket the tops of most of the frames in newly installed colonies (Figure 2). Of course, it may be a few weeks before a new colony's population increases. This is especially true for hives created from packages, given that offspring from the new queen have not begun to emerge. Despite this, there should be bees on the top bars of most frames when the nest is opened. Do not expect the top bars of all frames to be covered fully by bees. This is an unreasonable expectation. Instead, one should be able to see bees on and between most frames when viewed from above. The number and density of bees on the frames, when viewed from above, should increase from the outermost to the innermost frames, more or less uniformly.

6) Similar to point five, a removed frame should contain a lot of bees per side of frame



Figure 2. The brood chamber of the newly installed colony when viewed from above. Notice how bees blanket the tops of the frames in the hive. In fact, bees are present on all frames in the nest.

(Figure 3). The number of bees on frames in the center of the nest likely will be two or more times that of frames on the edges of the nest. It is important to remember that the bee population in colonies created from packages tends to decrease before increasing significantly, this because the new queen's offspring have not emerged. Thus, it is common to see a shrinking population in colonies started with packages, especially over the first two-to-three inspections.

7) The outermost frames in the brood chamber should contain stored nectar/sugar water and pollen. Furthermore, you should see bees in the nest with pollen on their hind legs (Figure 4). The bees deposit this pollen into cells, where it is processed into "bee bread" (Figure 5). Generally speaking, bees store more pollen and honey on the outer-

most frames than they do in the innermost ones. They should already be doing this, even after just one week of being in their new hive. This may occur more slowly in colonies started on foundation rather than ones started on pulled combs.

8) The queen should have been released from her cage and accepted by the bees in the hive (Figure 6). This is less of a problem for colonies started from nucs. Presumably, the nuc came with a queen that the bees already had accepted. Colonies started from packages, on the other hand, are different since their queen and bees were unrelated and the queen had to be introduced into the colony. Typically speaking, this means that the queen was in a queen cage from which the bees in the colony had to release her. This should have occurred by the first week's inspection. It is not necessary that you find the queen at first inspection, only that you find eggs (point 9 below). However, the colony's population will only increase from this point onward, meaning that it will never be easier to find the queen. Accordingly, now is a good time to refine your queen-hunting skills.

9) Eggs and young larvae should be present in the cells. Regardless of how the colony started (as a nuc or package, on foundation or pulled comb), the bees should have readied cells in which the queen laid just minutes, hours, or a few days after colony installation. The egg stage lasts three days and the larval stage lasts about a week. There should be at least eggs present in the hive even in the slowest of growth conditions (i.e. where the colony was hived on foundation, had to construct comb and release a caged queen). Eggs, young larvae, and older larvae can be seen in Figure 7. Colonies started as nucs should have capped brood (Figure 8) whereas colonies started from packages should not, even in the best of circumstances. The stages of bee development from egg to capped brood takes longer than one week.

10) There should be no queen cells pres-



(l) Figure 3. A deep frame removed from the outer edges of the brood chamber. It is covered by a number of bees one would expect to see at this stage in colony development. (r) Figure 4. A forager worker bee with pollen on her hind legs (just up and left of center). The worker is flanked by drones on her right (entire drone visible) and left (drone's head is visible).

ent in the colony. The new colony should have no reason to produce a queen unless there is something wrong with the one they have. If queen cells are present, you should check to make sure the queen (1) is present, (2) is laying, and (3) otherwise appears healthy. If these conditions are met, all queen cells present should be removed from the hive and discarded.

11) Newly installed colonies should not have any unchecked diseases or pests. As I noted in my April 2015 article, package bees are less likely to be accompanied by the suite of bee-affecting pests/pathogens than are nucs. This is because packages come only with adult bees. However, nucs can be infested/infected with just about anything that can impact a honey bee since they start out as fully functioning, complete hives. Consequently, it behooves the beekeeper to do a colony health screen at the first inspection so that any problems can be identified and corrected while the colony is “young” and growing. Generally speaking and given the right conditions (copious amounts of incoming nectar and pollen), the growth rate of new colonies tends to outpace that of pests and pathogens. The pest exceptions to this rule include *Varroa* and small hive beetles. The former is always a threat to colony health while the latter is particularly good at overwhelming weak or small colonies.

12) Now is a good time to treat for American foulbrood (AFB) and *Varroa*. While new colonies should be inspected for all pests/pathogens (point 11), they should be treated for American foulbrood and *Varroa* while they are young and the pests/pathogens are easy to control. Every beekeeper takes a different approach to pest/pathogen control. In principle, *Varroa* can be eliminated from colonies started as packages. This is because the *Varroa* are present exclusively on the adult bees and have not migrated into the brood. *Varroa* go into brood cells containing older larvae. Packages usually have to release their queens the first 2 days after installation. Even if the queen is released the first day upon installation, the



Figure 5. Stored pollen (bee bread) in cells. Given the right conditions, a newly installed colony can find and store adequate amounts of pollen in just a few days.

larvae are only about 4 days old one week after installation. Thus, all the *Varroa* will be on the adult bees as there are no older larvae in the colony. A well-timed *Varroa* application will eliminate many, if not all, of the *Varroa* present in the hive. This is not the case in colonies started from nucs since nucs include capped brood where *Varroa* are hiding and reproducing. Regardless, it is always a good idea to treat for *Varroa*, if necessary, when the colony is created.

American foulbrood should be addressed at the first and subsequent colony inspections. It is the only pest/pathogen that you never want your colonies to get. All of the other pests/pathogens can be subdued by proper management once the colonies have them. However, AFB cannot. Once you have it, your colonies and the equipment they are in should be destroyed. As such, I always tell beekeepers that they should con-

sider a preemptive strike against AFB. This is the only pest/pathogen that I am comfortable recommending a chemical treatment in advance of having the problem. It is best if the beekeeper gets the pathogen under control early, rather than find out that they inherited the pathogen on bees or in equipment they purchased.

13) Colonies can be hived on pulled combs or on foundation. “Pulling” is a term beekeepers use to describe the process of bees constructing comb on the foundation. I suppose it is meant to invoke the image of bees “pulling” wax cells out from the foundation. “Pulled comb” is the complete comb that bees have constructed on the foundation. Most new beekeepers do not have any pulled comb at their disposal so they are forced to hive the bees on foundation. Even nucs may be installed into hives containing four-to-five frames of foundation. Most beekeepers installing packages and nucs will feed the nucs until the colonies have begun to grow or until a major nectar flow begins to happen. It is wise to feed bees upon installation, especially if foundation is added to the new hive. Regardless of how the bees are receiving carbohydrates (nectar coming in from the outside or by you feeding sugar water/corn syrup), the bees in the nest should have begun pulling the foundation. Colonies started from packages are quick to begin pulling foundation, especially if foundation is all that was provided to the new colony. Colonies that have not started pulling the foundation by the first inspection may not have access to an adequate carbohydrate reserve and, thus, be unable to pull the comb. This may be a sign that the colony needs to be fed. It is important to note that colonies started on some pulled combs, such as colonies created from nucs, may use the pulled combs exclusively for a few weeks before expanding to the frames containing foundation flanking the pulled combs. This is normal and should not be cause for alarm. That said, colonies started exclusively on foundation should have begun pulling some comb, even a few days after installation.



(l) Figure 6. A queen bee surrounded by her retinue of attendants. This queen has been accepted by the bees in the colony. (r) Figure 7. Eggs, milk brood (very small larvae floating in a pool of brood food), and older larvae developing in the cells. The presence of these bee developmental stages suggests that the queen is present, healthy, and doing her job..



Figure 8. Capped brood (the prepupal and pupal stages of bee development) in the new colony. Bees cap (cover) the cells of developing immatures with a brown wax. Capped brood should be present in newly installed nucs but not within one week of installing a package.

14) Make sure there was no significant drift from the new colony into other new colonies in the same apiary. It is common for new colonies to be disoriented at first, especially if created and located close to other new colonies. This is particularly true for colonies created from packages. Package bees often drift to other hives immediately after installation into their own hive. There are a number of reasons for this behavior. It is only important at the moment, though, to understand that it happens frequently. This can lead to overpopulated colonies (those receiving the bee drift from other colonies) and underpopulated colonies (those donating bees to other colonies). This can be a problem and may indicate something went awry at colony installation. If significant drift did occur, consider spreading the bees out from the strong colony(ies) into the weaker one(s). This can be accomplished by moving frames of bees or capped brood

from the stronger colony(ies) to the weaker one(s). I often "equalize" (the process of making the bee populations in multiple colonies uniform) new colonies by moving two colonies (a weak one and a strong one) to the other colony's stand: the weak colony goes where the strong one was and *vice versa*. This helps both colonies.

15) New colonies should be fed upon reassembly after the first inspection is complete (Figure 9). Depending on the size and type of feeder used, it is possible that the colony will have needed to be fed three-to-four days after installation, i.e. a few days before the first recommended inspection. Consequently, feeding bees at colony reassembly can be up to the third time the colony has been fed (the first at installation, the second around 3-4 days post installation, and the third at the end of the first inspection). I cannot overemphasize that new colonies must be fed in the absence of major nectar



Figure 9. Jar feeders ready to be filled with sugar water (contained in plastic jug on left) and given to colonies.

flows. The absence of a carbohydrate source at this point in the colony's life may cause the colony to reject the nest provided by the beekeeper. This is especially true with colonies started from packages and hived exclusively on foundation. Generally speaking, new colonies should be offered sugar water at installation and as long as needed afterwards. Make sure that the feeders, if externally placed, are not sticky after filling them; otherwise, you may be inviting robber bees to the hive.

Conclusion

I find new colonies to be both fickle and forgiving. By this I mean, some colonies, for whatever reason, simply cannot seem to establish while others defy all odds. The good news is that the vast majority of newly installed colonies survive and reach maturity. Colonies in expansion mode and provided with the right resources can grow very quickly. Be ready. I hope that the information I provided in this article will help you care for your newly installed colony.

BEE POLLEN
Low Moisture

10 lbs.	\$71.00
50 lbs.	\$325.00
100 lbs.	\$625.00
250 lbs.	\$1500.00
500 lbs.	\$2900.00
1000 lbs.	\$5600.00

FOB Auburn, NE

DRAPER'S
SUPER BEE
402-274-3725

Beekeeper's Protective Clothing

Quality made in England since 1968

SHERRIFF

The "Original" **bjsherriff.com**

Sherriff's Clearview Veil Honey Rustler Jacket

USA Supplier:
Sacramento Beekeeping
info@sacramentobeekeeping.com
Ph (916)451-2337

Manufacturer of Fine Beesuits for Optimum Performance