

But Won't They Fly Back? Making Nucs Within a Single Apiary

By Zachary Lamas

A lot of beekeepers are making nucleus colonies. Even more ask, how do I make them? Then, like everything in beekeeping, a plethora of different answers are hurled at the inquiring beekeeper. Worries and concerns are heaped on, complicating the situation far beyond the beekeeper's original question.

To be fair, there are a lot of different ways to make nucleus colonies, typically referred to by the abbreviated "nucs". The methods used often stem from an underlying philosophy



A queen excluder is placed atop a parent colony. Generally colonies with a good population are selected. We will be pulling nurse bees from the colony below. Weak colonies may not have enough bees to give up for the process, so choose a strong colony.

or beekeeper's belief. Whatever methods you use one question comes up often enough. I only have one bee yard. "How can I make a nuc without all the bees flying back to the original hive? Can I make a new hive in the same yard without moving the new colony to a new location?"

Of course you can! And the process is very simple. In fact, if you're a new beekeeper, who has difficulty finding the queen, there is a method that eliminates the need to look for the queen. And if you have a busy work schedule or are worried about waiting for queens to come in the mail, no worries. We're going to make Doolittle nucs.

Many beekeepers have heard of the Doolittle Method to make queen cells. I wish just as many knew of his method of making nucleus colonies. This is a simple process of placing frames of brood without any adult bees into a nuc box. A queen excluder is placed on top of a parent colony. The nuc box with brood and no adult bees is then placed on top of the excluder. Over the next several hours nurse bees will pass through the excluder to cover the unattended brood. Later the nuc is removed with the adult bees to eventually become a standalone colony.

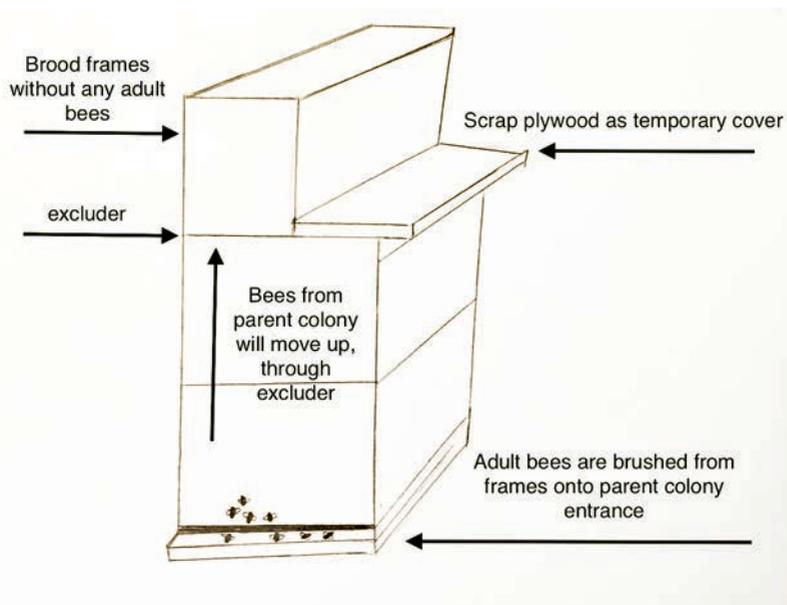
The simplicity lies in this fundamental aspect of bee behavior: *brood will not be left unattended*. This is so fundamental to bees that I'm sure it's on the list of 10 Bee Commandments. The developing larvae need a lot of things. They need to be attended and fed. They also need to be kept warm.

The brood nest is regulated in hot and cold weather conditions to be around 35C. Young nurse bees are there to do all of this; they supply food and provide the warmth to the new developing bees.

So what happens if I violate this commandment of the bee world? Well, Doolittle did it and created a great nuc building method. If all the bees are brushed off a frame of brood and this frame is then placed back in the hive, then the adult bees are going to quickly cover the unattended brood. The same thing happens if I place the uncovered brood in a new box, and then place this atop a queen excluder on top of the original hive. The nurse bees will pass through the queen excluder to attend our brood frame, especially if there is open brood.

I use this method when I need to make colonies in the same yard they will eventually stay in. Bees orientate to their original hive. If we move a colony a few feet away, the bees will continue to orientate to the original location. Many of us have heard the beekeeper adage, 2 feet or 2 miles. This is pretty good advice. If a hive is moved 2 miles, then all of the bees will re-orientate to the new location. If the colony is moved two feet within the same yard, then the bees will fly to the original spot, and then zip over two feet to their colony. No issues.

If the colony is moved 20 feet away in the same apiary, the bees will orient to the old location, eventually making larger and larger concentric circles trying to find the colony. It gets



This diagram shows the basic set-up of the Doolittle method of nuc making. The adult bees here passed through the excluder to cover the unattended brood. Later I remove the nuc from the parent colony. The amount of nurse bees in the nuc was regulated by the colony, not me. This gives me a lot of confidence making new colonies.

messy. But we want to make a new colony and keep it within the same yard. How do we do that? The bane of every new beekeeper is to open a nuc they previously made, only to find the majority of adult bees returned home to the parent colony.

Luckily, young nurse bees preferentially attend brood. Because we mostly



Here a nucleus colony was placed atop a parent colony. All of the adult bees were brushed from the frames inside the nucleus colony. The nuc is completely devoid of adult bees. Over the course of several hours nurse bees will pass through the excluder to cover the unattended brood frames. The queen is isolated below the excluder. When I remove my nucleus colony, I have no worries that I accidentally pulled the old queen. An additional nuc box or spare piece of wood can be placed as a temporary cover.

draw nurse bees through the excluder, most of the adult bees in a nuc made with this method will stay within the new colony, regardless of how far you move it in the same yard. Once established as a separate nuc, the adult bees will establish a division of labor. It may take a day or two, but some of the nurse bees will age precociously into the role of forager, bringing home fresh pollen or nectar.

MAKING THE NUCLEUS COLONY:

What you'll need: queen excluder, nuc boxes or an extra 10 frame box, extra inner and outer cover, possibly some short boards or an adaptor board that allows a 5-frame nuc to be centered on a 10-frame hive, extra frames.

1. Step one is to find the frames you need for your nuc. You'll want a honey frame. The nucleus colony has to have some food stores. A frame of larvae is needed, and a frame of capped brood. I like to make mine with at least one of these brood frames mixed, so it has open cells, eggs, larvae, or nectar. The fifth frame is up to you. If you want to make the nuc stronger, then take another frame of brood.
2. Now brush all of the bees off these frames. That's right. We don't want any bees on them. Look for the queen first. If you see her then place her back into the hive. If you

don't, no worries. Shake or brush all of the adult bees back into the parent colony. Set these frames into your spare box for now.

3. You need to replace the 5 frames you've removed with either empty frames or foundation. Do this now, keeping the brood in the center and frames of foundation on the outside edges.
4. Place a queen excluder on top of the parent colony.
5. Place your box of brood frames without any adult bees on top of the excluder.
6. Put the hive cover back on.

In several hours there will be plenty of young bees that passed through the excluder to care for the brood. I usually wait 6 hours, and often don't even come back until the next day. When I do finally come back, I will lift the cover to find the brood I originally left uncovered now densely covered with nurse bees. Nurse bees from the parent colony sensed unattended brood. They passed through the excluder to cover the brood, and decided for themselves how many bees were necessary. I'm always pleased to find a calm, dense bunch of young bees filling my nuc.

When I first began making nucleus colonies, I was worried I was putting in too few or too many adult bees. Simply put, I did not have enough repetitive experience in making nucleus colonies to know how many adult bees were sufficient. I made some nucleus colonies too strong; they are more prone to reject introduced queens. I would make some too weak, and find myself stealing bees from other hives later on to boost them up.

Our final steps:

7. Remove the nuc box and all the bees above the excluder from the parent colony below. Place the box on its own bottom board. This is your new nuc that can now be placed in its permanent spot anywhere in your bee yard.
8. Remove the queen excluder from the parent colony and replace with an inner and outer cover.
9. Introduce a new queen in a queen cage to your new nucleus colony. Replace lid.

The new queen can be added in confidence. All of the adult bees were brushed or shaken from our frames, and then placed above a queen excluder. The queen from the parent

colony is below the excluder. She was not able to pass through the excluder into the nucleus colony. The worry about missing or not being able to find the queen is eliminated.

Additionally, our unattended brood largely attracted young bees. Nurse bees accept new queens readily. One day I had set off 20 nucs using this method and then drove to a friend's house to buy 20 queens. I got back several hours later. I decided to pop all of the corks at once in the shade. As I was doing this bees started covering the cages to feed the new queens. I was about 20 feet from the nucs in the shade of my pickup, but they had found me and the queens. By the time I was introducing the queens the nurse bees were covering the cages, sticking their tongues through the screen to proffer food. It was a heartening experience.

I understand many beekeepers don't have the luxury to make beekeeping their daily occupation. For many finding time to get into their colonies is a scheduling stress. For most of us the 9-5 work schedule alone bites into the prime beekeeping time. Add in the daily commute, childcare and errands and this leaves many of us as weekend beekeepers, but even that time slot has competition.



I wanted to requeen this nucleus colony and make new nucs from it. I didn't have quite enough time to do the work all at once. I placed the excluder on the bottom box. I shook all of the bees from the rest of the hive onto the hive entrance. To facilitate the reentry of bees, I placed a plywood bridge in front of the hive. When I came back the next day, I was confident the original queen was isolated in the first brood box, and I could make nucs with everything above the excluder.



Because of the open brood, the nuc pulls lots of nurse bees through the excluder. This provides adequate bee coverage and I can pull the nuc and place it in a new location in the same apiary. The nurse bees will not abandon the brood and within a day or two, the bees will adapt and some will precociously start foraging.



In the foreground is an open cell builder. In the background to the right are production colonies with nucleus boxes on top. The five frame nuc boxes did not fit perfectly, so I used duct tape to temporarily cover the open gap. It worked beautifully, and hours later I removed these nucs to quickly make 20 new colonies.



On top of a parent colony is a Doolittle Nuc. To the right notice an unpainted nuc box. This colony was started in the same manner. Because nurse bees are predominately harvested, they tend not to fly back to the parent colony when removed. They will continue attending the brood.

Many new beekeepers are bombarded with personal doubts. There are a lot of “firsts” being a beekeeper. We worry about missing the queen, how to make sure enough bees are in the nuc, etc. And many new beekeepers are balancing the seemingly endless amount of misinformation that is available, trying to do the right thing,



You can make stronger nucs by simply adding more brood above the excluder. Here I was attempting to see if this could be part of my swarm control. I placed many brood frames in ten frame equipment from one colony, and set them above an excluder on a different colony. Notice the left two frames are not covered with bees. That is because those two frames are just foundation.

but not always knowing what is good advice and what is bad.

I really want to encourage using this method as a way to ease the stresses that can arise when making nucleus colonies. Whether you’re new to the nuc making process or you simply don’t have another bee yard to move a new colony to, this method simplifies everything. I think, most importantly, you can do it on your schedule. Not all of the steps need to be done in the same outing.

For example, the nucleus colony does not need to be made the same day in which it is elevated above the queen excluder. I was waiting tables when I first started making nucleus colonies, and always short on time. Often I would place the nucs above the excluder one morning and then go wait tables. The next morning I would have ample time to pull the nuc off, and add a new queen. This might be the case for many readers. If you feel your beekeeping is constrained by a busy work schedule, then follow these steps, but break them apart over several days. Each step can be performed in a short outing if that is all your schedule allows. Which brings me to my final topic: waiting for queens to arrive.

I’m a proponent of new beekeepers purchasing their queens instead of trying to make their own. It is far more efficient installing a mated queen than waiting for a new queen to emerge, mate and start to lay after doing a full walk-away split. This usually means that the queen will be coming in the mail.

Undoubtedly the question arises, when do I make my nucleus colony? Do I wait for the queens to arrive or can I make them ahead of time? If you’re in a time crunch, waiting for the queens to arrive might seem unnerving. There’s always the chance the queens will be delayed during shipping. If you make the nucs ahead of time, then the bees will have started emergency cells. Using the method described above, there is some built-in flexibility. You can set this up before the queens arrive in the mail, and then simply remove the nucs when the queens arrive. If the queens are delayed in shipping, then your nucs are simply waiting above the excluder. And if you decide you don’t need a nuc after all, because you caught a swarm, you can just pull the queen excluder and change the nuc box into a 10-frame box, letting the hive recombine into a single unit.

There is one problem that arises using this method. Most beekeepers have five frame nuc boxes. Two nuc boxes placed side by side are wider than standard 10 frame equipment. There will be a gap where the nuc boxes overhang. If you only place one nuc box on top of the parent colony, then you won’t be able to put the original lid down to close up the hive. Notice in the section under materials it says you might need some short boards. These are to cover up the spaces created by putting together mix-matched equipment.

Doolittle had a special inner cover made, a convergence board, designed for this problem. Essentially it was an inner cover with the center cut out and replaced with a queen excluder. Two shim boards, exactly the width of a five frame nucleus box, were secured on the top. Now both the parent colony and the nucleus colony above are closed up without any gaps. I use duct tape. Quite frankly, it is quick, and works great with a thin piece of cardboard. The colonies are in this configuration for a short period of time. I don’t fuss much over it. When only placing one nucleus colony on top of the parent colony, I lay a scrap piece of plywood over the extra space. If it needs to be secured, I hold it in place with a stone. It’s not pretty, but it’s honest in its simplicity. And that is what beekeeping, and farming, are all about. If you plan to make nucs one at a time regularly and you like things nice and neat, you can purchase or make an adaptor. It’s called a nuc introduction board.

Good luck with your nuc making adventure. This is one of the easiest and simplest methods, especially if you are new to making nucs. If you’ve been keeping bees two years, it’s worthwhile to always have a nuc or two on hand. They are perfect if you need to boost a weaker colony in the fall, fix a poorly laying queen problem, and all sorts of other uses.

Zachary Lamas recently joined the vanEngelsdorp Lab at the University of Maryland to pursue a PhD. Previously Zac worked for French Hill Apiaries, managing honey and nucleus colony production, while simultaneously running Sun Hill Farms, his own 300 colony operation. Zac has a passion for biodynamic farming systems, and operated a mixed-use farm focused on free range animals and crop production in New England.

