

“Doing a job RIGHT the first time gets the job done. Doing the job WRONG fourteen times gives you job security.”

— Stephen Hawking

For most of us in Piedmont North Carolina, the main nectar flow ends in June. If we have been good boys and girls, we should get a mini flow in September/October that will provision our colonies for winter, but otherwise our honey collecting is over for 2020. We should now convert our “potential harvest” into a “real harvest”, storing all of that honey away in a place that is safe from robber bees, Small Hive Beetles, human honey thieves, contamination with inferior fall honey, etc. Removing the supers will also allow us to apply post-flow Varroa mite treatments, if necessary. See May 2018’s [“Summertime Space Management”](#) for even more reasons to get your valuable surplus honey off of the hive now instead of leaving it on for no good reason.

What to harvest

All kinds of people keep honey bees, and many do not realize that honey is fundamentally flower nectar that the bees have processed to make it last a long time. If you have been feeding your bees sugar syrup while honey supers have been on the hive, then you do not have genuine honey. You have what we call Funny Honey. It isn’t honey at all. It is dehydrated sugar syrup. It is typically pale yellow and doesn’t have much of a taste, other than “sweet”. It would be fraudulent for anyone to sell this as honey. But it is terrific bee food so keep it for them. You can extract it and feed it back to the bees later but never sell or give it to others as if it were honey.

When to harvest

As mentioned, the end of the main nectar flow, usually sometime in June, is the time to harvest our Piedmont honey. But that’s not the whole story. The honey should be fully cured, i.e. at the right water content, before we extract. According to the USDA’s [United States Standards for Grades of Extracted Honey](#), Grade



My extracting “assembly line” is carefully arranged to reduce motion and the chance of honey spills. From the top left are full supers, the super being emptied, my uncapping tank and my 9-frame motorized extractor.

A or B honey must contain no more than 18.6% moisture; Grade C must have no more than 20%. For USDA purposes, there is no minimum amount of moisture – it can be as dry as it is possible to get it – it just cannot be too wet. We know that wet honey (wetter than 18.6% moisture) is much more likely to ferment than dry honey. In this case, it isn’t nice mead-making fermentation; it is nasty rotten-honey fermentation. You don’t want it and neither will anybody else, including your bees.

How do we know whether our honey is fully cured? A simple way that often (but not always) works is to rely on the good sense of the bees. When things are going as planned, they shouldn’t cap honey that needs to be dried further. So if the vast majority (80% or more) of the honey cells are capped, that may mean that you are good to go.

Often, not all honey cells on a frame are capped. Sometimes, my bees seem to get bored with the whole process and leave large sections uncapped. If the honey has a glassy sheen, maybe it is dry enough even though it isn’t capped. In this situation, the shake test can provide a clue as to whether the honey is ready to extract. Hold a frame horizontally over a piece of newspaper or similar surface and give it a strong down-and-up jerk. If the nectar rains on the paper, it is too wet. But if it refuses to budge, it is probably alright.

The rule-of-thumb tests often work but at my bee yard they also have failed me on several occasions. The best way to ensure that honey is ripe is to use a honey refractometer, either a relatively inexpensive optical one or a fancy, high-dollar electronic version. Use a toothpick to draw some honey out of a cell and test it. Sample several cells. If it is wet, it needs more drying time. At about \$60 for an adequate hobbyist refractometer, it will more than pay for itself if it prevents the loss of a single bucket of honey.

When buying a refractometer, make sure the model you are getting is calibrated specifically for honey, not wine, beer or saltwater aquariums. The honey ones work on the end of the scale where there are lots of solids and a little water, whereas the other types operate on the exact opposite end.

I've been frustrated by colonies that seem to have lost all interest in drying their honey, some taking many weeks to do so, if ever. While it is possible to reduce the moisture content using fans and dehumidifiers, it is a lot of work and most of us don't have the equipment, facilities or patience that are needed. But many beekeepers do report successful results from putting supers on end in an enclosed small room, such as a bathroom, and running a dehumidifier while using a fan to blow air through the frames in the super. The entire process may take several days. This can also be done with open buckets of liquid honey but drying the unextracted frames is more effective.

Getting the bees off the combs

There are many ways to get the bees out of honey supers and everybody has their personal favorite. These are discussed in detail in June 2016's "[Spinning Gold](#)". I used to be a big fan of triangle bee escapes; when used properly (there are several tricks that must be employed – see the article) they often have worked well for me. In recent years I've switched to fume boards as my primary method. They are quick and more reliable than triangle escapes. Just don't spill the stinky stuff on your clothes, or anything else for that matter – the smell lingers for a very long

time. I started out using the nice almond-smelling version but at my place, the noxious product seems to be more effective and reliable.

Don't forget to have a plan for keeping dislodged bees from coming right back where they started. I cover removed supers with a heavy towel to keep bees out of the stack. A towel is easier to handle than a heavy outer cover and is less likely to leak bees.

Extracting 1-2-3

Different types of common extractors are explained in June 2014's "[Is Tigger Crazy?](#)" With the exception of a honeycomb press, they all have the same goal: separate the honey from the comb in such a way that the comb remains intact and can be reused by the bees to store even more honey. Keep that goal in mind: treat drawn comb as the valuable commodity that it is and avoid damaging it in the extracting process.

Step 1: Arrange everything in assembly-line fashion

Nerdy trivia: Henry Ford didn't invent the automobile, but he did leave competitors in the dust when he implemented the first moving assembly line, which reduced the time to construct a Model T from over 12 hours to only two hours and 30 minutes. He also didn't need to worry about honey spilt on the factory floor. With this as inspiration, I arrange my extracting equipment in such a manner that human motion as well as the honey's exposure to unprotected surfaces is kept to a minimum.

There are six components of my set-up:

1. A stack of supers with frames waiting to be extracted
2. The super that is being emptied
3. An uncapping tank
4. An extractor
5. An extracting tank/bucket (my extractor sits directly on a tank; yours probably uses a separate bucket)
6. A stack of supers that have been emptied

My goal is to have each component in the processing line as close to the next one as is practical. Plastic sheeting covers the tables and floor. Cheap plastic tablecloths (\$1 at the dollar store) work great.

Step 2: Remove a frame from the super

By now you should already know how to do this! But to make it even easier, I made a "frame popper" that mimics the function found on expensive professional extractors. It basically is a stick $\frac{3}{4}$ inches square that is a little narrower than the inside width of a super (about $14\frac{1}{2}$ inches for 10-frame equipment). Two of these sticks are arranged so that one is toward the front of the super and one is toward the back. They are fastened together underneath, making a "#" shape. A full super is placed over these sticks such that the super's frames are perpendicular to the top sticks. When I firmly push down on the sides of the super, all of the frames pop up about $\frac{3}{4}$ inch, making them extremely easy to separate and remove from the box even when they are heavily propolized.



The sticks of my "frame popper" (visible inside the box on top of the newspaper) push the frames up above the frame rests just enough to make them very easy to separate and remove. Note that I've used 9 frames in a ten-frame super, resulting in much deeper cells that are more efficient for honey storage and easier to uncap.



My homemade uncapping tank features a sturdy platform for resting the end of a frame.

Step 3: Remove the wax cappings from the honey cells

There are lots of ways to remove cappings (see "[Spinning Gold](#)" for details); one of my bee buddies loves to use a Ginsu Knife ("As Seen on TV!"). Regardless of which tool or technique you prefer, you'll need to collect the drippy honey and wax bits. An uncapping tub or bucket should have a shelf or platform on which to rest the end of the frame. Holding the frame vertically by one end and resting the other end on the platform, use your tool to remove the cappings. The leftovers fall into the bucket.

When you are all done with extracting, you'll discover that there is a fair amount of honey in the cappings bucket. I strain the slurry to recapture as much as I can. Then I set the remaining wet wax inside a very large, flat plastic pan and set it outside for my bees to clean up. In a few hours, they'll leave me a nice supply of dry, powdery wax that I use for my waxworking projects.

Step 4: Put frame into extractor

Do this quickly to reduce drips!

Step 5: Operate extractor

When the extractor is full, it is time to get down to business. My extractor sits directly on a strainer and honey tank, but yours probably has a honey gate (a large spigot) and requires a bucket which is placed below the gate during

operation. NEVER operate the extractor without first opening the honey gate! If you ignore this caution, when the honey level rises to the bottom of the frames, 1) it will become extremely difficult to spin the frames and 2) the honey will become a frothy mess.

Depending on the temperature, spinning speed, moisture content of the honey and who knows what else, it will likely take five to ten minutes or more to completely empty the frames. Spin until you get every last drop. After all, this is our reward for a whole year's worth of work and worry! Don't cheat yourself out of any of it now that you are at the finish line.

Remember that with a tangential extractor (where frames are placed so that they face outward), each side is extracted separately. Once one side is empty, the extractor must be stopped, the frames must be flipped around so the opposite side faces outward, then extracting must continue so that the second side is emptied. With a radial extractor (where frames are placed like spokes of a wheel), stopping and flipping the frames isn't necessary.

Make sure that the extractor is balanced with respect to the weight of the frames. If you've ever had a washing machine load get out of balance, you already know what a problem this can be. Not only is an out-of-balance extractor difficult to crank, it will hop and slide around. Place similarly-weighted frames opposite each other in a radial extractor. If you run out of frames that need extracting, use empties to fill out the load.

Step 6: Remove the frames from the extractor

This is Step 4 backwards. Put the frames back into an empty super. Wow, they are much lighter now, aren't they? If they aren't, go back and repeat Steps 4 and 5! Once done, put our now-empty super someplace where dripping doesn't matter.

Step 7: Strain the honey

This step may be incorporated into Step 5 if you are draining your extractor into a bucket fitted with a strainer. Or you may do it after



This is what makes a year's effort all worthwhile!

extraction. Regardless, it is good practice to strain out wax bits, Small Hive Beetle larvae, miscellaneous bee parts and your own stray hair. "Raw honey" shouldn't include non-honey elements.

Note that technically speaking, we hobbyists do not "filter" our honey – we "strain" it. Filtration is a somewhat complicated process using expensive equipment; the honey must first be thinned before being forced under pressure through filtration devices. We don't do that.

Step 8: Clean up

You've been careful not to drip honey everywhere so clean-up is fairly simple. After using a spatula or Teflon squeegee to salvage every last bit of honey from the inside of the extractor and uncapping tank, they can be placed outside for your bees to spot-clean. The bees will do a pretty good job but you'll want to follow up with a thorough cleaning using hot water. Some beekeepers use the pressure washer at the local self-serve car wash to get their extractors all shiny and spotless.

The empty supers can be placed back on hives for the bees to clean up or they can simply be set out in the yard for bees to pick dry, although they'll treat the comb more roughly in the second method.

Step 9: Don't bottle yet

Okay, sorry, this is a non-step but it bears mentioning. Don't immediately bottle your

honey. Let it sit in a bucket for a couple of days to allow air bubbles, foam and tiny wax flecks to rise to the top where they can be skimmed off. Otherwise that foam will be at the top of every single one of your honey bottles, an unappetizing sight that raises the question, “Ew, what is that?”

When you are ready to bottle, carefully study September 2016’s article “[Bottling Honey for Sale](#)”.

All done

That’s about it. If you only have a super or two to extract, the whole process, including set-up and clean-up shouldn’t take more than a couple of hours. Add twenty minutes for each additional super. If all of this work is more than what you consider fun, invite some family and friends over to crank for you (exercising all COVID-19 precautions, of course). Or there are extracting services that you can employ, sometimes taking payment in honey. Whatever you do to get the honey safely packed away, don’t forget to pause and give thanks for the wonderful result!

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Empty honey super frames, cleaned out by the bees and waiting to be used again next spring. If comb has only ever had honey in it, never brood, and is stored where it gets light and air, wax moths and Small Hive Beetles are rarely a problem.