

“Think 100 times before you take a decision, but once that decision is taken, stand by it as one man.”

– Muhammad Ali Jinnah

Please gently correct me if I’m wrong, but I think most people attend bee school to get answers to the question, “How can I successfully keep honey bees?” In response, they get barraged with a host of questions for them to answer, such as, “What race of bee do you want to keep? Do you want plastic or wax foundation? Do you want to start with a package or a nucleus colony? How many hives do you want? Be sure to give the right answers!”¹

One of the questions that cause new beekeepers to curl up in the fetal position and whimper is, “Do you want ten-frame or eight-frame Langstroth equipment?” This is a fairly important decision for an essentially clueless person to make, because once on one path or the other it can be an expensive hassle to switch.

We can take comfort in the fact that one’s choice in the matter doesn’t have life-or-death consequences for either ourselves or our honey bees. But if that’s the case, then why are there choices? Henry Ford once said, “Any customer can have a car painted any color that he wants so long as it is black.” Why don’t bee supply companies say the same thing with regard to hive sizes? That would make life much simpler, especially for beginners!

Well, there is a very practical, very functional reason for the existence of ten-frame versus eight-frame Langstroth equipment in the US. But it isn’t what you may think – it doesn’t have anything to do with whether you can lift more or less weight!

Root of the controversy

Subsequent to the invention of the moveable frame hive in the mid-1800s,

¹ Free advice on these topics, worth every penny, can be found at [“Standard Equipment: How Standard Is It?”](#), [“Races of Honey Bees”](#), [“Building on](#)



Do you want 8-frame brood boxes (above) or 10-frame ones (below)? Wait... is this a trick question? What’s the difference, other than the obvious? Why is there even a choice?



beekeepers in the US and around the world went nuts experimenting with the infinite number of possible hive configurations. It was reminiscent of the creative mayhem that existed when home video first became available on a mass scale. Remember fighting over the advantages and disadvantages of Beta, VHS, Video Discs, BluRay and so on?

In History of American Beekeeping,² Frank Pellett describes the vociferous debates that

[a Firm Foundation”](#) and [“Packages versus Nucs: Want to Fight About It?”](#)

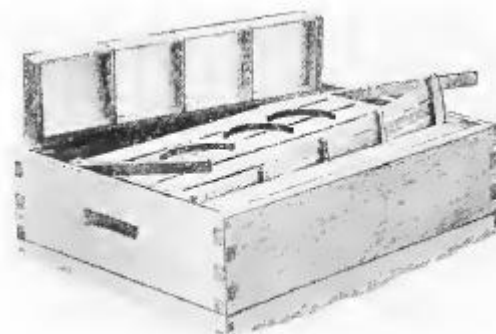
² Frank Pellett, History of American Beekeeping, Collegiate Press, Inc; Ames, Iowa: 1938

went on with respect to one hive type versus another. A lot of that debating still goes on; this is described in "[Standard Equipment: How Standard is It?](#)" The arguing among respected, experienced beekeepers wasn't about silly nonsense that we sometimes hear today such as what type is "more natural" or has the best feng shui; it was about what dimensions were more practical with respect to reaching our beekeeping goals. The major debate essentially came down to "big hives" versus "small hives".

To understand the fundamental difference of opinion, one must first understand the honey market of the late 19th and early 20th century. Today, the overwhelming majority of honey is sold as extracted liquid in a jar. But in The Old Days, moveable-frame beekeeping created a huge merchandizing opportunity for what is called Section Honey. Special supers holding empty, ready-made honey containers, about four inches by four inches square, are placed over the hive. The bees fill the containers with comb, then honey, and cap the honey. The beekeeper removes the containers, puts a lid on them and presto, they are ready for sale. This form of honey was touted as being adulteration-proof, an important selling point before the creation of FDA and modern food purity laws. Note that a popular modern version of this set-up is sold as Ross Rounds, although the classic version with square boxes made from slender strips of basswood can still be found for sale on the internet.

To have a salable product, the section (small box of honey in the comb) must be completely drawn out with comb, completely filled with honey and completely capped on both sides. Anyone with much experience harvesting honey knows that to get fully-drawn, fully-filled and fully-capped honey cells requires a very high bee-to-comb ratio. In other words, we want very strong colonies and limited space for them to store honey.

The rub is that those two conditions (strong colonies and limited space) are likely to result in one of two situations:



4 ¼ x 4 ¼ x 1 ½ plain section super.

A section-honey super has special frames which hold boxes for the bees to fill with comb and honey. The result is a pure product untouched by human hands. This photo is from the 1922 edition of A.I. Root Co.'s [Starting Right with Bees](#).

- 1) the colony will swarm, removing half or more of the workforce and subsequently dooming any chance of a large harvestable honey crop
- 2) if they don't swarm, the queen will have limited egg-laying space and the colony's population will dwindle as time progresses

These facts allow for two polarized factions:

- 1) "Big hive" advocates emphasize that the queen needs lots of space to lay lots of eggs to have strong colonies, and strong colonies need lots of space to have lots of pollen and honey to both grow and carry them over winter
- 2) "Small hive" advocates emphasize that total honey harvest is the name of the game, and limited space is critical for creation of perfect sections that fetch top dollar. Even with extracted honey, it is honey in the super, not honey in the brood nest, that is most important. Huge colonies aren't the goal – apiary harvest, not colony harvest, is the beekeeper's ultimate reward.

The Dadants were champions of the "big hive" movement, saying, "A hive is too small if it does not allow the queen to lay to the utmost of her capacity previous to the honey crop."³ A guy named James Heddon and others such as G.

³ Ibid, p. 24.

M. Doolittle were in the “small hive” camp. Heddon used the equivalent of one five-frame nuc as his hive, arguing that this prevented the bees from jamming up the nest with bee bread. He said pollen belonged “in the field”, not in the hive. “Small hivers” even promoted a brood box that was equivalent to a single one of our modern shallow supers.

Not surprisingly, honey production among the “small hivers” decreased significantly over time, both per hive and per apiary.

Sane practices eventually returned but not for the reason you may think. The Demaree method of swarm prevention became popular in the late 1800s. It is a somewhat complicated maneuver which requires the use of two brood boxes separated by a queen excluder. In a nutshell, the queen is confined in the bottom box by a queen excluder with just enough open brood to define a tiny brood nest; the rest is empty comb. All of the remaining brood frames are moved from the bottom box to the top box. Care must be taken near the end of the first week to ensure that absolutely no queen cells have been created in the top box; otherwise the colony will swarm. But if all goes well, the queen has bounteous space to lay in the bottom box, avoiding a swarming trigger, yet the total colony is strong and productive.

Due to the popularity of the Demaree method, using two brood boxes became the “in” thing to do, greatly mitigating the harm to a sustainable colony that came from a strict “small hive” configuration. Thus, the modern eight-frame Langstroth hive is a historical artifact of the “big hive”/“small hive” controversy, but the modern usage of it incorporates the knowledge that Dadant was correct: restricting reproductive space leads to decreased colony vigor and decreased honey production. With that in mind we typically use two eight-frame brood chambers, not just one. Therefore we successfully use “small hive” equipment by giving our bees twice as much of it!

Back to the original question

This bit of historical knowledge should help us avoid the pitfalls of the “small hive” philosophy from the late 1800s (which can be roughly summarized as “squeeze the colony to get more honey out of it”), but what about the question a new beekeeper faces today about the choice of ten-frame versus eight-frame equipment? After many years of observation, my advice is to use common-sized boxes in the whole apiary for the bees’ year-round living space to enable interchangeability (e.g., two deeps or three mediums, not a mix of the two, regardless of how many frames the boxes hold). Beyond that, in our area my opinion is that two 10-frame brood boxes are a bit generous while two 8-frame boxes are a bit stingy. But both seem to work fine. So at least as far as what is good for your bees, do whatever you like – the difference isn’t going to matter in Central North Carolina.

The trade-off for the beekeeper is that ten-frame boxes basically weigh 20% more than eight-frame boxes. But when it comes to surplus honey supers, a beekeeper only needs 80% as many ten-frame boxes as she/he would with eight-frame boxes. Do we want to purchase, lift and store lighter boxes but more of them? That is purely a personal preference. As Patrick Henry said, “I know not what course others may take; but as for me, give me” Fill in the blank yourself!

Randall Austin is a NC Master Beekeeper who keeps a few honey bee hives in northern Orange County, NC. He can be reached at s.randall.austin@gmail.com.

Note: All previous articles are archived at https://baileybeesupply.com/educational_resources/ Copyright 2024, no reproduction in whole or in part without permission of the author, except for noncommercial, educational purposes.