

Monday Notes: 2020

By Dana Stahlman Date 1-6-2020

Topic: Some information Beeswax, frames and wax foundation (Part I)

A sub-topic: Tid-bit Information – taking a test or gaining new knowledge

As I begin the second year of these Monday Notes, I have to remind myself that although the year 2019 is in our rear mirror, we still need on occasion to look back. Catalogs should be arriving soon and many of us have already determined our style of beekeeping and what we want to do in the 2020.

I was asked a beekeeping question today “Can I buy wax foundation that has not been exposed to chemicals and disease?”

Most likely not and if you have the bees build natural comb (i.e. from starter strips) thinking you can avoid contamination by chemicals forget it. Chemical use is all around us. Those manufactures who use bees wax in the production of foundation buy beeswax from many sources including commercial beekeeper, hobby beekeepers and foreign suppliers of beeswax.

Old wax comb when melted still contain those chemicals. Heating the comb to process good clean bees wax may kill bacterial diseases but it does not remove the agricultural contamination and miss-use of chemicals in bee hives.

I checked this issue out on line and the information regarding the contamination of comb in bee hives was staggering. (2018) Eastern Kentucky University did research which was presented to the 2018 National Environmental Health Association Annual Education Conference held in Anaheim, California.

This report recommended the following statement:

“One of the things that we can tell amateur beekeepers is that by changing out the actual comb, you can minimize the amount of pesticide present in the comb,” Pinion said. “If you use the same combs over and over, you can essentially have a buildup of pollutants. The pollutants that are there will persist.”

Specifically most of what I found indicates that testing of various samples of comb, honey cappings, recycled beeswax (beeswax sold in bulk solid blocks) contained the presence of xenobiotics which are agricultural pesticides. In most samples xenobiotics were found and I

include some of the following: Herbicide atrazine, insecticides Chlorpyrifos-ethyl and thiodloprid; fungicides azoxystrobin and tebuconazole; and coumaphos, ethion and tauofluvalinate topped the list of about 30 chemicals that are long lasting and detectable. Honey tests reveal global contamination by bee-harming pesticides. Almost 200 samples of honey were analyzed for neonicotinoid insecticides and 75% contained the chemicals, with most contaminated with multiple types.

We live in the environment. It is what it is! I am just wondering if the build-up of chemicals in the drawn comb in our hives might answer the question: My bees just died or they just up and left. Why?

Now to the topic of frames and foundation.

I have before me four catalogs from last year. For anyone buying frames and foundation for frames, the choice is staggering.

First, we need to understand the terminology. Traditionally frames have been a standard length to fit inside a standard box. Kim Flottum writes in his book "Better Bee Keeping" "The two things you already know are essential: standardizing the size of boxes you use and the value of the boxes." Even though bee equipment manufactures sell standard size boxes, equipment will vary from manufacturer to manufacturer. For example the cut of the rabbet will determine if there is a bee space above the frames in a box or below the frames in a box. Hand holds will differ as well as corner joints.

A tid-bit of information: Do you know who is considered the designer of the modern bee hive? [**Lorenzo. L. Langstroth**]

Do you know the standard length of a hive body? [**19 -7/8 Inches**]

Do you know the standard length of the top bar of a frame? [**19 inches**]

The standard hive was introduced in 1851 and a patent applied for in 1852. But various sizes of frames were in use thru the late 1800's. It took some time for this "standard" to be accepted by beekeepers.

One of the major reasons we have adopted the "standard" frame in today's beekeeping is the standard for extraction of honey from comb filled with honey. When the extractor was first discovered/invented by an Austrian Franz von Hrushka "called a honey slinger" in 1865, the production of comb honey in sections or comb was quickly replaced with liquid honey which could be sold in jars. Even today, I get asked by the general public and even some beekeepers, how do you eat comb honey?

Shown below are a few of the many frame sizes commonly used in the 1880's.

Do you know who was considered the "First commercial manufacturer of bee supplies" in the new world? (The United States of America) The extractor was one of his products and he set

the standard for frame size to fit into his extractor. The company he founded no longer manufactures bee supplies. [A.I. Root]

Mann Lake Hive Body & Super Dimensions	
10 Frame	
9 $\frac{5}{8}$ " 24.45 cm	9 $\frac{5}{8}$ " x 16 $\frac{1}{4}$ " x 19 $\frac{3}{8}$ " 24.45 x 41.28 x 50.48 cm
7" 19.37 cm	7 $\frac{5}{8}$ " x 16 $\frac{1}{4}$ " x 19 $\frac{3}{8}$ " 19.37 x 41.28 x 50.48 cm
6 $\frac{5}{8}$ " 16.83 cm	6 $\frac{5}{8}$ " x 16 $\frac{1}{4}$ " x 19 $\frac{3}{8}$ " 16.83 x 41.28 x 50.48 cm
5 $\frac{5}{8}$ " 14.29 cm	5 $\frac{5}{8}$ " x 16 $\frac{1}{4}$ " x 19 $\frac{3}{8}$ " 14.29 x 41.28 x 50.48 cm
8 Frame	
9 $\frac{5}{8}$ " 24.45 cm	9 $\frac{5}{8}$ " x 14" x 19 $\frac{3}{8}$ " 24.45 x 35.56 x 50.48 cm
7 $\frac{5}{8}$ " 19.37 cm	7 $\frac{5}{8}$ " x 14" x 19 $\frac{3}{8}$ " 19.37 x 35.56 x 50.48 cm
6 $\frac{5}{8}$ " 16.83 cm	6 $\frac{5}{8}$ " x 14" x 19 $\frac{3}{8}$ " 16.83 x 35.56 x 50.48 cm
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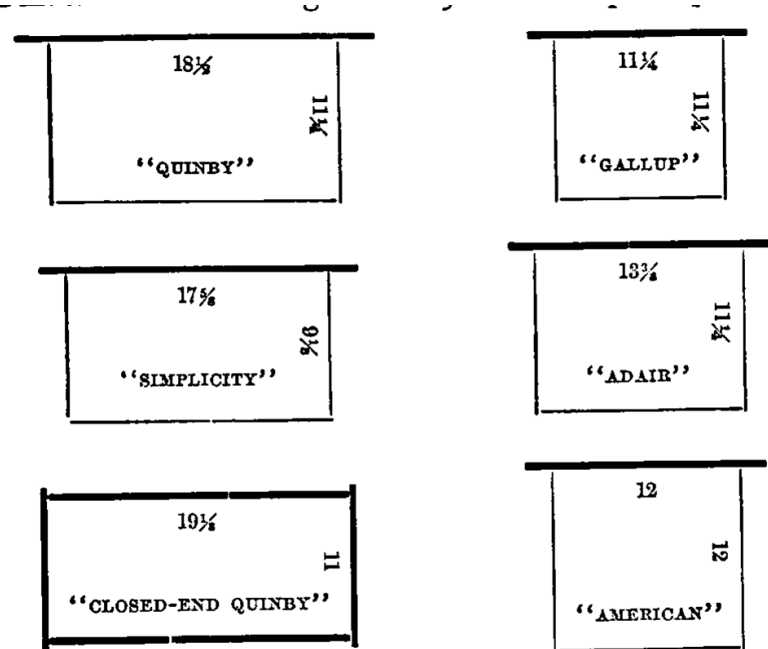


Fig. 59.

DIAGRAM OF PRINCIPAL FRAMES IN USE.

Figures given are outside dimensions in inches. Suspended frames have $\frac{3}{4}$ -inch supporting arms, or an equal prolongation of top bar.

(From The Honey Bee published by Chas. Dadant & Son, Hamilton, Hancock County, Illinois in 1889)

From the catalogs sent to me last year: Dadant, Kelleybees, Mann Lake, and (out of business) Brushy Mountain Bee Farm. These bee catalogs are great sources for illustrations to tell the story of equipment needed by a beekeeper!

Hive and Frame Dimensions

I liked this illustration because it list the popular sizes most often sold in today's market place. These dimensions are universally sold by bee supply companies.

But when we start looking at frame construction. The issues become a bit more complicated!

The top bar of a frame is especially important because it will vary according to the foundation to be placed in it.

Information from various sources: Deep frames are generally used in the brood chamber of a hive but the medium size frame is becoming popular for being used in the brood chamber as well.

9 5/8 frames are called deep frames. They can be very heavy when filled with honey. One source indicates it can weigh up to 10 pounds when full of honey. These frames need wire to support that weight. Wired foundation needs to be cross wired to prevent the comb from sagging in hot weather and if used in an extractor, to prevent the drawn comb from being thrown out of the frame. (A Blow Out). Pins to hold the wax foundation in a deep frame will not do a very good job of keeping comb straight. The foundation used in deep frames is usually called brood foundation.

6 3/8 frames can weigh up to 6 + pounds when full of honey. This the most popular size of what I refer to as a honey frame. Foundation used in medium frames will vary in weight. Brood foundation is needed the frames is to be used in the brood chamber or for extracted honey. Thin foundation is usually used for producing cut comb honey.

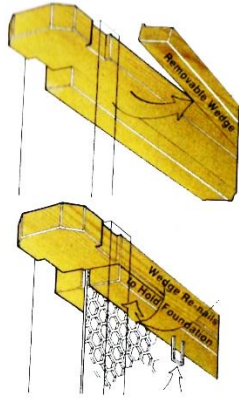
5 3/8 frames are usually used for honey supers. I have found the 5 3/8 frame sold with the choice of plastic foundation in the Kelley catalog. The others I have do not list it. It has lost favor mainly because beekeepers buy medium frames. A shallow frame as it is called can hold up to 5 pounds of honey. But anyone having trouble lifting heavy honey supers might well consider this size of super and frame.

Frames are very time consuming to build. It is one bee item that I always buy. I can build most other wooden items needed.

Construction of frames:

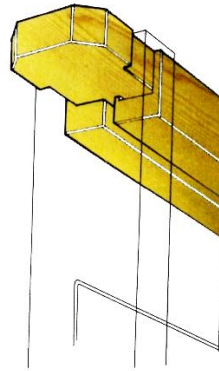
Other than the standard height, frames can vary from manufacturer to manufacturer. What follows is some common terms used for selecting frames:

Wedge Top Bar or Grooved Top Bar (Illustration from the Dadant Catalog)



—2 Frame Styles—
Wedge Top Bar

- 1) Wood wedge is removed from frame.
- 2) Foundation is placed in frame.
- 3) Wood wedge is held firmly against foundation and nailed or stapled in place.

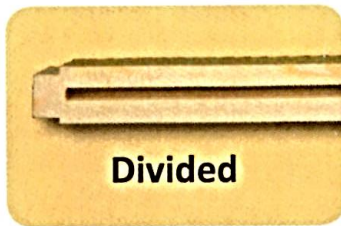


Grooved Top Bar

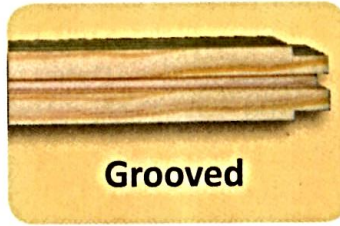
Foundation is placed in bottom-bar groove and top-bar groove. This frame works best with a rigid foundation such as Plasticell.

Bottom Bars – Solid, grooved or slotted

BOTTOM BARS



Divided



Grooved

This illustration for bottom bars is from the Brushy Mountain catalog.

The grooved bottom bar is used for plastic foundation along with a grooved top bar. The plastic foundation just snaps into the grooves and makes putting foundation into frames quick and easy.