

Stahlman Beekeeping

Notes for 2022

February Management

Solar Wax Melter



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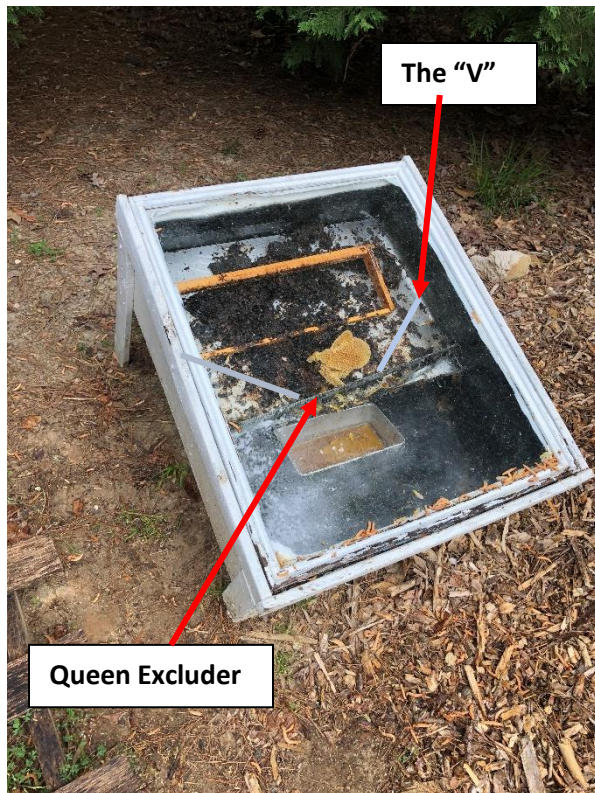
Everyone keeping bees should have good knowledge about the timing of tree blossoms. Trees are a bit confused about weather. Seasonal weather patterns for almonds, apples and many other fruiting plants often face early freezes. The result is blossom drop (failure of the crop) and not much for bees to pollinate. More feeding may be required for bees after such an event. [No flowers – no pollen/nectar] results in less food available for the bees at a time when nature has prepared them for a bountiful harvest.

Thus, I am going to start out with a reminder to myself that beekeeping requires one to have patience. While I may still be feeding bees, I am thinking of that solar wax melter I could build on these cold winter days. I have talked about winter survival and there is still some time to go before spring really kicks in. Thus, I will add a few comments about winter management at the end of this article.

Solar wax melter

There are many ways to melt beeswax. But maybe I should discuss why anyone might want to melt wax using a solar wax melter.

- I use it for melting the wax cappings that are extracted. The extractor spins out the honey in the comb but the wax covering the honey in the cell is left behind as a by-product of the extraction process.
- I cull old frames from my hives and try to recover as much wax as possible.
- I save the burr comb and other comb built by bees in a bucket as I inspect hives. This collection of wax can be melted down for use to make candles or any bee product using beeswax.
- I place jars of granulated honey in my solar wax melter to turn the honey back to a liquid state.
- I have used the wax melter to recover granulated honey from a frame as well as the wax which separates from the honey. This exposure to the heat would melt the comb. I could feed the frames with granulated honey to my bees, but there are times I want the honey.
- Cleaning queen excluders is made easy with a solar wax melter.



This is my simple designed wax melter in use. There are a number of improvements in it I could make but I wanted something simple and cheap that worked! (*I have added wheels and a handle so it can be moved easily toward the shifting sun rays*). It is surprising how quick wax will melt at mid-day with the sun beating down even on a day of 75° F. On a day with a temperature of 85° F or higher, it works fast.

I have seen others melt wax by placing a sheet of glass over a pan set in the sun. Let me share how I built this wax melter.

We have a thrift store near-by. I often find large picture frames – I selected one 24 X 30 as shown here. The picture frame was very strong. I took the picture out of the frame.

I built a simple $\frac{3}{4}$ " plywood box 12 inches deep and set the picture frame on top. I put a

bottom to fit and some legs to provide more sun exposure into the box. I then added wood trim around the window frame that would allow me to remove the glass frame and still have a snug tight fit to contain the heat produced by the sun's rays.



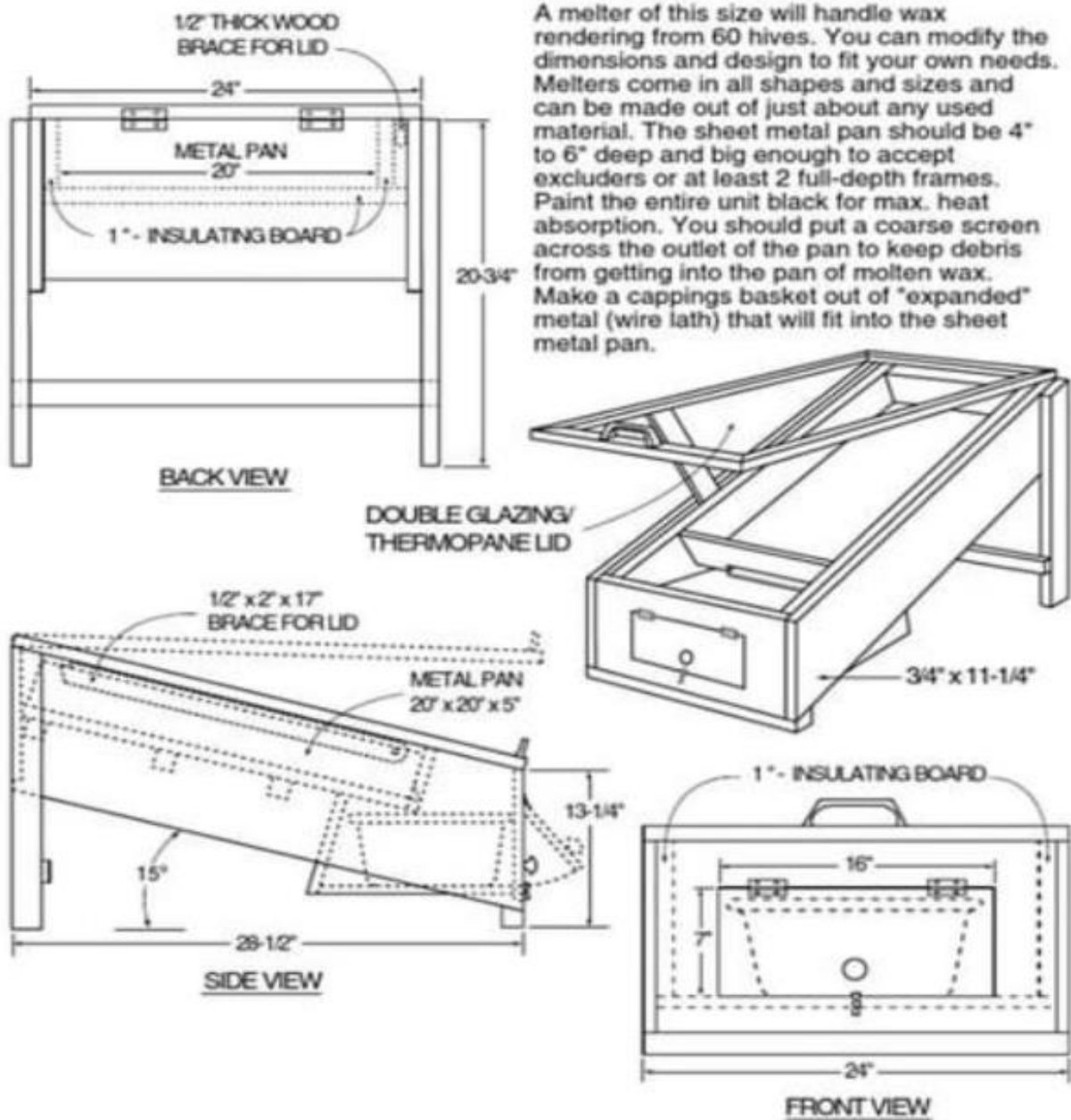
Inside the box I inserted a $\frac{1}{4}$ inch plywood floor covered with aluminum. I folded the aluminum into a "V" shape to direct the melted wax to flow into the pan and placed an old piece of queen excluder to stop any debris from flowing with the wax into the pan.

The wax melter can do two things at the same time. Recover the wax from the comb in the frame and liquefy granulated honey in my jars. The sun can be used to bleach dark wax.

A warning – one cannot pick up the bread pan or jars of honey with bare hands. I use welder gloves to handle liquid beeswax or jars removed during the time the solar wax melter is working. In fact, I let the beeswax set up (become a solid) when the sun goes down in the evening.

Hot beeswax will float above honey. Melted wax is liquid and requires cooling to harvest the honey.

When Frames are put into the solar wax melter, another product of the process is Slum-gum. Many beekeepers consider this waste. Slum gum will hold a rather large amount of wax not removed by solar heat. Further processing is required to remove the remaining beeswax. Slum-gum is made up of cocoons fiber from previous brood raised in the comb, pollen left in any cells, other contamination possible from disease and environmental exposure, propolis, wax. It makes good fire starter material mixed with sawdust. It has also been used as a soil conditioner. The plan below was published in Albert Jaycox's book "Midwest Beekeeping



"published in the 1970's.

However it still retains a good amount of wax. Some processors will buy slum-gum. The wax can be removed by steam pressure or chemical treatment. Some recovered beeswax will have a distinct brownish color. Placing dark comb in a fine mesh filter and exposing it to the sun will bleach the beeswax to a lighter color. New wax produced by the honeybees wax glands is white.

Winter Management -- A Clusters size during very cold weather conditions is critical to bee survival.

So far winter has been somewhat cold. It is not the time to open your hives. You can remove the cover to see if the bees are around the inner cover hole in cold weather – maybe for a minute or two. Any jarring or disruption to the hive will cause some bees to leave the cluster and be unable to return to it and thus you will cause some to die unnecessarily.

I have some emergency sugar/corn syrup patties in my truck if I need them. But I am definitely not going to be pulling any frames to check for brood. Hopefully by mid-afternoon, I may see some activity at hive entrances.

Prior to the mite issues, many hives of bees still died at this time of the year. A hive may have honey stored in outside frames.

One question I have been asked is why don't the bees just move the cluster over to the honey?

The answer to that question is this. Honeybees protect the brood area by keeping it warm. If the honey is out of reach and it gets very cold – leaving the warm cluster will result in the death of the bees trying to reach the honey.

Bees cannot move brood. Strong clusters of bees generate a lot of heat within the hive which allows some movement. Weak clusters cannot generate enough heat to move.



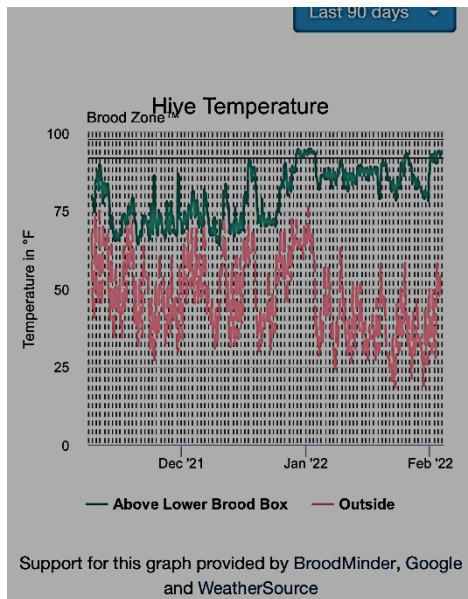
This is an example of what I am trying to explain.

This cluster with a queen was within inches of capped honey stores. The bee cluster choose to cover the brood rather than move over to the honey near them. There are other issues that resulted in the small cluster. My thoughts are most likely Varroa mites. The queen was definitely laying eggs and the bees were taking care of feeding the larva.

If bees begin to die before new brood bees can replace them, a colony may look like this.

Feeding this hive would not have saved it!

There is a product on the market called a Broodminder. It is a sensor that reports temperature levels in the hive to “the cloud.” It is possible to download a report from the broodminder sensor to your phone.



Note the brood box temperatures in the top line. It shows a bee cluster temperature ranging from 60 to lower 90's F. The lower brood temperatures are indicated prior to Dec. 21. The temperatures of the brood nest then begin to increase from Dec. 21 to Jan. 22 and then remain somewhat steady thru the end of February.

The pink line is the outside air temperature.

The assumptions we gather from this information is:

- The hive is alive!
- Temperatures vary according to outside air.
- As brood rearing begins the brood temp goes up.
- The bees are keeping the brood temperature at a variable brood temperature range to 90 °F range.
- The colder temperatures of January and February are

not having a great impact on brood temperatures.

What information is missing? What about honey stored in the hive? A hive scale could provide information such as hive weight loss or hive weight gain.

What could we assume if the top temperature in the above chart matched the bottom temp? No warmth inside the hive would mean the bees were dead.

A bee returning to a hive is a good sign. It is -- one indicator -- a hive is raising brood.



If a beekeeper is looking for a good honey crop, this might also be the time to feed bees. More food and pollen is needed by a colony building a bee population. It takes a large bee population to gather a honey crop.

Intense spring management is just around the corner.

The bee season gets energized when drones show up. There is always a balance between giving the bees too much food and not enough! The only solution is to do hive inspections when the weather allows.

Now is the time to order bees and equipment.

February is going to pass quickly. “There is a point when patience and relaxation cease to be a virtue!”

For some great information about winter management – google Winter Management Bee Culture in the following link:

Winter Management | Bee Culture
www.beeculture.com/winter-management