

Wax and Candles

I have written on so many subjects in the past newsletters that I worry about repeating myself. I thought that this month I would take some time and write a bit about beeswax.

As many of you know beeswax is produced by young bees in the hive. Bees that are about 12 days old seem best suited to the production of wax. Bees that are older can also produce wax although they don't do it as well as the younger bees. There are stimulating factors that can be used to prompt the older bees to produce more wax. As we all know, workers produce wax very well when there is a nectar flow on or when we feed heavy sugar syrup. We use this knowledge when we lift the inner cover and see those white specks of new wax on the top bars. Lots of white specks should tell us to super up.

As we know bees produce wax on the underside of the abdomen in specialized glands that are suited just for this purpose. The wax when it is first secreted is clear but quickly turns white when exposed to air. The ultimate color of the wax seems to be largely related to pollen flow and other contaminants found in the hive. Most wax ends up as a yellowish color. Wax is worked into shape with the mouth of the bee. Bees also move wax around in the hive wherever the demand seems to be. We can find this in the brood chambers as often the bees have capped the honey with that really tough wax that seems to be recycled from old brood comb.

As beekeepers we deal with wax throughout the season with the removal of burr comb, miss-drawn comb and cappings from the harvest process.

So what do we do with this wax that we have been collecting over the season and perhaps over the years? Wax has been a valuable resource for centuries. It has been used as a waterproofing substance, polishes, and as money. In Greek mythology Pan used it to make a type of flute by sticking reeds together with beeswax. That was clever because I think Pan pipes sound pretty nice. Icarus thought beeswax would be valuable to stick feathers together and make a set of wings. In this particular case he was wrong though...

I think that by far when most people think of beeswax they think of candles. This is very likely the most common use of the extra wax that has been produced by the backyard hive. There are advantages of the use of bees wax to make candles out of. One of the main advantages is the

cleanliness of burn. Most candles made from paraffin send up a fair bit of smoke and soot during the burning process. Beeswax candles burn much cleaner and very little smoke is produced. While this may not be a huge difference to the occasional candle on the dining table it does make a tremendous difference in churches where candles are routinely lit. The need for candles in the church was one of the factors that caused the Spanish to bring bees to the new world.

Beeswax candles also burn longer and drip less than the paraffin candles that are so common these days.

So how do we go about turning that pile of cappings into something more useful? First we have to drain the honey off very well. It is amazing how long honey will drip out of the wax. I try to keep the process warm to aid the honey in flowing out and leave the cappings to drip over a pan. A queen excluder works pretty well as a straining screen and the cappings can be piled on top of that. You can contain the cappings from flowing over the edge of the excluder by using a bucket with the end cut out to hold the cappings in a pile.

I have also heard of the practice of draining the cappings, and then adding some water and feeding the mix back to the bees in a container over the inner cover. The bees will leave the cappings behind and they will be pretty well free of residual honey.

Once the wax is fairly well drained I melt it resulting mixture down in a bucket that sits in some hot water. Don't be tempted to heat beeswax directly over a heat source because it can burst into flame fairly easily if it gets too hot. Since I have a fair bit of wax to deal with I keep the bucket in hot water with the tank heater set for about 160 degrees or so. Bees wax melts at 147 degrees so this temperature is warm enough to melt the wax but not too hot as to scorch it (185 degrees) and change its color. If you have ever melted wax before I would be sure that you have seen the sludge that floats just below the molten wax. This sludge (referred to as slum gum) has to be kept out of the wax. Below the sludge will be honey that of course has been overheated and darkened. It is still good honey for cooking with but not all that great for the table. In my method the honey is the last thing to come out of the process so it stays hot for days.

I keep adding cappings to the mixture until there is a good layer of wax on the top that can be ladled off and run through a nylon cloth. Things will float on the top of the wax layer and will be strained out with the cloth (this is where the bees knees will be). The strainer cloth that I use is the same weave that is used for the honey prior to bottling. I have a piece over a bucket that is held in place with a bunch of clothes pins. I use an old yogurt

container to ladle the wax out because I have discovered that whatever has been used for wax work cannot be cleaned to my wife's specifications. As I ladle off the wax I add more cappings so that the bucket stays full. Eventually I end up with a block of wax that is in the bottom of a bucket that is clean and filtered. This is the wax that is used for candles and molds.

At this point I heat the bucket of filtered wax and pour it off to smaller containers that are a more useful size. I use salad trays from the local store to pour into. They cost about a dime each and you can use the top as well as the bottom to pour into. These are the blocks of wax that I use when making candles. There are lots of ways to make candles and I will talk only about a couple of them in this short article.

Perhaps the most important part of the candle is the wick that is used. Candle making supplies can be had at fabric and craft stores as well as the big box variety stores that seem to be popping up everywhere nowadays (Wal-Mart and the like). Most all of them sell wicks and included on the package is a size recommendation for the diameter of the candle. This can be a useful starting point but I would always make and test a candle before making a bunch of them. If the wick is too small the candle won't put out enough light or heat to melt the wax all the way to the edge of the candle. If the wick is too large then the candle will burn too quickly with a large flame. It is better to know this before you make a bunch of them and give them out as holiday gifts.

I melt wax in basically the same fashion that I did for the filtering process except on a smaller scale. I use a fairly tall can set in a pan of hot water on top of the stove in the kitchen. Blocks and chunks of wax are placed in the can and the heat of the water melts the wax. I often preheat the blocks of wax in the microwave oven before I put them into the can to speed up the process. A word of caution here though = remember to monitor the situation closely. We are dealing with a substance that is supposed to heat up and then burst into flame and we want that to happen after the wax is turned into candles and not in the microwave or on the stovetop. I keep a thermometer in the water bath to keep an eye on the temperature. For dipping candles I think that the right temperature of the wax is near its melting point. If the wax is too hot it won't put a good layer on the candle. If it is too cold then the candles that are dipped have too much taper to them.

Wax can be poured into decorative molds with wicks in place and make some nice looking candles. These are easy to make and one of the nice things about beeswax is that it has very little shrinkage compared to paraffin so that one pour is usually all that is required. I have always

avored the hand dipped look as a gift item that can accompany a bottle of honey.

Dipping candles is a really straight forward process. I start with a wick that is long enough to make two candles at the same time and hold the wick in the middle. We often do candles as a family and that way we can all make two pair – one set for each hand. Once the wax is melted the wicks are dipped to the length of the desired candle. Each person gets to dip once for each set and then move to the back of the line. By the time it takes to get back to the pot the wax has hardened and cooled and is ready for another coat. I straighten the candles before they get any thicker than a birthday candle and while they are still warm so don't fret that the first couple of dips result in a curly candle. If you let the candles get much thicker than a birthday candle and try to straighten them then they will crack in the process.

I have found that it is best to get the candle into and out of the melted wax fairly quickly. The idea is to keep the candle cool so that the wax builds up nicely on it. If you find that the bottom of the candle is noticeably thicker than the top half you can leave the bottom of the candle in the pot longer and some of it will melt away. Sometimes we take a break and put the candles outside to cool. Refrigerator and freezer seem to work well too. When the candle gets to about its final thickness it retains a fair bit of heat and the wax doesn't build up as rapidly. Just prior to the last dipping I give the candle a good look over and remove any imperfections and get the bottom to the right size to fit into a holder. I carve this with a kitchen knife if Donna is not looking or use my pocket knife if she is. The last dip will blend everything together and complete the process.

One thing that you will notice is that over time there will be a white powder that will form on the candle from the natural chemicals coming to the surface. If you are making your Christmas gifts now, be sure to buff this off with a soft cloth before you give them out. The white bloom on a beeswax candle is said to be an indicator of the purity of the wax.

Remember that the whole point of beekeeping, making honey, vinegar, and dipping candles is to have fun!

Steve Victors