Morris Ostrofsky 541-685-2875 Ostrofsky@pacinfo.com

Glass Jar Beekeeping
Creating Edible Art

By Morris Ostrofsky
Ostrofsky@pacinfo.com

Bees have always perfectly packaged honey in wax comb. Before the advent of modern bee hives, the bees built honey comb in straw skeps.

Around the middle of the 18th century glass jar beekeeping was introduced. This novel technique involved placing a glass bell jar on top of a flat topped straw skep. The idea was for the bees to gain extra storage space and to produce honey comb in a showy form. When new methods of producing honey, such as removable frames were introduced, glass jar beekeeping lost popularity. Today the concern with adulterated and antibiotic contaminated honey has prompted renewed interest in local sources of honey including honey comb.

Photo by Gene Kritsky: The Quest for the Perfect Hive

This article describes how to work with the bees to create a modern twist to bell jar beekeeping. Building comb in a jar versus a standard frame is not the bees' first choice and represents a departure from standard beekeeping. The ability to successfully manage this behavior goes beyond the basics. This project is for experienced beekeepers ready for a new challenge.

Morris Ostrofsky 541-685-2875 Ostrofsky@pacinfo.com

The directions for this process are based upon the assumption that an established hive with a first year queen is being used. In addition to producing an edible piece of art, it is just plain fun watching the bees build honey comb in glass jars.

Preparing the glass jars for the honey flow

Building honey comb in a jar rather than on frames is not the bees' first preference. You need to set the stage by creating a strong, well- populated hive that is looking for any place to store honey. The amount of brood space the bees should have is the equivalent of one full depth brood box plus one western. If you prefer using all westerns, then use 3 westerns for your brood area. A young, first year queen is necessary to achieve these over crowded conditions because she builds a strong population quickly. She is also less likely to swarm.

Here is a list of the materials that you will need for this project.

- 11 one pint wide mouth Mason or comparable jars with metal rings
- 11 wide mouth plastic storage lids
- 1 migratory cover without cleats or an inner cover
- 1 propane torch
- 1 large sponge
- 1 pint feeder jar
- 1 western (6 ¾")
- shade cover (not needed if hive is protected from the sun)
- Strips of foundation or empty comb
- Safety goggles

Morris Ostrofsky 541-685-2875 Ostrofsky@pacinfo.com

- 2 fire or other non flammable bricks

If the bees are to build honey comb in a jar, you must provide jars that have been prepped for this purpose. Just like building a home the bees need a foundation upon which they can build their comb. Strips of drawn comb or foundation attached to the side of the jar provide them with a place to start building. Preparation of the glass jars involves a number of steps. They may seem daunting at first. However, after the first few jars, you will not be intimidated.

1. Drill 12 holes using a 2 5/8th inch hole saw (usually used to drill holes for door handles) in the migratory or inner cover. Position the holes as shown. If the holes are placed too close to the edge of the cover, there will not be enough room for the empty western and jars that will be placed on top of it.

2. Cut each strip of foundation or comb approximately ½ inch wide and a length that extends about ½ inch beyond the mouth of the glass jar. This provides an easy way for you to hold on to the wax while it solidifies, and provides the bees with a bridge as they move up into the jars.

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3. Prop up the jar on non flammable material. I use fire bricks. Since you are working with glass and a torch, protect your eyes with safety goggles before beginning. Place a roughly pea-size or smaller piece of wax foundation on the side of the jar to be heated. Direct the torch under the glass where the wax is located. When the wax just starts to melt, this tells you that the glass is at the right temperature to proceed. Remember bees wax is flammable; do not heat it beyond the point where it just starts to melt.

4. Take the heated jar and place it on a wet sponge. The wet sponge will start cooling off the jar. Immediately take the strip of foundation or comb and hold it on the heated side of the jar. Use the extra ½ inch strip as a handle. Hold it in place until the melted wax solidifies. The wet sponge will prevent the wax strip from completely melting. It is not necessary to have the entire strip attached to the jar; only a few points of contact are necessary. Repeat this process until you have 3 strips equally spaced inside the jar.

Prepared glass jar.

Morris Ostrofsky 541-685-2875 Ostrofsky@pacinfo.com

5. Screw the metal ring finger tight onto the mouth of each prepared Mason jar. The ring keeps excess propolis from being deposited on the mouths of the jar. Because the opening in the ring is slightly smaller than that of the Mason jar, you may need to trim the bridge comb a little for a proper fit. Invert the jars and place them over the holes in the modified (migratory/inner) cover. The empty hole in the middle row of the modified cover is used for an inverted jar feeder. I use one part sugar and one part water sugar syrup for feed. Keep the modified cover level when moving the assembly.

6. Place the modified cover, including the jar of sugar syrup, on top of the upper brood box. Protect this assembly with an empty (no frames) western or any other comparable sized box and cover it with a standard migratory cover. The western allows the bees to work in complete darkness. Do not use a queen excluder. It creates an unnecessary barrier for the workers. Also, because of their lower temperature, the queen will not move up into the jars to lay eggs.

Morris Ostrofsky 541-685-2875 Ostrofsky@pacinfo.com

7. Continue to feed the bees sugar syrup until the honey flow starts. This is done to stimulate their wax glands and to speed up comb building. Feed them just long enough for the bees to draw out comb. You DO NOT want them storing sugar syrup in the jars; this is NOT honey. Leave the **empty** feeder jar in place after you stop feeding. This prevents the bees from coming up into the western and getting travel stain on the jars.

The honey flow: the artistry begins

Now comes the fun part. The bees do not usually get an opportunity to demonstrate their artistic side without the influence of foundation; normally foundation and the spacing of foundation (bee space) is their only palate. Now with starter strips and their innate artistry, they create edible art.

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As the honey flow progresses, so does the artistry. Depending upon conditions within a couple weeks the bees advance from starting to build comb to nearly filling it. Their progress can be followed by simply lifting the migratory cover and looking. Surprisingly unlike opening a hive and checking frames this does not seem to bother the bees.

The Harvest: almost too beautiful to eat

When the bees finish capping over the honey comb, it is time to harvest. The process of removing bees from the jars is similar to using a bee escape to remove bees from a standard western honey super. Smoke is not needed nor is it desirable. Using smoke runs the risk of getting small particles of ash in the jars.

Remove the empty western with its cover. Lift the modified cover with the attached jars assembly and set it aside. Place the bee escape over the upper most brood box and reposition the modified cover with its jars over it. Finally replace the empty western and cover. Keep in mind without bees in the jars there is no temperature control. Therefore, if it is not protected from the sun, provide a shade cover for the hive. Within a day the bees will have left the jars. At this time remove the assembly and replace it with a honey super. The bees can use the remaining honey flow to fill the super with winter stores.

To separate the finished jars from the modified cover take a knife and pass it between the ring and the cover. Remove the metal ring and clean up any unneeded wax or propolis by scrapping it off with a knife.

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Before filling the jars with bulk honey, they need to be stored in the freezer to prevent wax moth larva from hatching out. Screw the plastic storage lids LOOSELY in place on the jars and store them in a well sealed card board box in the freezer for at least 3 days.

When it is time to fill the jars with bulk honey, take the box out of the freezer and allow the box with the jars to come to room temperature BEFORE opening the box. This takes about a day. The reason this is so important is if cold jars and comb are exposed to air, water will condense on them. Your last step is to fill the spaces between the honey comb with bulk honey and cover the jars with plastic storage lids.

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Glass jar beekeeping combines one of nature's most unique packages with one of its most unique foods. It gives the bees the opportunity to display their artistic skills while giving you the opportunity to watch your artists at work.

Very little information is available on glass jar beekeeping. Much of what is described comes from the 3 years I have spent learning how to do glass jar beekeeping. As I have worked with the bees to build these edible creations, they have taught me some important lessons. Probably the most important is that a young queen must lead the hive. I also learned that the glass jars need to be the only place the bees have to store surplus honey. The final lesson is that the hive must be strong and healthy.

Like any bee keeping technique glass jar beekeeping can be modified or improved. With that in mind I have couple of ideas I would like to try in 2012. One is to use a thin line of bees wax painted on the inside of the jars instead of using strips of foundation. The other idea is to utilize a freshly caught swarm to quickly build the comb in the foundationless jars.

I would appreciate feedback about what you learn from your bees while working with glass jar beekeeping.

For further reading:

The Quest for the Perfect Hive by Gene Kritsky

The Hive and the Honey Bee Revisited by Roger Hoopingarner

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Biography: A retired biology instructor, Morris has been a beekeeper for 43 years. An active member of the Oregon's Lane County Beekeepers Association, Morris is one of presenters at the Club's Annual Bee School and actively mentors new beekeepers. Currently he is helping to implement Oregon's new Master Beekeeper Program. He can be contacted at Ostrofsky@pacinfo.com