

"In the Beekeeper's Work Shop"

10 Minute Projects: Queen Marking Cup

©by Stephen E. Tilmann

Queen Marking Cup

A couple of years ago I embarked on a journey to become proficient in rearing my own queens. My local beekeeper club held a queen rearing class before which I was 100% totally intimidated by the notion. After the class, I was 50% intimidated.

This year I took another class sponsored by my local club. I finally figured out that rearing queens is not at all difficult and greatly expands my horizons as a beekeeper.

Marking a queen, however, remains one aspect of the job at which I am still a clutz. I just can't seem to efficiently grab the lady between my fingers and get a dab of paint on her thorax. I'm not really sure why. Maybe I am afraid that I will somehow damage the queen. Maybe it is the buzz she makes when I grab her. Maybe it is that reptilian part of my brain that is still (overly) cautious about getting stung when I grab a bee. (I have never been stung by a queen. I have not even talked to anyone who has.) But there you have it...

But having a marked queen is a really good thing. Not only does the mark make finding the queen a lot easier, you can definitely know if the old queen has been superceded. Also, marking the queen is a good way to keep track of her age.

Then one day I discovered a queen marking cup. This gadget is essentially a tube with a screen on one end (Figure 1). A foam covered plunger gently holds the queen up against the screen so that I can dab her thorax with a queen marking pen. It works really slick.

Gone are the days of stressing out me and, more impor-

tantly, the queen. I can mark a newly emerged queen in less than a minute. This simple gadget is worth its weight in queens.

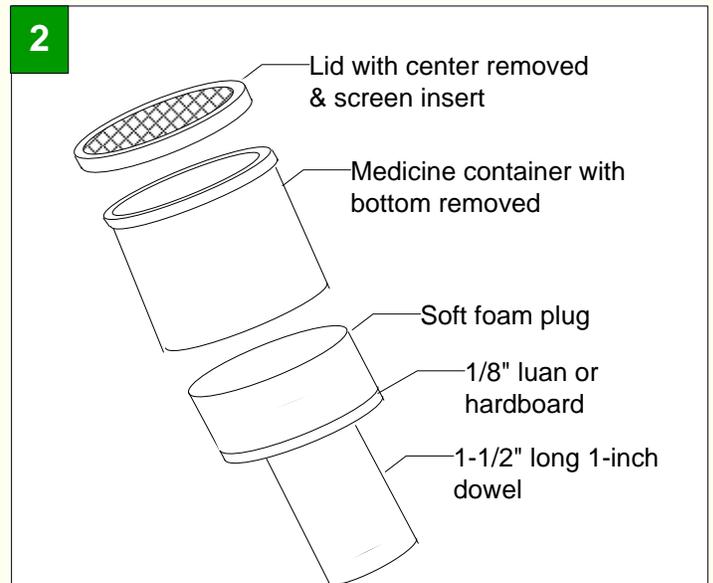
Making a queen marking cup as a workshop project has several things going for it. First, it is quick. The entire job will probably take less than 10 minutes. Second, you can make this entire project out of recycled and scrap material. That always appeals to me.

Basic Construction

The essence of a queen marking cup is the tube (Figure 2). The diameter should be in the 1-1/2 inch to 2 inch range, though I have made marking cups that are quite a bit larger and they work just fine. I have also made marking cups with smaller diameters which did not work as well (in my opinion).

When I started this project, I headed to the household recycling bin and looked for a plastic container that might work; something with straight side walls and preferably a lid. I settled on a plastic medicine container (Figure 3) that was 1-3/4 inches in diameter and about 3-3/4 inches long. A snap on cover made this container just about perfect.

On commercial queen marking cups, the screen opening



A queen marking cup can be made from the top 1-3/4 inches of a discarded plastic medicine container. The middle of the snap on cover is cut out and replaced with a disc of #8 hardware cloth. The plunger is a 3/4-inch thick soft foam plug is glued to a wood base and attached to a short piece of dowel.

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is 1/8 inch. This is the same size as #8 hardware cloth, which is used for a variety of other project in the beekeeper's workshop. The screen will be less than 2-inches in diameter, which is why you never throw away scrap material from other projects. You never know when you might need it.

The plunger consists of a soft foam plug cut to fit inside the tube. I found a sheet of soft foam (not rigid or styrofoam) that is used for packaging. You need a piece about 3/4-inch thick to work. If you don't find something around the shop, then head down to your local recycling center. They always have huge tubs of this stuff and surely you will find something

that will work.

The foam is glued to a thin wooden disc-shaped base attached to a dowel for the handle. It turns out that a 2-inch hole saw is just about perfect for making the base as the hole cut out is close to the diameter of the plastic medicine container. Using a hole saw to make the plunger base simplifies things considerably, although you can easily cut a small circular disc by hand. This project calls for a 1-inch dowel as the handle but any scrap piece of wood of appropriate shape would work. Perhaps a short piece of broom handle or something cut from a scrap 1x4 (the handle does not have to be round).

Before You Begin...

There is considerable latitude in selecting a container to use as the tube in this project. I have used small medicine jars (about 1-1/4" diameter) up to much larger plastic jars which had a previous life as a grated cheese container. They all work but the larger medicine container shown in Figure 2 worked best for me.

I recommend you select a container that has straight sides

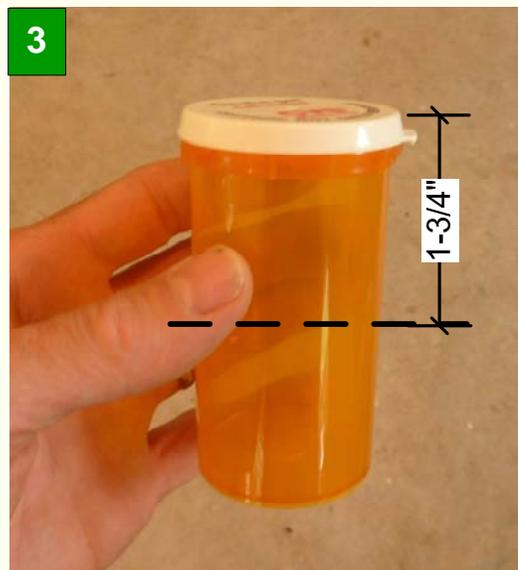
(no indentation on the inside top) and a lip on the inside of the lid. This inside lip makes installing the wire screen a lot easier.

No matter which type of container you use, the basic steps shown in these plans apply. So if we mention a specific size or dimension, remember that is for our project and not necessarily yours. Be creative... and enjoy!

Construction Details

Step 1. Cut the Container to Length

Using the plastic container you selected for this project, cut about 1-3/4 inches from the top (Figure 3). A fine-toothed saw, such as a hack saw, will do the job. You might want to touch up the cut with sandpaper to smooth the edge.



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Construction Details

Step 2. Cut Out the Middle of the Lid

Next, we need to cut out the middle area of the snap on lid to the medicine container. Most lids have an inner and outer rim on the bottom. Leave about an 1/8-inch lip along the inside of the inner rim. This lip will hold the screen (Figure 4).

Most lids are a flexible plastic material and can be cut with a utility knife. If necessary, smooth out the cut edge of the lid with either a round file or a piece of sandpaper wrapped around a small dowel.



Step 3. Cut & Install the Lid Screen

From a scrap piece of #8 hardware cloth, cut a small disc that will just fit inside the lid and rest on the 1/8-inch lip. Run a fine bead of household silicone sealant around the lip and press the screen into the bead (Figure 5).

#8 hardware cloth is available at your hardware store (they might have to special order it). It is a welded wire mesh with 8 openings per inch (ie., each opening is 1/8-inch square).

I use #8 hardware cloth for a lot of different project in the workshop, including screened bottom boards, starter colony boxes and a variety of cages (see Resources on page 5). So don't worry when you purchase a roll of the wire mesh. You will use it sooner or later.



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Step 4. Make the Plunger Base

From a scrap piece of 1/8-inch plywood (ie., luan), hardboard or other suitably stiff material, cut out a round disc that will slide easily up and down inside the medicine container (Figure 6). If necessary, sand the edges smooth.

We found that a 2-inch hole saw was just about right for this job. Hole saws cut a hole, but leave a circular disc from the cut out. A 2-inch hole saw will leave a cut out that is pretty close to 1-/34 inches, the inside diameter of the container we used. If the cut out is a bit large, then sand the edges to fit (see Photo Gallery at end of article).



Step 5. Make the Plunger Handle

The plunger needs a handle (Figure 7). We used a 1-inch diameter wood dowel cut to about a 1-1/2-inch length. However, any suitable material will work - such as a piece of broom handle - and it doesn't have to be round either.



Step 6. Cut the Plunger Foam

The foam for the plunger needs to be soft (Figure 8). Don't use a hard foam, such as Styrofoam or styrene. Soft foam that is used for some packaging is fine. If you don't have any handy, go to your recycling center and get it there. You'll find tubs full of the stuff.

The foam plug should be about 3/4-inch thick. If the foam you have is thicker, you can cut it with a knife (a serrated bread knife works well). Trace the outline of the wood plunger base (made in Step 4, above) on the foam and cut out the circle. The plug should easily slide up and down the tube.



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Step 7. Assemble the Plunger

Now we can assemble the plunger (Figure 9). Screw the handle to the base. You might want to consider gluing the handle to the base as well.

Smear a fairly thick layer of silicone sealant to the top of the base and press on the foam plug. After a few minutes, the plug will be firmly attached. Check to make sure the plunger slides up and down the tube and the plug can be compressed against the screen.

Variations on the Theme

I have also made much large queen marking cups out of recycled cheese containers (Figure 10). While the larger size seemed to work OK, this container did not work as well (in my opinion) as that described in these plans. The screw on cap was nice, but the softer sides made a snug fit of the plunger iffy. And there is a narrowing of the container inside the threads (top) which made cutting the foam a bit more difficult. All in all, these disadvantages outweighed the advantages.

I have also went the opposite direction and made marking cups out of small medicine containers. This container worked OK and scored high points for portability. However, the diameter was just a bit too small for my liking. The bottom line is do what works for you!

Resources

A video of this project can be found on Youtube at...
www.youtube.com/user/beekeepersworkshop

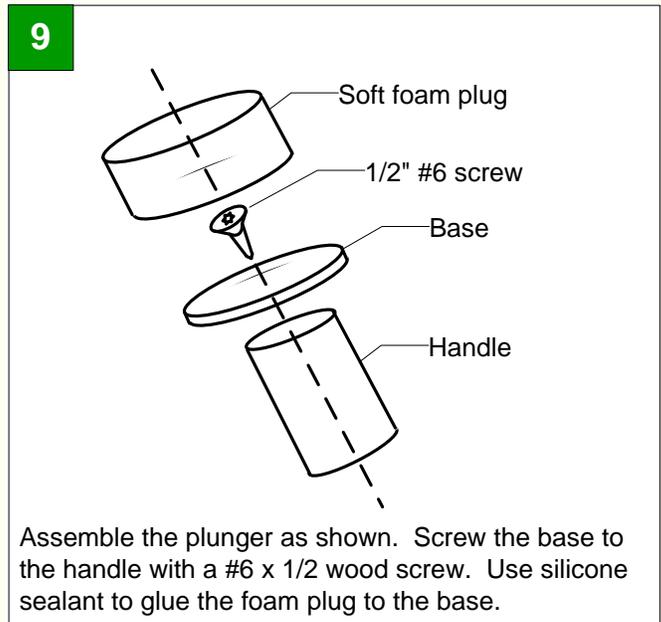
Dadant & Sons (1997). *The Hive and the Honey Bee*. Chapter 12.

"Building a Bee Hive" series. Published on-line at www.michiganbees.org/beekeeping/in-the-beekeeper's-workshop. For other beekeeper's workshop project plans, search for "workshop".

Other plans in the "10 Minute Projects" series include...

- * Pocket Queen Cage
- * Queen Introduction Cage
- * Queen Cell Protector Cage
- * Hive Ventilation Screen

These plans can be found on the michiganbees.org web site referenced above.



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List of Materials: Queen Marking Cup

Material

		Reference Figure
Small Medicine Container	Approx 1-3/4 dia. x 3-3/4 high	3
Plunger Foam	Soft approx 3/4 inch thick	3
Plunger Base	1/8 thick luan or hardboard	7
Plunger Handle	1-inch dia. dowel or suitable	8

HARDWARE

Household silicone sealant
#8 hardware cloth
#8 x 1/2 inch wood screw

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Photo Gallery...



Photo Captions:

1. Cutting containers to length.
2. If possible, select a hole saw close to the size of the container .
3. Using a drum sander to smooth the edges of the wood base
4. Marking a queen with the queen marking cup.
5. The parts (disassembled) of a queen marking cup.