Bee traps or better known as Bait Hives attract the swarm of honey bees when they can no longer fit in the actual bee box or when the bee box gets too full. A bee trap is a hive set up to catch the swarm during the swarm season which is usually in the late spring and the early summer. When dealing with honey bees you must take a lot of precautions so that none of the bees are harmed. If one bee is harmed, all the bees are harmed. Bait hives are very simple to build and don't take a lot of materials. For the first bait hive, the group built what is known as a top bar hive. Most bait hives have slats that easily slide into the trap however this one is different. Top bar hives have five or less bars on the ceiling of the box. The bars have a small wood on each bar which allows as a grip for the bees to start building on. Top bar hives are easy to build and highly recommended when dealing with bees. Here's a look at the materials and methods to get the project started. (Bait Hive, Velacreations. Velacreations.com).

**Top Bar Hive:**

**Materials and methods:**

- 1x10 by 8 ft non treated lumber (cedar or pine works as well)
- 24X1½” wood screws
- 10X ¾” wood screws
- Boiled linseed oil or natural wood preservative (optional)
- 2 X 11” by 3” pieces of sheet metal
- 1” cube of bees wax (bait)
- ¼ cup olive oil (bait)
- Lemongrass oil (100 percent natural/ organic)
Figure One:

Step 1. The simple hive uses top bars from your honey cow, for easy transfers in the future. We use top 6 bars for interior width of 8 ½”. This interior width may vary according to the exact width of your top bars. Start by measuring the total width of the top 6 bars. If they are more than
8 ½” in total width then use 5 bars instead of 6. This measurement will affect the length of the sides and bottom. In this version the sides and bottom pieces are 10 ½” long (8 ½” plus 2 inches for the thickness of the lumber).

Step 2. Start by marking one side of a 1X10 by 8 ft piece of lumber as follows, 24”, 33 ½”, 40 ½”, 51”, 61 ½”, 72”. On the opposite side of the board, mark as follows: 7”, 16 ½”, 40 ½”, 51”, 61 ½”, 72”. Draw lines between the marks, to create your cutting template. Using a circular saw cut the board. (see the diagram).

Step 3. On the cut edges of the side and bottom boards, drill 3 holes along each side (6 total per board) make the hole about ½” from the cut edge. For the top, drill 4 holes, 2 on each side of the factory. (uncut edge).

Step 4. On a flat surface place the front and back boards with the 24” edge down. So that the boards are upside down. There should be an 8 ½” - 8 2/4” space between the boards. Lay the bottom board in place on top of the front and back boards and screw in place, carefully keeping the face boards square. Test the width of your bait hive by placing your top bars in between the face boards. They should fit easily but not have any spaces between the top boards, now, screw in each side board, carefully keeping the width of your box consistent.

Step 5. Once everything is screwed together, use a ¾” drill bit to make an entrance hole on the bottom of one of the sides. Round the edges of the hole to give a nice opening.

Step 6. You can weather proof your bait hive using linseed oil or beeswax. Try to avoid chemical preservatives as they will add a smell to the hive that might repel the bees.

Step 7. Use a bit of white paint to paint around the small opening for the bees. Use a highlighter to decorate and mimic a flower look. Bees can see fluorescent colors very well.
Step 8. Put the top bars in your hive. Attach the pieces of sheet metal on each side to prevent the top bars from moving or shifting. (Bait Hive, Velacreations. Velacreations.com).

For the first trap, the group worked on the top bar hive. This consisted of cutting the lumbar, piecing it together, staining the wood, adding accessories such as handles, latches, and wooden flower accents to lure in the bees (see figure five for the finished results). In figure six and seven, the box consists of 5 top bars. These bars will help the bees build their combs until they get transferred into a regular bee box. Figure 8 shows a painted flower accent. The flower is
what attracts the bees into the small hole in the middle. Here's a look at a few different pictures to show the finished product.

**Bucket Trap**

For the second bait hive we recycled an old five gallon bucket. This bait hive took little to no materials and was cheap and easy to build.

**Materials and methods:**

- Saw to cut the lid of the bucket
- Gorilla glue to hold pieces together
- Mesh wire
- Masking tape to hold wire together
- Five gallon bucket
- Lemongrass bait

Step 1: Get an old five gallon bucket preferably recycled. Shown in Figure 1A

Step 2: Cut out the entire center of the bucket lid leaving it hollow and open.

Step 3: Cut out a circular piece of mesh wire to fit in the hole that was cut out of the bucket lid shown in Figure 2A.

Step 4: Use a staple gun or gorilla glue to hold the mesh wire down and in place to keep it secure shown in Figure 3A.

Step 5: Cut out a small hole in the middle of the mesh wire circle shown in Figure 4A.

Step 6: Use some of the mesh wire to cut out a cone shaped piece of wire to place inside of the hole that was cut out in the middle of the larger piece of wire. Place the cone facing down. This will need some gorilla glue applied to it as well to keep in place. The cone part will need to be
taped together first, after that is done put some gorilla glue on the cone where the wire has been cut to give it some extra security. Shown in Figure 6A.

Step7: The bucket trap is now finished. Place the lemongrass bait inside of the bucket as well as the lid on the bucket and it's now ready for use.

The images are in order. Figure 1 shows the mesh wire being cut out in a circle to fit in the hole that was cut out of the center of the bucket's lid. Figure 2 and 3 are pretty self explanatory. The show that the mesh wire was placed in side of the hole and gorilla glue was applied for support.

Swarm Box:
Building a swarm box is a very inexpensive way to bring in bees. This project includes plywood, about 4 to 5 frames and some essential oil to attract a colony.

**Materials and methods:**

- 1/2 inch plywood cut into the measurements shown in the photo
- an additional piece of wood cut 3 inches by 24 inches for the hanger
- wood glue
- screws or nails
- 1/2 inch wire mesh
- wire snips
- roofing nails or screws with washers
- lemongrass essential oil

Step 1: Begin by cutting the lid, sides and bottom piece as shown in figure 2B. Run a bead of wood glue against each adjoining side screw together the bottom and sides.

Step 2: The frame hanger pieces can be glued and screwed about 1 inch from the top of the box. The frame ledge will rest on this shelf.

Step 3: Cut an additional piece 3 inches by 24 inches for the hanger. Drill a 1 inch hole using a hole saw near the end of the board. This hole will be used as the hanger. The large circumference makes it quick and easy to remove the swarm box once it’s full of bees. Attach this to the center of the backboard.

Step 4: Drill a 1 inch hole using the hole saw, in the center of the front of the box about an inch from the bottom. This is the entrance hole. Shown in (Figure 4B).

Step 5: The lid can be attached by screwing a screw with a washer in one of the back corners. This allows the lid to pivot open.
Now that the bait hives are finished and built its time to attract them. In order to get the bees inside of the hive, some sort of attractant will be needed. Lemongrass is the best substance to be using when performing this task. It's easy to make and works the best. Heres all that's needed to get started:

1. Place your small glass jar in your saucepan, and raise it about 1” off the bottom of the pan on a metal rack or something similar. Put some water in the saucepan, up to about halfway on the jar. (Bait Hive, Velacreations. Velacreations.com).
2. Put the saucepan on the stove and slowly heat the water. You don’t want it boiling, just simmering. When the water is simmering, place the 1/4 cup of olive oil and the 1” cube of beeswax in the glass jar. It helps if you cut the beeswax into smaller pieces. Stir constantly. (Bait Hive, Velacreations. Velacreations.com).

3. Once the wax is melted, turn off the heat. Place about 15-20 drops of lemongrass oil in the wax/olive oil mixture, and stir well. Take the glass jar out of the water and allow to cool. Once cool, this makes a great “bee lure” for attracting your bees. (Bait Hive, Velacreations. Velacreations.com).

4. Rub a bit of the bee lure on each top bar in your bait hive, and a bit around the entrance. You don’t need much, just a dab. (Bait Hive, Velacreations. Velacreations.com).

**Experimental protocol:**

Looking at the three finished bait hives. It's time to figure out which one will work the best and which one won't. Taking a look at the top bar hive in figure 5, this one may work the best because it's sealed the best. Figure 3 shows a latch so there's no way for anything to get into the hive. Top bar hives are used a lot in beekeeping. The top bar hive is easy to build and it's easy to remove any bees that decide to make a hive inside.

Taking a look at the second hive, made from a bucket. This trap has a lot of disadvantages. Typically when trapping bees it's important to build a hive that acts like an actual bee box. Bait hives act as a substitute home when there is no longer anymore room in the actual box. The bees must be able to build a new comb inside of the trap and looking at the bucket, there is no place for the bees to do just that.

Last but not least, the swarm box. Similar to the top bar hive, this box acts like a substitute bee box. This one should work just as good as the other top bar hive because they are
pretty much the same. Similar to the first one, this one includes a latch as well to keep any predators from getting in. This one may work just as good as the first one because they are so exact with each other.

Now that the information has been discussed for each trap, it's time to figure out which hive will work the best based on the given information. Starting with the bucket trap(s). The bucket traps are meant to act like a regular bee trap, sort of like the yellow ones spotted hanging in a person's backyard over the patio. The bucket traps' purpose is to catch bees and allow the keeper to transport them easier and in a safer way. Similar to the top bar hives, the bucket traps require some sort of attractant to get the bees inside. Lemongrass and beeswax will do the trick! Shown on the bottom of page 8, a list of instructions is shown to make the bait for the traps.

1. Figure out what bait will work best and what hive will work best.
2. Use two different types of bait such as honey or lemongrass to test which works best.
Work cited page:


December 6, 2014 Keeping Backyard Bees, Jennifer Sartell,
http://www.keepingbackyardbees.com/how-to-build-a-swarm-box/