



The Honey Company
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by Stan and Alicia Moulton
adapted from *Beekeeping in*
Northern Climates

Beginning Beekeeping Series

Lesson 5: Beekeeping the First Year

Lesson 5 will cover how to check on honeybees. It will start with an inspection how-to guide and then go by date from the day after hiving the package through the summer.

Inspection How-to guide

This how-to guide will describe how to start a smoker, remove the lid, take out a frame, and shake bees from the frame.

How to start a smoker: Smoke calms bees and causes them to drink honey. They are less able to hunch over and sting when full of honey. Smoke also masks the attack pheromone that guard bees produce when the colony is disturbed. Less attack pheromone means less aggressive stinging for the beekeeper.

When a smoker is brand new, be sure to insert the fire grate into the fire canister before inserting fuel. It helps with air flow.

To start the smoker, place fuel loosely inside the fire canister. We use old burlap bags or cotton denim as smoker fuel. Light the fuel and pump the bellows to produce a small flame. We prefer a lighter to matches. Lighting a smoker takes practice.

Close the lid and look for smoke coming out the snout. The smoker should be producing cool smoke, and no flames should be coming out of the snout. Flames singe wings. Also, use caution starting fires in dry fields.

To smoke bees, aim the snout and squeeze the bellows. See Figure 2. When inspecting the hive,

apply a few puffs of smoke in the entrance and under the lid, across the top bars of the frames.

To conserve fuel, place the smoker on its side when not in use. This will interrupt the air draft through the smoker and eventually extinguish it. The smoker may be hot enough to start a fire, so use caution when setting it down.

Another way to extinguish the smoker is to roll a small handful of green grass in the palms of your hands and place it in the snout of the smoker. This will stop air circulation and put the fire out.

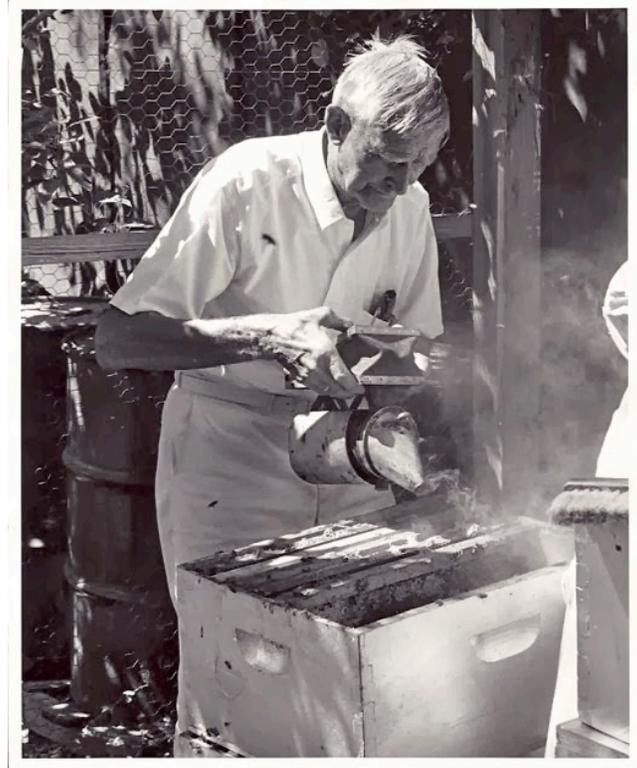


Figure 1. Grandpa Arthur Andersen using a smoker at 99 years old.

How to remove the hive lid: Bees glue the lid to the box with propolis. The hive tool functions as a pry bar to lift the lid. Insert the straight tip of the hive tool between the box and the lid and press downward firmly. This should break the propolis seal and allow access to the frames.

To preserve the box, use the hive tool on the side of the box rather than the front. The frames rest in a groove at the front of the box, making the front of the box weaker structurally.

*Note. We use migratory-style lids. Telescoping lids will come off without prying, but the inner cover will be glued down with propolis. Use the same method to remove the inner cover.



Figure 2. Using hive tool to remove lid.

How to remove a frame from the hive: To remove a frame from a box, use the hive tool to pry the ears of the frame from the frame rest. They will be glued down with propolis. Lift the frame straight up out of the hive so bees don't squish. See Figure 3.

If a frame has been excessively propolized, prying it with the hive tool may break the top bar off of the frame. Be careful prying frame ears.

Also, when there is excessive bridge comb in the hive, a frame in the top box may be connected to a frame in the box beneath it. You may need to crack the two boxes apart with the hive tool before

removing the frame. This process is similar to removing the lid.

*Bridge comb is comb built off the frames and connects frames together like a bridge.



Figure 3. Lifting frame out of the hive.

How to remove bees from a frame: If you need to remove bees from the frame, hold the frame by the side bars and shake the frame abruptly downward. This will jar the bees from the frame into the hive. (Some people use a bee brush, but we think it just makes bees mad to be brushed.)

Day 1 After Hiving

The day after installing your package, 24 hours later to be exact, check to make sure bees are

getting some sugar syrup by looking at the level in the feeder and compare with yesterday. Disturb the bees as little as possible.

Your hive stack should include, from the ground up, a hive stand or pallet, the bottom board, the hive body box with 10 frames, and the lid. You will add a second box in about 6 weeks, after bees fill the first one. See Figure 4.

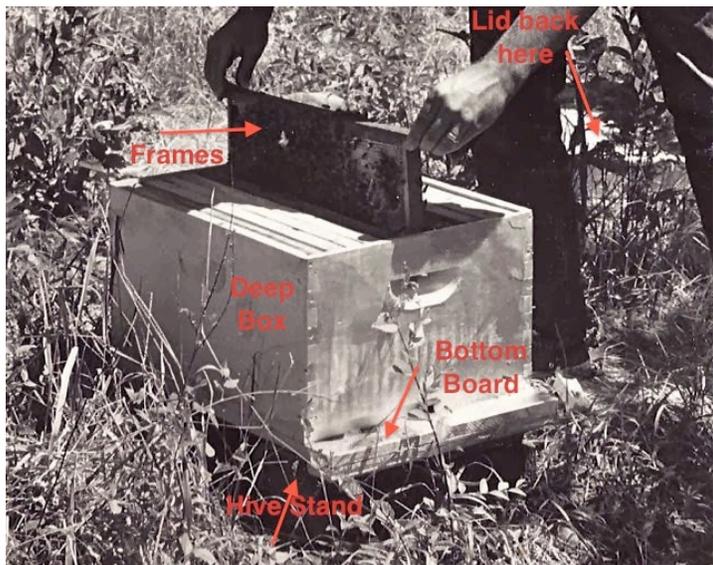


Figure 4. Vintage photo of a hive stack 1 day after installing a package.

4-7 Days Later

About a week (4-7 days) after installing the package, you will want to check to see if the queen has been accepted. You will know you have a working queen if you see eggs and capped cells. There is no need to find the queen, just evidence of her presence. This evidence is eggs. Hobbyists like to look for the queen for recreation, and that's okay too.

The best time to look in a hive is when the worker bees are out foraging in the daytime.

Pry the lid off and set it aside. Puff a small amount of smoke across the top bars of the frames. You should see bees go down between the frames.

Carefully remove a frame from the middle of the cluster. Look in the cells of drawn comb to check

for eggs. Eggs are long, thin, round, and white. In Figure 5, almost every cell has an egg. Can you spot them?

Sometimes eggs are tricky to see because the skinny end will be poking up toward the top of a cell. (It's like looking at a pencil eraser head on.)

Feed bees light syrup and pollen replacement (if using). Refill the feeder as bees empty it.

If syrup smells off or fermented, discard the syrup, rinse the feeder, and refill it with new syrup.

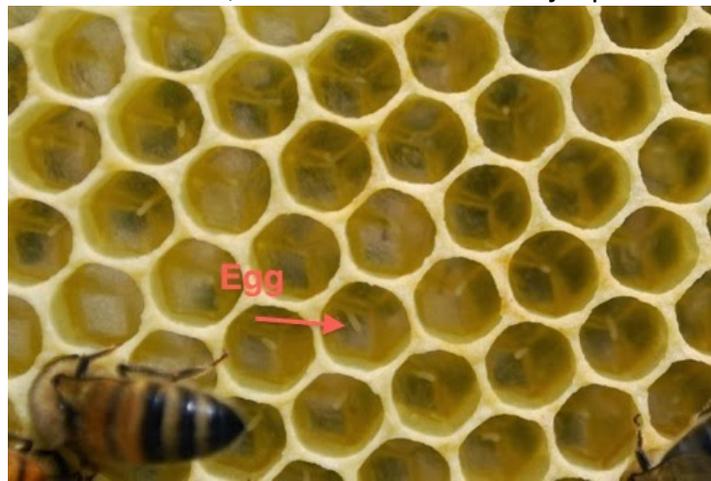


Figure 5. Awesome photo from <http://www.beesinfrance.com/2010/honeybee-eggs-in-france/>

Weekly Inspections Through the Summer

Expect to inspect bees every 7-10 days through the summer. There are Four things to look for in inspections: check bees and brood, feed bees, provide room for expansion, and harvest honey. Harvesting honey will be covered in a future Lesson.

1. Check bees and brood.

Open the hive and apply smoke to the top bars of the frames. Then gently lift a frame of bees to inspect it. Look for eggs and brood in various stages of development.

Look for a good brood pattern. A good brood pattern is where most of the wax comb cells have a young bee growing in them. (Immature bees are called "brood.") Figure 6 shows a frame with a good brood pattern. The opaque, yellowish cells in the bottom middle contain brood and are sealed with wax. There are some open (dark) cells too. The frame also has honey stores arching across the top. The wax on top of the honey cells is lighter in color and more translucent.



Figure 6. Frame with good brood pattern.

It will take about 21 days for new bees to emerge. The original worker bees from the package will dwindle in number during this time.



Figure 7. Brood in various stages of development. Photo is of AEVAC educational poster.

In the hot summer, bees will cover the front of the hive. See Figure 8. This is normal. Bees hang on the front porch to cool off and during rush hour a the hive. It is called bearding.



Figure 8. Normal hive showing bearding behavior.

2. Continue to feed bees.

Keep feeding bees light syrup until there is a steady nectar flow, they have drawn comb in most of the frames in the bottom box, and bees have two full frames of honey. You will probably use 20-25 pounds of sugar per hive.

3. Provide room for expansion.

Once bees have filled 8 of the 10 frames in the bottom box and are starting to build comb on the outer-most 2 frames, add a second deep box. This will be about 4-6 weeks after installing a package. *Note, if you are starting from drawn comb rather than foundation, bees will fill frames in one box about 2 weeks faster.

To add the second box, remove the lid from the colony and set it aside. It is a good idea to prime the new box with a full frame.

To prime the box, puff smoke across the tops of the frames, and remove one full frame. We like to use the third frame from the end.

Place this frame in the middle of the second box. Put an empty frame in the bottom box in its place. Place the second box on top of the first and add 9 more frames. Adding a full frame to the second box will help bees go up into the second box.

Bees should be free to move between boxes. See Figures 9-10. Place the lid on top of the second box. The second box is part of the queen's brood chamber.

Add the third box when bees are working on the outer two frames of the second box. This will take 8-10 weeks. Repeat the priming process. The third box is considered a honey super. We use all deep boxes, therefore our honey supers and brood boxes are all the same size. We do not use a queen excluder. An old saying goes, "A queen excluder is a honey excluder." However, if you are using a queen excluder, it should go between the 2nd and 3rd boxes.

Add additional supers as needed during nectar flow. Some beekeepers continue to stack supers on the hive and then harvest all of the honey in the fall. See Figure 9. Others let one super fill up, remove it, extract the honey, and replace it. See Figure 10. For this method, it is nice to have an extra super handy for sorting frames.



Figure 9. Three honey bee colonies stacked tall with supers. This beekeeper is adding a 4th super to the hive. He has removed the lid, primed the box, and is adding the box to the top. He will then replace the lid.



Figure 10. Another bee yard, which we manage 2-3 boxes tall. When a supers is full, we will replace it with an empty super, and bring the full frames home to extract.

4. Harvest honey above the second box until Labor Day. See Lesson on harvesting honey.

There are many aspects of beekeeping not covered in this lesson. The forum we use for beekeeping problem solving is our site, "Let's Go Beekeeping," where beekeepers can ask questions by email and receive answers via YouTube video.

What should I focus on as a beginning beekeeper?

With an overwhelming amount of beekeeping information out there, what should I focus on during my first year of beekeeping?

The first year of beekeeping needs to be spent on learning the “basics” of bee management. After gaining a bit of experience, start experimenting with different management practices, queen breeds, etc. For now, here are a couple things to focus on.

Learn the life cycle of your colony. This will be different for each beekeeper and location. Get to know your hive.

- ★ Learn about bee biology and notice eggs, larvae, and pupae in your hive.
- ★ How much propolis are bees making and where do they put it?
- ★ When does the queen lay peak numbers of drones? Workers?
- ★ How do the queen’s attendant bees act around the queen? This will help you spot her.
- ★ How many weeks pass before you add another box?
- ★ How long does it take for bees to draw comb?
- ★ Etc.

Learn the timing of nectar flow in your area.

- ★ What are the first flowers to come out in the spring?
- ★ What are the last flowers blooming in August and September?
- ★ When do the fruit trees bloom? How long does the bloom last?
- ★ Which other flowers attract bees?
- ★ Do you see bees on roadside flowers?
- ★ Are there bees in your vegetable garden?
- ★ Does honey taste different at different times of year?
- ★ Etc.

Nectar Flow

Here is a partial list of important blossoms to honeybees in Utah, in semi-order of appearance.

Willow
Oak
Dandelion (one of the most important spring flowers to bees)
Fruit trees
Birds foot trefoil
Clovers, like yellow sweet clover
Vetch
Sumac
Alfalfa
Linden trees (basswood)
Sunflower and other asters
Goldenrod
Rabbit brush

The main nectar flow is from late June to early August.



Figure 8. Honeybee on parsnip flower.