

HABA Bee School 2018
**FIRST YEAR HIVE MANAGEMENT
AFTER PACKAGE INSTALLATION**
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The “program” of a colony of honey bees, beginning right off the bat, is to survive by multiplying itself all summer and get through winter. Worker bees create wax comb. The queen lays eggs in it. Worker bees feed the eggs and larvae; they forage for pollen and honey and store it in the comb. It’s pretty basic.

When you install a package of bees in April or May, they are starting from scratch. Their first job is to create comb so the queen can begin laying eggs. They need sugar for their own caloric needs—producing wax takes a lot of energy! The queen will only lay as many eggs as this amount of bees can keep warm and gather pollen to feed larvae. It takes 21 days for an egg to become a bee . . . so there is not any increase in population to do all this work for at least 3 weeks after installation. Their little tongues will be hanging out, especially if the weather is cold.

But as soon as new bees are born, they get to work and pitch in with building comb and taking care of brood. The weather is getting warmer too—keeping brood warm is not so difficult and there is more pollen and maybe a little nectar out there. The queen ups her egg laying as fast as new bees can accommodate. You can see why population increase is exponential!

If you understand this basic process, you are well on your way to knowing what to do to enhance this program. Like any livestock, you need to make sure your bees have adequate nutritious **FOOD** to do their work and enough extra to store for winter. Fortunately for us, bees go out and gather their own food. Unfortunately for us, our northern climate does not provide food early enough in the spring, or late enough in the fall. We have to understand how to monitor food supply and supplement it.

A colony of bees numbering 3-5,000 bees in the spring will peak at 40-50,000 bees mid summer. When you remember that bees only live about 5 weeks during the summer, you realize this involves a lot of egg laying. The bees need adequate **SPACE** for this expansion.

Although your colony starts out small in just one “deep,” as they increase in number they will need two deeps (or 3 mediums). In order to last the winter, they should have 50-60 pounds of honey stored up in these two deeps. So, here are guidelines for watching this process and knowing when and how to take appropriate action.

1. **FEED THE BEES**

- a. You need to feed your bees beginning at the time of installation. Mix a solution of 1:1 sugar solution (one part sugar to one part water). Use a quart jar in a Boardman feeder, OR a gallon Zip-lock bag with a couple 1” slits placed on top of the frames, OR any number of feeders placed on top of the hive. The colder the weather, the more sense it makes to check into methods of “indoor” feeding. The method is not important. **KEEP FEEDING** your bees until they stop taking it—sometime in May or early June. They can guzzle a quart a day—monitor your solution.
- b. You should not worry about feeding pollen when you install in late April or May because there is pollen out there beginning in March.
- c. Make a record sheet to track when and how much you feed. This information could be handy next year.

- 2. RECORD KEEPING:** Before you inspect a hive, you should ask yourself why you are making this particular inspection. This will tell you what equipment you need and what you are looking for. In addition to writing down what you observe every time you look in the hive, make a note of when and why you will look next time. **Mark it on the calendar!** Next time you inspect the hive, **review your notes!**

1. HIVE INSPECTION—BASIC SCHEDULE

3-5 DAYS after you install your bees and queen cage (also called a capsule) into one deep.

PURPOSE: see if the **queen is out** of the capsule.

- If she's out, remove the cage and replace the frame. Best not to pull frames, but peer down and observe if bees are busy in between multiple frames. If you see they are busy, go home smiling. If not, consider the temperature and come back in a week.
- If the queen is not out yet, check the bee behavior around the queen cage. Are they head toward the queen (acceptance) or are they "butt down" (still not accepting queen)? If they look happy with the queen you could loosen the sugar plug a bit, otherwise just wait patiently.

7-14 DAYS later (this depends on whether you've introduced your bees to naked foundation or to drawn comb.)

PURPOSE: to determine if your colony is **Queen Right**.

- You may or may not see the queen. No Problem!
- Focus on looking for **Evidence** of the queen:
 - ✓ Eggs? (good luck seeing those!)
 - ✓ **Larvae**, small or large
 - ✓ **Capped brood**
- Go home and smile. If no evidence, come back in a week.

ABOUT EVERY 2 WEEKS

PURPOSE: to make sure your population is increasing and your bees have **enough space**.

- Once you have 4-5 drawn frames with larvae, capped brood, pollen and nectar/honey it is time to add the 2nd deep.
- Once you have 4-5 drawn, partially filled frames in the top deep, add a couple supers, with or without queen separator.
- If bees aren't drawing out the top super, move it below the drawn one. When they start filling that 2nd super, you can add a 3rd super to the bottom of the stack.

June

- Look for normal brood pattern—patches of larvae, capped brood. Look for pollen and honey storage around the brood chamber.
- If nights are warm, remove the bottom board floor if you have one.
- Consider moving frames to make sure every frame is drawn and used for either brood chamber or honey storage.
 - ✓ Go to <http://www.sandhillbees.com/> and under the education tab read "Maximizing Wax Production on New Equipment."
- Look for signs of swarming. How many queen cells do you see? Are any of them capped?!! If you think they might swarm, do you want to just let them do it, or will you do a split? Consider that the bees have not had adequate space and remedy that.
- Attend a bee club meeting to learn about monitoring varroa mites.

- ✓ Go to <http://www.sandhillbees.com/> and under the education tab read “Making a Plan for Varroa,” and “Step-by-Step Guide to Varroa Monitoring.”

July

- Begin performing mite counts and repeat every 2 weeks. Decide on a treatment plan and have treatment supplies on hand.
- Depending on your weather, see if bees are still bringing in nectar. Do you see uncapped honey?

August-October

- Depending on your weather, considering feeding your bees again. If there is no honey flow at this time, you don't want your bees to start eating their winter stores of honey. If in doubt, feed and see if the bees take the syrup. After goldenrod and asters finish blooming you will need to feed for sure.
- Continue mite checks. Decide on treatment when counts exceed normal limits.

October-December

- Feed bees until they quit taking syrup. Once syrup is too cold, the bees won't want to drink it. This means they are starting to eat their honey instead. This is OK!
- Attend a bee class about over-wintering bees. Bees have an amazing capacity to do fine without your help, but there are 3 things you should consider:
 - ✓ Make sure the floor is in your bottom board
 - ✓ Find a way to “angle” your lid so that melting condensation will not drip on bees. Adequate ventilation is important.
 - ✓ In December, give your bees a block of sugar or candy or fondant. If they should run out of honey in January-March this will tide them over until you can begin feeding again in the spring.

2. **HIVE INSPECTION: WEATHER REVIEW:** Its OK to schedule an inspection, but it will depend on the weather that day. Is it cold or warm? Windy or calm? Sunny, cloudy or rainy? **Check your forecast! Do not inspect hives in rain or drizzle.**
 - If you are making a hasty inspection and are *not pulling out frames*, you can inspect at 50° or colder.
 - If you are going to pull frames for inspection—then you want warm weather. Wind, sun and time of day are factors. 60° on a sunny, windless afternoon is more optimal than 70° on a cloudy, windy morning. Optimally, check your hive during the nice part of the day when bees are out foraging and the hive is not so crowded.
 - **Notice what the bees are doing.** How much in-and-out activity is there? When bees are hunkered down inside, best to leave them alone.

3. **HIVE INSPECTION: BRING WHAT YOU NEED:**

- A couple hive tools. They are never where you put them.
- A bee brush.
- Your suit, gloves and veil.
- Smoker plus tinder, fuel, lighter and plug
- A place for your frames that is NOT in the grass.
- A review of why you are inspecting: Do you need extra frames? do you need to insert a bottom board floor? Might you add supers? Do you need a queen separator? Do you need to feed your bees? Might you wish to mark your queen? Will you need your mite check kit?

4. HIVE INSPECTION: USING YOUR SMOKER

- **NEEDED:** crumpled paper, small dry fuel (dry pine needles, wood shavings, straw), filler fuel (more pine needles, shavings, wood chips, straw, dried sumac flowers).
- **GET STARTED:** light the paper in the bottom of the smoker, add a small amount of fuel, pump the bellows and **GET IT FLAMING**. Add a little more fuel, pump the bellows and **GET IT FLAMING AGAIN**. Add fuel a fist full at a time, pumping each time to get a **thick smoke**. Add fuel until the smoker is full, pack it down and add more. There are lots of videos with various fuels, but notice: They always get a good flaming fire going at the beginning.
YouTube videos <https://www.youtube.com/watch?v=6UriR2LhyBk>
<https://www.youtube.com/watch?v=jyCpSO5IKpk>
- **USING THE SMOKER:** Gently puff smoke into the entrance of the hive. Wait a minute and do it again. Wait a minute and take off the lid and inner cover. Puff smoke across the top of the frames—see the bees go down! As you work the hive, periodically puff the top of the frames to push the bees back down. When you've finished and want to replace the inner cover you can give another puff so you won't crush bees. YouTube videos: <https://www.youtube.com/watch?v=yuZziAxfWlo> <https://www.youtube.com/watch?v=BnjjULpVsDM>

5. OPENING THE HIVE

- **ALWAYS** move **slowly and gently**. **DO NOT RUSH**. **DO NOT BASH** with your tool, **DO NOT** wave your arms around or holler.
- **KNOW WHERE** you are going to set the first frame you remove from the hive.
- Gently wiggle and pry your tool between the frame ends to loosen propolis. Free the second frame from the end.
- **ALWAYS** pull frames **slowly and straight up**. Pulling this first frame is the most important because it is in tight and you are messing with the bee space. Pretend the queen is in that space.
- After looking at both sides of this frame, prop it upright against the side of the hive and on top of something, like the lid.
- Loosen the third frame, lift it out and examine both sides. Then, put it back in gently next to the first frame. Continue until you've looked at frames 2 through 9.
- **IF YOU SEE THE QUEEN**, put that frame back in the box with particular care!
- We usually eyeball frames 1 and 10 from above rather than take them out. You can see if the comb is drawn or if there's honey there. If your bees are working on one side only, you might go ahead and pull #1 or # 10.
- For an excellent video, watch YouTube <https://www.youtube.com/watch?v=BnjjULpVsDM>. **CAUTION:** We would hesitate to place a frame with the queen outside the hive, particularly on the ground! The gentleman in this video is very experienced and can spot his queen easily.

6. INSPECTING THE HIVE

- **Ask Yourself: Why Are You Inspecting Today? What Are You Looking For? What Do You Need?** Talk to yourself and/or your partner and tell yourself what you see. Get acquainted with Normal. It may not be necessary to look at every frame.
- **NOTICE** the outside of the hive. Become familiar with normal traffic for the time of day and weather conditions. **Do You See Bearding?**

- **QUEEN RIGHT: Do You See Larvae?** This tells you the queen is present and busy.
- **BROOD CHAMBER: Do You See Capped Brood? What Is Its Pattern?** Once the queen has been laying for at least 10 days, you should see big areas of capped brood. As the summer progresses, you should see more and more frames of it.
- **Pollen/Nectar/Honey RAINBOW. Do you see pollen, nectar, or honey around the edges of the brood chamber? What Is Its Pattern?** You always want to see stored food.
- **DRONE BROOD: Do You See Drone Cells? Where Are They?** By late spring, early summer you will see drone brood at the bottom of some frames. Every colony does their part to add to the drone population in the area.
- **QUEEN CELLS: Do You See Queen Cells? How Many? Where Are They? Are They Open or Closed?** There are frequently one or two queen cells here and there. If you see multiple cells, particularly at the bottom of frames, the bees may be planning to swarm.
- **ABNORMALITIES:** Do you see beetles, cobwebs, or slime? Is there a foul odor? You may have a disease. Get advice and help.

RESOURCES

- Megan Milbrath's website has excellent articles. Go to Sandhillbees.com
- University of Guelph, Honeybee Research Center YouTube videos.

Glossary of Terms

HONEY BEE: a species of bee not native to North America, brought by earliest settlers from Europe.

QUEEN: the one female bee in the hive that has mated and is capable of laying fertilized eggs.

QUEEN RIGHT: Your hive has a queen and she is laying eggs.

EGGS: Bees are insects and they begin their life cycle as an egg. The eggs feed on royal jelly secreted from glands in worker bees. This stage lasts **3 DAYS**.

LARVAE: The egg becomes a larva—the “worm” stage. They feed on “bee bread,” or pollen that is chewed and fermented by worker bees. At about **DAY 9** of the life cycle the workers place a wax cap over the larva's cell and the larva pupates into a bee.

BROOD: The term beekeepers use to refer to eggs, larvae and capped cells (capped brood) with pupating bees.

BROOD CHAMBER: The part of the hive where the eggs are laid and raised. When a bee emerges from a cell, the cell gets cleaned up and re-used by the queen to lay more eggs.

WORKER BEES: non-fertile female bees—nearly all the population of the colony. Worker Bees emerge **21 DAYS** after they are laid as eggs.

DRONES: Male bees. The queen produces a few hundred drones each year. They serve no purpose in the hive they are raised in, but they join the population of males for your local area. Drones are slightly larger than worker bees, so their capped cell looks different. They also emerge sooner—at about **18 DAYS**.

EQUIPMENT: This term may refer to everything you use for keeping bees, but more specifically it refers to the boxes and frames of the Langstroth hive. Commonly, boxes hold 10 frames. They come in three depths: **Deep, Medium, and Shallow (Super)**. Generally, “deeps” or “mediums” are used to house your bees. “Supers” are used to store extra honey for harvesting.

HONEY FLOW: The times of the summer when bees are collecting nectar and making honey. This time varies depending on location and a season's climate.