

TOP BAR HIVES

ESSENTIAL MANAGEMENT STRATEGIES

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General Attitude: Trust the bees. Less is almost always more. In emergency situations, give them what they need (usually food or brood, sun or ventilation)

Orientation of the Hive

The best location for your hive will be with the entrance facing the morning sun (east or southeast) with direct sun on the box in the morning, afternoon shade, and a flight pathway that is free and clear of human foot traffic. Sun all day long is preferable to no sun. A fully shady spot is not recommended. A western fence line often works well.

Organization of the Hive

Whether you choose a side entrance, end entrance or top entrance, put your entrance at one end of the hive—not in the middle, or if in the middle use a follower to make that entrance “front.” The bees organize things in a regular fashion in relationship to the entrance and this will make management easier. With the entrance at one end (hopefully south or southeast facing to get morning sun) they will store some food in the first 2 bars, then the brood area and finally the honey stores at the back end. This allows you to manage from the back end and access honey stores without upsetting the brood area. If you choose to work with a center side entrance, you will need to use follower boards and manage things so that the bees store their honey on just one side of the brood. The best reference for how to do this is *The Thinking Beekeeper* by Christy Hemenway.

Installation

After installing your bees, make sure they start to build on the bars towards the entrance end of the hive. You can ensure this by painting a few guide bars with wax and placing those towards the front (don't paint all your guides, the bees will attach the comb better without it). If you have access to finished paddles of comb, place these towards the front end. You can also use a follower board to keep the bees in the front half of the box. If the bees choose to build elsewhere, move them into the proper front-end-of-the-box orientation.

Management: When and How Often

Manage your bees in the middle of the day on a warm, sunny, windless day. Never manage at night. Late afternoon is OK in warmer climates. Although they are more active in warm weather, bees are least defensive when the weather is at its best for them and mid-day the most bees are out foraging.

Manage your established hive every 7-10 days in early spring (about the time your apple trees are blooming) to monitor population growth and potential for swarming. Thereafter, established colonies can be monitored from the entrance and managed every 3-4 weeks. If bees are bringing in pollen, you can assume all is well—they only bring in pollen if there are young brood to feed.

Manage your new colonies every 10 -14 days spring through late summer as they are building comb to correct any cross comb. You do not need to manage all the way to the front, just in the back and until you confirm brood production.

After last harvest (see overwintering document) close the hive for the winter and monitor activity at the entrance. Check for food stores once in January on a warm day.

Management: General Technique & Handling the Bars

Management is disruptive to the hive and upsets the temperature control. So move quickly, but gracefully, doing your best to squish as few bees as possible. Use smoke or sugar water (warm days only) to calm the bees and slow them down. Smoke yourself to mask alarm pheromone. If things start to feel too intense, walk away for 5 minutes and return.

Starting at the back end of the hive, pull off 3-4 bars and set them aside. Then move to the first comb (last that they have built). Use your tool to loosen each bar before lifting it. Insert the end of the tool between the two bars you want to separate and twist. If there is resistance, gently send the tool down between the comb and the side of the box to break the attachments. This is done by feel, not by sight and you will get better with time. Lift the bar straight up to inspect it.

Top bar comb is somewhat fragile. It should always be held perpendicular to the ground. This is especially true on warmer days when the comb is soft and of heavier combs, full of honey. If the bars weaken and then break or fall

inside the hive it can be a big messy bee massacre to clean up. This said, the bars may be flipped upside down, held side ways and turned around—as long as they are kept in that perpendicular plane.

Whether you are going in or closing up the box, always set the bar you have just handled flush with the next one. This keeps bees inside the box and makes temperature management easier during inspection which keeps the bees calm. If bees are in the way you will need to get them to move or you will squish them. You can do this one of two ways. You can slide the one in your hand down right next to the other, scooping the bees down into the box. Or you can slide the bar horizontally until you make contact with bee bodies between the two bars. Then jiggle or bounce slightly to let them know to get out of the way. With practice you will get this just right: They have exoskeletons so a little pressure wont hurt them, but too much and they will be pinned and won't be able to move.

Management: What Am I Supposed to Be Doing in There?

First and foremost you are observing the hive. Monitor the laying pattern and amount of brood. Monitor comb production and make sure bees are building straight. Monitor strength and vitality of the hive. Monitor nectar flow and honey production. In spring: swarm prevention/control. In fall: honey harvest and combining weak colonies.

First Spring

After installing a “package” of bees it is recommended to feed them sugar syrup (or honey) for the first 3 weeks. After that, let them feed themselves. With a swarm it is less important to feed as they have gorged on honey before swarming. Manage regularly to make sure comb is being built straight from the front end of the box.

Preventing Crooked & Cross Comb

Top bar hives require some finesse when it comes to preventing the bees from building comb that can no longer be manipulated easily. Your best option is prevention through regular management. Essential to know is that the bees will always fill in unfinished comb and blank spaces before building more at the back end of the box. Bees will also always maintain “bee-space,” a regular and predictable distance between each paddle of comb.

At each management you can take small, unfinished paddles from the back end of the hive and insert them between two finished well-built combs. In the absence of unfinished paddles, you can also use blank bars. The bees will then fill in, maintaining the bee space. Except during Spring population build-up, these blank or unfinished bars should be inserted towards the back end of the hive.

Spring in an Established Hive

Population build up begins before fruit tree bloom in order to take advantage of the bloom. If you wish you may feed bees pollen substitute starting in late January to help build your population. Swarming happens around the height of apple-bloom, which here in the Bay Area is around April 1-15, give or take 2 weeks.

Swarming is a natural reproductive activity and is not bad. Some beekeepers prevent swarming as they think that losing bees during the critical nectar flow will impact honey production. This beekeeper observes that swarming also creates a gap in brood production during which time the bees focus on collecting and storing nectar. Once bees have “decided” to swarm it is hard to prevent them, so it is best to monitor more regularly and look for the presence of drones and swarm cells. The time to take measures to prevent sarming is after you see drone cells and drones and before you see swarm cells (queen cells).

Swarm Control

There are a few options for trying to prevent swarming. They don't always work.

1. Make sure they are not “honey bound.” During spring population boom move any full paddles of honey to the front end of the hive or harvest them.
2. Open the brood nest. At a certain point in spring, the population has built up so there are a lot of bees and nothing to do. Bees may beard or collect outside near the entrance. This two things can indicate that swarming is nigh. Give the bees something to do by inserting blank bars in the brood area (one empty every 3rd or 4th bar: brood, brood, empty, brood brood, empty etc.). The bees will get busy filling in this empty space.
3. Take an artificial swarm (aka split or divide) mimicking nature. This can be done, once drones are present, temperatures have warmed up and population is strong. Two common ways to do this:
 - a. Find the queen and put her along with the paddles she is on in a new box. Take 1-2 paddles of food stores, 1-2 paddles of brood and shake in a few more bees. You should have a total of 5 bars. The bees in the original location will raise a new queen. They may still raise more than one and swarm.

- b. Wait until you see a swarm cell. Move this along with 2 paddles of food and two paddles of bees and some additional bees to a new box.
- c. Take several paddles of pbrood with the youngest smallest larvae you can find (or eggs if you can see them) along with a paddle of capped brood, 2 paddles of food stores, and shake in some extra bees. This is the least sure method, but it will work if you get young enough larvae.

Fall & Winter

In the Fall, assess the ability of your bees to make it through Winter. Do this by noticing the strength of the hive and amount of honey they have. Weak hives should be combined. Choose the best queen and destroy the others. Combine bees using a joining bar or newspaper. Hives without honey stores should be fed, given honey stores from other hives or combined. If you must feed use a concentrated syrup 3:1 or 5:1 or dry sugar. See the article on overwintering for more details.

Queenless Hive ~ Laying Workers

Sometimes a queen dies or is destroyed and the bees are unable to raise a new one. A colony without a queen cannot survive. It is the queen and the open brood that prevent the reproductive capacity of the workers. With neither present workers can develop the capability of laying, but they are unfertile and can only lay drones. If you see an uneven pattern of drone cells in your hive you have laying workers.

If you catch the issue before laying workers (can't find the queen and no open brood for example)

1. Buy a queen and install her in a cage
2. Give the bees brood from another hive with fresh eggs and let them raise a queen
3. Combine the orphan hive with a queenright hive.

Once you have laying workers:

1. Give the bees a paddle of fresh brood once a week. Eventually the open brood will suppress their capacity to reproduce and they will raise a new queen. This may take 3-4 weeks before they start to raise a queen.
2. Shake the bees out near other beehives and distribute the paddles of comb and honey to the other hives.
3. Give them open brood for 1-2 weeks and then install a new queen.

Ideal Number of Hives

It is ideal to have at least two hives of the same dimension for ease of swapping brood and combining. However more than two on a single urban lot is excessive and will create competition for food resources—especially if there are other hives in your area (quite possible in Oakland). If you want to keep more than 2 colonies, it is advised to spread them out over a broader area.

Combining Hives

It is far better to have fewer strong hives than a bunch of weak ones. Combine weak hives anytime, but especially going into winter. Combine queenless hives with queenright hives anytime before evidence of laying workers. Drape a wet newspaper over a bar just behind the last built comb or use a joining bar. Put some small slits in the paper so the bees from the two hives can get used to each other's smell. Within 24-48 hours the bees will eat through the paper and integrate. Remove the blank bar or joining bar.

Common Problems

Ants Use tanglefoot or water moats as a barrier

Chalk Brood Indicated by little white grains at entrance or back end of hive (dried up mummies of brood), and a spotty brood pattern. Colony needs more ventilation or more sun.

Nosema Yellow frass present on bottom of hive and a distended abdomen on dissection): Bee diarrhea. More sun and/or ventilation

Mites Can be seen with the human eye. Monitor with a screened bottom and white paper. Less than 20 after 1 day is good. More than 100 is bad. Mite reproduction takes place inside the capped brood cell. Mites feed on larvae, so some bees will have deformed wings. Best to let bees work it out themselves to build resistance. You can also try a strip of newspaper on their landing board smeared with vegetable shorting and a small drop of essential oil (eucalyptus, mint or rosemary). Last resort is to cage the queen to interrupt the brood cycle.

Foulbrood Entire hive smells putrid. Although some maintain that requeening and getting rid of all honey will be effective. The state of California mandates burning the hive and all equipment that has come into contact with it.

Essential Equipment

Besides your hive box, the following equipment is recommended:

- A bee suit or veil and gloves
- A nuc (smaller version of your box with similar comb dimension), useful for setting bars while managing, catching swarms, taking divisions etc.
- A hive tool: There are several designs available commercially but you want a long tool, preferably 14-17". A long knife can work.
- A smoker & smoker fuel
- Sting remedies: Liquid benedryl, meat tenderizer, rescue remedy.epi-pen
- Bee brush

Optional but useful:

- A spray bottle for water or sugar water
- A joining bar . You can simply drape wet newspaper, but a joining bar is still handy
- A piece of 1" x 2" hardware cloth in the dimension of your hive to aid in picking up broken comb
- Duct Tape
- Masking Tape
- Light bird mesh, string, kitchen shears and stapler (for suspending broken comb)
- Large Rubber bands (for securing broken comb)
- Follower board
- Entrance closure—aluminum angle iron works well as does a piece of 1/8 inch hardware cloth folded in half to spring open in the entryway.
 - 1/8" hardware cloth
 - Queen clip/queen cage
 - Propane torch for lighting smoker and for cleaning/sterilizing equipment