

How-To Guide

Small Honeybee Hive Beekeeping

by Fred G. Smith

Version 0.01

Introduction

I am an amateur beekeeper. Here are a few things I have learned about honeybees over the last couple of years.

1. Avoid Killing Pollinators! - Insecticides are used a lot these days. One common use in town is spraying for mosquitoes. Insecticides used for mosquito control also kill bees. Using insect controls like soapy water, insect predators (like lady bugs) and limited, careful use of dusts like Sevin should help protect the bees.

2. Feeding Pollinators - Garden plantings aimed at supplying nectar and pollen for bees (and other pollinators) can make a big difference. A mix of plants that bloom continuously and plants that bloom as others stop blooming can provide food for pollinators all season long.

3. Host-A-Hive - It is not common to find honeybee hives in smaller in-town gardens. We hope to change that with this project.

Chapter 1. Project Goals

New Urban Bees - This is the name for a hobby/project aimed at increasing the dwindling number of pollinators in urban spaces.

For our project - We will focus on garden pollination as our main goal and honey production will be a secondary goal. That means we are aiming for a smaller number of bees (~3000) in smaller hives as compared with the larger hives with many more bees (~40,000) honey producers want. Small Honeybee Colonies (SHC) are just right for an urban garden.

Small Honeybee Hives (SHH) - When the goal is a smaller colony size then you can house the colony in a smaller, more garden-friendly hive. A hive the size of a typical urban mailbox (about 1.5 cubic feet) is adequate for such a colony. Smaller hives are easy to fit into an urban garden. A colony of 3000 bees will have about 1200 foragers compared to the 10000 foragers in a large honey-producing hive. This number of foragers can be supported by a well-planned garden on a suburban ½ acre lot.

Chapter 2. Planning for the Small Honeybee Hive

Garden Planning - A garden planning kit is a helpful tool for planning a new garden or for redoing an existing garden. Keep in mind where the bees will be flying and where visitors (pets and people) will be sitting or walking. Use taller plants to separate bees from garden visitors. The SHH can be a focal point in your garden or it can be blended into the plantings out of view.

A Sunny Spot - A spot that is sunny most of the day and then has some late afternoon shade is ideal. South-facing or Southeast-facing spots are good choices. Some beekeepers like a more shady spot during the summer and then move the hive to a more sunny spot during the winter.

Plants for Foragers - Books are available at the Botanical Garden Gift Shop. Lists of bee-friendly forage plants are available at Coffers or on line.

Barriers Between Bees and Visitors - Plant Barrier to Raise Bee Flight Path and to Keep Out Pets and People. It is best to have an open area about 10' wide and 20' long in front of the hive so the honeybees can come and go without encountering people or pets.

No Noisy Power Equipment Near Hive - The bees can get upset by noisy gas-engine-powered equipment (like lawn mowers or string trimmers) near their hive entrance. Try to arrange your hive so there is not a lawn area immediately in front of it.

Water - A pond, a creek or a bird Bath with stones or sticks in it will do nicely. Not Your Neighbor's Pool!

Chapter 3. Building Small Honeybee Hives (SHH)

SHH Features - Standard Medium Frames. Mount: on Tree, on 2-3 Concrete Blocks or on T-post. A small hive costs about \$30 to build.

My Plans - One of my small hives is about 9" X 9" X 20". Plans are available on the NewUrbanBees.com website.

Chapter 4. Beekeeping Equipment

Honeybees stings - When a honeybee stings she dies. The queen won't sting you and the drones can't sting you. Only the older worker bees do the stinging.

Veil (Required) - I have decided to always wear a veil if I

am going to be working inside the hive. I got stung on the face once and it convinced me to avoid that happening again.

Jacket and Gloves - Adding a bee-proof jacket and bee-proof gloves to your veil will deter most stings.

Full Suit - Good for anyone sensitive to bee stings.

Hive Tool - Bees like to glue parts of the hive (like frames and covers) together with a special secretion they make called "propolis". This dark brown sticky stuff gets put any place there is a gap on the inside of the hive. A hive tool is used to lever stuck parts apart when you are working in the hive.

Smoker - A smoker does two main things. Smoke drives the bees away from the source of the smoke and into the space between the frames. This reduces the number of bees around where you are usually trying to work. Smoke also masks the fear/sting pheromone and thus reduces the chance of getting stung.

Chapter 5. Obtaining Bees

Swarms - The honeybee's natural way to deal with crowding in their hive is to swarm. In preparation for swarming the worker bees will create queen cells in the comb and feed ordinary eggs in an extraordinary way. The new developing queen(s) will be left behind while the old queen and roughly half the workers will fly away. This exiting swarm will look for a new place to live and leave behind the old hive which is now not so crowded. Beekeepers try to increase their number of colonies by luring swarms into a new hive.

Splits - An experienced beekeeper can detect when a colony is about to swarm and "split" the colony ahead of the swarm's exit. A new hive is prepared and some of the frames from the old hive, with worker bees on board, are moved into it. Empty frames are used to fill in the slots where the frames were removed. Care and experience are required to determine where the queen ends up and where a new queen will be needed. Some beekeepers then sell the new split hive.

Purchasing - A "package" of bees can sometimes be purchased from a bee breeder. The package will contain 2-3 pounds of bees (3000-6000 individuals) and a queen. This is often the cheapest way to start a new hive but it is also the most stressful way for the bees.

Chapter 6. Bee Temperament and Life Cycle

Weather - Bees are more likely to feel stressed (and sting more quickly) when they cannot get out of the hive to

forage or cleanse themselves. Cold weather, rain and wind can confine the bees to the hive and make them more tempermental.

Time of Day - Bees start foraging in the early morning when it gets above about 60 degrees. They return to the hive for the last time each day at dusk. The bees are sometimes more likely to sting as dark approaches because they might think you are a bear ready to rob them of their honey.

No Sudden Shakes or Noises - Bees naturally live in hollow trees so they are OK with gentle movement. Sudden movements and sudden loud noises are not welcome by the bees. Move slowly, methodically and always be quiet and gentle around the hive.

Clothing Color - Bees can't see red. It looks black to them. Black (dark) clothing makes bees think a honey predator (like a bear) is closing in. Wear light colors to appear more friendly to them.

Nearby Animals (Humans, Dogs, Cats, Skunks, Etc.) - Bees fly in and out of the hive in a roughly 20 foot path in front of the hive entrance. Keep animals out of this zone with fences or plants that limit access.

Approach from behind - The bees don't like you walking up to their entrance. Do all your work on the hive from the back side.

Smoke - Smoke is used to calm nervous bees. See Chapter 4.

Honeybee worker life cycle - A worker bee in the summer will live about five weeks. During the first three weeks of their life they live inside the hive and progress from cleaners to nurse bees to comb builders and on to be guards at the entrance. The last two weeks of their life they are foragers and make hundreds of trips a day looking for water, nectar, pollen and tree saap (to make propolis)to carry back to the hive.

Chapter 7. Bee Calendar

re just beginning to provide nectar. Feeding sugar water is often necessary. Once the spring "flow" of nectar and pollen gets going the colony can probably raise lots of new bees. Watch for swarming.

Summer - Still some new bees being produced but at a slower rate. Not a lot of honey being stored. This is described as a "dearth" time.

Fall - Some late blooming plants (like goldenrod) may provide nectar for honey, but production won't be as strong as in the spring. Bees are getting ready for the winter hard times.

Winter - The bees form a "cluster" near the center of the hive. They keep the queen at the core of the cluster and take turns flexing their flight muscles to generate heat. The core of the cluster is maintained at about 90 degrees. The bees will fly out on "cleansing" flights if the outside temperature gets above about 55 degrees.

Chapter 8. Hive Inspections

Every Two-Three Weeks in Summer - The beekeeper will open the hive and lift out each frame one at a time. Many things are checked to make sure the colony is healthy and "happy" at this time.

Expert Help - Beekeepers are always learning from the bees. It may take years of experience to be able to understand what is happening and what needs to be done with each colony.

Do It Yourself - Buy protective equipment, read a lot about bees, attend classes on beekeeping, find a beekeeper mentor, etc.

Join A Bee Club - A local bee club is a great way to get into beekeeping and find out what the experts are observing in their colonies. Beekeepers are almost universally friendly and helpful.

Chapter 9. Winterizing

Insulation - We can help the bees maintain their core cluster temperature by providing extra insulation for the hive in winter.

Food - See the next chapter.

Heating - I provide hive-warming heating elements under my hives in the winter. This is easier if there is AC power available but can be done using solar panels in a pinch.

Chapter 10. Feeding The Bees

Flows and Dearth - When lots of plants are blooming (like in the spring it is called a "flow" by beekeepers. When not so many plants are flowering (like mid-summer) it is a "dearth".

Spring - Use thin syrup (1:1 Sugar to water) to get the bees through until the spring flow starts.

Summer - You probably won't need to feed the bees unless

they were unable to store up honey during the spring.

Fall - Use thick syrup (2:1 Sugar to water) to help the bees get ready for winter.

Winter - Use solid sugar patties to keep the bees from starving if they don't have enough honey.

Splits and Swarms - A swarm or split may not have enough foraging bees to make enough honey to feed the new growing colony. Feed thin syrup to help them get started.

Chapter 11. Bee Pest and Disease Control

Small Hive Beetles (SHB) and Wax Moths - These two pests can overcome the defenses of a weak colony and destroy the comb, larvae and honey in a hive.

Varroa Mites - These parasites infest and weaken bees in a colony and lead to all kinds of secondary bacteria and viruses. They are a constant threat to all honeybee colonies.

Others - The beekeeper needs to be on the alert for spiders, ants, roaches, skunks and other beasts of various kinds that can invade and attack the bee colony.

Closing - Agreement

You Agree To:

- =====
1. Learn basic bee care and safety from provided literature
 2. Provide a place for a small garden hive
 3. Host a colony of about 3000 honeybees
 4. Provide water nearby for the bees
 5. Not spray insecticides near the colony
 6. Notify NUB if unusual activity around the hive is noticed
 7. Allow access for hive inspections and photographs by NUB
 8. Allow removal of the hive and colony if either party so desires
 9. Allow wintering procedures in the Fall
 - * 9. Provide 110 AC power
 - ** 10. Provide Internet access

New Urban Bees Agrees To:

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1. Provide bee care and safety literature
 2. Provide a small hive for your garden
 3. Provide a colony of about 3000 honey bees for the hive
 4. Advise on where water for the bees should be located
 5. Advise about insecticide spraying
 6. Provide management of the colony
 7. Inspect hives regularly
 8. Remove the hive and colony if either party so desires
 - * 9. Winter colony in place or at NUB apiary
 - ** 10. Provide Web access to hive monitor

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- * Optional (if 110 AC power is provided)
 - ** Optional (if 110 AC and Internet access is available)

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