

Keep Bees, Naturally!

By M.E.A. McNeil

If you'd like to benefit your garden and community and offer a treat to your taste buds, consider keeping a couple of beehives. As honeybees gather pollen and nectar to make 50 pounds or more of pure, wild honey per hive, they pollinate crops nearby — and up to four miles away. This pollination is essential for good yields for some flowering crops. Best of all, honeybees require only simple management once the hives are up and running. Kim Flottum, editor of *Bee Culture Magazine*, says that managing bees “takes more work than a cat but less than a dog.”

But can you do it naturally? For the first time in 20 years, the answer is yes. Until the mid-1980s, some beekeepers avoided using chemicals inside beehives, but then a quarantine violation led to the importation of the varroa mite, a devastating tick-like honeybee parasite. At about the same time, much tinier terrors called tracheal mites began ravaging hives throughout the country.

To save their bees from these and other pests, many beekeepers turned to chemical controls, which worked for a while. Then two things happened: many populations of varroa mites became resistant to the two main pesticides used to control them, and prudent breeding has helped control tracheal mites.

Combined with routine hive maintenance and using bees bred to clean out compromised cells, new natural techniques can eliminate the need for chemical controls.

Getting Started

The general rhythm of bee life involves making and storing honey in wax combs from spring to fall, and then feeding on the stored supply in winter. Bees make honey from nectar. First, foraging bees collect nectar from flowers and store this sugary fluid in their “honey stomach.” They transform the nectar into honey by repeatedly passing it back and forth, which helps evaporate most of the water and adds enzymes. Strong hives make more honey than they need, so good beekeeping involves doing everything you can to keep the colony healthy, and taking out just the right amount of honey without depriving the bees of an ample winter supply.

Honeybees reproduce rapidly as the weather warms in summer, so spring is the best time to set up a new hive. As you wait for winter to end, spend some time with a good book on beekeeping (See “Resources,” below). You will be working with highly organized insects, so a working knowledge of bee behavior is helpful — and fascinating. You might look for a local beekeeper to help guide you through your first season. Your local extension service may be able to suggest someone (or offer a beekeeping course), or you can find a beekeeping club at www.beeculture.com.

If you live in the city, also check to make sure local regulations do not prohibit beekeeping. In most areas, beekeeping falls under generalized nuisance laws, and two hives are highly unlikely to become a nuisance. Even so, Dallas-area beekeeper John Caldieri suggests that suburban beekeepers do two things: Install a 6-foot tall panel of privacy fencing near hives to raise the bees' flight paths above head level as they come and go, and share jars of honey with your closest neighbors.

On your side of the fence, locate hives where the bees will have an open flight path. Ideally, morning sun should warm the hives, which should be in a place where they will seldom be disturbed by human activities. If there is no pond or stream nearby, you will also need to provide a pool, birdbath or tub of water within 40 feet of the hives.

Gearing Up

The basic equipment you'll need to get started is listed below. In general, you'll need:

- Boxes (the hives)
- Frames with wax foundation. The foundation usually has a pattern imprinted on it that matches the pattern of wax cells that bees create as they make the comb that they fill with honey, pollen and their brood, or larvae
- A bee suit and veil
- A smoker and a hive tool

It's best to pass up all-inclusive pre-built beginner kits that come with a plastic foundation. Bees build better on pure beeswax.

Most beekeepers order pre-cut hive and frame components, which are quick and easy to assemble with glue and nails. You can also build your own hive boxes. Vermont beekeeper Mike Palmer buys scrap wood and makes boxes, bottom boards and lids for about a dollar each. Building plans for boxes and frames are available <http://www.beesource.com/>. White is the traditional color to paint the outside of boxes; light colors help keep the hives from overheating in hot summer weather. Use any non-lead-based paint or a natural sealant, such as Auro.

12,000 Bees, Please

You can buy a package of worker bees (and an egg-laying queen for each hive) by mail, but you will have better luck with a "nuc", a small colony with its mother queen. The best time to start beekeeping is after the last hard freeze in the spring, so you'll want to have your bees soon after. As you shop, choose queen bees from regional sources that have been bred for "hygienic behavior" — a genetic trait that leads to workers with superior talents for cleaning out larvae with disease or mites.

Once you have some experience, you can add new hives by taking in swarms -- worker bees with an older queen that will leave a mature colony to start a new one. Many people don't want large swarms of bees to find a new home on their property, so if you're interested in picking up these "free bees," just add your name to the local police and fire department lists of beekeepers willing to collect swarms, and before long the phone will ring for "the bee lady" or "the bee guy." Because swarms have an old queen, most beekeepers replace her with a stronger queen soon after the colony is settled in its new hive.

How Not to Get Stung

You will need to look inside the hive from time to time to see what's going on, sometimes to feed your bees sugar water to supplement lean nectar supplies, and certainly to harvest some honey in late summer. Hiving and feeding your bees can feel complicated and scary at first, so suit up completely in a zipper-sealed bee suit until you feel comfortable and confident (many experienced beekeepers suit up, too). When

working with the hives, take your time and practice slow, fluid movements, which are least likely to upset the bees. You will calm the bees by first using a smoker to puff pine-needle or leaf smoke in and around the hives (it masks the bees' alarm pheromone), but even calm bees will crawl around on their keeper. Fortunately, calm bees seldom sting.

The Sweetest Harvest

You can harvest your honey with the beeswax comb intact (comb honey), or you can use a hot knife to cut the caps from the comb and remove the honey. Extracting the honey and returning the empty comb to the hive is easiest on the bees (they ingest 6 pounds of honey to make 1 pound of wax). Electric extractors quickly spin the honey from combs using centrifugal force, but they are expensive. Bee clubs often share an electric extractor, and sometimes organize honey harvesting parties.

As frames are replaced, you will harvest more bounty from your bees in the form of beeswax for candles, soaps and lotion. Should you decide to sell some of your honey, you will find that prices are significantly higher for local, raw honey. Some people buy it for health reasons: it has antibiotic properties and is good for children's coughs, although there is no proof it relieves allergies.

Keeping Your Beehives Healthy

It is always wise to set hives up off the ground on bricks or concrete blocks — especially in areas where fire ants or hive beetles may stage an invasion. In addition, many beekeepers like to have a screened bottom board and an access slot in the back of the hive's bottom box big enough to slip in a thick piece of cardboard. If the bees have varroa mites, you can catch about 15 percent of them by using pieces of paper coated with cooking oil or petroleum jelly (the mites that fall off the bees' bodies get stuck and can't crawl back up).

But the most important component of a healthy beehive is you. After one week, check new hives to make sure the queen is laying, and then let the bees work in peace. As long as you see bees coming and going from the hive with bulging pouches of pollen on their legs, assume that all is well. The first young bees will begin hatching within a month.

In a hive's first year, it is best to leave most of the honey for the bees, and harvest only a few frames in late summer. Then, after life in the hive settles down again, you can let the original queen stay on, or you can replace her. Many beekeepers replace their queens every August, because young queens lay more eggs than older ones. If you simply let nature take its course, the workers will raise a new queen when the old one begins to fail, by feeding a special food, royal jelly, to selected larvae.

Bees are as fascinating as they are productive. As a beekeeper, you get the pleasant respite of working with your hives; and the bees pollinate a radius of a couple of miles and put delicious honey on your table.

Beekeeping Supplies

Beekeeping does involve some initial expenses. Here's a list of what you will need to start two hives. The cost can be divided into one-time startup expenses for hive components (about \$350) and other equipment (about \$150). If you get everything new it

comes to about \$500 for two hives, plus bees and shipping. You can cut costs by starting with swarms instead of purchasing bees. (For more about purchasing bees, see “12,000 Bees Please,” above.) You also can buy some equipment secondhand, although you should not buy used hive and frame components, and especially not used comb, because of the threat of spreading mites and disease. Before you order any equipment, you will need to decide whether you want liquid or comb honey. (See “The Sweetest Harvest,” above.)

Hives, Frames and Foundations

Two hives, commercial grade: This is a one-time expense of about \$200. It includes these parts of the boxes: four hive bodies (boxes); six 6 5/8-inch honey supers (boxes), two reversible bottom boards, two telescoping covers with inner covers, two queen excluders, two top feeders, two screened bottom boards, and two entrance reducers.

Frames and foundations: These will need to be gradually replaced every three years or so, and cost about \$150 total. That estimated cost includes commercial frames and foundation sheets. Be sure to get the correct size frames for your supers. Also, if you decide to make liquid honey, you’ll need to order crimp wired foundation sheets. For comb honey, order thin, unwired foundation.

Other Basic Equipment

One-time expense, \$150 and up:

Zipper veil bee suit and helmet
Boot bands
Gloves, plastic-coated canvas
7-inch stainless steel smoker with shield
Hive tool
Frame grips
Bee brush
Spur embedder for wiring frames
Embedding wire

Bees, and Other Expenses

3 pounds of bees, plus queen, about \$80, plus shipping or a “nuc”, about \$120
Exterior latex paint or Auro natural stain
Outdoor wood glue
Cinder blocks or wood for a base

Suppliers

Betterbee, Greenwich N.Y.; (800) 632-3379
Dadant & Sons, Hamilton Ill.; (888) 922-1293
Mann Lake, Hackensack, Minn.; (800) 880-7694
Western Bee Supplies, Polson, Mont.; (800) 548-8440
GloryBeeFoods, Eugene, Ore.; (800) 456-7923

Save the Bees?

Honeybees have been in the headlines recently, and the news isn't good. Many people are now worried about the loss of large numbers of bees. Honeybees play an important role in pollinating many fruits and vegetables, so this news is as alarming for agriculture as it is for beekeeping.

The latest research indicates that a variety of factors are probably responsible for dying honeybees including a virus, problems with mites and other factors that weaken the immunity of the bees. However, we're also hearing reports that while large commercial beekeeping operations are suffering, many home beekeepers are having fewer problems. For beekeepers, following the suggestions elsewhere in this article, such as avoiding secondhand equipment, and taking other steps to avoid mites, are sensible precautions.

Resources

Beekeeping Books

The Backyard Beekeeper, by Kim Flottum

The Beekeeper's Handbook, by Diana Sammataro and Alphonse Avitabile

The Hive and the Honey Bee, edited by Joe Graham

A Book of Bees, Sue Hubbell

Bee Journals

American Bee Journal

Bee Culture

(Bee clubs often have subscription discount certificates.)

Online Resources

Bee-L, a moderated listserv discussing beekeeping issues and bee biology. Before asking a question on Bee-L, search the extensive archives by subject.

For a list of plants attractive to bees

visit <http://www.ars.usda.gov/Main/docs.htm?docid=12052>

For an article explaining how to build your own beehives read the 1999 article on *Beekeeping Basics* in Mother Earth News.