Photo courtesy: Pest and Diseases Image Library, Bugwood.org

Non-Timber Forest Products

Beekeeping

by Phil Craft

Honey bees are important insects that help agriculture through pollination and supply a sweet treat for our breakfast tables.

Honey bees have been a part of the forests of Kentucky since our first settlements were established in the late eighteenth century. Though not native to the American continents, honey bees came to the new word with early colonists, who brought them across the Atlantic Ocean to provide honey and beeswax. Once here, the bees adapted easily; many plants and trees provided good sources of nectar and pollen, and hollow trees for colony sites were abundant.

The relationship between our forests, honey bees, and bee keeping continues today, as the demand for local honey increases and some of the most popular varietal honeys derive their distinctive flavors from the nectar of native Kentucky trees. These include black locust, sourwood, yellow-poplar, sumac, and basswood (called "lyn" in the Eastern Kentucky mountains). Most basswood honey comes from the higher elevations of Eastern Kentucky. Sourwood honey is produced there and as far west in southern Central Kentucky as McCreary County. Black locust and yellow-poplar honey, like the trees themselves, are found throughout Kentucky; although black locust honey is more widely produced.

Photo courtesy: Phil Craft

Tree flowers, like those of black locust pictured here, allow honey bees to create some of the most popular honeys available in Kentucky. Other trees such as yellow-poplar, sourwood, sumac and basswood supply nectar which also makes distinctive honeys.

Honey production is a complex process. It begins with the many plants which require an exchange of pollen for fertilization and seed production. To attract pollinators, these plants produce nectar from organs within their flowers (and occasionally elsewhere on the plant) called nectaries. Nectar is a natural sugar solution which bees—and not just honey bees, but bumblebees and others as well—collect and concentrate into honey. The bees incidentally collect small amounts of pollen on the hairs which cover their bodies and carry it with them as they go from flower to flower, resulting in cross pollination and, ultimately, seed production. (Honey bees also collect pollen as a protein food source, but this activity is not directly related to achieving pollination.) This symbiotic relationship results in food for the bees and a means of propagation for the plant.

Photo courtesy: Phil Craft

Honey bees play a critical role in plant pollination. As the honey bees extract nectar from the plant they also get pollen on their bodies that they then transfer to other flowers facilitating pollination.

Honey bees transport the collected nectar from the flower sources back to the hive in special sacs in their bodies called honey stomachs. There, through a series of processes, the nectar's moisture content is reduced from more than 50 percent to 18 percent or less, and enzymes produced by the bees convert the sugars in the nectar into those which constitute honey. In addition to water and various sugars, nectar contains other minor components such as organic oils and pigments. The combination of sugars and these minor ingredients are unique to each species of plant, resulting in nectar from different plant sources producing honeys with distinctive tastes and color. For instance, black locust produces a light colored honey with a delicate flavor; yellow-poplar produces a stronger tasting, dark honey.

In addition to the distribution of a particular species, an important factor in the production of varietal honeys from trees in Kentucky is concentration in a given area. If a certain type of tree is widely scattered, the nectar from those trees may become only a small component in honey produced by a local beekeeper's bees and hives. If, for instance, the area surrounding a beekeeper's hives has a small number of yellow-poplar trees and white clover blooming in abundance, a large quantity of clover nectar and a smaller amount of yellow-poplar nectar will most likely be returned to the hive. The result will be a honey that is slightly darker than pure clover honey but much lighter

Photo courtesy: Sloop Family, Buzzy Bee Apiary

Kentucky honey is highly sought after because of its outstanding quality and limited availability. Honey bees also produce other benefits such as beeswax, propolis, and royal jelly.

Photo courtesy: Scott Bauer, USDA Agricultural Research Service, Bugwood.org

than the dark amber of more concentrated yellow-poplar honey.

In the case of some nectar sources, such as black cherry, dilution of the nectar is for the best. Black cherry nectar produces a honey with an unpleasant sharp aftertaste, which consumers do not like and beekeepers would rather not produce. Fortunately its distinct flavor is usually overwhelmed by nectar from other sources, but occasionally a beekeeper will bring me a jar of honey asking, "What is causing this awful taste?" One varietal that should not be encountered is mountain laurel honey. Though laurel nectar is sometimes collected by bees, it is usually only a minor constituent. Laurel honey is poisonous and can result in serious illness if consumed in large quantities. Fortunately, laurel nectar in concentrations sufficient to be harmful would probably produce honey with such an unpleasant taste that it would not be consumed.

Varietals from trees can be found for sale at local farmers markets and stores throughout Kentucky, but beekeepers in Eastern Kentucky are much more dependent on forest trees for the honey that their hives produce, simply because the area is heavily wooded. If you are looking for a jar of local sourwood or basswood honey, you will probably not find it outside the mountains. Beekeepers find a high demand and get a premium price for their honey locally, and usually do not sell it far from home. Most of Kentucky's beekeepers west of Interstate 75 produce honey from a variety of plants, though white clover often predominates as a nectar source. Many beekeepers, knowing that their bees are collecting nectar from a wide variety of plants, often market their honey as simply "wildflower" honey. As a beekeeper once told me, "My bees just don't tell what it came from."

Many Kentuckians find beekeeping a profitable sideline enterprise. One advantage it has over other agriculture activities is that it requires only a small amount of land for the placement of hives. Some separation from humans and livestock is desirable, but an area 30 feet by 30 feet will easily hold as many as eight to ten hives. However, managing honey bees is far different from raising sheep, pigs, or cattle. The latter are mammals with health issues not unlike those we experience ourselves, but honey bees are insects. To care for them and help them thrive, we must learn what is normal and healthy for honey bees and what is not. Being a beekeeper means learning an entirely different type of animal husbandry. New beekeepers should start small, with no more than two or three hives, and expand as their experience and knowledge of these interesting insects increases.

One of the nice things about beekeeping is that limited space is required for the hives. Beginning beekeepers are encouraged to start small with no more than three hives.

Photo courtesy: Sloop Family, Buzzy Bee Apiary

So how does one get started in beekeeping? Preparation is key. Though much information is available from books and the internet, many people benefit by learning from skilled and experienced beekeepers. Here in Kentucky, there are over forty local beekeeping associations which hold local meetings and sometimes offer beekeeping classes. In addition to classes offered by local groups, six regional, one-day beekeeping schools are held around Kentucky starting in late January and continuing through the middle of March. These schools all offer, in addition to classroom sessions for more experienced beekeepers, a track of beginner classes for the brand new aspiring beekeeper. The goal of beginner classes is to teach prospective beekeepers enough to begin managing their own hives by April or May. For the location of the beekeeping group nearest you, the location and date of beekeeping schools, and other tips and suggestions, go to the Kentucky State Beekeepers Association: www.ksbabeekeeping.org.

About the Author:
Phil Craft *was the State Apiarist of Kentucky (retired) for twelve years where he assisted Kentucky bee keepers. Since his retirement he has launched a new beekeeping Web site: http://philcrafthivecraft.com; E-mail: phil@philcrafhivecraft.com*