UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Beekeeping and Honey Production

Introduction

Apiculture, the study and keeping of bees, often begins as a hobby which can later be expanded into a small business. A beekeeping enterprise can provide marketable honey and serve as a source of pollinators for nearby cultivated crops.

Market and Market Outlook

The honey market is currently very strong, especially for locally-produced honey and specialty honey. A beekeeper producing a quality product can easily sell out before the next season's crop is ready. Honey produced from the nectar of certain trees, such as tulip poplar, sourwood, and basswood, often brings a premium price.

Market options include farmers markets, health food stores, roadside stands, agritourism sites, and Kentucky-crafted stores or booths. Beekeepers producing large crops may consider selling honey in bulk to a honey packer.

Honey can be marketed in several forms. COMB HONEY consists of chunks of honey-filled combs taken directly from the hive. Because it is the easiest to produce and the cheapest to package and market, comb honey is often recommended for beginning beekeepers. While the price is not as high as for other types, there is usually a ready market. EXTRACTED HONEY, which is generally preferred by most consumers, is the liquid portion once it has been separated from the comb. Specialty products such as

honey butter and whipped honey are made from extracted honey. CHUNK HONEY is a combination of comb honey and extracted honey bottled together.

The U.S. demand for BEESWAX, a secondary product of bee activity, is greater than the domestic market can produce. The beekeeping industry, which uses beeswax to form wax foundation for the frames in the hive, is one of the largest users of this byproduct. There is also a high demand for pure beeswax candles.

ROYAL JELLY, a substance secreted by worker bees to feed the queen, and BEE POLLEN (more accurately, "bee-collected pollen"), are being promoted as dietary supplements. Their production is expensive and labor-intensive with limited markets.

Renting out hives to orchardists and farmers for pollination purposes can provide another source of income. In addition, experienced beekeepers could consider selling bees to other beekeepers. These are sold

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as a small nucleus hive, or "nuc," that is easily transported and later expanded to a full-size hive. Selling queens is another way experienced beekeepers may profit from their enterprise. The technique for rearing queens is taught in workshops at Kentucky State University.

Production Considerations

Site selection and obtaining bees

Ideally, hives should be located within 1 to 2 miles of a succession of spring, summer and fall nectar sources. Some shade should be provided during the heat of summer, along with protection against the cold winds of winter. A source of water, such as a dripping hose, should also be located nearby. Avoid locations near large rivers, highways, public areas or on hill tops. Hives located near cultivated crops are potentially in danger of exposure from insecticides. Obtaining the cooperation of the grower and/or pesticide applicator will be essential to avoid bee losses.

Bees can be captured from a swarm, obtained from an established beekeeper or purchased from a commercial bee supply company. Along with the hive and hive parts, other necessary equipment includes a smoker, hive tool and protective gear for the beekeeper.

Sources of honey

Honey color and flavor are determined by the various plant species visited by the bees. It is not economically practical to produce a crop solely for honey production; however, cultivated plants grown for other purposes can provide an important source of nectar. Common nectar sources include agricultural crops, tree fruits, small fruits, ornamentals and wildflowers. One hive will require several acres of flowering plants to provide it with sufficient nectar.

Management

The beekeeper will need to regularly open each hive to examine the condition of the brood, check food stores, look for signs of disease and pests, and to perform various hive maintenance tasks. Every other spring the queen should be replaced. While some inspections can be brief, it is important that the hive be examined in a timely manner throughout the year.

Swarming, which greatly reduces hive strength, is most often associated with overcrowding in the hive. It can be avoided with proper management practices.

Pest management

The most common brood diseases in Kentucky are chalkbrood, American foulbrood and European foulbrood. Other diseases include nosema and, occasionally, some viruses. The varroa mite and tracheal mite can result in serious bee losses in the hive. Recent successes in bee-breeding have provided strains of bees that are mite- and disease-resistant. Obtaining bees and queens from a reputable source, frequent inspections, and proper management help prevent bee losses.

Skunks and mice are common in rural areas, but can be excluded with screens or other barriers at the front of the hive. Bears, which are now common in eastern Kentucky, are kept away with electric fences.

Harvesting and processing honey

When bees cap the honey, it is considered ripe. Supers, the chambers used to store surplus honey in the hive, can be removed from the hive once they are completely capped over. The average yield in Kentucky is about 50 pounds of honey per hive per year. The honey should be processed soon after harvesting and stored in sealed containers in a warm, dry place or freezer until marketed.

Pieces of sealed and undamaged honey comb can be cut into neat pieces, packaged in plastic wrap or boxes and sold as comb honey. Liquid honey can be separated from the combs using professional extracting equipment. Small scale beekeepers, however, can do the job cheaply by crushing the combs and letting the honey run slowly through strainers. Extracted honey is packaged in clear glass or plastic containers.

Chunk honey is prepared by placing a portion of honey comb in a jar and filling up the rest of the jar with the extracted liquid honey. Beeswax is collected after all honey has been removed from the combs. It should be cleaned, melted down, and strained. It stores well at room temperature in the form of large chunks.

Labor requirements

Labor needs for beekeeping and honey production are quite variable. For example, the time spent establishing new hives will depend on materials used. In addition, considerable time can be spent simply driving between hive locations. While it is difficult to estimate exact labor times, honey producers can expect to spend at least 5 hours per hive per year caring and harvesting for bees.

Honeycomb processing times can vary depending on the type of honey produced. Producers should expect to spend about an hour per hive processing comb honey. Additional time will be required for further processing.

Economic Considerations

Initial investments include the purchase of hives, beekeeping equipment, bees and queen. The Kentucky Department of Agriculture has calculated a startup cost of $160 for hive materials, and up to $106 in additional beekeeping equipment required per hive. Beekeepers selling honey in bulk to a honey packer will avoid the cost of bottling and marketing the honey in jars.

Producers of comb honey will need at least one year of production to cover the cost of hive materials. At a price of about $1 per pound of comb honey, a ten-hive comb honey system can yield returns to land, labor, and management well over $50 per hive, especially if the hives are rented for pollination.

Pressing or extracting equipment will represent an additional investment for producers of chunk and extracted honey. The least expensive honey extractors with associated equipment cost about $500. However, extractors can be borrowed from other beekeepers and some local beekeeping associations make them available to members. A grant from the Kentucky Agricultural Development Board to Kentucky State University has allowed the construction of a number of large-capacity honey extraction units. At least twelve of these units will be established at county Extension offices around the state by late 2005.

Producers wishing to purchase their own extraction equipment and enter larger-scale honey production will need at least 40 hives to recoup the typical costs of extraction equipment in three years or less. Penn State University estimates an initial investment of over $3,500 for a ten-hive production and processing system and nearly $5,500 for a 50-hive system. Based on a price of $2 per pound, extracted honey producers using this complete system could realize returns to land, labor and management easily approaching $100 per hive, provided hives are rented for pollination at $55 per hive. Recent retail honey prices exceeding $4 per pound in Kentucky could create significantly greater returns.

More Information

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www.beemaster.com

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