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Basic Beekeeping Information
Michigan State University Cooperative Extension Service
F Folder Series
E.C. Martin, Entomology
Reprinted April 1962
5 pages

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EXTENSION FOLDER F-165 (First Revision) NOV. 1958

Reprinted April 1962

Basic Beekeeping Information

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This folder is written mainly to answer some of the questions asked by people who wish to keep bees. It provides some basic information and also some suggestions to help you make progress in becoming a beekeeper. If you are already a beekeeper, you also may find some useful hints and references.

Each year beekeepers of the United States produce about 230 million pounds of honey and 4.5 million pounds of beeswax from over 5 million colonies of bees. Besides producing honey and beeswax, bees are needed to pollinate many of the flowering plants that cover the land, some of which are very important crop plants. Keeping enough bees for this purpose is very important in every country of the world. Thus, the problems of bees and beekeepers are of concern to everyone.



**MICHIGAN STATE UNIVERSITY
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Suggestions to New Beekeepers

Professional beekeeping is a skilled occupation. Beginners should not invest too heavily until they have had a few years experience on a small scale. As a side-line or hobby, beekeeping can be interesting and challenging. A beginner can learn by:

- Working for or with an experienced beekeeper for some time.
- Joining the Michigan Beekeepers' Association and the closest local association and attend meetings regularly.
- Reading the best journals, books, and bulletins on the subject.
- Starting in the spring with five or less colonies of bees.
- Buying or making all equipment in one of the standard sizes.
- Being prepared to accept a sting occasionally. This is not as serious as it may seem at first. A few people react quite seriously to stings. If you are of this type you should not keep bees.
- Using "package bees" from the south to start or add to the size of an apiary in the spring. A mimeograph dealing with package bees is available from the Entomology Department, Michigan State University.
- Learning about American Foulbrood from available books and bulletins.

Locating Your Apiary

Most commercial apiaries are located in the country, where bees can gather a full crop from large acreages of clovers or other plants. Small apiaries are usually located as close to home as possible. Consider these points when locating your apiary:

- Place large apiaries at least 1½ miles apart.
- Keep apiaries away from public places. Bees can sting people or animals and get you into serious trouble. A high wall or hedge around an apiary helps to keep the bees from flying into passersby.
- Never neglect an apiary or leave used equipment in the open. The equipment goes to pieces fast and bees can spread disease by "robbing" from exposed equipment.

Management of Colonies

You must manage your colonies well to produce a honey crop. Poorly managed colonies often yield no surplus, and may even fail to survive. Here are some suggestions on management for beginners.

1. From late March to mid-June, you must care for colonies so they will build up a peak population of about 65,000 to 70,000 worker bees in time for the maximum honey crop. In Michigan, surplus honey comes largely from clovers and alfalfa, but willow, maple, dandelion, fruit bloom, and other spring plants supply the bees with nectar and pollen for their own use.

2. Examine colonies briefly every seven to 10 days during the spring and early summer. See that they always have plenty of food. If the honey supply gets below 15 pounds, feed sugar syrup. See also that a good laying queen is present and check the brood for American Foulbrood.

3. Practice swarm-control measures for two reasons: First, to keep the colony from dividing and losing the strength which it built up in the spring; and second, to keep the bees from getting the desire to swarm. Colonies which are getting ready to swarm don't gather honey — they just "loaf" in the hive. You can do these things to prevent swarming:

- Remove all queen cells from the combs every 8 days after you first notice them.
- Reverse the double brood-chambers once or twice during the spring build-up period.
- Make enough room in the brood-chamber so the queen always has empty cells in which to lay. Also add supers in plenty of time once the main honey flow starts.
- Shortly before the main honey flow, you can raise some frames of brood to the top super. This relieves crowding in the brood area.

Wintering Bees

When the temperature drops, bees form a winter cluster on the combs. Strong colonies with plenty of food can live even in very cold climates. If you follow these rules in Michigan, winter losses are not usually high.

1. A colony should have 60 pounds or more honey and some pollen for winter and early spring use. Total weight of a double brood chamber hive in the fall should be about 130 pounds. Feed colonies that are low in honey sugar syrup by mid-September.

2. Re-queening annually or at least every 2 years helps to keep the colonies well stocked with strong, young bees for winter. It is good practice to kill off weak colonies in the fall and replace them in the spring by dividing strong colonies or by buying packages.

3. Good windbreak for the apiary is important, but do not shut out the sun. The south side of a woodlot is often very suitable. Wrapping colonies with tarpaper alone or with more insulation such as straw or shavings may help the bees survive the winter. Providing an upper entrance can also be an advantage.

Preparing Honey

Honey from different flowers varies in flavor, color, and other characteristics. For example, buckwheat honey is dark in color with a pronounced flavor, whereas clover honey is light in color, with a mild flavor. In most parts of Michigan it is possible to extract light-colored honey in early August and golden or amber-colored honey from goldenrod and other fall flowers in mid-September.

It is most important to learn how to extract and pack honey so that it is well-strained, is low in moisture, is free from foreign flavors, and keeps its own natural flavor and aroma. Extract honey in a warm, dry place and try not to expose supers of honey to a high humidity. It is also very important not to overheat the honey at any stage of the process. Overheating drives off its natural flavors. There are four ways to produce and prepare honey for sale.

1. **Section comb honey** is served just as it comes from the hive. The beeswax cells are eaten with the honey, which makes it more "chewy" and attractive to many people. Good section comb honey is harder to produce than extracted honey. It is produced most successfully in areas where there is a rapid flow of light-colored honey.

2. **Cut comb honey** is comb honey produced in larger combs and then cut by the beekeeper to a smaller size. It is sometimes sold as "chunk honey", immersed in a jar of liquid honey. Use a special thin foundation for all honey to be eaten in the comb.

3. **Liquid honey** is extracted honey, sold to be eaten in the liquid form. Commercial honey packers usually filter honey or use controlled heat so it will stay liquid for several months. You "re-liquefy" honey having crystals, by gently heating the container of honey in a pan of water. This type of honey is best for use on breakfast foods, pancakes, ice cream, and fruits. Plastic squeeze bottles make ideal "dispensers" for liquid honey.

4. **Creamed honey** is honey which has been made to crystallize smoothly so that it may be spread with a knife on bread or biscuits. This type of honey has become more popular in recent years and the industry would do well to urge its use. A mimeograph on preparing creamed honey on a small scale is available from the Entomology Department, Michigan State University.

The beginner who intends to sell honey in a consumer pack should plan right from the start to do an outstanding job of marketing any of the forms of honey he handles. Plan to pack neatly and attractively under spotlessly clean conditions, and sell at adequate market prices. All too often, beekeepers fall short in marketing nature's most perfect sweet.

Pollination of Crops

Bees gather nectar and pollen from flowers for food. As they gather their food they pollinate many hundreds of kinds of plants. United States Department of Agriculture publication E 584 lists 50 commercial crops which are pollinated by bees in the United States. Bees pollinate many famous Michigan crops and without them these crops would not give profitable yields. Both honey bees and wild bees are important pollinators.

Honey bees are kept for honey production in all agricultural parts of the state and in many cases they pollinate crops without cost to growers. If having too few bees limits crop yields, many growers place honey bee colonies in the field or

orchard during the bloom period. Some growers have their own colonies for pollination but most growers rent bees from beekeepers.

Although many honey producers will not rent their colonies for pollination because of the danger of a smaller honey crop, there are others who regularly rent bees to fruit and seed growers. Beekeepers who are interested in renting bees for pollination will find it helpful to study the grower's needs and to offer reliable service. It is best to draw up a written pollination contract until the grower and beekeeper are fully familiar with each other's requirements.

Disease Control

American Foulbrood is the most troublesome of the several diseases that affect honey bees in Michigan. It spreads rapidly and can cause serious loss. Following these suggestions will help you control it.

- Learn to identify the disease and develop a disease control program.

- Never allow "robbing" from dead or weak colonies or carelessly exposed equipment.

- Cooperate with the Apiary Inspection Service by (1) registering your apiary annually, (2) getting a permit to move or sell bees or used apiary equipment, (3) helping apiary inspectors when they examine your colonies.

Beekeeping Literature

Books

Many hundreds of books have been written about beekeeping. The following are of general interest and value. You can buy them from most bee supply dealers. You can get a more complete list of books from the major bee supply manufacturers.

The Hive and the Honey Bee by Roy A. Grout.
(Dadant and Sons: Hamilton, Ill.)

ABC and XYZ of Bee Culture by E. R. Root.
(A. I. Root Company: Medina, Ohio)

Starting Right With Bees by H. G. Rowe.
(A. I. Root Company: Medina, Ohio)

First Lessons in Beekeeping by C. P. Dadant.
(Dadant and Sons: Hamilton, Ill.)

Honey Plants Manual by Harvey B. Lovell.
(A. I. Root Company: Medina, Ohio)

Queen Rearing by H. H. Laidlaw and J. E. Eckert.
(Dadant and Sons: Hamilton, Ill.)

Honey in the Comb by Carl E. Killion.
(Journal Printing Company: Carthage, Ill.)

History of American Beekeeping by Frank C. Pellett.
(Collegiate Press, Inc.: Ames, Iowa)

Journals

One or more bee journals should come to the home of every beekeeper. The following are the most useful and popular journals in Michigan.

Gleanings in Bee Culture. (Medina, Ohio)

American Bee Journal. (Hamilton, Ill.)

Bee World. (10 Barnett Wood Lane, Ashtead, Surrey, England). This journal deals largely with research and the scientific aspects of apiculture.

Information and Help

You can get help and information on beekeeping problems from the following agencies:

MICHIGAN STATE UNIVERSITY, Department of Entomology, East Lansing (E. C. Martin). A program is carried on in teaching, research, and extension relating to both practical and scientific phases of bee culture. Assistance is given to beekeepers through correspondence, literature, meetings, and association affairs.

MICHIGAN DEPARTMENT OF AGRICULTURE, Apiary Inspection Service, Lansing (D. P. Barrett). This service carries out a state-wide program of apiary inspection for disease control; assists beekeepers, especially with disease problems; and is responsible for registering all apiaries.

BEE CULTURE LABORATORY, U. S. Department of Agriculture, Madison, Wis. (C. L. Farrar). This is also headquarters for five regional laboratories located in different parts of the United States.

AGRICULTURAL STABILIZATION AND CONSERVATION STATE OFFICE, 200 N. Capitol, Lansing. Administers farm programs relating to price support and loans on stored honey.

AGRICULTURAL MARKETING SERVICE, Fruit and Vegetable Division, U. S. Department of Agriculture, Washington 25, D.C. Publishes semi-monthly Honey Market News. You can get it free on written request.

BEE SUPPLY COMPANIES. Michigan is well supplied with bee supply manufacturers and dealers. Manufacturers publish bee supply catalogs which you can get on request. Most of the manufacturers also handle package bees. A "List of Dealers in Beekeeping Supplies, Package Bees, and Queens" (Circular E-297 revised) is available from the Bee Culture Laboratory, U. S. Department of Agriculture, Beltsville, Md.

Beekeeping Organizations

Michigan Beekeepers' Association.—Meetings are open to all beekeepers. A business meeting is normally held in December and a picnic meeting in July. A 2-day educational meeting is also sponsored by Michigan State University during Farmers' Week. A strong Association is important to the welfare of the industry. Beekeepers, both professional and side-line, have kept quite close contact through the organizations. They enjoy the friendly contacts with other beekeepers and learn something of value at every meeting. (Apply for membership to Otto H. Roth, Reese, Mich.)

Local Associations.—Several counties or groups of counties have local associations which hold one or more meetings a year. These meetings are of social, educational, and business value. Your County Agricultural Agent can help you to arrange for local meetings or form a local association if this is desirable.

The American Beekeeping Federation.—Membership in the Federation is open to state Associations, local associations, and individual beekeepers from all over the United States. This organization represents the industry in matters relating to government policy or national interest. Active committees deal with pollination, honey grading, research, marketing, honey plants, advertising, and other matters. You may subscribe membership through the Michigan Beekeepers' Association. (Secretary of the Federation is Robert Banker, Cannon Falls, Minn.)

The American Honey Institute.—Because honey sales make up the backbone of the whole beekeeping industry, this organization deserves greater financial support from beekeepers. The Institute staff does a very fine job of studying new and better uses for honey, publishing honey folders and booklets, and advertising honey. (Executive Director: Mrs. Harriet M. Grace, Commercial State Bank Building, Madison, Wis.)