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Honey

Honey is a well-recognized item in many areas of the world. It is used in many dishes and is easy to store. We know that honey comes from the beehive but do we know that the races of honeybee (Apis mellifera) are divided into three groups: the European, the Oriental, and the African races. The European group can be further divided into four groups: Carniolan, Caucasian, Dark, and Italian bees. The Dark bees were first bought over to North American from Europe around 1630. The first Italian bees were imported in 1859 and are today the most widely distributed bee in the continent.

Honey, as found in the hive, is a mixture of various kinds of sugar with water. It is flavored by floral essences and contains traces of various minerals, nitrogenous substances and an enzyme. This honey differs from the nectar of the flower from which it is derived. It has reduced water content and transformed sugar.

Bees feed almost entirely on nectar and pollen obtained from blooming flowers, and honey comes from the flower nectar. It is probable that honey taken from a hive is never composed absolutely of one kind of flower nectar. Honeybees collect nectar from a diverse range of plants. Not all plants contribute to the production of homey but are important for the well-being of the colony. Robinson and Oertel (1975) list about two hundred important nectar and pollen plants. They also indicate the regions in North America in which these plants are found. Some of the plants regarded as a major source are alfalfa, aster, basswood, black mangrove, buckwheat, citrus, clovers, cotton, fireweed, gallberry, goldenrod, sage, saw palmetto, sourwood, soybeans, Spanish needles, and tupelo.

Beekeeping equipment

A wooden beehive housing a full colony of bees consists of hive stand, bottom board, brood chamber, queen excluder, super, inner cover, and hive cover. Most are

made from wood with some metal (aluminum) component. The hive stand keeps the rest of the hive off the ground and, therefore, making it less likely to rot, flood, or be attacked my termites. The bottom board closes off the bottom of the hive. The hive body or the brood chamber rests on the bottom board, and holds the frames of comb. The queen excluder is sometimes placed above the brood chamber. This ensures that brood rearing is confined to this area. The supers are chambers above the brood chamber and are used to store surplus honey.

Extracting honey

A bee-tight room or honey house should be used to extracting honey from the supers. The honey can be extracted with ease if the room temperature is about 90° F. The supers should not be stored at temperatures below 57° F since low temperatures promote granulation of honey.

The wax capping that seal the honey in the cells are commonly cut away with a steam-heated or and electric uncapping knife. After the cappings on both sides of the frame are cut, the frame is placed in either a radial or basket-type extractor. The extracted honey should be strained to remove wax, bees, and debris. The strained honey should be placed into a holding tank until it can be put into other containers.

Most honey granulates after being removed from the comb, though the time period varies from a few days to few years. To keep most extracted honey in a liquid state, it should be heated to 145° F for about half an hour.

It is advantageous to know where the honeybee has been foraging. This lets the beekeepers to know what type of honey their bees have produced. Using the common honey/pollen analysis, trace amounts of pollen can be extracted from honey for identification. This would help in proper labeling of the honey for the market. We also find that some honeys are less desirable than others owing to their bitter flavor, ready granulation, poor color, or toxicity. Identifying the source of the undesirable homey is important for beekeepers.

Other products of the hive

There are many products other than honey that are derived from a beehive. Principal among them are beeswax, propolis, pollen, bee broods, royal jelly and bee venom.

Beeswax

There is a huge demand for beeswax in the wax industry. Wax foundation is a sheet of wax that is pressed between metal dies so it

comes embossed on both sides with the cell pattern bees follows in constructing cell sized for raising workers. The foundation is expensive. Therefore, beekeepers should save all cappings, old combs, and bits and pieces of extra wax scrapped from frames and other hive parts. These should be stored in airtight containers or frozen to prevent infestation by wax moths. The wax can be melted down to trade for wax foundation. Old combs contain non-wax substances and therefore should not be melted with the almost pure wax cappings.

Propolis

Propolis is the resinous substance that is used by the bees to seal up the hive for winter protection and defense. It comes from the sticky exudations of trees and buds, such as alders, poplars, and some conifers. Of late, propolis is sold in capsules at health food stores, as a health supplement.

Bee brood

As most organisms, bee brood is also rich in proteins. Honeybee brood is not used much in our diet though it is used on a small scale as food for birds, reptiles, and fish.

Pollen

Pollen is the protein-rich powder produced by the male parts of flowers. Pollen is collected by placing pollen traps on the hives to collect pollen pellets from foraging bees. Pollen can be sold to health food stores, to pollination businesses, to bee dealers, and to allergy victims. Health food stores sell pollen pellets as a vitamin supplement, bee dealers use pollen as bee food, and allergy victims use it as a desensitizing agent.

Royal jelly

Royal jelly is manufactured by young nurse bees to be fed to the queens and queens larvae. It is collected and used in the Orient for medicinal purposes. The uses include cosmetics, lotions, and dietary supplements.

Bee venom

Some component of the bee venom might be more effective than other serums in desensitizing people who are allergic to bee venom. It might also be useful for persons with rheumatoid arthritis.

Medicinal properties

Honey has been acclaimed since time immemorial as a remedy for sore throat. It is also known for it nutritive value. Honey passes directly into the system without the aid for digestive juices. It contains minute quantities of valuable minerals essential for the proper functioning of secretions. Honey with lemon tea is useful in liver disorders and for complexion blemishes. Added to an infusion of yarrow, honey is used for influenza and as a nutrient tonic. Taken with milk, it is useful in cases of stomach ulcers and anemia. Glycerin and honey in equal parts is good for bruises, chafing, and chaps

on face and hands. The combination is also used as a cure for chilblains.

Marketing

To ensure quality is uniform, the Department of Agriculture Standards has established voluntary standards for extracted honey and honeycomb products. The Codex Alimentarius Commission of the Food and Agriculture Organization (FAO) of the United Nations has issued standards for honey for use in trade by all participating countries.

Honey is retailed locally at farmers' markets, craft fairs, and festivals. Most of the honey produced by the 2000 or so large commercial beekeepers in the country is sold or put under loan to the Federal government through the honey price support program. Most of the honey ultimately goes into the bakery trade. Bulk buyers like bakeries either use their honey directly or pack it in their own containers. Private groceries or health food stores often keep honey in a storage tank and let the customers take it home in their own containers.

Other than pure honey sold as such, specialties such as whipped or blended honey, creamed or pure honey, flavored and unflavored honey, and fruit spreads mixed with honey are all being developed for gourmet markets.

Propolis and bee pollen is packaged and sold by the pound to manufacturers of natural health foods. Natural supplements and herbal medicines are sold in the form of tablets in which propolis can be combined with a variety of other constituents such as pollen and royal jelly. Propolis is also used in tinctures and an additive to skin lotions, beauty creams, soaps, shampoos, lipsticks, chewing gums, toothpastes, mouthwashes, and sunscreens. Pollen products are sold in the form of liquid (with honey), capsules, granules, and candy bars.

Beeswax is sold for candle making and wax foundation. The cosmetic and related industries are the largest consumer of beeswax, which uses it in many products such as facial beauty creams, ointments, lotions, and lipsticks. Beeswax is also used in waterproofing materials, for floor and furniture polishes, for grinding/polishing lenses, children's crayons, candy and chewing gum, ski and ironing wax, and wax for bow strings used in archery.

References and information resources

(You may be able to find some of these or other publications in your local library. Another valuable resource is your local cooperative extension office.)

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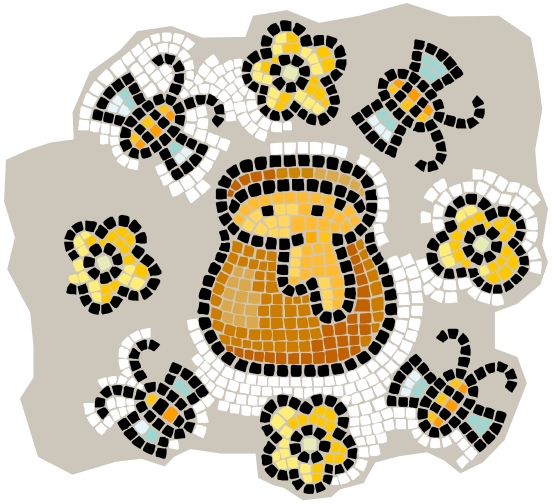

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Electronic resources

The American Beekeeping Federation
http://www.abfnet.org/

Apiculture and Social Insect Programs at Virginia Polytechnic Institute and State University
http://everest.ento.vt.edu/~fell/apiculture/apicult.htm

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This is part of a series of fact sheets on non-timber forest products. The full set of fact sheets is available at the Non-timber Forest Products website: http://www.sfp.forprod.vt.edu/

Please give us your comments on this fact sheet and suggestions for future fact sheets. Direct your comments to Tom Hammett, Department of Wood Science and Forest Products, 210 Cheatham Hall (0323), Virginia Tech, Blacksburg VA 24061. Phone: (540)-231-2716. E-mail: himal@vt.edu.