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BEEKEEPING REGIONS IN THE UNITED STATES

By WILLIAM P. NYE¹

Based on flora, beekeeping methods, and land topography, the continental United States can be divided into seven geographical regions (fig. 1). Each region is discussed here from the standpoint of honey production and methods of beekeeping operations.

The flora, climate, and nature of the terrain determine the system of management practiced by the beekeeper. For example, in the Appalachian swamps of the Southeast, hives are placed on scaffolding to protect them from flood waters. In the Southwest, shade must be provided to protect

the hives from the hot sun. Colonies in the north and mountainous areas must be protected from the cold, in certain forested areas from bears, and on the desert from drifting sand.

Beekeepers must pay for some locations; others are furnished free. Where bees are desired for pollination, the beekeepers usually are paid for their services.

Most beekeepers move colonies at night when the bees are all inside the hive. But when daytime temperatures exceed 43.3°C (110°F) in the Southwest, bees stay inside the hive and are more easily moved at midday than at night when they tend to cluster at the entrance.

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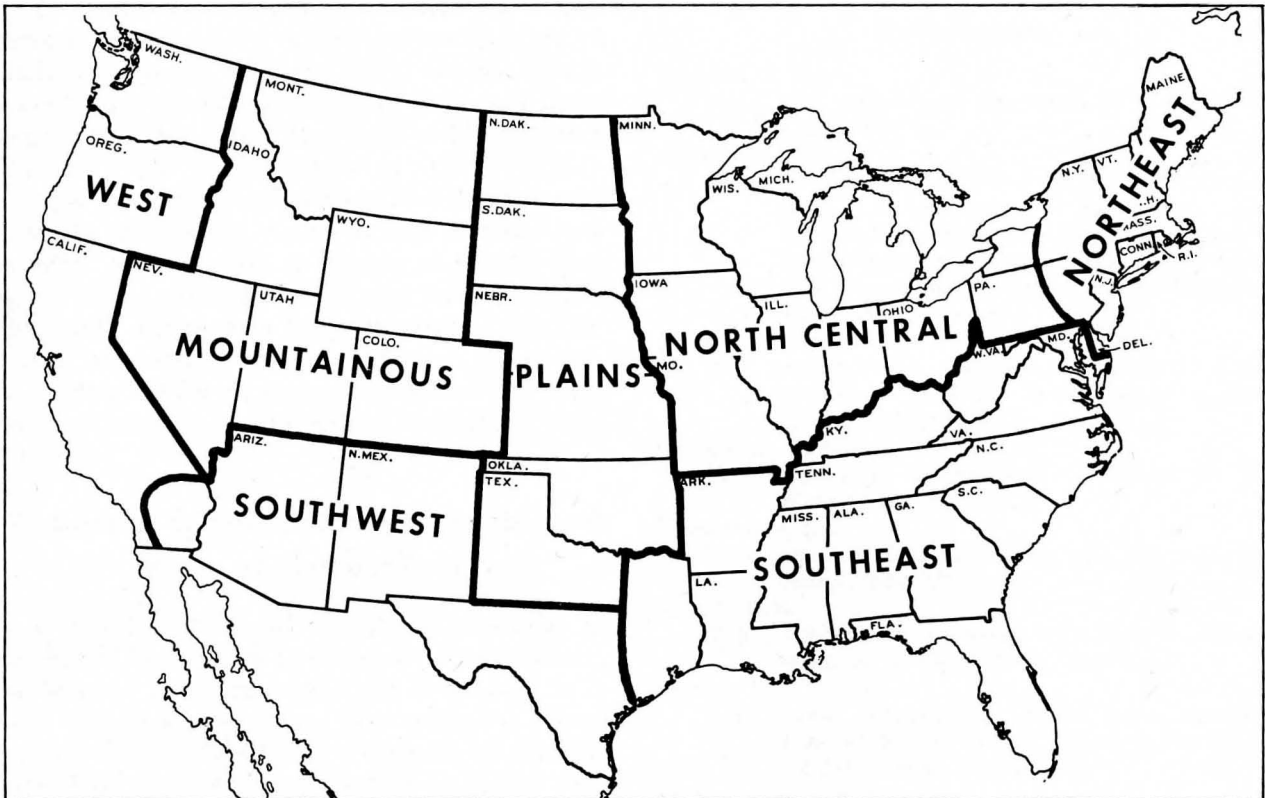


FIGURE 1.—Beekeeping regions of the United States.

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Northeast

The severe winters, short summers, and hilly or mountainous nature of the Northeast produce a variety of plants—but none which serves as a major source of nectar. However, alfalfa is becoming an important source of nectar in certain areas as new and better varieties are developed. Nectar from white clover, basswood, black locust, birdsfoot trefoil, various berries, and wild flowers contribute to producing a mixture of honey, much of which is sold locally to residents acquainted with the type produced, and some of the highest prices for honey are obtained here. Few commercial beekeepers operate in the Northeast.

Average honey production per colony is only 13.3 kg (29 lb), but occasionally locations where alfalfa is grown produce much higher averages. An estimated 175,000 colonies are in this region.

The colonies are seldom moved, except the few belonging to commercial or semicommercial beekeepers who may rent their bees for pollination of blueberries, cranberries, other fruits, or cucumbers. Many commercial beekeepers now remove most of the honey, and each hive is reduced to a two-story brood nest that is trucked to the Southeast where it is allowed to build up and be divided to form new colonies. The hives are returned to the Northeast in the spring for fruit pollination before the main honey flow.

Colonies that are not moved South are located where there are good air drainage, protection from cold winds, and exposure to as much winter sun as possible. For additional protection from cold winters, many colonies are "packed," that is, wrapped with insulation and tar paper, leaving only the entrance exposed. Winter loss is usually high and is replaced with package bees and queens purchased from southern beekeepers. Shade in summer is unnecessary.

Most beekeepers overwinter their colonies in two- or three-story, 10-frame standard Langstroth hives. Two basic types of hive covers and bottom boards in use are the telescope cover and reversible bottom board, and the California-style top and bottom. The telescope covers create problems when hives are moved because the hives do not fit closely together on a truck and break open when roped tightly in place. Where migratory beekeeping is practiced, the California-style top and bottom are used as they permit better stacking of hives on a truck. When the honey flow starts,

beekeepers add one or two deep supers for surplus honey storage or one or two shallow supers for section or comb honey production.

North-Central Region

The bulk of the honey from the north-central region comes from alfalfa, soybeans, sweetclovers (yellow and white), and the true clovers (alsike, ladino, red, and white), with minor surpluses from basswood, black locust, and raspberry. All of this is high-quality honey. Alfalfa and clover are the predominant American honeys. Less desirable grades come from aster, goldenrod, and smartweed. The variety of other plants, however, ensures something for the bees to work on from spring until frost. The bulk of comb honey produced by bees in 1-pound sections comes from this region.

There are approximately 918,000 colonies, many of which belong to commercial beekeepers. Average production of surplus honey per colony is 24 kg (52 lb).

Some colonies are killed in the fall, and the equipment is stored; then the hives are restocked in the spring with packages of bees and a queen purchased from southern beekeepers. Other colonies are wrapped with insulation and tar paper for winter protection. Some are left with ample stores of honey and pollen in locations protected from wind and exposed to warming sunlight (fig. 2). Still others have most of the honey removed, and the hives are reduced to two-story brood nests that are trucked to the South, where they are allowed to build up and be divided to form new colonies. These are then returned to the North in the spring. Midsummer shade is beneficial. Migratory beekeeping is increasing as beekeepers move their colonies from one location to another to take advantage of the various nectar flows.

Some colonies are rented for pollination of fruits, legumes, and cucumbers.

Southeast

Average production of honey per colony in this region, 14 kg (30 lb), is about the same as in the Northeast but less than elsewhere. An estimated 1,483,000 colonies are located permanently in the Southeast. In addition, many thousands of colonies are trucked in from the northern areas during the winter, then returned to the North in the spring.

Most U.S. queen breeders and package bee shippers are located in the Southeast. An estimated



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FIGURE 2.—Apiary sheltered by hardwood forest in north-central region.

300,000 kg (660,000 lb) of live bees and many thousands of queens are shipped from the Southeast annually. Some northern beekeepers pick up their package bees and queens in van-type, air-conditioned trucks for safe transportation to their northern locations.

Except for sizable areas in Florida, little pollination is provided on a cost basis in this region. Bees are rented for occasional pollination of fruit orchards and legume seed and melon production. In Florida, bees are rented for citrus, cucurbits, melons, and other fruits and vegetables.

In the mountainous area, sourwood is the prevailing source of quality honey, along with tulip-poplar and clovers. Sourwood honey is almost water white, does not granulate readily, and is so esteemed that it usually passes directly from producer to consumer at far above the price of other honeys. Various other honeys, from light to dark and from mild to strong, are produced in the Southeast.

In the lower elevations, gallberry becomes the predominant nectar source. In the Appalachian

swamp area, tupelo, famous for its high levulose content and nongranulating characteristics, also is an excellent source of honey. Farther south in Florida, citrus is the major source, with clovers the major source toward the Mississippi Delta, where cotton also becomes important.

Considerable migratory beekeeping occurs, for the long season permits harvest of a crop of honey in one area before another harvest starts elsewhere.

Chunk honey production is common—that is, a chunk of comb honey in a jar of liquid honey. Little section honey is produced.

Preparing bees for winter requires little work. Bees usually are wintered in two- or three-story hives. The problem is to have ample stores of honey and pollen in the colony in the fall. This is necessary for the strong colonies needed in the early spring for package bee production or the early honey flows.

Colonies benefit from shade during the summer in the Southeast, and shade is essential in the southern part for maximum colony production.

Plains Region

The bulk of the honey from the plains region comes from sweetclover and alfalfa; much of it is produced by commercial beekeepers.

In this region, about 476,000 colonies produce 25 kg (55 lb) of honey per colony. Colonies are wintered and operated similarly to colonies in the north-central region. Shade is not generally necessary, although partial or thorough shading during extremely hot midsummer days is beneficial. Some of the highest production per colony is obtained in the plains region. One reason is that the sweetclover and alfalfa fields are relatively large and can support many colonies, and many of the apiaries belong to commercial beekeepers.

Some of the colonies are trucked to southern areas for the winter; some are packed; some are killed and then restocked in the spring; and others receive no special winter treatment.

Colonies are used to a limited extent in the pollination of alfalfa, sweetclover, and cucumbers.

From this region westward to the Pacific, where migratory beekeeping is practiced to a greater extent than elsewhere, the California-style top and bottom rather than the telescoping top and reversible bottom are used, as they permit better stacking of colonies on trucks.

Mountain Region

The major source of honey in the mountainous region is alfalfa (figs. 5 and 6). About 330,000 colonies produce on an average 30 kg (66 lb) of honey per colony. More than two-thirds of the colonies belong to commercial beekeepers; some manage 2,000 colonies or more with only part-time summer help.

Honey production is almost entirely dependent on irrigation, although alfalfa now is grown on dry land. Some of the highest production per colony is obtained in the mountainous region. One reason for this is that the alfalfa fields are relatively large and can support many colonies (fig. 3). Weed spraying has reduced the sweetclover acreage, but sweetclover is now on the increase in some areas.

In migratory beekeeping from this area west and south, the colonies usually are moved at night. The hive entrances are not closed, but the truckload usually is covered with a plastic screen for long trips. Some colonies are packed during the winter, which is extremely cold and dry. Colonies not packed are located where they have good wind protection, exposure to the sun, and good air drainage. Spring buildup is slow and fall nectar flows are rare. Shading is unnecessary.

Migratory beekeeping is extensive. For example, probably no other region in the country can com-



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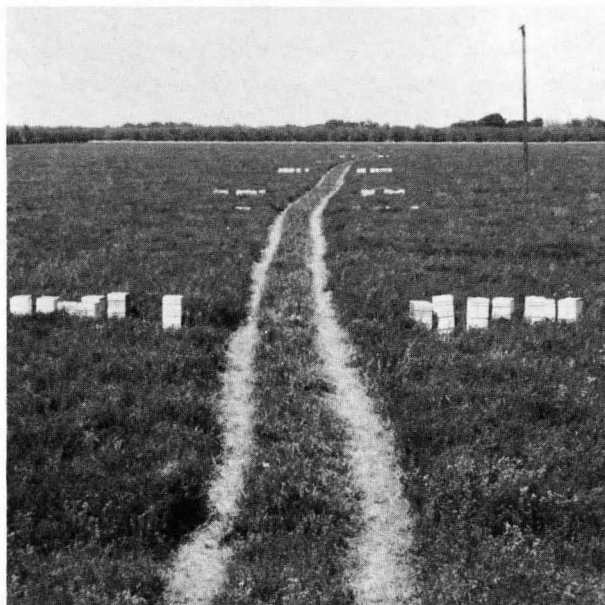
FIGURE 3.—Unsheltered colonies located for alfalfa honey production and pollination in Utah.

pare with the Delta area of central Utah with so many colonies (20,000 to 40,000) moved in from such long distances in so short a period. The region produces a major portion of the alfalfa seed in Utah (fig. 4). Many colonies are moved south or west for the badly needed spring buildup, then returned for the summer flow. Some colonies are killed in the fall and restocked in the spring.

Southwest

In this hot, semiarid region, there are 155,000 colonies that produce 21.4 kg (47 lb) of honey per colony. The major sources of nectar are alfalfa, cotton, and mesquite. Other sources include citrus, catclaw, tamarix, safflower, wild buckwheat, and other desert shrubs.

Summer shade is highly important (fig. 5). Artificial shade is often provided. Winter protection is unnecessary. Some colonies are wintered in a single brood nest with one or two shallow supers, but most are in two or three standard hive bodies. Nearby water is essential, and if it disappears even for only a day, the colonies may perish. Migration from one honey flow to another is common.



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FIGURE 4.—Colonies in groups of 8 to 12 are placed one-tenth mile apart in large alfalfa seed fields for pollination.



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FIGURE 5.—Typical apiary under a ramada that partially shades colonies in hot Southwest.

Colonies are used extensively in pollination of alfalfa and melons and to a lesser degree for citrus, onions, and cotton. A few package bees and queens are produced, but for the most part bees are kept for production of honey by commercial operators. Apiaries of 100 colonies or more are not unusual.

West

About 668,000 colonies in this region produce 12 kg (27 lb) of honey per colony. This production is rather meaningless because of the differences due to extreme variations in temperature, rainfall, elevation, and flora. The main source of nectar is alfalfa, which produces a light-colored honey of excellent flavor. Cultivated field crops such as clover, citrus, cotton, lima beans, deciduous fruit trees, and cucurbits are important sources of pollen and nectar during their blooming periods.

Other plants such as wild buckwheat, star thistle, sage, and fireweed in restricted localities may yield commercial quantities of honey in favorable years and may rank high in the estimation of the beekeeper because of their value to the bees as a source of food for building up the colony early in the spring or to carry it over the winter period.

The region varies in rainfall from 1 to 2 inches in the desert areas to more than 60 inches in the rain-forest area, in elevation from below sea level to snow-capped mountains, and in temperatures from dry and hot to humid and extremely cold.

Migratory beekeeping is practiced by most of the commercial beekeepers, and four or more moves per year are not uncommon. In California, most of the bees are held in almond areas during the winter. The almond orchards are distributed from Chico in Butte County in the north to Kern County in the south. The pollination season begins with almond blooms in early February. As the almonds finish blooming, the plums and prunes begin to bloom and the beekeeper may move to these. Cherries bloom near mid-March through mid-April. After this period of fruit bloom, there is a dearth of pollen and nectar in cultivated areas.

To maintain and build up colonies for summer pollination service, the beekeeper moves his bees to the mountains where bees are held in manzanita and sage at elevations around 2,000 to 6,000 feet.

Native plants supply pollen and nectar in the Sierra Nevada range, the coast ranges, and coastal areas between the Pacific Ocean and the coast ranges.

Commercial pollination service begins again in June-July with melon pollination, ladino clover, and alfalfa seed production. In the fall, after these sources have been harvested, the beekeeper moves his bees into native flora along the east side of the coast range. This is a major source of nectar and pollen for winter stores from August to frost.

California beekeepers south of the Tehachapi Mountains begin to build up their colonies on native plants in January. Until citrus bloom in April, this is the main bee pasture. Some southern California beekeepers move into the southern and central almond areas in February and March and into alfalfa and cotton during the summer and early fall.

It is evident, therefore, that the beekeeper must move his bees to take advantage of pastures offered by native and cultivated plants during the period. The placement of 2,000 colonies from several beekeepers in a solid square mile of alfalfa grown for seed is not unusual. The use of bees for pollination is extensive. An estimated one-half or more of all colonies are used sometime during the year for pollination hire.

In the last few years, many beekeepers have had to replace almost 100 percent of their colonies due to pesticide losses. These losses are increasing each year. The major dollar loss to beekeeping in California is caused by (1) pesticides, (2) wax moth, and (3) foulbrood diseases.

Beekeepers operate an average of 2,000 colonies. In such operations, the apiary rather than the colony is considered a unit. Such manipulations as requeening, supering, and removing honey are performed on all colonies regardless of their relative condition. Each year, more than 272,727 kg (600,000 lb) of bees and approximately 400,000 queens are shipped from the West.