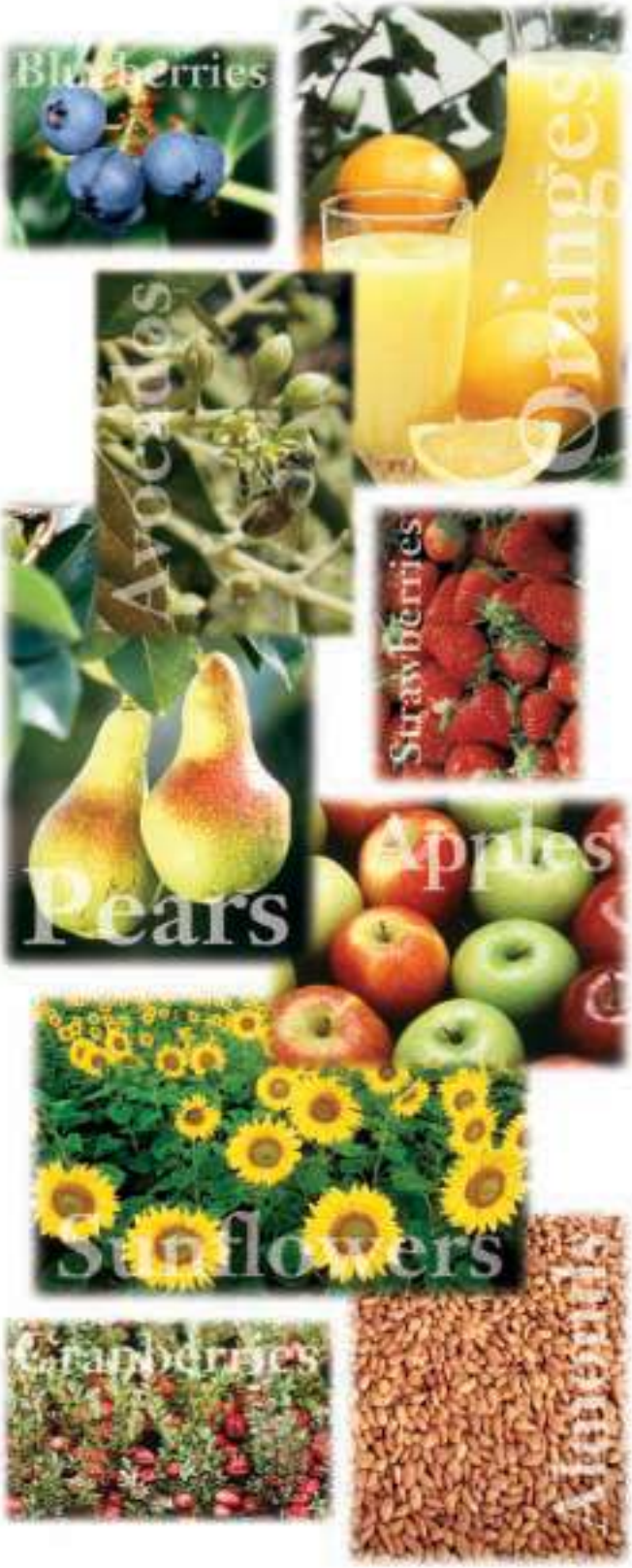


The Story of Pollination

Honey bee hives are moved to orchards such as this cherry orchard by truck. The hives are then unloaded to the exact location specified by the grower.

Unlike people in other countries of the world, consumers in the United States enjoy delicious, nutritious and affordable agricultural products year-round. America's farmers feed more and more people each year while using less land to do so.

Honey bees are a critical component of this agricultural picture. As honey bees visit blossoms to gather the nectar and pollen necessary for their survival, they help agricultural crops, home gardens and wildlife habitats flourish.

Pollination is the transfer of pollen from the anthers of one flower to the stigma of that or another flower. Simply put, pollination is the first indispensable step in a process that results in the production of fruits, vegetables, nuts and seeds.

Without the honey bees' pollination work, the quantity and quality of many crops would be reduced and some would not yield at all. According to a 2000 Cornell University study, the increased yield and quality of agricultural crops as a result of honey bee pollination is valued at more than $14.6 billion per year. In fact, approximately one-third of the total human diet is derived directly or indirectly from insect-pollinated plants (fruits, legumes and vegetables).

Watermelon blossoms must be cross-pollinated to produce fruit.
(Photos - National Watermelon Board)

California produces more than half of the world's almonds. Without honey bee pollination, the almond crop would be extremely limited.
(Photos of orchard and almond - Almond Board of California)

The USDA has estimated that 80 percent of insect crop pollination is accomplished by honey bees. While other insects can pollinate plants, honey bees are premier pollinators because they are available throughout the growing season, they pollinate a wide range of crops and they can be concentrated whenever and wherever they are needed.

Much honey bee pollination occurs naturally. A hobbyist beekeeper's honey bees, for example, will pollinate a neighbor's squash blossoms, herbs or fruit trees during the summer. Likewise, honey bees will pollinate the non-cultivated fruits, nuts and seeds that animals depend on for food in the wild.

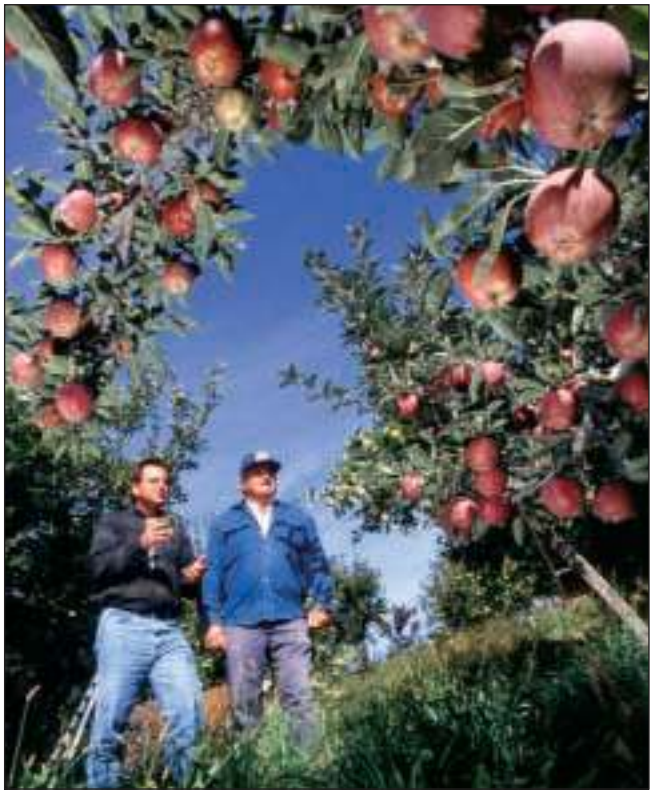
To meet the demands of agriculture, however, special efforts are required. About one-half of the full-time beekeepers in the United States move their colonies from state to state and

Crunchy almonds.

field to field during the year to provide pollination services to farmers as well as to reach abundant sources of nectar for honey production.

Thus, approximately 2 million colonies of bees are "on the road" each year to pollinate crops. Many of these bees are moved to California, where an estimated 1,000,000 colonies of honey bees are needed just to pollinate the almond crop. And, the demand for these tiny, efficient workers and their keepers continues to grow.

A healthy beekeeping industry is vitally important to a healthy agricultural economy, to wildlife habitat, to a healthy environment — and to the plants in your own backyard!



The quality and quantity of apples increase with pollination.
(Photo - ARS/USDA)

Crisp apples. Colorful melons.

An estimated 300,000 colonies of honey bees are rented each year to pollinate melons.
(Photo - ARS/USDA)

"A healthy beekeeping industry is critical to both agriculture and the environment — without honey bees, our food supply would be significantly reduced."

— Gene Brandi, *beekeeper*

A honey bee visits a peach blossom. Pollination must occur for the blossom to produce a healthy fruit.
(Photo - California Tree Fruit Agreement)

As the worker bee visits the avocado blossom, the pollen clings to her hairy body and is thereby transfered from blossom to blossom.
(Photo - Mary Lu Arpaia, University of California)

The Workers

Pollination depends on the work of honey bees and the migratory beekeepers who manage them.

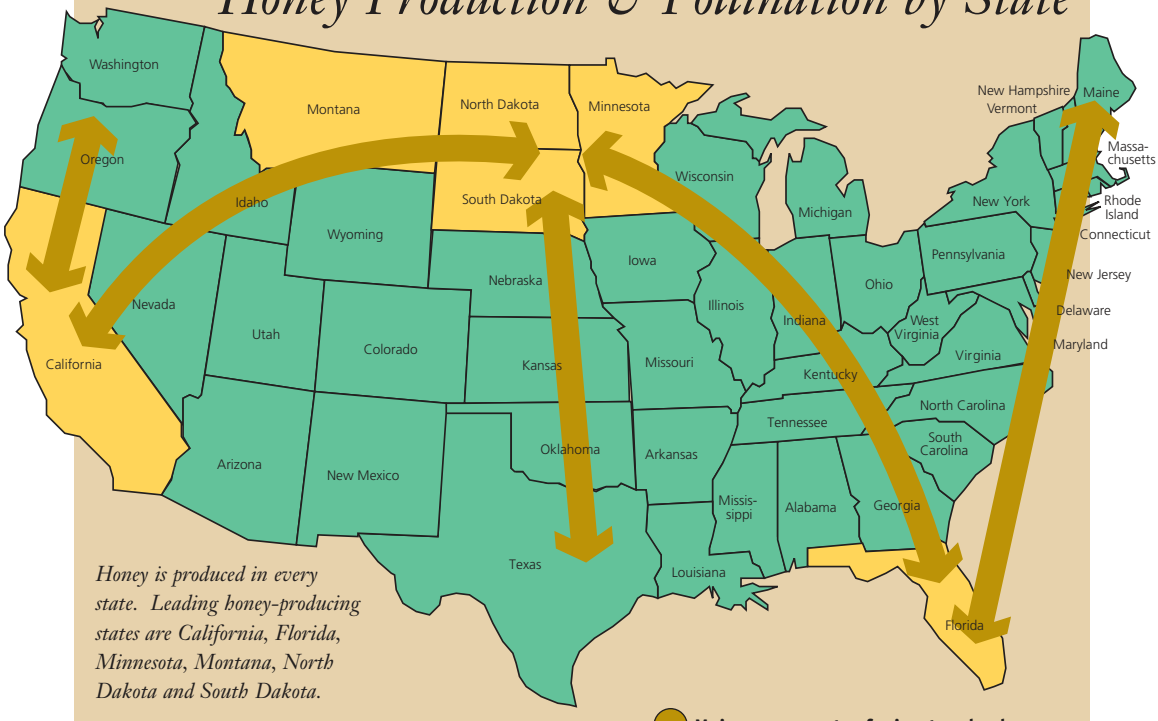
Many factors influence the success of a migratory beekeeper. Fuel, labor and equipment are required to manage and transport bees from location to location — often great distances apart. Migratory beekeepers may spend months away from their families and homes as they move their bees.

Beekeepers maintain the health of their colonies by ensuring that they have access to adequate supplies of pollen, nectar and water. As agricultural land, wildlife and natural areas are reduced, so is the foraging area for bees.

As they move their bees, beekeepers must closely monitor pesticide and herbicide treatments used on nearby crops — treatments that may harm or kill beneficial insects, including bees.

In recent years, beekeepers have also had to battle mites — small parasites that attack bees. Left unchecked and untreated, mites can rapidly kill a colony. Because mites have killed most wild bee colonies, dependence on managed honey bees for pollination of crops and wildlife habitat has grown.

Honey Production & Pollination by State



Honey is produced in every state. Leading honey-producing states are California, Florida, Minnesota, Montana, North Dakota and South Dakota.

About half of the nation's full-time beekeepers migrate with their beehives, providing pollination services to farmers across the country.

Major movements of migratory beekeepers

Major honey-producing states

Major Crops that Depend on Honey Bees for Pollination

alfalfa seed, almond, apple, avocado, blueberry, cantaloupe, cherry, cranberry, cucumber, honeydew, kiwi fruit, pear, plum, sunflower, vegetable seed, watermelon

"The value of honey bees can not be measured by their ability to produce honey alone — rather, it must include the work bees do for agricultural crops, home gardens and wildlife habitat."

— Nicholas Calderone, Ph.D.
Cornell University

Clover is the most common floral source of honey produed in the United States.

National Honey Board / 390 Lashley Street / Longmont, CO 80501-6045
www.honey.com / www.nhb.org / www.honeylocator.com
(303) 776-2337

Cover Photos: ARS/USDA; Almond Board of California; Mary Lu Arpaia, University of California