

DON'T UNDERESTIMATE THE VALUE OF HONEY BEES!

*By Eric C. Mussen, Extension Apiculturist
Department of Entomology
University of California, Davis, CA 95616
(530) 752-0472 - ecmussen@ucdavis.edu*

The Beekeeping Industry in California

California has the largest beekeeping industry of any state in the U.S. Nearly 500,000 colonies of bees are operated by 400 commercial and semi-commercial beekeepers. An additional 2,000 hobby beekeepers in the state have one or more hives of bees. While most hobby beekeepers place their hives on permanent locations, commercial beekeepers move their hives at least six times each year to pollinate crops or to place them near natural food sources for bees.

Products of the Beekeeping Industry

Live bees, reared primarily in the Sacramento Valley, are exported to honey producing areas. In 2005, queens, bulk bees, and starter nuclei worth \$11.5 million were shipped to beekeepers in the state, in neighboring states, across the country, and to other parts of the world.

Most of the hives of bees in California are rented one or more times a year for pollination of agricultural crops. Nearly 3/4 of the country's documented commercial honey bee crop pollination is conducted in California. Beekeepers received \$121.9 million in 2005 for supplying bees to pollinate more than 50 varieties of orchard and field crops. The value of this pollination service to California agriculture is detailed on the attached data sheet.

California is a national leader in production of honey, with total yields averaging 20,000,000 pounds each year. An average 400,000 pounds of beeswax is produced as well. The value of honey and beeswax to California beekeepers was \$42.5 million in 2005. In total, the state's gross beekeeping income for 2005 exceeded \$175.9 million.

The Value of Honey Bee Pollination to California Agriculture

Pollination by honey bees is as vital to the production of many crops as water and sunlight. There is no substitute! One third of our daily diet relies on honey bee pollination. Almonds, apples, sweet cherries, plums and prunes are examples of crops that require cross-pollination between varieties in order to produce a crop. Bee pollination is necessary for the production of cucumbers, squash, pumpkins, and melons. Twenty-one additional California fruit and nut crops are known to produce larger yields when pollinated by honey bees. These fruit, nut, and vegetable crops were worth \$6.1 billion in 2005 - a value approximately 35 times greater than the income generated directly by the beekeeping industry.

The greatest value of honey bee pollination is associated with the production of seeds that will have worldwide distribution. Twenty vegetables, including asparagus, carrots, celery, onions, radishes, and turnips produce seeds only when their flowers have been adequately pollinated. Likewise, seed production of forage crops such as alfalfa, various clovers, trefoil, and vetch, requires many visits by foraging bees. Including the "indirect" value of honey bee pollination (meat, dairy products, vegetables, hay, etc.), honey bees are responsible for nearly half of California's agricultural production (cash receipts for farm marketing), which is currently valued above \$32.0 billion. Thus, honey bee pollination is really worth in excess of 400 times the intrinsic earning power of the bees to beekeepers.

Value of Honey Bees to Nonagricultural Segments: Home Gardens

It is estimated that nearly one half of American households have gardens. Aside from the fact that honey bee pollination was responsible for producing most of the planted vegetable and flower seeds, home gardeners should realize that honey bees are necessary to their gardens, much like water and sunlight. Without honey bees, fruit trees bear few fruits, berries tend to be small and misshapened, and vine crops like melons, cucumbers, squash, and pumpkins bear small fruits that do not fill out and mature properly. Some ornamental shrubs and trees also require pollination to produce fruit that may be eaten by birds or other beneficial animals.

Recently, parasitic mites have spread into managed and "feral" (non-kept) colonies of honey bees. One mite, *Varroa destructor*, is so devastating that it has eliminated most of our feral colonies. Therefore, hived bees, which can be protected from the mites by beekeepers, are going to be about the only colonies of honey bees left in California and the United States. To assure adequate pollination of fruit trees and garden crops, gardeners are going to have to encourage beekeeping in their communities.

Wildlife and Watershed Management Areas

Drastic reductions in populations of native insect pollinators have created a great need for honey bee pollination to insure re-seeding and perpetuation of wild plants. These plants serve as sources of fruits, nuts, and/or vegetation for consumption by various birds and mammals. They also provide nesting sites and hiding places for other creatures involved in the intricate "Balance of Nature." This vegetation also adds immeasurably to soil conservation and flood control.

Too often, honey bees are equated with stinging, a suicidal act reserved specifically for purposes of colony defense. Frequently, the insects behaving in an aggressive manner at picnics and around homes are wasps ("meat bees") that are incorrectly called bees. Negative publicity and restrictive legislation only can lead to loss of honey bees and the crops that rely upon them for pollination.