

Beehives are Essential to Good Pollination

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Avocados are usually in full bloom in March; the obvious question might be "Can a grower do something to increase fruit set, or are we at the mercies of the weather?"

First of all, we are largely dependent on the weather during the spring in order to set a good crop. Previous studies conducted by UC Cooperative Extension and the Mission Resource Conservation District in Fallbrook indicate a strong negative correlation between fluctuations in temperatures during the blooming season and fruit set, meaning stronger fluctuations between daily high temperatures and low night temperatures correlate with a low fruit set. The bumper crop year in 1993 correlated with steady even temperatures in the spring of 1992. This could mean that extremes in temperature reduce the life of the pollen and/or the ovules.

Since we can't control temperatures, it is important to put effort into things we can control. One of those items is bee management. Avocado is a bee pollinated crop, although it is suspected that other insects may contribute to successful pollination in a lesser degree. Recognizing that varroa mite has killed most of the wild honeybees in Southern California, most of the larger growers now rent hives during bloom, allow beekeepers to park their hives on their property, or maintain their own hives. Many of the smaller growers still do not have beehives, and I believe their pollination is suffering as a result.

Israeli research has indicated that three hives per acre are necessary for optimum fruit set (under their conditions). The University of California has always recommended 1 to 2 hives per acre in California avocado groves. The hives should be spread out in the grove, located on the downwind side of the grove to make flying with a heavy burden a bit easier. Water should be provided for the bees, with floating pieces of plywood in the container or the pond so the bees have a place to land while drinking.

We should remember that, if citrus is nearby, the bees will leave the avocado grove to work the citrus flowers. It is becoming apparent that citrus and avocado may not be compatible crops, solely for this reason. Bee attractants sprayed on the avocado flowers appear to attract bees from neighboring avocados, but not from citrus.

The usual grove management for March includes weed control, gopher control and the beginning of the fertilization program. Young weeds should be sprayed with glyphosate before they go to seed. Although gophers are not great pests of avocados, they do open up hillsides and ditchbanks to increased erosion from rains. It is fairly common to see avocado trees that have fallen over after a rain due to gophers loosening the soil on the hillside surrounding the trees.

The fertilization program has usually concentrated on nitrogen application; two pounds of actual N per tree per year divided into several fertilizer injections into the irrigation system during the growing season is standard practice. Zinc application is overrated and is not recommended unless the leaf analysis drops below 30 ppm.

Bloom sprays with various concentrations of nutrients are under investigation now by several researchers. Growers might like to try a bloom spray recommended by the farm supply store, but be sure to leave at least one large block of unsprayed trees. Remember, no matter what product you use, evaluation of the product's effectiveness is impossible if there are no controls.