

HONEY BEE BEST MANAGEMENT PRACTICES QUICK GUIDE

All parties involved in honey bee pollination and pesticide applications in the orchard should follow these precautions to ensure California almonds continue to be a good, safe place for bees and to make certain that optimal pollination takes place.

BEFORE BLOOM

AGREEMENTS/ CONTRACTS MADE AHEAD OF BLOOM SHOULD INCLUDE A PESTICIDE PLAN THAT OUTLINES WHICH PEST CONTROL MATERIALS MAY BE USED.

Growers, beekeepers and PCAs should agree on which pesticides may be applied, if deemed necessary. Beekeepers and growers should also agree on hive placement and removal timing at the end of bloom.

BEEKEEPERS SHOULD REGISTER THEIR HIVES.

Hives can be registered through the Bee Where program at BeeWhereCalifornia.com by Jan. 1 each year or upon arrival in California, and beekeepers should update locations with any hive movement.

DURING BLOOM

CONTACT BEEKEEPERS 48 HOURS BEFORE PESTICIDE APPLICATION.

The responsible individual (i.e., applicator) should notify contracted beekeepers and any beekeepers within 1 mile of the application site. That individual should use the Bee Where program, found at BeeWhereCalifornia.com, or contact their local county agricultural commissioner directly, to locate hives within a 1-mile radius of the spray site. **This advanced warning** is mandatory for products with "toxic to bees" on the label statement and recommended for all other applications, particularly during bloom.

AVOID TANK MIXING AND APPLYING INSECTICIDES DURING BLOOM.

These factors can impact bee adults and brood (young developing bees in the hive). The one exception for application is *Bacillus thuringiensis* (Bt), for which the safety of adult and immature bees is documented. If treatment is necessary, only apply fungicides and avoid adjuvants, unless noted as specifically required on the label.

ANY FUNGICIDE APPLICATION DEEMED NECESSARY DURING BLOOM SHOULD OCCUR IN THE LATE AFTERNOON OR EVENING, WHEN BEES AND POLLEN ARE NOT PRESENT.

This timing avoids contaminating pollen with spray materials. **Be cautious about adjuvants.** The University of California recommends adjuvants should not be used with fungicides during bloom unless stated on the label.

PROVIDE CLEAN WATER FOR THE BEES TO DRINK.

To ensure bees spend more time pollinating the crop than searching for water, and to guard the bees from drinking pesticide-contaminated water, beekeepers and growers should decide who will provide clean water, a practice that includes covering or removing water sources for bees before a pest control treatment, or emptying and refilling water after a treatment is made. The responsible individual should also check water levels throughout bloom and refresh as necessary.



DURING BLOOM

DO NOT HIT FLYING BEES WITH ANY SPRAY APPLICATION MATERIALS.

Bees that come in contact with agricultural sprays will not be able to fly due to the weight of spray droplets on their wings.

DO NOT DIRECTLY SPRAY HIVES WITH ANY PESTICIDE APPLICATION.

Ensure that the spray-rig driver turns off nozzles when near hives. If a spray application comes in contact with bee hives, it could adversely affect bee health and overall pollination of the crop.

REPORT SUSPECTED PESTICIDE-RELATED HONEY BEE INCIDENTS TO THE COUNTY AGRICULTURAL COMMISSIONER'S OFFICE AS SOON AS POSSIBLE.

Bee health concerns cannot be addressed without the data from these incidents. When reporting include notes describing the previous health of the colony, prevailing wind, EPA registration number from the suspected pesticide label, name of the suspected pesticide and how the bees may have been exposed to the pesticide.

AFTER BLOOM

BEEKEEPERS AND GROWERS SHOULD ENSURE BEES ARE REMOVED AT THE TIME AGREED UPON IN THE AGREEMENT.

The University of California recommends bee removal when 90% of the flowers on the latest blooming variety are at petal fall. Past this point, no pollination is taking place, and bees that forage outside the orchard (they can forage up to 4 miles) will seek alternate food sources and water, putting them at a higher risk of encountering insecticide-treated crops.

REMEMBER

COMMUNICATION ABOUT PEST CONTROL DECISIONS SHOULD OCCUR BETWEEN ALL POLLINATION STAKEHOLDERS.

These stakeholders, as illustrated in the Communication Chain in the "Honey Bee Best Management Practices for California Almonds," can include the beekeeper, county agricultural commissioner, grower, pest control adviser (PCA) and pesticide applicator.

CONSIDER PLANTING SUPPLEMENTAL FORAGE.

Supplemental forage provides bees with nutrition before and after bloom, when there is a lack of pollen. The presence of forage does not compete with almond blossoms, and bees who have access to forage have better nutrition – healthy honey bees mean better pollination and future performance.

