

FORAGE YOUR WAY TO BETTER HONEY BEE HEALTH

Studies show that planting forage provides honey bees with better nutrition, and healthy honey bees mean better pollination.¹ Although planting forage may not be the best fit for all growers, it can provide a number of benefits where orchard conditions are favorable.

The benefits of planting forage

As almond tree acreage grows, so does the need for pollinators. Besides the nutritious pollen and nectar that almond trees provide for honey bees, one of the ways almond growers can support pollinator populations is to provide an alternate source of honey bee nutrition before and after almond bloom.

Supplemental feeds are often used to support honey bee nutrition while pollen and nectar are unavailable. However, forage plantings provide a robust source of nutrition that nurtures more vigorous foragers.



Continuing Almond Board-funded studies have examined the health, growth and survival of honey bee colonies that were fed supplemental feeds and forage. The results indicate that planting forage could increase queen and colony survival, as well as provide healthier colonies.

Should you plant forage?

In addition to providing robust food resources for honey bees, growers who plant forage may benefit from a number of other improvements to their orchards,² including:

- improved soil fertility
- improved water infiltration
- improved soil moisture conservation
- fixed nitrogen
- increased organic material
- increased beneficial insects
- soil stabilization and erosion control

Whether it's young orchards needing soil stabilization, or reducing erosion in older orchards, cover crops between tree rows are appropriate for all orchards. If row plantings are not an option for your orchard, consider planting forage along orchard margins or in open fields nearby. Hedgerows, with their long bloom periods, are also an option to provide bee forage, beneficial insects and soil benefits to the grower.





Growers should note that planting forage will require attention to pesticide use and consideration of bees if they are visiting the forage. If forage is planted in or adjacent to orchards, it is important to read and follow pesticide label directions. For forage inside the orchard, the Almond Board of California “Honey Bee Best Management Practices for California Almonds” can be followed as a guide to protect bees. As for forage outside orchards, many pesticides can be used safely near bees when label directions are followed.

Water requirements of forage

When forage seeds are sowed in the fall, they should germinate with normal precipitation in fall and early winter, providing forage blossoms in time for honey bee colonies when they arrive for almond bloom. However, seedling growth should be monitored to determine if irrigation will be needed to supplement rainfall. Seed mixtures are available that have a low moisture requirement. Planting forage in early to mid-October ensures the maximum rainfall-use efficiency.

Forage does not compete with almond blossoms

Growers need not worry that forage will distract honey bees from pollinating their almond trees. Almonds provide honey bees with large quantities of high-quality pollen in a relatively small area, making it very easy for bees to collect, as opposed to hard-to-get pollen on a cover crop. In fact, having other pollen sources available, like attractive pollen from forage, promotes a pollen-collecting cycle, keeping bees working and stimulated. This cycle motivates the queen to lay more eggs and the bees to collect even more pollen to feed their young, allowing colony populations to expand rapidly and create a larger fieldworker force.

To get started, visit Almonds.com/BeeBMPs for more information on where to get seed for planting forage in your orchards and profiles of growers who use this practice.



1 DeGrandi-Hoffman, G.; Chen, J.; Carroll, M., 2013. *Comparing the Effects of Protein Supplements vs. Natural Forage on Colony Health*, 2013-2014 Annual Research Report, p. 1-11.

2 *Growers' Guide for Planting Forage for Honey Bees*, Project Apis m. (2013). <http://projectapism.org/wp-content/uploads/2013/10/Growers-Guide-for-Planting-Forage-for-HBs.pdf>

3 *Forage Competition*, Project Apis m. (2014). <http://projectapism.org/wp-content/uploads/2014/06/Forage-tab-competition-v5.pdf>

