



The Bee Box

CHRISTI HEINTZ
& TARA McCALL

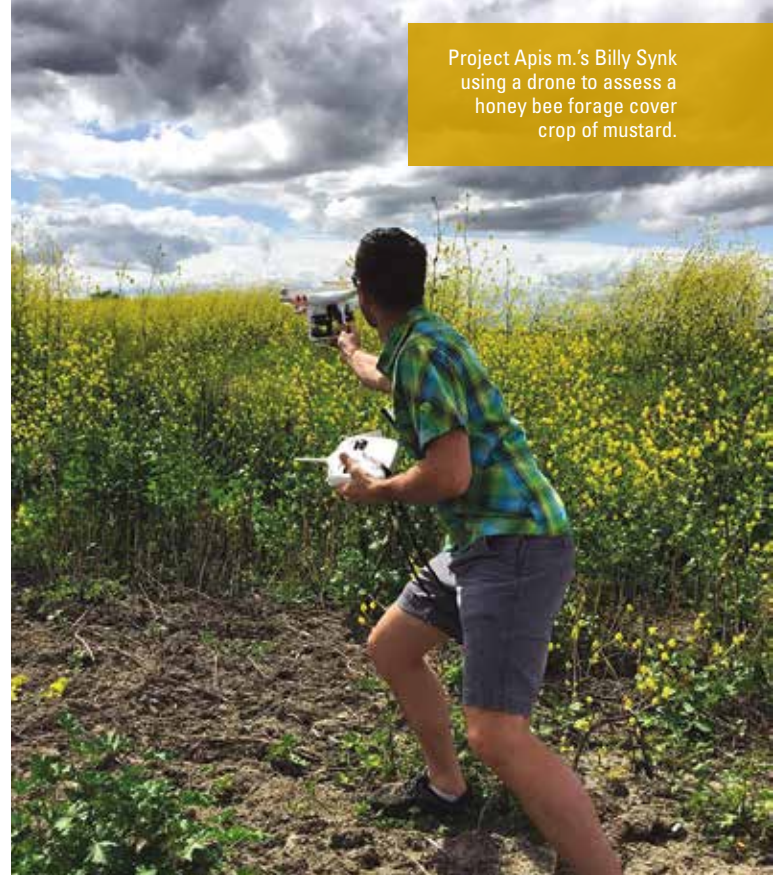
The last few issues of The Bee Box have discussed various aspects of the Varroa mite and their relationship to honey bee health, including mite migration and control methods, the Varroa/virus complex and breeding better bees to resist mites. The recent release of the annual nationwide survey, published by the Bee Informed Partnership (BIP) in collaboration with the Apiary Inspectors of America and the USDA, reinforced the challenges beekeepers have, including managing their mites. For 2015—2016, the survey indicates an annual loss rate of 44 percent, with both summer and winter honey bee losses increasing from the previous year.

“The high rate of loss over the entire year means that beekeepers are working overtime to constantly replace their losses,” said Dr. Jeffery Pettis, a senior entomologist at the USDA and a co-coordinator of the survey.

“These losses cost the beekeeper time and money. More importantly, the industry needs these bees to meet the growing demand for pollination services. We urgently need solutions to slow the rate of both winter and summer colony losses.”

Malnutrition in Bees?

The survey cites several reasons for honey bee declines, including Varroa, but also malnutrition. Malnutrition in bees? Yes! Bees have fewer natural forage resources today because of changes in land use patterns. Where we once had large tracts of sweet clovers and alfalfa in the honey producing region of the Upper Midwest, summer home to about 40 percent of colonies pollinating almonds, we now have soybeans and corn that provide little or no nutrition to honey bees. Widespread use of herbicides to control flowering weeds, RoundUp Ready crops and encroaching civilization further limit nectar and pollen sources for bees.



Project Apis m.'s Billy Synk using a drone to assess a honey bee forage cover crop of mustard.

Almond Growers can Help Prevent Malnutrition

While mite control and many other honey bee challenges are the responsibility of the beekeeper, helping to prevent malnutrition is definitely something where you, the almond grower, can help. Pick up the phone and call Billy Synk at (614) 330-6932 or email him at billy@projectapis.org and ask him about Project Apis m.'s (PAm) Seeds for Bees program. He can ship honey-bee friendly seed to you at no cost to you. For several years, PAm has been working with almond growers to plant forage as additional nutrition sources for honey bees concentrating on pre- and post- almond bloom, times when there is typically a dearth of flowering plants for bees. Last year, during fall 2015, 150 almond growers planted 3,000 acres (over 7.5 billion seeds) for honey bees in the Seeds for Bees program.

Planting Seeds for Bees

When is the best time to plant honey bee forage? In the fall, prior to the onset of fall rains. Depending on your needs, you might be interested in an early-blooming mustard mix that includes canola and daikon radish, or a later-blooming clover mix that fixes soil nitrogen. Either mix will serve as a cover crop with many benefits to you, the grower (see side bar).

Where can you plant honey bee forage? Bee-nutritious cover crops can be planted along access roads, waterways, orchard borders, on fallow or unused land, in between rows of young, non-bearing trees or even as a cover crop between tree rows.

Is there Bloom Competition when Other Flowers are Present?

One of the more frequent grower concerns is the possibility that almond flowers will not be visited if the cover crop blooms during the almond bloom as a result of planting time or precipitation variability. However, bee forage cover crops will not decrease almond yield. Recent work by Dr. Neil Williams, UC Davis, shows almond flowers are preferentially visited by honey bees in the presence of other blooming flowers. Bees will fly to the most nutritious food source available at the least energy cost to them. Almond pollen is highly nutritious pollen and is positioned openly and easily accessible on the anthers of almond flowers. Further, most of the day's pollen has been stripped by honey bees by mid-afternoon. If at that time there are other pollen sources available, bees will work these additional pollen sources. The increased pollen coming to the hive stimulates the queen to lay more eggs and the colony builds a greater working pollination force to pollinate your crop.

Consider Planting a Honey Bee Forage Crop

Sowing Seeds for Bees is a win-win for bees and for almond growers. Contact Billy Synk (billy@projectapism.org), visit the Forage tab at www.projectapism.org, and click on the forage videos on that website to learn more. Again, PAm will provide the seed. Beekeepers work all year long to find food for their bees, rarely owning the land where their bees graze. The generosity of landowners, ranchers, farmers and orchardists like yourselves will help improve those honey bee loss statistics. Improved honey bee health translates to a greater supply of bees and decreased hive rental costs to the grower.



A mustard cover crop planted in the fall and timed to emerge before bloom maintains the population of your rented colonies and draws in more bees to your orchard.

A Bee Forage Cover Crop Will:

- Improve soil fertility
- Increase organic material
- Fix nitrogen
- Improve water infiltration
- Suppress noxious weeds
- Conserve soil moisture,
- Increase pollination diversity by attracting native pollinators
- Reduce soil erosion
- Anchor your rented bees while enticing more bees into your orchard

Bee Informed Partnership's Annual Bee Loss Survey Results.

