Bee-Friendly Farming

Buckwheat is part of the forage mix at The Napa Valley Reserve.

by Andrea Watts

Colony collapse disorder and the effects of pesticide use may be one of the most publicized issues facing the health of the honeybee but there is another threat that goes unnoticed — an increasing lack of pesticide-free and beneficial food sources or forage material. The relationship between pollinators and their forage material is far more complex than most people realize. Yet simply planting more flowers isn't enough, which is what inspired the formation of Partners for Sustainable Pollination (PFSP). Since 2007 this volunteer-run nonprofit based in Santa Rosa, California, has worked with farmers across the nation on how they and consumers can become part of the solution in promoting healthy honeybee and native pollinator populations.

"In general, I don't think that the farming community understands the challenges that beekeepers have to nourish their bees, because most people aren't beekeepers. They don't understand honeybee biology," said Kathy Kellison, one of

Paul and Elizabeth Kaiser and family at their Singing Frogs Farm in Sebastopol, California. The farm is Certified Bee Friendly.

The Napa Valley Reserve Bee Mix

created by Mark Griffin

Phacelia tanacetifolia
Alyssum
Cilantro
Eschscholzia californica
Clover mix
Borage
Godetia

Buckwheat and hives at The Napa Valley Reserve.

the founding members of PFSP. "Honeybees need a diversity of pollen sources, so a diversity of plants. Plants don't all produce the same identical pollen."

Just as we obtain the essential amino acids that our bodies don't produce from foods we consume, the same is true for honeybees. As generalist pollinators, honeybees evolved to require a diversity of pollen sources. Pollens have different crude protein levels and essential amino acids, which makes plant diversity important to the honeybee diet. When honeybees don't have access to a diversity of pollen, their life spans are shorter and their immune system is compromised, which could be a contributing reason why honeybees are susceptible to the detrimental effects of pesticides.

Seeing the finger-pointing and blame resulting from the increased awareness of colony collapse disorder and the lack of a balanced approach to solve the problem, Kellison, along with Serge Labesque, Katia and Doug Vincent, and Bill McClusky, started PFSP because they "didn't feel there was any real advocacy going on for honeybees or beekeepers." Since earning their official nonprofit status in 2008, the board members have focused on education efforts at the local and national level to increase awareness of two crucial issues: increasing the forage availability on farms and the difficulties that beekeepers face in caring for their hives. Just as honeybees face a lack of forage material, beekeepers face a lack of open spaces. Beekeepers have traditionally used open spaces for their hives because they often don't have the money to own their own land, and it has been increasingly challenging to find pesticide-free open spaces, Kellison said.

"It's a very complex problem because what you get into is farmers, especially when you're talking about a country like ours, when we have these large demands [for certain crops, such as corn that earns a good price]. Getting them to commit to six percent to come out of production just so the bees might get some more access to a better diet is a hard sell, unless it's incentivized. And that's the strategy behind bee-friendly farming. If you have consumers that are demanding that product, then they have some leverage."

For Mark Griffin, estate manager at The Napa Valley Reserve in Napa County, California, having the vineyard become Certified Bee Friendly is another way of making a difference and becoming part of the solution. Because the Napa Valley is ideal for vineyards, it doesn't make sense to be putting in other crops, which results in a heavy monoculture, but "if you can plant something between those lines, then you can start moving along being in tune," Griffin said.

Griffin assumed beekeeping responsibilities on the reserve four years ago and became involved with the Napa Valley Beekeepers. For 10 years, the 80-acre reserve, of which 60 acres is devoted to the vineyard, has hosted honeybee hives. Instead of utilizing the hives for pollination services, the hives contribute to the biodiversity of the reserve, Griffin explained.

Through his involvement with researchers at University of California, Berkeley who were looking for growers willing to experiment with incorporating forage materials into the landscape, Griffin was introduced to Kellison and PFSP. "When she contacted me and talked about becoming bee-friendly certified, asking, 'Would that be something you would be interested in?' 'Yeah, totally,' I said." The Napa Valley Reserve earned its certification in 2009, becoming one of the first certified vineyards.

At several local farmers' markets he visits each week, Paul Kaiser, owner of Singing Frogs Farm with his wife, Elizabeth, displays their farm's Certified Bee Friendly sign as a way to prompt discussion with their customers. He was awarded the North American Farmer Rancher 2010 Award for Pollinator Conservation and Awareness. It's nice to explain what bee-friendly is and that organic doesn't necessarily mean bee-friendly, Kaiser explained. On their 8-acre farm, 2 of which are devoted to growing over 100 vegetable varieties, are six hives. Some of the hives belong to Kaiser and the others belong to beekeepers and a local chef. The first hive arrived at the farm in 2008 as a wild swarm, and the colony survived for 3½ years until an unexpected cold snap.

Full row of Napa Reserve Blend.

To have their vineyard and farm become Certified Bee Friendly, Griffin and Kaiser had to fill out PFSP's 10-question seven-section application that asks how forage is provided, such as in the form of flowering hedgerows or ground cover crops; the pollinator-beneficial plants available during each season; nesting sites; and best management practices used to minimize bee poisonings.

For Griffin, his ground cover crops resulted in part from The Napa Valley Reserve bee seed mix that he spent 2008-09 perfecting. Its plants include vetch, fava beans, clover and Phacelia, a flower that he likes because he says it has the ideal combination of nectar and pollen. He also actively plants in areas that are not productive, such as along the wind machines, and seeds the river's banks with grasses such as buckwheat which are excellent forage materials for the native pollinators. Though 6 percent of an applicant's operation is required to be devoted to forage material, at The Napa Valley Reserve, Griffin estimates that 30-40 percent is in cover crops.

Prior to Singing Frogs Farm earning its bee friendly certification in early 2009, Kaiser said they spent six months reviewing the plants on their farm to ensure they had adequate coverage. "Though I already met the threshold of plants needed, in large part due to the perennial woody hedgerows that had been planted a few years earlier, I wanted to increase the number of plants available during the autumn and winter with plants that bees are known to love and have high nutritional value," Kaiser explained. In 2008, the NRCS did a survey and found six out of 10 groups of native pollinators present on the farm; a survey in 2011 found 10 out of 10 were now represented.

Kaiser developed habitat by planting a diversity of native perennial plants in corners and placing hedgerows throughout the productive farmland, or creating a "multi-dimensional ecosystem," as he describes Singing Frogs Farm. The beneficial insects, including native pollinators, are most active within about 120 feet of perennial habitat, so they placed hedgerows that same distance throughout the farm. Another equally important measure that Kaiser takes is having a no-till policy and leaving bare ground. Many of the 1,600 native bee varieties are ground-dwelling and by not tilling, their nests remain undisturbed.

Originally PFSP provided bee friendly certification status just to farmers and vineyards, but now gardeners and beekeepers can become certified. Becoming certified means the farmer or gardener can display PFSP's Bee Friendly farming logo on their products and be added to the online directory of other certified organizations. "I think we're close to 400 [certified], and Canada is on board and we're hoping to get Mexico, and be a North American thing, but we don't have anyone certified in Mexico yet," Kellison said.

With its base of operations in California, spreading the news of PFSP's bee friendly certification has been through word-of-mouth and connecting with the beekeeping industry. "We do have a presence in the East Coast, and Kim Flottum, editor of *Bee Culture*, paid us a visit a couple years ago and we took him on a tour of several certified farms," Kellison said. "Farmers really love to show off what they are doing."

Bee friendly certification in Canada came about through a partnership with Seeds of Diversity Canada (SODC). Kimberley Fellows, pollination coordinator of SODC, and Bob Wildfong, executive director, attended the 2011

Though 6 percent of an applicant's operation is required to be devoted to forage material, at The Napa Valley Reserve, Griffin estimates that 30-40 percent is in cover crops.

North American Pollinator Protection Campaign (NAPPC) Conference held in Washington, D.C. They heard Kaiser talk about his work on Singing Frogs Farm. "I was struck by how articulate and passionate he was about increasing forage habitat," Fellow said. "We just thought it was a great program," and it fulfills SODC's agricultural mandate which focuses on sustainable agriculture.

Kellison and staff from SODC made the certification implementable in Canada by streamlining the payment system and modifying the application to accommodate Canada's three growing seasons instead of four, which is applicable to California and other warmer climates. Beginning in January 2012, Canadian farms could become certified, with SODC's Angie Koch being the first to be certified. There are now over 50 operations certified in Canada.

The reaction to the certification program has been really positive, Fellows said. What she appreciates about PFSP's program is that it brings awareness to other native pollinators, which are just as important. While it is worthwhile to bring attention to the honeybee, "you don't want to put all your eggs in one basket;" in Canada, there are over 800 native bees and more than 1,000 pollinating insects, Fellows said.

When Kelli Tennyson, co-owner of Broadfork Farm in Stewart, Minnesota, with Tim Sutton, began gathering the information needed to complete the certification application for their farm in 2012, she became more aware of the number of bees found on their 10-acre farm that is surrounded by conventional farmers. Two-thirds of their farm already had a wooded habitat and perennial flowers so they didn't have to invest much into developing bee-friendly habitat. "To fill out the section that asks for the names of the plants on the property, I used *Attracting Native Pollinators* and listed the top four that were most abundant," Tennyson said. Broadfork Farm earned its certification in August 2013, and Tennyson found it was easy to fill out the application.

An annual fee is required to remain certified, but the fee doesn't fund PFSP's operations. "We operate on a shoestring budget, and the money goes back directly to the farmers as grants," Kellison explained. In 2011 PFSP started a mini-grant program where farmers could apply for funds to offset the costs of increasing pollinator habitat and forage for honeybees. "We have had more grant applicants than money, with $6,000-$7,000 distributed over the last couple years," she said. For Tennyson, she doesn't mind paying the annual certification fee because it's not going to a third-party certification group and the fee is reasonable, especially for small farms such as hers. "Being certified as bee friendly farming is also another way I can demonstrate to customers that we are engaged in organic practices, even if we aren't certified organic," she said.

While the focus of becoming bee friendly certified is one of the benefits the pollinators reap, Griffin and Kaiser have noticed tangible benefits of making their landscapes welcoming to pollinators. "It's just a win-win situation to put cover crops out there ... you need every [beneficial] bug you can get," Griffin said. "I've had very little problem with mites."

Though many of the vegetables grown on Singing Frogs Farm are leafy vegetables and brassicas, Kaiser has noticed a 200 percent increase in the production of winter squash and cucumbers. "The hedgerows have done wonders for our pest control," he said, explaining that pests prefer annual vegetation instead of the perennial vegetation preferred by the pollinators.

For Kellison, what cannot be overlooked about bee-friendly farming is creating consumer awareness. "In terms

of helping bees, the beekeepers and the environment, it is really going to come down to how well we can get the consumers to understand that their food purchase choices really make a difference." And of the consumers that Kaiser, Tennyson, and Griffin meet with, they are taking notice, asking what they can do at home and praising their business for becoming certified. "What I'm finding is that once the gates open, there are a lot of people who want to be part of the solution. It opens the door for conversation," Griffin said.

Resources:
Partners for Sustainable Pollination: *pfspbees.org*
The Napa Valley Reserve: *www.thenapavalleyreserve.com*
Seeds of Diversity: *pollinationcanada.ca*
Singing Frogs Farm: *www.singingfrogsfarm.com/Home.html*
Broadfork Farm: *broadforkfarm.org*