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Honeybee woes are costly for Valley almond growers

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Every January the world's biggest honeybee migration begins, as beekeepers around the country make their way to California with millions of hives to pollinate the state's vast almond orchards.

Lately, it's been a troubled migration. The worry stems from colony collapse disorder – a poorly understood phenomenon in which the majority of bees disappear from a hive in rapid fashion, usually within two weeks.

No sign of the bees is found. Usually, when bees die in the hive they are deposited outside by the other bees.

The sight of empty trays inside a bee box is chilling for beekeepers and the brokers who help place the bees on almond farms. And it is unwelcome news for almond growers, who must pay more for increasingly scarce bees. Almond trees depend wholly on the bees for pollination.

The current collapses were first identified in 2006 – though others have been recorded since 1869. This year, collapses are being seen in hives brought into the Central Valley, creating a brisk demand for pollinating bees.

Each year brings the increasing fear that a farm will not have enough bees, said Denise Qualls, a bee broker and owner of the Pollination Connection. Her company, now in its 10th year, provides bees and bee inspections to almond farms.

The Central Valley is ground zero in learning the effects that colony collapse disorder has on agriculture. The Valley hosts most of the state's 820,000 acres devoted to growing almonds.

As a broker, Qualls contracts with growers for a certain number of hives. She identifies and often brings in the hives, assessing them and placing them in the orchards. Beekeepers assume the role of migrants, taking their hives wherever they can get a contract for them.

"There was a significant decline in the number of hives available for pollination this year," said Qualls. "A lot of the collapses occurred before the hives got to the farm instead of on it. We don't usually see collapses that early in the season."

Most troubling is that the causes for colony collapse are not fully understood. That became clear in a report on bee health released by the Environmental Protection Agency and the USDA last week in which the agencies identified a myriad of factors that could be contributing to the collapses, including genetics, nutrition, parasites, droughts and pesticides.

This time of year in the Central Valley, the honeybee boxes that beekeepers use to house

their hives are a common sight on farms large and small. Depending on their size, the boxes usually hold eight to 16 frames, on which the bees build their honeycombs.

Before collapses started, it was typical to see eight to 10 frames inside each beehive box placed on a farm, Qualls said. She is seeing averages of 6 to 7 frames now.

"Growers prefer to rent, and pay full prices for, colonies that cover eight frames in the hives," said Eric Mussen, Extension Apiculturist for UC Davis. Though there had been a good supply of such colonies, he said, "quite a few beekeepers across the country watched their colony populations dwindle down to below grower expectations as the winter went on."

With colony numbers down, many growers found themselves hard-pressed to find "good bees," Mussen said.

"In fact, they couldn't. So, many growers rented what they considered to be 'substandard' colonies and in some cases paid extremely high prices for those weak colonies," Mussen said.

Indeed, lower quality and smaller bees are being used to make up shortages, and more and more bees are being brought in from out of state. The shortage has been driving up the price of pollination.

On the broker end, Qualls charges \$150 to \$225 per hive. The almond industry average has traditionally been two hives per acre. This year, because of limited supply, that number decreased to 1.7 per acre, overall.

The hives are placed in January, before the trees bloom. Weather and almond varieties mandate the length of time hives will stay in an orchard, with many spending eight weeks.

"The price will continue to rise until we find a solution and we can increase the bee population to keep up with the demand," Qualls said.

She brings in bees from as far away as Michigan, Florida and Texas, as well as from around the state.

"We need 2.5 million hives for almond pollination here, and there are not 2.5 million hives in California," Qualls said. "I'd be surprised if there are a million hives here."

More and more acreage is now being devoted to growing almonds, said Dan Cummings, author of the Almond Report, an online report dedicated to bees and the almond industry. Cummings is also an almond grower and co-owner of a beekeeping company in the Sacramento Valley.

"I see that acreage going up by 30,000 to 40,000 acres a year," said Cummings.

Bringing in more bees to satisfy that growing demand will make growing almonds more costly.

Renting bees accounts for 12 to 14 percent of the total cost to produce a pound of almonds, about triple what it was 10 years ago, Cummings said.

He thinks bee nutrition is one of the most crucial factors in mitigating colony collapse disorder. He said bees are more healthy when they have a diverse diet, rather than just single crops or what keepers feed them.

"The No. 1 thing is diet. The better the diet the bees have, the more resilient they are to all these maladies and pathogens," said Cummings.

Others in the industry share that idea, which has spurred them to experiment with planting "bee pasture," which contains various plants, such as clovers and native wildflowers, considered good nutritional sources of pollen and nectar.

The flowers are planted in the fall and timed to bloom at the same time as almond flowers.

Cummings said a 90-acre trial pasture was recently planted at the almond farm he manages.

"This is meant as pasture to supplement the diet of the bee and make available to them more natural forms of proteins and carbohydrates," he said.

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