

Is There Some Green in Blue Mason Bees?

A Varroa Free Alternative for the Almond Industry?

By Don Lipper, PNP Contributor

These days almond growers are buzzing about a blood-sucking parasite that's killing their business. (Insert your own lawyer/banker/taxman joke here.) While it is old news to growers who use honeybees to pollinate, the fact that the Varroa mite is devastating honeybee populations has even made it to the national TV news outlets. The pest has led to skyrocketing bee rental prices which has the industry clamoring even more.

"The Varroa mite is hampering the

bee's health in general and it is transmitting diseases by its feeding behavior so you get deformed bees," said Theresa L. Pitts-Singer, Research Entomologist at the USDA-ARS Bee Biology & Systematics Laboratory at Utah State University. A colony may be producing bees, but they may be so deformed that they can't fly and therefore are never going to do the pollination."

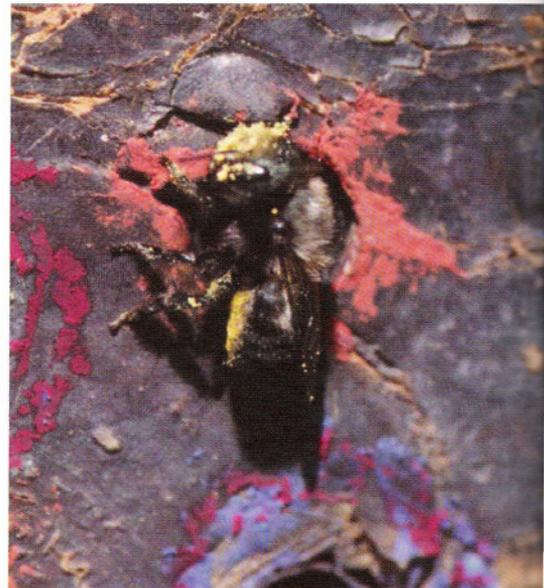
"The mite infestation has definitely taken a toll," said bee broker Joe Traynor, owner of Scientific Ag



Co in Bakersfield, California. "Some beekeepers had a 10-15% loss but others lost 80-90% of their bees. I'd say 50% is good round number for everybody across the board."

In response to the dwindling supply, honeybee prices have at least tripled. Some growers are having a hard time finding enough hives at any price. "They are paying top dollar, it is hard to get the hives and the hives aren't super strong because they're being impacted by these Varroa mites," said Pitts-Singer.

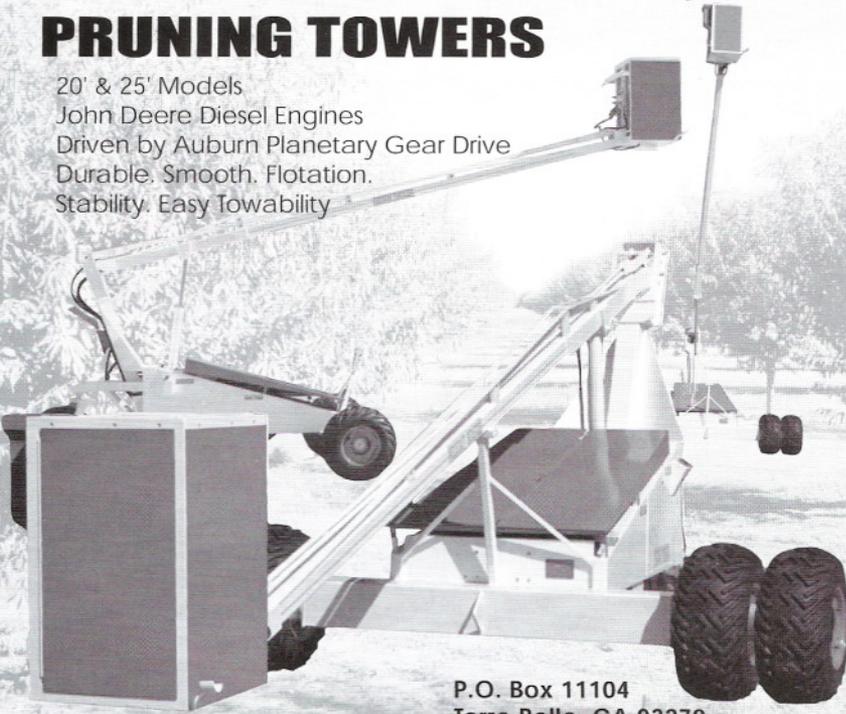
California's 6,000 almond growers need bees. Even the *Los Angeles Times* has focused on the issue. It reported if almond acreage going into production continues to grow by 40% to 750,000 acres over the next five years, that means "California almond growers will require 1.5 million of the nation's 2.4 million commercial beehives to pollinate their orchards during the mid-February to



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early-March bloom each year.”

While beekeepers are busy breeding bees to cope with the increased demand, the mite infestation has them on the run. Different methods for dealing with the mite are being tried, but the results are currently inconclusive. So the \$100 million a year beekeeping industry is looking for a new queen bee.

Blue Mason bees as an alternative

Blue Mason Bees (*Osmia lignaria*), also known as Blue Orchard Bees, are very different from honeybees. They are only 2/3 the size of the honeybee, with a shiny blue metallic patch on its back and is often mistaken for a housefly. They are one of more than 100 species of native North America Mason Bees.

“These are native bees,” said Pitts-Singer. “Honeybees are European, old world bees. Blue Mason bees belong here.”

“People sometimes use them together,” said Pitts-Singer. “But when you compare them, the Blue Mason ranks higher as a pollinator. For almond production, you need between 20,000-30,000 honeybees per acre. With Blue Masons you need about 600-900 bees per acre, or 300 females.”

A grower is going to notice the difference immediately. You generally don’t see or hear the Blue Mason bees. “There are far fewer out there and they are not hovering around the same hive. It is a bunch of individual females making their own individual nests and producing their own individual offspring,” said Pitts-Singer.

Adult Blue Mason bees will fly at cooler temperatures (54 degrees) than honeybees. They will fly earlier in the season,

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Theresa Pitts-Singer at a Blue Mason Bee nesting site.

Blue Orchard Bees

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earlier in the day and later in the day than honeybees. (You can even store them in a refrigerator to time the bloom exactly.)

“As a pollinator, I’d rank them high in their effectiveness,” said Pitts-Singer. “They fly between rows and trees much better than honeybees do. Their efficiency at pollinating is higher because of their behavior on the trees. They are far more promiscuous so they will move the pollen around where it needs to be.”

Also there is a big temperamental difference. “They do not have colony so they do not have to be defensive against predators,” said Pitts-Singer. “Each individual owns her own nest. She lays the eggs, leaves it and dies. They are very docile. Children can have bees all over them and it is no big deal. They don’t have a wallop of a sting. It doesn’t hurt much, only itches for a day or so.”

They are also regionally adaptive. “They develop without management with the local natural bloom cycle,” said Pitts-Singer.

While it makes sense for the almond grower to raise his own Blue Mason bees, because they are a one shot, one location kind of bee, beekeepers are not big fans. Honeybees live in a hive that can be moved north and south to



meet the pollination needs of a variety of crops. As an added bonus, there’s the honey money. Still if you want to provide a home for this robust pollinator, it couldn’t be easier.

If you want to start your own population, you have to order a starter set from one of the various online resources such as www.beesource.com. One of the bibles in the Blue Mason bee business is *How to Manage Blue Orchard Bees* by William Kemp and Jordi Bosch.

Unlike honeybees that have large-scale operations breeding them, most Blue Mason bees come from indepen-

dent entrepreneurs working on a very small scale.

“That’s the part of the industry that is missing,” said Pitts-Singer. “Farmers don’t want to take on the additional responsibility of raising their own bees. They want to hire bee people to bring in their hives and take them away where they are done. That system is not in place yet. Some have suggested that we get co-op groups involved so they can provide a centralized manager and the bees will already be acclimated regionally.”

The bees nest in wood holes, but they can’t bore the holes themselves. Because they can be found throughout North America sometimes all you have to do to start a colony is set up enough nesting sites. If you build it, they will come.

Orchard Removal

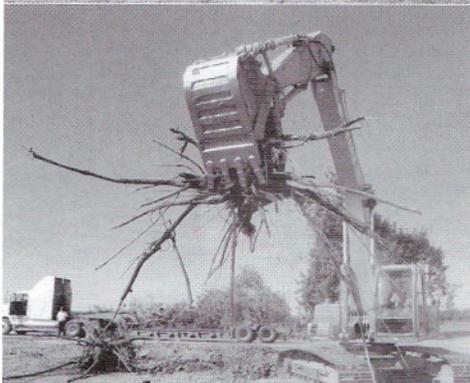
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To create a bee condo, get a 4"x4" block of untreated pine, fir, or hemlock and drill holes that are exactly $\frac{5}{16}$ " in diameter, $\frac{5}{8}$ " deep. The holes should be spaced $\frac{3}{4}$ " apart. A good approach is to drill the holes all the way through the blocks and then screw a piece of plywood on the end. (You can remove that piece of plywood during the winter for easy cleaning of the nest.)

"Orient the openings to get the morning sun but not afternoon sun. You can cook these bees if they get overheated," said Pitts-Singer. "Also you want to provide a little shelter from wind and rain."

If you're not interested or don't have the time to create your own condo, several vendors sell nesting boxes readymade.

Although Blue Mason bees are immune to Varroa mites and many other pests and diseases that affect honeybees, they have their own pests that will sometimes infect the nest. To clean out the nest, in the fall simply remove the cocoons and wash them in lukewarm water with a mild bleach solution (1 tablespoon 5% hypochlorite in a gallon of water) to remove any mites.

The adults are normally active from late April to early June. The timing of their hatching depends on the number of heating units they get, that means you can remove the nests in September or October, refrigerate them 35 to 40° F and then warm them up if you want to exactly synchronize their pollinating activity with your bloom cycle.

"You want to time their emergence at about 10% of peak bloom," said Pitts-Singer. "They need a few days before they start looking for pollen. That way you get the maximum number of bees out their pollinating in full force." PNP

