

Fighting Navel Orangeworm: A Bio-Chem Mix Improves Results



Adding a biological insecticide to a tank mix of traditional chemistries enhances navel orangeworm control and gives growers a new, effective tool.

FOR THE 1.25 MILLION ALMOND ACRES, navel orangeworm (NOW) continues to be a challenge. Growers are using a three-legged approach of sanitation, timely insecticide sprays and pheromones for mating disruption. This year, a new addition can improve performance and help fight resistance to standard sprays.

After two years of trials conducted by independent and UC researchers, Marrone Bio's Venerate[®] XC bioinsecticide has proven to enhance control. "Growers can combine their current chemistry with one quart of Venerate XC per acre and improve results," comments Cindy Bishop, Marrone Bio Innovations (MBI) National Account Manager. Venerate XC provides a different active ingredient with a unique mode-of-action, improving efficacy and lowering NOW damage. Overall, the combination of chemistry and biologicals is an innovative method.

"We're taking the power of biology and unifying it with the performance of chemistry," Bishop says. "At the end of the day, through research, we have determined our biological products can add significant value for growers."

MIXING BIOLOGICALS WITH CHEMISTRIES

The three chemistries primarily used on almond crops for NOW control are Altacor[®] (chlorantraniliprole), Intrepid[®] (methoxyfenozide), and several pyrethroid insecticides. Research shows that varying levels of resistance to pyrethroids is already occurring in Kern County, Calif., Bishop says.

"If this resistance continues to spread, we would be down to two chemistries for 1.25 million acres," she notes, adding that the cost of bringing new chemistries to market is practically prohibitive—it takes years and hundreds of millions of dollars. So, what's the solution?

Last year, Marrone Bio Innovations arranged for twelve replicated trials, spanning from Chico to Bakersfield, Calif., enlisting the help of two independent organizations and UC Extension. The trials involved mixing a biological insecticide - Venerate XC - with two chemistries, Altacor and Intrepid at different rates.

"We were trying to figure out what is the most agronomically responsible and economically feasible combination," Bishop says.



Damage to an almond crop from navel orangeworm adults (above) and larvae (right) can be devastating, so finding effective control methods is vital.

Photo: Peggy Greb

"And, we found it." The trials produced consistent results and NOW control improved, Bishop reports. "There was a strong additive effect between Venerate XC and Intrepid, and Venerate XC and Altacor.

With the consistent results, we have confidence that combining Venerate XC and conventional chemistry will enhance control," comments Cindy. Full rates of chemistry as well as lower labeled rates of chemicals showed improvement when combined with Venerate XC.

A NEW TOOL TO CONTROL NAVEL ORANGEWORM

For growers, this means tank-mixing a biological insecticide such as Venerate XC with traditional chemistries can reduce the amount of chemicals required on crops and decrease the likelihood of resistance without sacrificing efficacy.

Bishop says these trial results are a step in the right direction. The industry is losing tools to deal with pests including NOW. And, we can offer biological solutions with a unique mode-of-action that can be combined with synthetics.

"We are constantly working to find new, innovative ways to bring solutions to the industry," Bishop says. "Growers should know that we offer a new tool to fight NOW that is going to increase the efficacy of their tank mix and help decrease worm damage."



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The BioUnite concept takes the guesswork out of combining biological products with conventional chemistries, providing prescriptions for how to use both in an IPM program.

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