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**Improving Irrigation
Efficiency in Strawberries**

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Strawberry Growers Happy with Biological Material For Spider Mites

By Patrick Cavanaugh, Editor

Editor's note: This is part of Continued Coverage on the benefits of biopesticides.

When it comes to the two-spotted spider mite in strawberries, there is no turning your back. This pest needs constant monitoring and control sprays. But for one grower in Oxnard, who tried a softer material in between his conventional sprays, he got very satisfying success.

Arnold Solis, of Solimar Berries, farms 450 acres of strawberries for Cambria Berry Farms in Oxnard. He's been growing strawberries for 16 years. He was speaking with his pest control advisor Frank Orosco, a PCA with Crop Production Services, Oxnard Branch, and Certis USA's sales representative Tommy Escalante about strategies on the heavy mite season Solis was experiencing. "We had a lot of SantaAna winds, along with higher than normal temperatures, which all contributed to the mite problem," Orosco said.

"We were talking about the limited number of miticides available for strawberries. We were thinking about the very high mite pressure and that we needed to try something in-between conventional sprays that could buy us time—maybe two or three weeks," Solis said.

"I really needed an alternative product to protect my berries, so Tommy suggested I try Certis USA's PFR-97 microbial insecticide. It ended up working well and allowed me to keep using my conventional materials," he said.

PFR-97 contains a naturally occurring soil fungus that controls many serious pests including whitefly, aphids, thrips and spider mites. Under proper environmental conditions, spores of the fungus attach to and penetrate the cuticle of the insect pest. The fungus grows inside the insect causing its death. "This was a real tough mite year in Oxnard. We used everything under the sun, and it was important that we used a different mode of action," said Orosco. "With most of the products out there, we are lucky to get a kill, however when we put PFR-97 with it, it helped. We tanked mixed it and also put it out alone."

"I was really amazed even though it took it a little while to confirm it worked," said Solis. "I usually want immediate response to a miticide. But we did see the benefit in using it, and I ended up doing three sprays



with PFR-97 in between my conventional sprays. It helped me get control," said Solis.

Solis noted that he has usually turned to conventional products such as the abamectin products, Acramite and Oberon, for control of two-spotted spider mites, but this season he needed help.

"In using the PFR-97, I was also trying to preserve my persimilis mite that helps in two-spotted spider mite control. I used the material in January and March to protect my beneficials, while at the same time trying to hold on to Acramite sprays," said Solis.

"I had already used a few Acramite sprays, as well as abamectin products, and we were running out of materials to use. That's when we came in with PFR-97. It allowed us additional control," said Solis. "We used the Certis product during the 7- to 14-day interval around the conventional products. When you are under high pressure, it's good to have alternative products," he said.

"It is now part of my overall two-spotted mite strategy, and I plan to use it in the future," noted Solis. "It gives me more flexibility when using persimilis. "Where I released persimilis, I did not use the

conventional materials and used PFR-97 instead," Solis said, adding, "PFR-97 helped me sleep better at night knowing that I was getting good two-spotted spider mite control and that my persimilis were being preserved for biological control."

Solis said by early May the berries were going to the cannery, and the persimilis populations were high enough to keep the fields clean.

Solis noted that the product is not difficult to use but it's a lot different than putting a material into a tank and spraying. "The formulation is similar to bran or sawdust. You soak the material for 20 or 30 minutes in sufficient water to allow the active ingredient to be released. I soaked the material in five-gallon buckets. You then strain the material and use the liquid as your concentrate," he said.

Certis USA's Escalante pointed out that growers that use high volumes of water at high pressures have successfully applied PFR-97 without the need to filter or recant.

Going softer with biologicals does not mean growers need to turn their backs on mites. It may actually allow them to stare mites down.