

Stink bug complicates San Jose scale control

By Gerard Mitchell
FGN Correspondent

San Jose scale, once a minor pest, is emerging as a significant problem in apples in mid-Atlantic states. In some cases, it's causing extensive crop loss.

"We are seeing increased scale problems like we have never seen before," said Greg Krawczyk, an entomologist with Penn State University.

Krawczyk and PSU entomologist Larry Hull attribute the increase in scale pressure to two occurrences: the EPA phase-down of organophosphates (OPs) and the emergence of the Brown Marmorated Stink Bug.

For years, the PSU entomologists said, growers obtained scale control as a side benefit to in-season organophosphate sprays that targeted codling moth and leafrollers.

That changed when EPA initiated the OP phase-down. "We've gone to more and more selective insecticides that don't have a lot of activity against San Jose scale," Hull said.

As a result, scale control is slipping through the cracks. "This is a pest that is kind of out of sight, out of mind for a lot of growers," Hull said. "It can sneak up on you very quickly."

Scale control requires extensive scouting, Hull said, and timely insecticide application with products like Centaur, Esteem and Movento that are highly effective on the pest.

"You've got to know you have a problem; that is first and foremost," he said.

"You can scout the tops of trees during the pruning period: When there are not leaves on the trees, it is easy to see them. But you've got to know what you're looking for."

Scouting post-bloom — in late May through mid-June for Pennsylvania — by placing sticky tape in the upper parts of trees also can be effective, Hull said. Growers at this point should be looking for crawlers that are yellow and very small, typically around a millimeter in length.

"If you see crawlers on the tape, you definitely have a problem and you should be spraying."

Hull said it is important for growers to monitor fruit at harvest.

"If you see spots of San Jose scale on your fruit at harvest time, you definitely have a problem," he said. "You know you have to do something pre-bloom with an oil and an insecticide, and certainly post-bloom."

Bark infestations of scale contribute to an overall decline in tree vigor, growth and productivity. Fruit infestations can result in small, deformed fruit and dark-red discoloration around feeding sites.

Scales overwinter as partially grown immatures on the trunks and in scaffolds of trees, and remain dormant until sap begins to flow in the spring.



An example of spots on apples caused by San Jose scale.

Photo: Gerard Mitchell

After mating, adult females produce crawlers for several weeks at a rate of about 10 per day. A single female can produce 150 to 500 crawlers during this first generation.

When treating for scale, coverage is critical, according to the PSU entomologists.

Hull recommends growers add oil to their pre-bloom sprays and always use a high volume of water when treating for the pest.

"The immature scale is living underneath that scale covering," he said. "So the oil has to suffocate the scale or the oil takes the insecticide inside the scale covering."

"But coverage is the key thing, or else you're not going to get San Jose scale control."

Krawczyk said it is important to rotate Centaur, Esteem and Movento to avoid build-up of resistance.

"If the timing is right and the coverage is good, using any one of

those three products, or oil, or oil plus any of those three products later on, will provide good control," he said.

Charlie Smith, a crop consultant in Biglerville, Pa., said he backed up an early season Lorsban spray with Centaur in an orchard last year and achieved excellent scale control.

"That was the worst case of scale I've seen since I've been doing this," Smith said. "It was just horrendous."

You could see the scale if you stopped along the road. You didn't even have to get into the orchard."

"We did some Lorsban early and then came in with the Centaur, and we didn't see a scale of any kind the rest of the year," Smith said.

In a perfect world, Krawczyk said, growers would let beneficial insects do the work of insecticides to control scale. The San Jose scale has several natural enemies that are common in the mid-Atlantic states. But the emergence of the Brown Marmorated Stink Bug and the control tactics growers use to control it is playing havoc with the biological balance in commercial apple orchards.

"The synthetic pyrethroids we are using to control the stink bug are destroying a lot of the natural enemies that we have worked so hard to build up over the years," Hull said.

"They are destroying any biological balance we have in the orchard, and those secondary pests like San Jose scale are showing up," Krawczyk said.

The stink bug feeds on vegetable and fruit crops, including apples, and can render fruit unmarketable as a fresh crop.

Hull said he, Krawczyk and other scientists are working to develop spray control programs for the stink bug that are effective and not harmful to beneficial insects.

"That will take time," Hull said, "but that is the direction we are heading."

In the meantime, Krawczyk said it is important for growers to strive to achieve biological balance when they can. **FGN**

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