

Every now and then, Mother Nature throws landscape professionals a curve ball that interrupts the flow of day-to-day routines. That curve ball might be weather one year and disease the next. For Steve Garland, tree division landscape foreman for the city of Santa Clara, CA, it was the woolly ash aphid (*Prociphilus americanus*).

An aphid infestation of Biblical proportions took over the city's 2,000 Modesto ash trees during the summer of 1998. This crisis rendered the city's conventional aphid control methods ineffective and justified trying out a new method.

A problem unfolds overnight

Woolly ash aphids, as their name indicates, live on ash trees, which make up approximately one-third of Santa Clara's streetscape. The aphids cause the leaves to become curled and twisted and, under

heavy infestations, the trees appear to have patches of dirty snow on their leaves. While this is unsightly, the aphids add injury to insult; they secrete a sticky substance called honeydew that collects on all objects below the trees.

In 1998, bad weather caused by El Niño kept the city from its routine dormant oil treatments, giving the aphids an advantage. "As a result, (aphid populations) just blew up overnight. One day we had none, the next day — trillions!" Garland said.

Garland got a sinking feeling when phone calls about the aphids started pouring in one day in June 1998. To evaluate the situation, he drove to a favorite overwintering spot for the aphids. What he saw foreshadowed events yet to come.

"From the street, the trunk of the tree looked white. There were so many aphids,

it looked like it was moving," he said.

The city's phones rang off the hooks. More than 1,500 angry homeowners complained about the gooey buildup of honeydew in their upscale Santa Clara neighborhoods. Houses, cars, sidewalks and streets were lacquered with the sticky substance. Inevitably, the problem spread indoors as honeydew was tracked inside by people and pets.

Although the city was just beginning its annual foliar treatments, some residents complained that the treatments had actually caused the aphids to multiply. Some even asked to have their trees removed.

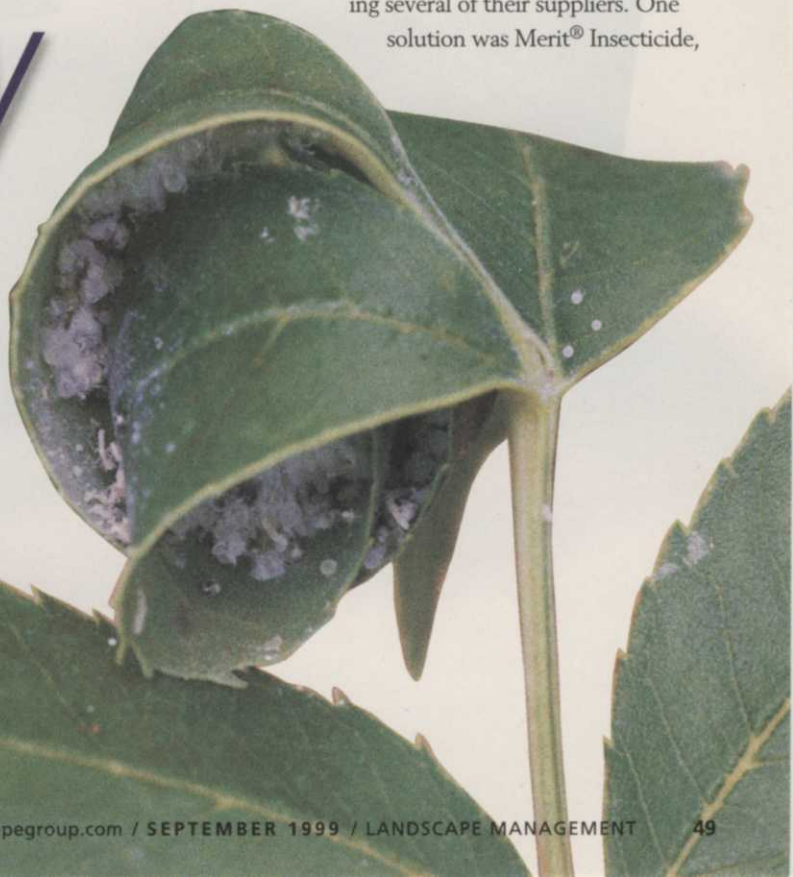
"They didn't understand it was the aphids. They thought it was the trees," said John Mendoza, city arborist. The city went to work educating the public about aphid control through neighborhood meetings, cable channels, doorknob notices and fliers distributed through local nurseries.

Although the aphid life cycle results in the aphids leaving for their alternate location in the summer, the city wanted to address the problem as quickly as possible. In search of a control method that wouldn't interfere with people's lives, the city consulted with experts representing several of their suppliers. One solution was Merit[®] Insecticide,

Aphids create *a sticky* situation

When millions of aphids invaded the city of Santa Clara, CA, landscape professionals responded with a new approach involving natural remedies and soil-applied materials

By KRISTI EVANS



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by Bayer Corporation Garden & Professional Care.

"We had used Merit before on elm leaf beetle and the results were very successful," said Mendoza. However, the city had never tested it on ash trees for aphids control.

Rather than use a soil application, which would take too long to get to the leaves, the city decided to try the Wedgle System[®], by ArborSystems Inc., which would inject the imidacloprid, the active ingredient in Merit, directly into the tree's trunk. This method would deliver the product through the tree within two to three days with proper irrigation.

"Now we had a method to get the material into the tree without affecting neighborhoods," said Mendoza.

At the same time, the city released 3 million ladybugs, a natural enemy of the aphid. Within weeks, the aphids were no longer a problem.

Crisis abated, for now

Once the immediate crisis was over, the city wasted little time putting a plan in motion to prevent a similar recurrence in the future. Merit was included in a preventive control plan for 1999. The plan also included a spring application of dormant oil and the release of a natural enemy of the aphid. After the previous year's aphid crisis, the city council needed little convincing that it was a smart investment.

"We didn't put any chemicals up into the air this year at all. Everything went directly into the ground where it was taken up directly by the trees roots," Garland said.

In January, 1999, Merit was soil-applied to all of the city's Modesto ash trees by either soil drench or soil injection, which allowed the trees to take up the pesticide be-

fore the aphids become active late in the spring.

In the spring, the city continued its low-risk approach by releasing three sets of lacewing eggs based on a degree-day cycle. Each release was 500,000 eggs. Lacewings are another natural enemy of the aphid and seemed more appropriate than ladybugs.

"(Ladybugs) will take off on you,' Garland said. "Lacewings can only walk, so they don't go far."

Releasing natural enemies to control pests can get expensive and is a method mostly used in greenhouses. However, Garland said that Santa Clara is willing to do whatever it takes to develop a more environmentally friendly approach. The city continues to monitor the situation and at the last check in late spring, "we are completely clean," said Mendoza.

Problem grew for 40 years

Modesto ash trees are the most popular street trees in Santa Clara. All of them were planted after World War II. Garland suspects that the people planning the streetscapes 40 years ago could not foresee the aphid dilemma of 1998.

"What we have now is a monoculture in certain areas of town, where the only tree for 20 square blocks is the Modesto ash. It's pretty, but aphid-wise, it's hell on earth," Garland said.

A monoculture exists when one species of tree dominates the landscape in an area. When that species is attacked by a pest or disease, the results can be devastating. As happened in Santa Clara, pests and disease can spread rapidly.

"Imagine the dent in our forestry if we just went out there and started taking them out," Garland said. "Some streets would go from being shady boulevards to deserts."

The city has been working for several years to eliminate this problem for future generations. As older trees are replaced and new trees planted, the city is mixing a variety of ashes: autumn purple ash, Rio Grande, evergreen ash and Arizona ash — sometimes planting as many as three or four species in one block.



To protect the Modesto ash trees from a recurrence of last summer's aphid infestation, the city of Santa Clara, CA, took preventive steps in the winter of 1999. Jeremy Pollard, of the Davey Tree Company, used soil injection of Merit to treat a Modesto ash.

Garland feels confident about the future of Santa Clara's Modesto ash trees due to the aphid-control program the city has put into place.

"I think this is something we're going to be doing from here on in because it's pretty environmentally conscious," Garland said. **LM**