July 23, 2004

Kern/Tulare

GWSS Update

A project of the Glassy-winged Sharpshooter Task Force of Kern and Tulare Counties. Participants: Agricultural Commissioner's Offices of Kern and Tulare Counties, California Department of Food and Agriculture, University of California-Cooperative Extension, U.S. Department of Agriculture (APHIS and ARS Divisions).

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Kawamura dedicates new Arvin Biocontrol Facility

Kern County field station will produce tiny wasps — GWSS natural enemies — for release in SJV and Southern California

California's Secretary of Agriculture, A.G. Kawamura (with scissors), cuts the ribbon for the official opening of the Arvin Biological Control Facility July 22. (Photo: Catherine Merlo)

With a snip of oversized scissors, California's Secretary of Agriculture, A.G. Kawamura, officially dedicated the Arvin Biological Control Facility Thursday at an on-site ribbon-cutting ceremony.

About 50 people attended the event at the new field station, located 20 miles southeast of Bakersfield. Recently converted from a melon seed plant, the Arvin Field Station will produce glassy-winged sharpshooter (GWSS) biological control agents — or parasitic wasps — for release in the San Joaquin Valley and the coastal counties north of Los Angeles.

"The long-term survival and success of agriculture is tied to our ability to continually improve our crops, our methods and our responses to crises like the arrival of the glassy-winged sharpshooter," Kawamura said. "Biocontrol is one of this industry's most significant advancements, giving growers an important tool that is relatively inexpensive, environmentally benign and proven effective. I am proud to open the Arvin Field Station to serve the agricultural community."

Dr. David Morgan (second from left) explains how parasitoid wasps are raised at the Arvin Biocontrol Facility. At left is Tulare County Agricultural Commissioner Gary Kunkel. Third from left is Jack Marks, Kern County deputy agricultural commissioner. (Photo: Catherine Merlo)

The new field station is operated by the California Department of Agriculture (CDFA) with support from the U.S. Department of Agriculture (USDA). Although the site is now leased, CDFA hopes to purchase it in the next two years.

"The purchase of this facility will ensure CDFA's permanent presence in one of the nation's most important agricultural areas," said Dr. David Morgan, the CDFA senior environmental research scientist who heads operations at the Arvin facility.

Biocontrol strategy. Biological control involves using natural enemies of a pest to reduce the pest's population and damage. It is one component of the statewide program launched in 2000 to fight Pierce's Disease (PD) and its vector, the GWSS. According to Morgan, the GWSS biocontrol program has cost $3 million over its 5-year span.

"Biocontrol is a long-term strategy," Morgan said. "It takes a while for populations of beneficial insects to build up and get used to the climate and environment."

Since the GWSS biocontrol program

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began in 2000, 1 million parasitic wasps have been released in California. In 2000, just 1,400 wasps were let loose. Last year, 480,000 were released over the 50,000 square miles statewide that are infested with GWSS.

Rearing and recovery. Nine people at the Arvin Field Station are involved in the production of two parasitoid wasp species, *Gonatocerus triguttatus* and *G. fasciatus*. Neither is native to California. The Arvin team also raises GWSS and the host plants needed for the pests' habitat. In addition to producing more than 20 generations of each wasp species per year, Morgan and his crew closely watch recovery rates of released wasps. That tells researchers whether the GWSS natural enemies are becoming established in California. So far, Morgan is pleased with what he's seeing.

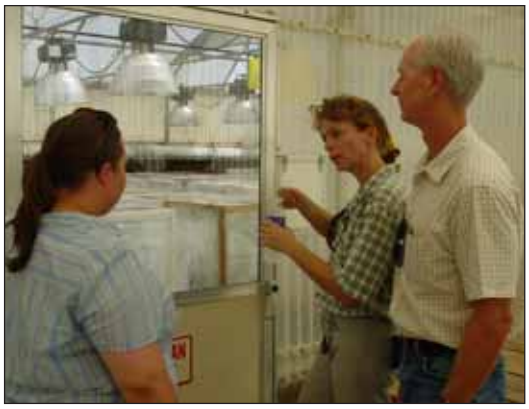
"We've had more than 90 recoveries over nine counties and 23 sites since 2000," he says. "That shows that the parasitoids are surviving and thriving in our environment. Our hope is that ultimately they'll become a major player in the battle against GWSS and PD."

Safety measures work both ways

The 4-acre Arvin facility consists of secured greenhouses, labs and offices. Officials believe the facility's isolated location, set in a rural area against the backdrop of the nearby Tehachapi Mountains, will help maintain security and deter vandalism. Located in the General Beale Project Area, the field station is surrounded by a vast expanse of fields and vineyards.

CDFA's David Morgan also described several security measures that not only contain the GWSS that are produced at the facility but also prevent any other pests from entering the greenhouses and rearing units. "There are four barriers between the outside and the insects inside," he said.

Because the Arvin facility is located in an area with a low but constant GWSS infestation, all plants in the vicinity of the field station are treated with anti-GWSS insecticides to further thwart the pest.



Gisela Wittenborn (center) of Sunview Vineyards asks CDFA's Stephanie Rill about GWSS production at the Arvin facility. At right is Kevin Andrew, chairman of the Pierce's Disease Advisory Task Force. (Photo: Catherine Merlo)

Morgan is excited about a new parasitoid species from Georgia that has been under appraisal in the quarantine facilities of the University of California, Riverside for the past two months.

"It's vanishingly small but very promising," Morgan said.

He noted that the new parasitoid, classed under the A*nagrus* genus, can number 10-15 wasps per GWSS egg compared to the regularly used parasitoid species that total only one wasp per GWSS egg.

"The A*nagrus* has incredible population growth capabilities," says Morgan. "Similar species have already been used in biocontrol efforts against the beet leafhopper in California."

The Arvin site is twice the size of the Mount Rubidoux Biological Control Facility in Riverside, the only other GWSS biocontrol operation in California. The Riverside field station produces five different parasitoid species for GWSS control.

In both the Arvin and Riverside facilities, parasitic wasps as well as GWSS are raised in closely monitored quarters. The tiny wasps, measuring 1-16 of an inch in size, lay their eggs inside the egg masses of the sharpshooter. As the parasitoid larvae emerge, they devour the GWSS eggs. When the wasps mature about two weeks later, they are collected and stored in small vials. The vials are then transported to release sites, where they are opened and the wasps freed to hunt down GWSS egg masses. The lifecycle of the parasitoid wasps is about 14 days, compared to the 60-day lifecycle of GWSS.

Morgan believes the Arvin facility's usefulness can extend beyond GWSS biocontrol. "For now, the facility is focused 100 percent on GWSS control, but it could eventually expand to other biocontrol and pest uses," he said.

— Catherine Merlo

State PD/ GWSS groups to meet Aug. 2

A joint meeting of CDFA's Pierce's Disease/Glassy-winged Sharpshooter Board and the Pierce's Disease Advisory Task Force will be held Friday, Aug. 2 at the Red Lion Hotel in Sacramento.

The meeting, which begins at 10 a.m., is open to the public. For more information, contact Liz Houser or Trish Vasquez at (916) 322-2804.