

What Role Do Ornamental Plants Play in Spreading PD to Your Vines?

Some of the earliest research projects conducted on Pierce's disease were surveys to determine the distribution of the Pierce's disease bacterium in California. The surveys discovered that it was widespread.

Researchers have learned one factor in the distribution of PD is that ornamental plants can serve as passive hosts--plants that harbor the bacteria but don't exhibit signs or symptoms of disease. These plants could be bordering in your vineyard, planted near your winery, or growing wild anywhere in the vicinity. Any of several species of sharpshooter

could spread the bacteria from those plants to your vines.

Riverside County addressed this issue in its landscaping guidelines. The Riverside County Planning Department issued a document called "California Friendly Plant List" which includes plants not allowed in vineyard areas within the county. The document is accessible via the url <http://tinyurl.com/7agm6c9>

Additional information can also be found at <http://tinyurl.com/78kcvhj>, "Creating Green Sharpshooter Barriers to Stop the Spread of PD."



New Video About Producing Parasitic Wasps Online



Sometimes the best way to fight a bug is with another bug, and since the early days of the war against the glassy-winged sharpshooter, the CDFA has been raising tiny parasitic wasps to kill GWSS before they can hatch from their eggs.

A new video has been created to give growers a look inside the process of raising these wasp and explains the important role they have been playing in controlling GWSS in California.

See the video at www.pdgwss.net/videos.htm.



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PD/GWSS BOARD bulletin

EGVM Quarantine Lifted in Four Counties

The European grapevine moth (EGVM) quarantines in Fresno, Mendocino, Merced, and San Joaquin counties have been lifted.

The EGVM, which poses a severe threat to California vineyards, was first detected in a Napa vineyard in 2009 and was subsequently found in several other counties in Northern and Central California.

"We have made significant progress toward reducing the quarantined areas with the help of residents, growers, and local officials," said CDFA Secretary Karen Ross. "We have a lot of work still to do, and the federal funding announced by USDA Secretary Vilsack ensures we can sustain our momentum toward eradicating the pest in the remaining counties."

In 2010, the PD/GWSS Board funded special grower outreach coordinators who helped to alert growers to the EGVM threat and what actions they needed to take to address it.

The lifting of the quarantines in the four counties was effective March 8, 2012. The quarantine continues in the infested area encompassing portions of Napa, Sonoma, and Solano counties. Isolated infestations have also triggered smaller quarantines in Nevada, Santa Clara, and Santa Cruz counties.

The areas that remain under quarantine have been reduced by a change in the regulation that originally required the inclusion of a five-mile "buffer" around any site where the pest had been found. Continual monitoring of the infestations and assessment of the biology of the insect have led officials to reduce the buffer requirement to three miles.

During 2011 only a handful of EGVM were trapped in Napa County compared to the thousands trapped in 2010. In order for the pest to be declared eradicated a county must have no finds for five consecutive generations, with high density trapping deployed during the final two generations prior to deregulation. Also, grape growers near EGVM finds are advised to treat for the first two generations, and no mating disruption can occur during this time. Only after this has happened may a county be considered to be declared free of EGVM.

"We have a lot of work still to do, and the federal funding announced by USDA Secretary Vilsack ensures we can sustain our momentum toward eradicating the pest in the remaining counties."

CDFA Secretary Karen Ross



Left - EGVM larva on a grape
Below - Adult EGVM



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Nursery Training Key to Preventing Spread of GWSS

The glassy-winged sharpshooter (GWSS) doesn't do a very good job of traveling on its own. But as a hitchhiker it can get just about anywhere, so working with nurseries and keeping a close eye on plant shipments helps prevent GWSS from spreading far and wide.

For over ten years the CDFA's Pierce's Disease Control Program (PDCP) has been providing annual training to those on the front lines of the battle to stop the spread of GWSS.

In the GWSS generally infested area of Southern California, PDCP staff annually conducts training for county agricultural inspectors and their supervisors who perform visual inspections of nursery stock and check insect detection traps placed in the nurseries. The PDCP staff biologist or supervisor for that district conducts the training given to

anywhere from five to twenty-five people per county, generally at the county agricultural commissioners' offices every spring. Each session lasts approximately one hour.

"The training entails a program overview, background and history of PD and GWSS, review of nursery shipping statistics, biology of the GWSS, nursery shipping protocols, changes to the program, and trapping and inspection procedures for nursery stock," said PDCP's Senior Environmental Scientist Warren Nichols. "We also review the certification requirements



Senior Environmental Scientist with PDCP, Warren Nichols, conducts one of the many annual GWSS training sessions for county staff held around the state each spring.

for moving plants out of the infested areas. Training is required each year because it provides experienced field staff with program updates and provides new employees with a better understanding of the guidelines and inspection procedures that need to be followed."

In non-infested or partially infested areas of North and Central California, nursery training is usually held in conjunction with detection trapping training. These combined training sessions cover the above mentioned aspects of the program plus the urban and residential trapping program. Additional items covered are trap placement, host selection and detection methods for urban and residential settings.

"These training sessions are critical, since county inspectors and biologists are the first line of defense for preventing the spread of GWSS-infested plant material, and for the early detection of GWSS in non-infested areas," said Nichols.



Los Angeles County staff inspect nursery plants for GWSS before they are placed on trucks for shipment north.

PD/GWSS Board Partners With UGMVE on Research RFP

The CDFA PD Control Program (PDCP) is partnering with the Unified Grant Management for Viticulture and Enology Program (UGMVE) run by Dr. Deborah Golino at University of California, Davis to aid in the review of research proposals submitted this year.

"In previous years the PDCP had partnered with the University of California Pierce's Disease Research Grants Program. However, that program was discontinued," said Tom Esser, Special Assistant with CDFA's Pierce's Disease Control Program. "So the PD/GWSS Board decided to partner with the UGMVE program this year, since their focus and review process are similar to the Board's."

"Similar to what we've had in the past, the UGMVE provides an Internet-based infrastructure to handle submission and review

of research proposals," said Esser.

"I want to say how powerful we think adding the CDFA PD/GWSS Board's research proposal submission and review process to UGMVE will be," said Dr. Deborah Golino, UC Davis, Director of the UGMVE program. "We hope to facilitate the CDFA process with our help, ensuring the submission and review process go smoothly. In addition, use of the UGMVE website will allow the PD/GWSS

Board and CDFA to reach scientists that are already familiar with the UGMVE site, potentially increasing the number of proposals, and improving the possibilities of success with the research."

"This is another example of how we coordinate the activities of this program with those of others to ensure that all available resources are used to maximum benefit," said Esser.



IDENTIFICATION AND UTILIZATION OF COLD TEMPERATURE-INDUCED GRAPEVINE METABOLITES TO MANAGE PD

PRINCIPAL INVESTIGATOR: BRUCE KIRKPATRICK
DEPARTMENT OF PLANT PATHOLOGY, UC DAVIS

This work builds on discoveries made in the past seven years of research on better understanding the mechanism(s) responsible for the Pierce's disease (PD) "cold curing" phenomenon found in vines exposed to very cold temperatures. Research has succeeded in producing the recombinant thaumatin-like grape protein (TLP) in *E. coli*. It has also been observed that grapevine TLP produced by *E. coli* has a harmful effect on *Xylella fastidiosa* when it is grown *in vitro* in the laboratory.



Comparing vine saps has shown that the phenolic compounds in cold xylem sap have a number of differences compared to warm xylem sap, specifically the presence of the phenolic compound trans-resveratrol in cold sap and its absence in warm sap. Ongoing field trials are examining if root or foliar applications of the plant hormone abscisic acid (ABA) could stimulate the synthesis of phenolic compounds in field-grown vines infected with *Xf* and possibly decrease the severity of PD symptoms in grapevines.

LINKING WITHIN-VINEYARD SHARPSHOOTER MANAGEMENT TO PD SPREAD

PRINCIPAL INVESTIGATOR: MATT DAUGHERTY
DEPARTMENT OF ENTOMOLOGY, UC RIVERSIDE

Grape growers in Temecula frequently use systemic insecticides in vineyards to reduce the threat of sharpshooters spreading PD among vines. It would be helpful to know how effective these treatments are at curbing disease spread. Researchers are conducting a series of surveys in the Temecula Valley to understand whether chemical control of GWSS in vineyards is justified. Results thus far indicate that on average vineyards that have been treated with systemic insecticides tend to have low PD prevalence. Ultimately, estimates of year-to-year changes in prevalence are needed to determine the precise impact of within-vineyard systemic insecticides on disease spread.



DEVELOPMENT AND USE OF RECOMBINANT HOMALODISCA COAGULATA VIRUS-1 FOR CONTROLLING GWSS

PRINCIPAL INVESTIGATOR: BRYCE W. FALK
DEPARTMENT OF PLANT PATHOLOGY, UC DAVIS

This research involves attempting to use viruses as part of a strategy to control GWSS. The viruses are engineered to deliver toxic peptides and/or deliver GWSS Ribonucleic acids (RNAs) that will activate the RNA interference (RNAi)-based immune system. The hope is that one or both approaches will result in killing GWSS, thereby preventing the spread of Pierce's disease. The virus being used is *Homalodisca coagulata virus-1* (HoCV-1), a naturally occurring virus that infects GWSS. If successful, this research may lead to new and effective methods to help control GWSS populations.



Top - unexposed GWSS
Bottom - exposed GWSS prevented from molting properly