



CALIFORNIA
PD/GWSS BOARD

Partnership for Winegrape Pest Solutions



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bulletin



CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE

INSIDE THIS ISSUE

Safeguarding the California Winegrape Industry Against Spotted Lanternfly

The Pierce's Disease and Glassy-Winged Sharpshooter (PD/GWSS) Board officially added the spotted lanternfly (SLF) to its list of designated pests and diseases, making it eligible for research and outreach funding. As the industry learned from previous pest outbreaks, including GWSS and European grapevine moth, public outreach will play a critical role in preventing the pest from becoming a problem in California.



An adult spotted lanternfly.

Photo credit: Pennsylvania Department of Agriculture

"While the SLF hasn't been found in California yet, quick action is essential for addressing emerging threats," said Roger Spencer, Pierce's Disease Control Program statewide coordinator. "This proactive move by the PD/GWSS Board gives the California winegrape industry the ability to respond rapidly, without the need for additional legislation or other delays."

The SLF, native to Asia, was first detected in Pennsylvania in 2014, and now 14 counties in the state are infested and under quarantine. Parts of New Jersey, Delaware, Maryland, and Virginia are also under quarantine, and SLF has been detected in New York, Connecticut, and

Massachusetts. The pest is primarily known to feed on the tree-of-heaven but has a wide host range, including grapes. It is considered a high-risk pest due to its mobility, with eggs and adults easily transported long distances by normal trade and transportation activities, making it a concern for grape growers nationwide.

"The best quarantine efforts happen at the points of origin. By showing that this is a pest we don't want in California, we have a better chance of getting cooperation and action to control its spread," said Spencer.

The California Department of Food and Agriculture (CDFA) has been informing and training county ag personnel involved with GWSS monitoring in California, as well as personnel at CDFA border inspection stations and ports of entry, to identify SLF. CDFA personnel attended an SLF symposium held in Pennsylvania in early March. In 2019, the CDFA, separately from the PD/GWSS Board, provided research funding through the Proactive Integrated Pest Management Solutions grant program for University of California entomologists Dr. Kent Daane and Dr. Mark Hoddle to investigate SLF biocontrol options.

Learn more from the United States Department of Agriculture at <https://bit.ly/2I4xdH7>.

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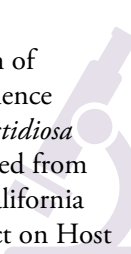
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Responsive Area-Wide Treatments Keep GWSS at Bay

The California winegrape growers' decision 20 years ago to fund research to protect their industry opened the door to a grower-government partnership that continues today. The glassy-winged sharpshooter (GWSS) has largely been prevented from spreading to new areas of California thanks to statewide containment and management efforts funded by federal and state government. This has given researchers, supported by winegrape grower assessment funds, time to search for long-term, sustainable solutions to PD/GWSS.

"Thanks to the growers' ongoing commitment to safeguarding their industry, the federal and state government continues to fund essential activities to keep GWSS out of many of California's wine growing regions," said Roger Spencer, statewide coordinator of the Pierce's Disease Control Program. "This unique partnership, with the winegrape industry as its backbone, promotes sharing responsibility and leveraging resources."

The glassy-winged sharpshooter is a strong flyer with many hosts and can easily move from one crop to the next. The United States Department of Agriculture (USDA) coordinates area-wide management programs in large agriculturally diverse grape and citrus production areas of California in order to suppress population levels of the pest. In 2019, pesticide treatments were applied to citrus in four California counties with active GWSS populations: approximately 135 acres in Madera County; 16,655 acres in Kern County; 545 acres in Fresno County; and 7,600 acres in Tulare County.

Program coordinators recommend pesticide treatments in citrus at specific times of year to coincide with the GWSS lifecycle, but most often in December. According to Beth Stone-Smith, California Assistant State Plant Health Director with USDA, this involves careful coordination, consideration, and planning when working with citrus growers to determine which pesticides will be used and when they will be applied. Coordinators also consider specific characteristics in each county, such as climate and soil type, when they are planning applications.

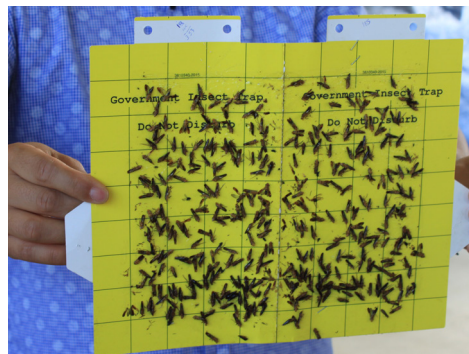
Weather is another important factor in treatment planning and application. Its effects vary each year and pose challenges to the treatment application process. For example, an area in northern Kern County known as Highway 65 can see heavy rain levels in December, which inhibits the ability to effectively apply treatments and often causes a shift in application timing.

"We are constantly monitoring the weather and GWSS populations and pivoting our approaches based on what we are seeing," said Stone-Smith. "Generally, when the weather is warmer and drier, there is increased spread, as GWSS can easily fly to new hosts that are better watered."

CDFA field staff collect GWSS and monitor development in certain areas in order to help treatment coordinators determine what is happening in the field. Temperature data and trap detections are also monitored.

Unseasonably high winter temperatures can lead to changes in GWSS mating and life cycle patterns. GWSS typically reproduce in the spring, but warmer temperatures can lead to earlier reproduction in the winter. This then makes the usual winter treatments less effective, because the pesticide treatments only kill adults, not the newly formed egg masses.

With overwintering temperatures during winter 2019 closer to normal range, extra generations are not expected in 2020. Current observations of egg laying in the field in Kern County are in line with typical timing. In 2020, organic citrus treatments are planned to target nymphs in Tulare and Kern counties around May, and the team will continue to watch insect development to further target the best timing.



California Department of Food and Agriculture staff monitor GWSS populations using yellow sticky traps, as pictured above, to help treatment coordinators determine what is happening in the field.

on the RESEARCH FRONT



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New plants received from Duarte Nurseries for inclusion in the study

Geographic Distribution of Isolate Virulence in *Xylella fastidiosa* (Xf) Collected from Grape in California and its Effect on Host Resistance

Project leaders: Rachel P. Naegele, United States Department of Agriculture, Agricultural Research Service, and Leonardo De La Fuente, Auburn University

Resistance to Pierce's disease (PD) has been identified in multiple wild grape species, but the sustainability of resistance when exposed to multiple strains of Xf is unclear. This project will provide the first look at the durability of host resistance to Xf in California, aiding breeders in developing resistant cultivars. In addition, this work will expand upon previous work to determine if there are differences in the amount of PD that strains of Xf from different areas can cause and its effect on disease management. The team evaluated a test vineyard of 800 vines last year and will replicate the experiment with additional vines this year.

A Study on the Impact of Individual and Mixed Leafroll Infections on the Metabolism of Ripening Winegrape Berries

Project leader: Dario Cantu, University of California, Davis

Grapevine leafroll-associated viruses (GLRaVs) are the most widespread and economically damaging viruses affecting viticulture. This project was undertaken to understand the impact of individual and combinations of GLRaVs on ripening in Cabernet Franc grapevines grafted to two different rootstocks. So far, significant differences in sugar accumulation, hormone abundance, gene expression, and gene co-expression have been found and associated with the grapevine's rootstock and virus status. Common co-expression effects have also been observed across infection types. The findings from this project will help inform future strategies for combatting and developing resistance to leafroll viruses.



Symptoms of grapevine leafroll-associated viruses



Symptoms of grapevine red blotch disease

Effect of Grapevine Red Blotch Disease on Flavor and Flavor Precursor Formation in the Grape and on Wine Quality

Project leaders: Michael Qian and Alexander D. Levin, Oregon State University

Grape berries were assessed by measuring total soluble solids (TSS), several organic acids, and grape-derived compounds. Analysis of volatile profiles, anthocyanin, and total phenolics content were used for criteria to assess the resulting wine quality of control (RB-) and red blotch affected (RB+) crops in two different irrigation conditions. A wet treatment was irrigated at 100% estimated crop evapotranspiration (ETc), and dry treatment was irrigated at 66% ETc. RB+ grapes showed a lower level of TSS and lower total phenolic content in the resulting wine, while most volatile compounds did not show statistical difference between RB+ and RB- wines. Different irrigation treatments had an impact on wine aroma, as well as anthocyanin and phenolics compounds. Wines made from grapevines with wet treatment had higher concentrations of isoamyl acetate than those made with dry treatment.

PD/GWSS Referendum Vote Underway

Ballots were mailed in early April to California winegrape growers to vote on whether or not to continue the Pierce's Disease and Glassy-Winged Sharpshooter Assessment to fund research and outreach on Pierce's disease, glassy-winged sharpshooter, and other designated pests and diseases of winegrapes through 2026.

Grape producer entities that paid the assessment on grapes crushed in 2019 received ballots and must return them by May 8. Last time growers voted, over 80 percent favored the continuation of the assessment. Voting results will be announced in mid-June.

At least 40 percent of the eligible voting entities must cast ballots for the referendum to be valid. Passage of the referendum requires either:

1. At least 65 percent of those voting, representing a majority of assessments paid by those who voted, vote "yes," OR
2. A majority of those voting, representing at least 65 percent of the assessments paid by those who voted, vote "yes."

The PD/GWSS Board advises the CDFA on use of assessment funds for research and outreach on PD, GWSS, and other designated pests and diseases of California winegrapes. The Board sets the annual assessment rate, with a maximum of \$3.00 per \$1,000 of grape crush value. The annual assessment rate has averaged \$1.39 over the past 19 years and was \$1.00 for 2019.



New PD/GWSS Board Officers and Members

At its February meeting, the PD/GWSS Board elected the following officers for 2020:

- **Chair:** Domonic Rossini, Fratello Farming, based in Denair
- **Vice Chair:** William Drayton, Treasury Wine Estates, based in St. Helena
- **Treasurer:** Randy Heinzen, Vineyard Professional Services, based in Paso Robles

New members joining the Board this year:

- Rich Hammond, Hammond Family Vineyards, based in Fresno County
- Aaron Lange, LangeTwins Family Winery and Vineyards, based in Acampo