CALIFORNIA
PD/GWSS BOARD
Partnership for Winegrape Pest Solutions

2024 – ISSUE 3

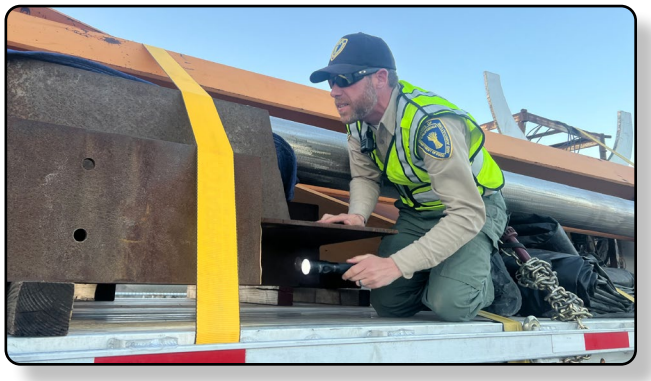
bulletin

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

INSIDE THIS ISSUE

Critical Catch: Border Station Stops Spotted Lanternfly Eggs

Thanks to vigilant agricultural inspection agents, a truck carrying a 30-foot-tall metal art installation with spotted lanternfly (SLF) egg masses hitching a ride was stopped at the California Department of Food and Agriculture's Truckee Border Protection Station earlier this year.



CDFA Truckee Border Protection Station inspectors caught spotted lanternfly egg masses before the truck could enter California. *Photo credit: Adriaan Gilis, CDFA.*

"Detection of these SLF egg masses shows how critical our Border Protection Stations are to safeguarding California against the introduction of invasive pests," said Joshua Kress, Pest Exclusion Branch Chief, Plant Health and Pest Prevention Services, CDFA. "We thank the agricultural inspectors in both California and Nevada for their meticulous work and collaboration on this effort, and the sculpture's owner for their cooperation."

This destructive insect, a serious pest of grapes, has spread to 17 eastern states since 2014. The SLF has not been found in the California environment during annual statewide surveys of high-risk areas, but several have been found during border station and air cargo inspections.

The SLF is a good hitchhiker, clinging to or laying eggs masses on a variety of outdoor items. Egg masses look like dried mud, making them hard to spot and easy to transport. The Truckee Border Protection Station staff found 11 viable egg masses on the metal artwork being transported from New York in March and refused its entry into California, returning it to Nevada for further inspection. Nevada officials found 30 additional egg masses and thoroughly cleaned the truck and its cargo. After passing reinspection in Truckee, the shipment was released to its destination. Once the piece could be unloaded from the truck and repositioned for closer inspection, Sonoma

continued on next page

County staff found and destroyed three additional egg masses before clearing the shipment. County staff also confirmed there were not any tree of heaven or grapevines, the SLF's preferred hosts, at or near the sculpture site.

The CDFA is protecting the state from SLF with a statewide exterior quarantine, inspections, visual surveys, trainings (such as the UC Master Gardener Program eLearning course), research, outreach, and education. See what the pest looks like in its various life stages and get free materials at cdfa.ca.gov/pdcp/slf.

Spot SLF? Call the CDFA Pest Hotline at 1-800-491-1899 or report online at cdfa.ca.gov/plant/reportapest. Should SLF be found in the state, the CDFA's action plan includes thorough detection, delimitation, treatment, and quarantine procedures.

Watch Now: Video Research Reports

Hear the latest research and management insights on the PD/GWSS Board's YouTube channel

- Propagating the Premier US Grape Collection for Protection in a Foundation Greenhouse
- Progression of Pierce's Disease Symptoms and *Xylella Fastidiosa* Colonization of Grapevines Under Field Conditions
- Modeling Sharpshooter Feeding Behavior with a Novel 3D Approach to Insect Behavioral Visualization
- Enhancing Rootstock-Mediated Systemic Immunity Against Pierce's Disease in a Grafted Commercial Wine Grape Variety
- Advancing Biopesticides for Management of Pierce's Disease
- Taxonomic Status, Population Structure and Identification Methods for the Vineyard Spittlebug *Aphrophora Sp.*, a Suspect *Xylella Fastidiosa* Vector
- Protoplast-Mediated Gene Editing for Disease Resistance

PD/GWSS Winegrape Assessment Holds Steady at $1.25 for Third Year in a Row

To continue its effort to protect California winegrapes from mounting pest and disease pressures through crucial research and related activities, the Pierce's Disease/Glassy-Winged Sharpshooter Board kept the PD/GWSS Winegrape Assessment rate at $1.25 per $1,000 value for the 2024 harvest.

"When determining the assessment rate annually, we take into account the economic conditions of our industry, projected crop values, and the critical research projects needed to protect our winegrape industry," explained PD/GWSS Board Chair Randy Heinzen. "In light of the current, tough economic environment we as grape growers are experiencing, the Board chose to hold the rate steady at $1.25 for the third year in a row. Despite the pressure of inflation, we're confident that this assessment level will allow us to find solutions to the growing pest and disease problems plaguing the industry without putting an added burden on our grower community."

The steadfast funding provided by the PD/GWSS winegrape grower assessment ensures that California's winegrape industry can engage leading scientists in tackling the ever-evolving challenges posed by pests and diseases. The assessment has averaged $1.34 per $1,000 of value and has collected $88.3 million since 2001. The Board advises the California Department of Food and Agriculture on the best use of assessment funds, with $57.7 million invested in 298 research grants. Click to learn more about Board-funded research.

The PD/GWSS Referendum is conducted every five years and will occur again in Spring 2025. Through the renewal of the assessment, growers demonstrate their continued commitment to the PD/GWSS effort, while government partnership contributes additional funding for essential activities to slow the spread of GWSS and minimize the statewide impact of PD and researchers develop sustainable solutions.

on the RESEARCH FRONT

CALIFORNIA
PD/GWSS BOARD
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A grapevine showing symptoms of grapevine red blotch disease

Development and Validation of Hiplex Assays for Improved Detection of GLRaV's and GRBV in Grapes

Project leader: Maher Al Rwahnih, University of California, Davis

With increasing awareness of the diversity of grapevine viruses, comes a need to facilitate accurate and rapid detection to ensure the health and sustainability of winegrapes. The team aims to develop a new, highly sensitive molecular diagnostic tool for grapevine leafroll-associated virus and grapevine red blotch virus, called Hiplex. This technique will combine current standard diagnostic practices of multiplex PCR and High Throughput Sequencing, to improve the speed and accuracy of virus detection for the Clean Plant Program.

Development of a Protoplasts-Based Platform to Knock-In Agriculture Relevant Genes into Grapevines

Project leader: Juan Debernardi, University of California, Davis

Significant advancements have been made in developing tissue culture and plant regeneration technology to rapidly advance the ability to gene edit and recover grapes. The team is developing a CRISPR-based platform to knock-in large fragments of DNA and plan to knock-in genes that confer resistance to Pierce's disease from wild grape relatives into a table grape cultivar. They envision that this approach will allow the grape community to rapidly incorporate other genes that confer tolerance to other diseases or environmental stresses into *Vitis vinifera* varieties.

A grapevine showing symptoms of Pierce's disease.
Photo credit: Lindsey Burbank.

Vine mealybugs on a grapevine.
Photo credit: Rachel Naegele.

Grape Germplasm Evaluation to Identify Potential Host Plant Resistance for Vine Mealybug

Project leader: Summaira Riaz, United States Department of Agriculture, Agricultural Research Service

Further investigation into understanding host resistance and identifying resistant germplasm is crucial for developing sustainable vine mealybug pest management strategies. Effective host plant resistance for vine mealybug can help to reduce the spread of grapevine leafroll-associated viruses in the field. The team is testing 19 different grape species, hybrids, and rootstocks for resistance to vine mealybug, and aims to establish potential molecular markers associated with any sources of resistance found for further breeding and population studies.

The CDFA PD/GWSS Board partners with other organizations to leverage funding for research and outreach projects. Funding partners include the American Vineyard Foundation, the Consolidated Central Valley Table Grape Pest and Disease Control District, the USDA Agricultural Research Service, and other organizations.

PD/GWSS Board Funds Critical Glassy-Winged Sharpshooter Survey and Inspection Activities Statewide

At its spring meeting, the PD/GWSS Board voted to earmark $850,000 to offset budgetary constraints. Without this funding, the Pierce's Disease Control Program (PDCP) would have to reduce funding to the counties, decreasing GWSS surveying and inspections that are essential to slowing the spread of GWSS and minimizing the impact of PD throughout California.

"The Board recognized the importance of maintaining these surveys and inspections as part of the larger statewide effort to keep PD and GWSS in check. Last year's larger-than-expected harvest, combined with funding previously set aside for county backfill, allowed us to provide this important one-time funding," said Randy Heinzen, PD/GWSS Board Chair.

The PDCP provides much-needed protection to the state's valuable wine and grape industry with five core strategies: contain the spread, statewide survey and detection, rapid response, outreach, and research. The PDCP continues to face financial challenges as annual federal funding hasn't increased since 2015 and annual state funding ended in 2011. To keep essential prevention activities in place, the Board has increased its ongoing support to PDCP over the years, supporting county activities including urban and nursery treatments, delimitation responses, and trapping.

2024 Statewide Containment and Management Updates:

- ***Nursery Program:*** prevent the spread of GWSS to uninfested areas of the state through nursery inspections, trapping, and treatment:
  - ***Nursery Regulatory Program:*** 11,473 regulated nursery stock shipments, one GWSS adult found during incoming inspections, and 11 GWSS adults, one nymph, and 36 egg masses stopped during outgoing inspections
  - ***Nursery Stock Approved Treatment Program:*** 2,481 ATP shipments consisting of approximately 513,520 plants and no viable life stages found
- ***Statewide Survey and Detection:*** quickly locate new GWSS infestations and confirm that non-infested, at-risk areas remain free of infestation:
  - Train 400+ county agricultural inspectors from 49 counties every year
  - During the peak of the residential/urban trapping season (May 1 – Oct. 31), about 33,000 traps are set and regularly checked statewide
- ***Rapid Response:*** quickly respond to detections of GWSS in new areas:
  - No new GWSS infestations have been found since 2021
  - Ongoing monitoring and eradication or suppression efforts in existing infested areas in Fresno, Madera, Solano, and Tulare counties

298
TOTAL GRANTS
funded by the PD/GWSS Board since 2001

$14.2
MILLION
invested in research on other pests and diseases since 2010

$43.5
MILLION
invested in PD and GWSS research since 2001