



W I N T E R 2 0 2 1

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INSIDE THIS ISSUE

Wines Made From PD-Resistant Grapevines Spotlighted at Unified Wine & Grape Symposium

A virtual tasting session of commercially produced pure varietal wines made from Pierce’s disease-resistant grapevines took center stage at the Unified Wine & Grape Symposium.

Dr. Andrew Walker, the PD/GWSS Board-funded UC Davis researcher who developed the vines, was joined by Chuck Wagner of Caymus and Adam Tolmach of The Ojai Vineyard in sharing their experiences growing the winegrapes and producing wines that could pave the way for the wine industry.

The tasting session examined some of the varietal options available to winegrowers and the benefits of those varietals. Participants sampled and discussed six different wines.

Wagner spoke about PD devastating areas of his vineyards many times over the past 40 years and his excitement about these new varietals. Over the last eight years, Wagner has expanded from small plantings along riparian areas to dedicated plantings of entire blocks with no PD. “It’s high-caliber *Vitis vinifera* wine that doesn’t need to be sequestered along creeks,” said Wagner. “We’re totally excited about them.”

The PD-resistant grapevines, three red and two white, were developed by Dr. Walker through traditional breeding methods over the past 20 years with funding from the PD/GWSS Board. For profiles of the winegrapes, visit bit.ly/34tf8Ot. Dr. Walker created the new varieties by crossing *V. arizonica*, a grapevine species carrying a single dominant gene for resistance to PD, over four to five generations with *V. vinifera*, the European winegrape species that is typically grown in California. Dr. Walker continues to expand the PD-resistance breeding program, focusing on broadening the *V. vinifera* background, stacking PD-resistance genes from multiple sources, adding powdery mildew resistance, and breeding to adapt to a changing climate.



PAGE 2

Which Parts of the State Are Most at Risk for Spotted Lanternfly?

PAGE 3

On the Research Front

- Virus Cultivar Susceptibility and Temperature-Dependent Recovery of *Xylella Fastidiosa* Infected Grapevines
- Investigation of the Impact of Grapevine Red Blotch Virus on Grape Ripening and Metabolism
- Monitoring Vine Mealybug Resistance to Imidacloprid

PAGE 4

Late Summer is Crucial Period for *Xylella Fastidiosa* Secondary Spread

Grapevine Red Blotch Virus Spreads in Foundation Plant Services Vineyard

Which Parts of the State Are Most at Risk for Spotted Lanternfly?

An extensive visual survey of likely landing spots for SLF coming into California hasn't uncovered any infestations of the destructive pest.

A total of 141 sites around 68 high-risk locations in 24 counties across the state were inspected by the California Department of Food and Agriculture with no evidence of any SLF infestations. The 68 locations included:

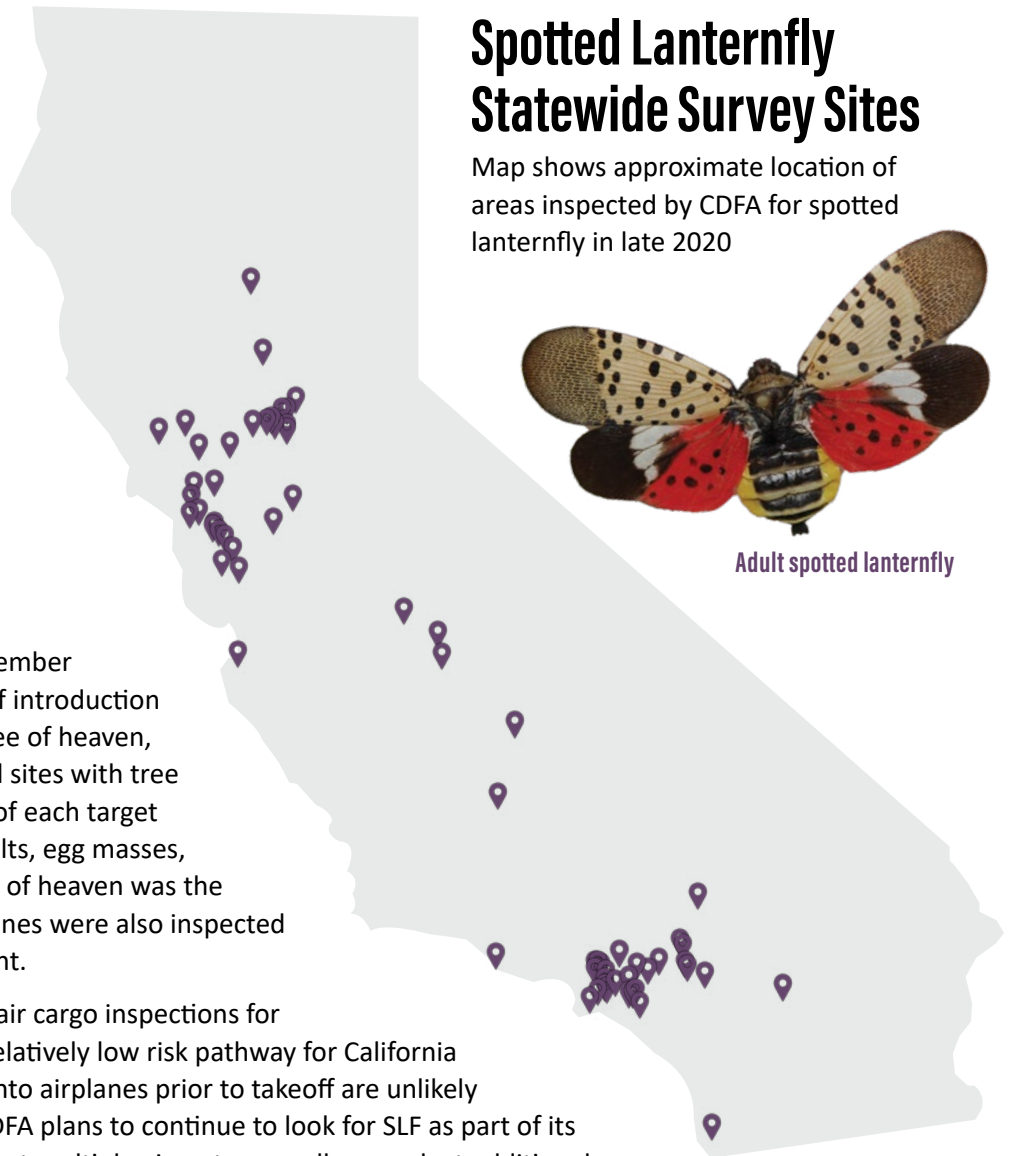
- 44 sites receiving multiple shipments of goods directly from SLF-quarantined areas
- nine ports
- nine stone importers
- four railyards
- one airport
- one location of a purported public sighting from 2019

The survey, conducted August - September 2020, focused on areas of high risk of introduction where the insect's preferred host, tree of heaven, is found. Inspectors visually searched sites with tree of heaven occurring within a ½ mile of each target location for signs of SLF nymphs, adults, egg masses, feeding damage and honeydew. Tree of heaven was the target host of the survey, but grapevines were also inspected where no tree of heaven were present.

Though SLF have been found during air cargo inspections for Japanese beetles, experts say it's a relatively low risk pathway for California because any SLF that manage to fly into airplanes prior to takeoff are unlikely to be carrying eggs. Nevertheless, CDFA plans to continue to look for SLF as part of its intensive aircraft inspection program at multiple airports, as well as conduct additional SLF survey activities.

Finding SLF before any infestations can take root in the state is key. Growers and vineyard workers should familiarize themselves with what SLF looks like in its various life stages, regularly inspect tree of heaven around their vineyards, and report SLF finds to the CDFA Pest Hotline by calling 1-800-491-1899. Learn more at bit.ly/2XB1Njv.

Photo of adult SLF from Bugwood.org - Lawrence Barringer, Pennsylvania Department of Agriculture



HOW GROWERS CAN PROTECT GRAPES FROM SLF



Learn what the SLF looks like in its various life stages



Regularly inspect tree of heaven around your property



Report SLF finds to the CDFA Pest Hotline 1-800-491-1899

on the RESEARCH FRONT



CALIFORNIA PD/GWSS BOARD

Partnership for Winegrape Pest Solutions



A leaf on a Zinfandel vine showing Pierce's disease symptoms

Cultivar Susceptibility and Temperature-Dependent Recovery of *Xylella Fastidiosa* Infected Grapevines

Project leader: Lindsey Burbank, USDA Agricultural Research Service

This study showed that cultivar susceptibility and higher temperatures during initial *Xf* infection had a greater impact on disease reoccurrence than the duration of infection prior to cold treatment. This suggests that use of tolerant or resistant plant material should be a priority for areas at risk of *Xf* infection and that summer temperatures need to be considered in addition to winter temperatures and time of inoculation when gauging likelihood of vine recovery. Further information regarding the effect of climate factors such as temperature on pathogen persistence is important to inform region-specific management strategies and to evaluate risk of *Xf* spread in new areas.

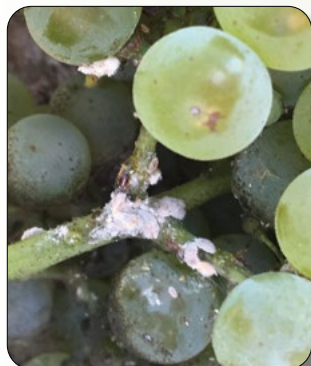
Investigation of the Impact of Grapevine Red Blotch Virus on Grape Ripening and Metabolism

Project Leader: Anita Oberholster, UC Davis

The research team investigated the impact of grapevine red blotch virus on grape composition and wine quality with samples from Cabernet Sauvignon and Merlot vineyard blocks over two seasons. They found that there are variable impacts on levels of primary and secondary metabolites depending on the variety, season, and rootstock. Additional research is being conducted across varieties, seasons, sites, and rootstocks to further understand the potential variable impacts the disease has on grape ripening.



A grape leaf showing symptoms of grapevine red blotch disease



Mealybugs on a grape cluster

Monitoring Vine Mealybug Resistance to Imidacloprid

Project Leaders: Mark Sisterson, Lindsey Burbank, Rachel Naegele, and Christopher Wallis, USDA Agricultural Research Service

Imidacloprid, a neonicotinoid, is commonly applied in vineyards to suppress a wide range of insect pests, including mealybugs. Baseline testing for vine mealybug susceptibility to imidacloprid over 10 years ago showed no evidence of resistance. As a follow-up, the research team is building up mealybug populations for resistance testing from insects collected from several different vineyards. The team will then determine if mealybug resistance to imidacloprid has changed since it was last evaluated.

Late Summer is Crucial Period for *Xylella Fastidiosa* Secondary Spread

The results of a San Joaquin Valley field study indicate vine-to-vine spread of *Xf* is greatest in July and August, due to the combination of high glassy-winged sharpshooter populations and the high rate of *Xf* infection in both GWSS and grapevines.

Pierce's disease management in the area has focused on suppressing vector populations with insecticide treatments in vineyards during spring. However, recent evidence suggests that infections occurring in grapevines during late summer may not go away with cooler winter temperatures. As a result, late summer GWSS populations pose a significant risk for vineyards. Chronically infected grapevines rarely test positive for *Xf* prior to July, suggesting GWSS acquire more of the pathogen from grapevines as the season progresses.

"These findings will improve timing of insecticide applications to reduce glassy-winged sharpshooter populations, thereby reducing spread of *Xf*," said project leader Mark Sisterson.

Read more in *Plant Disease*, available at bit.ly/3bFe4LP. This project was funded by the Consolidated Central Valley Table Grape Pest and Disease Control District and USDA Agricultural Research Service.

Grapevine Red Blotch Virus Spreads in Foundation Plant Services Vineyard

Foundation Plant Services (FPS) has stopped distributing vines from its Russell Ranch Vineyard as the infection rate of grapevine red blotch disease has climbed to 18% after first being detected in 2017. The infection rate at FPS' Classic Foundation Vineyard remains at zero and material is tested prior to shipping.

One of the greatest challenges in managing red blotch has been stopping the spread of the disease by its vectors. The three-cornered alfalfa leafhopper has been identified as a vector in greenhouse studies, but other vectors may also spread the virus. FPS has implemented more frequent vineyard inspections and additional spray treatments specifically targeting the three-cornered alfalfa leafhopper.

With funding from the PD/GWSS Board, they are also working closely with researchers to monitor the vineyards for potential vectors and track the spread of the virus. To protect its grapevine material from exposure to viruses and to guarantee ongoing access to clean plant material, FPS is housing its most valuable grapevines in protected greenhouses.

Research teams around the country, including ones funded by the PD/GWSS Board, are working on addressing knowledge gaps about grapevine red blotch virus incidence, distribution, spread, and control.