

FALL 2019



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COTA CALIFORNIA DEPARTMENT OF

# Pierce's Disease and Glassy-Winged Sharpshooter Referendum Slated for Spring 2020

California winegrape growers will vote this spring on extending the Pierce's Disease and Glassy-Winged Sharpshooter (PD/GWSS) Assessment for another five years, to March 2026. The assessment funds research to find solutions to PD, GWSS, and additional designated pests and diseases of winegrapes. The last time growers voted, over 80 percent favored continuing the winegrape assessment.

"When growers decided 20 years ago to fund research to protect their industry, it opened the door to a grower-government partnership that is paying dividends today," said Karen Ross, Secretary of the California Department of Food and Agriculture (CDFA). "By sharing responsibility and resources, this partnership effectively addresses the pest and disease challenges facing California's winegrape growers."

### **PD/GWSS Referendum Voter Eligibility and Timeline**

To establish the list of eligible grower voters, CDFA will request all wineries and winegrape processors to submit the names, mailing addresses, and assessment values of all producers who paid the assessment on grapes crushed during the 2019 harvest. Every entity that produced winegrapes in 2019 will receive a ballot in March or April 2020. Growers who operate multiple entities will receive a separate ballot for each entity. Each ballot should be voted and returned. At least 40 percent of eligible growers must cast ballots for the referendum to be valid.

### **Program History**

The Pierce's Disease Control Program (PDCP) was established in 2000 to slow the spread of GWSS and minimize the statewide impact of PD while solutions to PD are being developed. Governor Newsom signed Senate Bill 449 into law on Sept. 27, 2019 to extend the PDCP for another five years, to March 2026.

In 2001, an annual, value-based assessment on winegrapes was established to fund PD/GWSS research and related activities. The PD/GWSS Board, an advisory board composed of winegrape growers and processors, was also established at that time. The Board advises the CDFA Secretary on the best use of assessment funds, ensuring dollars are spent wisely and productively to find solutions to PD, GWSS, and other designated pests and diseases of winegrapes. The assessment rate has averaged \$1.39 per \$1,000 of crop value. To date, \$45.4 million has been spent on research.

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## New Pierce's Disease Field Trial Videos Available

The Pierce's Disease and Glassy-Winged Sharpshooter Board has invested in research to protect vineyards, prevent the spread of pests and diseases, and deliver practical and sustainable solutions.

The consistent, reliable research funding made possible by the winegrape grower assessment supports leading scientists dedicated to finding solutions to PD and other serious pests and diseases threatening winegrapes.

Extensive research efforts have delivered many potential solutions to PD that are already undergoing field trials.

Visit<u>www.pdgwss.net/video</u> to view the research project video updates pictured below.



Update on Development of PD Resistance in Winegrapes

Dr. Andy Walker reports on his progress on breeding PD-resistant winegrapes and when growers might expect to have access to them from nurseries.



#### Update on Stacking PD Resistance Traits in Winegrapes

Dr. David Gilchrist reports on the field evaluation of rootstocks modified with two genes to provide winegrapes with resistance to PD. This dual "stacking" approach is expected to provide longer-lasting overall resistance to PD, since it provides two lines of protection.



#### New Research Suggests a 'Vaccine' for PD on the Horizon

Dr. Steven Lindow has identified *Paraburkholderia phytofirmans* as a bacterium that can colonize a grapevine and trigger the equivalent of an immune response, protecting the grapevine from both *P. phytofirmans* and *Xylella fastidiosa*.

### Pierce's Disease Advisory Task Force Chairperson Appointed

California Department of Food and Agriculture Secretary Karen Ross appointed Judy Zaninovich, a long-time member of the Pierce's Disease Advisory Task Force, to serve as chairperson.

Zaninovich is a treatment coordinator for the Glassy-Winged Sharpshooter Area-wide Management Program and the Kern County Asian Citrus Psyllid/HLB Grower Liaison for the Citrus Pest and Disease Prevention Program. She was formerly the manager of the Consolidated Central Valley Table Grape Pest and Disease Control District.

The Task Force is composed of county agricultural commissioners, scientists, agricultural representatives, and other experts. It reviews program progress and develops recommendations for the Secretary of CDFA as well as provides counsel to the Pierce's Disease and Glassy-Winged Sharpshooter Board.

"My years of service on the Task Force have deepened my understanding of the issues," said Zaninovich. "I want to ensure the Board and the Task Force continue to be aware and ready as new threats and diseases arise."





Testing phosphite as a safener/ protectant against PD.

### Genome Editing of *Tas4*, *Mir828*, and Targets *Myba6/A7*: A Critical Test of *Xylella fastidiosa* Infection and Spreading Mechanisms in Pierce's Disease

#### Principal Researcher: Chris Rock, Texas Tech University

The research team found that phosphite, a compound similar to phosphate, impacts the growth of *Xylella fastidiosa* in grapevines and could be developed into a durable management tool for Pierce's disease (PD). Their work also provides new information about the cause of PD and engineering PD resistance. Knocking out any host gene may increase risk of infection, so engineering PD resistance will require incremental advances.

### Understanding Symptomology and Physiological Effects of Red Blotch Disease in Vineyards in Oregon's Willamette Valley

### Principal Researchers: Patty Skinkis, Oregon State University, and Bob Martin, United States Department of Agriculture

To better assist growers in making management decisions for red blotch infected vineyards, the team explored the effects of the disease in Oregon's cooler, wetter wine production region. They found the impacts of red blotch were more severe in vineyards that were under nutrient or water stress. Vines that were infected but not showing symptoms performed better than infected vines showing symptoms, indicating that virus concentration likely impacts ripening. Managing plant health may reduce the effects of red blotch, reducing the need to pull out vineyards.



Pinot noir vines with red blotch disease (left) and healthy vines (right). Photo credit: Justin Litwin, OSU



Grapes and vines showing symptoms of grapevine leafroll-associated viruses.

### A Study on the Impact of Individual and Mixed Leafroll Infections on the Metabolism of Ripening Wine Grape Berries

### Principal Researchers: Dario Cantu, Maher Al Rwahnih, Susan Ebeler, and Deborah Golino, University of California, Davis

The effects of grapevine leafroll-associated viruses can include poor color development in red grapes, nonuniform or delayed ripening, reduced sugar content, altered tannins, pigments, and acids, curling leaves, reddening, and chlorotic interveinal areas, leading to high crop loss. The severity of symptoms is influenced by host genotype, which virus or combination of viruses is present, scion/rootstock pairings, and environmental factors. Preliminary results of integrating gene expression, hormone, and metabolite data indicate that significant differences in the impact of infections are related to rootstock.

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.

# Two More Pierce's Disease Research Proposals Recommended for Funding

The Pierce's Disease and Glassy-winged Sharpshooter Board held a special meeting in August to consider three research proposals. The Board recommended funding two of the projects for a total of \$458,186.

### Field Studies on the Topical Delivery of the Promising Grape-Derived Peptides for the Treatment of Pierce's Disease

### Dr. Goutam Gupta, New Mexico Consortium, \$447,786 to evaluate peptides for two years

The research team has developed a treatment to enhance grapevine immunity to PD using grape-derived peptides which can be applied to grapevines infected with Xylella fastidiosa in order to prevent, suppress, or eliminate PD. A field trial performed in spring 2019 in Sonoma County indicated the peptides are capable of clearing Xf from infected leaves.

"The science looks strong and the results are promising," said Steve McIntyre, chair of the Board's research screening committee. "This is a platform technology, so it could be utilized by other crops in addition to winegrapes."

The researchers plan to conduct more field trials at sites in California with high PD pressure and different temperatures and climates to test how long the spray treatment lasts in a commercial vineyard environment and how often it may need to be applied. The team will also look at other peptides in addition to two already identified and tested.

"Whenever the Board reviews research proposals, we are always considering if it's a valuable investment of grower assessment funds and how soon growers will see a return on their investment in terms of a product coming to market," said Board member Domonic Rossini.

The Board funds would go to research work performed through the New Mexico Consortium, with the Board currently working on details of the funding agreement.

### Field Testing Transgenic Grapevine Rootstocks Expressing CAP and PGIP Proteins

### Dr. David Gilchrist, UC Davis, \$10,400 to maintain additional experimental field trial grapevines for three years

This proposal involves maintain additional experimental grapevines in a field trial pot to preserve genetic material for potential future use.