It's Official - PD/GWSS Referendum Passes

The PD/GWSS Referendum has passed with 83.44 percent of those who voted favoring continuation of the winegrape assessment for another five years.

"California's winegrape growers have again voted overwhelmingly in support of continuing the assessment and the program that it supports," said CDFA Secretary Karen Ross. "Over the last 15 years the winegrape assessment has proven its value to the PD/GWSS Board, which is directed by both independent growers and vintners who grow a significant percentage of California's grapes. Along the way, it has also become a model for other successful government/industry partnerships."

Just over 55 percent of California's winegrape growers voted in the referendum, with 40 percent needed to validate the referendum. In order to pass, at least 65 percent of the voters had to favor continuation of the assessment and they had to represent the majority of the assessment paid by these who voted, or the majority of the voters, representing at least 65 percent of the assessment paid by all those who voted, had to vote in favor.

A vineyard in Temecula in 1999 . The PD/GWSS assessment was established to find a way to prevent this from happening throughout California.

"The preparations for the industry referendum started over a year ago with the bulk of the work taking place in the last 6 months," said Kathy Diaz, CDFA Senior Agricultural Economist. "We combed through over 15,000 lines of raw data received from the wineries to build the grower list. The satisfaction of having participation exceed the minimum requirements by over 15 points and knowing that more than half of the 6,800 growers in the state chose to cast a vote made it all worthwhile."

"The PD/GWSS Board is now set to chart the course for the next five years," said PD/GWSS Board Chair Bill Hammond. "I'm fortunate to be working with such a dedicated team that has made this program the centerpiece of success for pest and disease management that not only includes PD/GWSS but also other threats to California winegrapes such as the brown marmorated stink bug, European grapevine moth, red blotch, and vine mealybug."

With passage of the referendum, the winegrape assessment will remain in place for another five years. If legislation is passed in 2019 authorizing another vote, winegrape growers will be given the opportunity in 2020 to once again vote on renewing the assessment for another five years.

Printed on
100-percent
recycled paper

cdfa
CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE
1220 N Street
Sacramento, CA 95814
www.cdfa.ca.gov

First-Class Mail
US Postage Paid
Permit 81
Sacramento, CA

PD/GWSS BOARD RESEARCH

SUMMER 2015

bulletin

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Pierce's Disease – The Big Picture

Pierce's disease (PD) has been a scourge to grape growers in California for well over a century. But while California enjoys the luxury of growing European winegrape varietals used to create world-class wines, large areas of the Midwest, South and Southeast are not so fortunate.

It's the glassy-winged sharpshooter and other significant vectors in those other states spreading PD that limits what grapes can be grown there, the same threat that California winegrape growers have faced but have been able to stave off since 1999.

UC Davis developed PD-resistant winegrapes growing in the Texas Hill Country wine region of Texas. Not only is it an excellent location to put these vines to the test but Texas taxpayers are also paying for some of California's PD Control Program efforts.

Every year the California Association of Winegrape Growers (CAWG) sends a delegation of winegrape growers back to Washington, D.C., to meet with members of Congress during the National Grape and Wine Policy Conference. At the same time, grape growers from other states are meeting with their congressional delegations, but all are carrying a shared message on issues of common interest. "A key lesson learned from our meetings on Capitol Hill and at the U.S. Department of Agriculture is that continued federal funding of the PD Control Program in California rests in large part on the industry's continued commitment to the PD assessment. The rationale of federal policymakers is, if California's winegrape growers don't believe PD/GWSS is serious enough to warrant industry funding, then the federal government will rethink its commitment, too," said CAWG President John Aguirre.

"The rationale of federal policymakers is, if California's winegrape growers don't believe PD/GWSS is serious enough to warrant industry funding, then the federal government will rethink its commitment, too," said CAWG President John Aguirre.

"Growers in many states throughout the country have been stymied in their efforts to grow high quality winegrapes because of PD. So, considering that the federal government has spent nearly $500 million over the last 15 years for California's PD Control Program, the sharing of research discoveries and plant material with growers in other states is a natural and fair result of the program," said PD/GWSS Board Chair Bill Hammond.

Several field trials of winegrape vines using precision breeding have already shown some success. Add to that traditionally bred PD-resistant winegrape stock being released to the Foundation Plant Services. Winegrape growers in California could soon be reaping the benefits of the last 15 years of the PD/GWSS Board's research and the PD Control Program, thanks to a combination of government and industry funding.

INSIDE THIS ISSUE

PD/GWSS Board Recommends Funding Eleven Research Projects

At their April 2015 meeting the PD/GWSS Board voted to recommend funding of 11 research projects: six for Pierce's disease (PD), one for the brown marmorated stink bug (BMSB), two for red blotch (GRBaV) and two for vine mealybug (VMB), for a total cost of approximately $2.75 million.

A researcher plants PD-resistant winegrape vines at the beginning of field trials in Solono County.

Thirteen other projects were considered but were not recommended for funding.

PD/GWSS Board member Steve McIntyre, a grower from Monterey who heads up the Board's Research Screening Committee, said, "We were happy to receive proposals for conducting research on the other recently designated pests and diseases of winegrapes, and look forward to seeing the results of this research. We thank everyone who was involved in the review process for helping us select the best projects to fund."

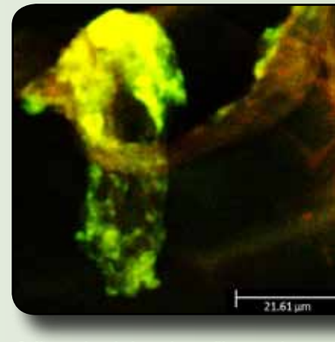
Right- A young vine is inoculated to test its resistance to PD. Left - A wine-grape leaf in Napa showing the signs of red blotch.

Principal Investigator	Institution	Full Title	Pest/Disease	Amount
Dr. Rodrigo Almeida	UC Berkeley	Assessing Pierce's disease spread in grapevines with novel defensive traits.	PD	$178,839
Dr. Tom Burr	Cornell	Development of a biological control for Pierce's disease.	PD	$160,332
Dr. Dean Gabriel	Univ. of Florida	High-throughput live cell screen for small molecules targeting TolC efflux pump of *Xylella fastidiosa* .	PD	$113,730
Dr. Christopher D. Rock	Texas Tech	Genome editing of TAS4, MIR828, and targets MYBA6/A7: a critical test of *Xylella fastidiosa* infection and spreading mechanisms in Pierce's disease.	PD	$118,451
Dr. Caroline Roper	UC Riverside	Characterization of the lipopolysaccharide-mediated response to *Xylella fastidiosa* infection in grapevine.	PD	$272,940
Dr. Andrew Walker	UC Davis	Breeding Pierce's disease resistant winegrapes.	PD	$909,265
Dr. Vaughn Walton	Oregon State Univ.	Brown marmorated stink bug risk and its impacts in western vineyards.	BMSB	$215,635
Dr. Kent Daane	UC Berkeley	Searching for potential vectors of grapevine red blotch-associated virus.	RB	$242,044
Dr. Marc Fuchs	Cornell	Biology and spread of grapevine red blotch-associated virus.	RB	$367,555
Dr. Monica Cooper	UC Coop. Exten.	Evaluation of commercial ant baits as a component of an integrated pest management program for vine mealybug.	VMB	$46,450
Dr. Kent Daane	UC Berkeley	Improving vine mealybug winter and spring controls.	VMB	$127,662
		Total Recommended:		**$2,752,903**

Vector Inoculation of *Xylella fastidiosa*: New Evidence Suggests Sharpshooters Can Be "Flying Syringes"

Principal Investigators: Elaine A. Backus and Elizabeth Rogers, San Joaquin Valley Agricultural Science Center, USDA ARS, Parlier, CA

The mechanism by which *Xylella fastidiosa (Xf)* is inoculated by its sharpshooter vectors into plants remains unknown. This study traced green fluorescent protein-expressing *Xf* as it was egested into simultaneously secreted saliva by sharpshooters. *Xf* or nanoparticles were shown to mix with gelling saliva to form fluorescent salivary deposits and salivary sheaths on artificial diets, providing the first direct, conclusive evidence of egestion by any piercing-sucking plant feeder. Evidence also suggests an additional model for *Xf* inoculation: a column of fluid, potentially containing suspended bacteria, may be held in the foregut during the vector's movement from diet to diet, and potentially plant to plant. Thus, sharpshooters might be "flying syringes," a new paradigm for *Xf* inoculation.

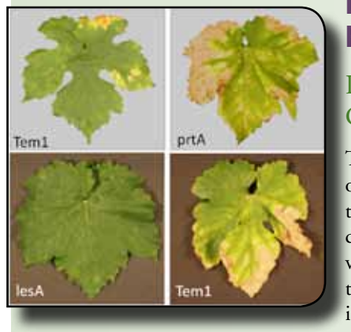


Salivary sheath through parafilm containing saliva and green fluorescent protein *Xf* bacteria.

Defining the Role of Secreted Virulence Proteins LesA and PrtA in the Pathobiology of *Xylella* and in the Development of Pierce's Disease

Principal Investigator: Abhaya M. Dandekar Dept. of Plant Sciences, University of California, Davis, CA

The interference with water transport by *Xylella fastidiosa (Xf)* has been posited to be the main cause of Pierce's disease symptoms. The analysis of *Xf* Temecula 1 secreted proteins has enabled researchers to focus on two previously uncharacterized proteins: LesA and PrtA. Mutant *Xf* were generated that didn't have the two genes for producing these proteins. The mutant *Xf* that did not make LesA were less virulent. Mutant *Xf* that lacked the ability to make the PrtA protein were more virulent, suggesting that this protein may somehow block PD. An understanding of how these two proteins work will provide new insights into this disease and provide new avenues of therapy.

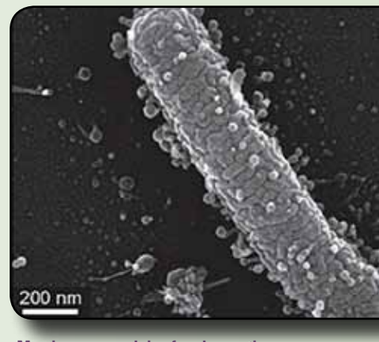


Mutations in the genes that encode LesA and PrtA in *Xf* change the onset of PD symptoms, faster for PrtA and slower for LesA. A comparative stage of PD caused by *Xf* is shown adjacent to the mutant strain.

Elucidating the Process of Cell-Cell Communication in *Xylella fastidiosa* to Achieve Pierce's Disease Control by Pathogen Confusion

Principal Investigator: Steven Lindow, Dept. of Plant & Microbial Biology, University of California, Berkeley, CA

Xylella fastidiosa (Xf) produces an unsaturated fatty acid signal molecule called diffusible signal factor (DSF) that modulates gene expression in cells as they reach high numbers in plants. Results to date show that certain relatively inexpensive commercially available fatty acids may also substitute for the signaling molecules made by the pathogen, and can be introduced by topical application to plants. Studies are underway to test whether disease control via a strategy of "pathogen confusion" can be achieved by direct application of such compounds to grapevines. Such a strategy of disease control could be very attractive since it could be quickly implemented and would utilize commonly used agricultural equipment and methods, and would not require the use of transgenic technologies.



Membranous vesicles forming on the surface of *Xf* cells.