



2025 - ISSUE 1

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25 years OF TURNING CHALLENGES INTO PROGRESS

Among these challenges, PD and GWSS are particularly destructive. Even with public control programs, they cost the industry over \$100 million annually. That figure could nearly double without the Pierce's Disease Control Program (PDCP). Compounding the issue, other viruses and pests threaten yields and wine quality, emphasizing the importance of sustained vigilance and innovation.

The PDCP and PD/GWSS Board were established 25 years ago as an industry and government partnership to minimize the impact of PD and GWSS and fund promising research. The Board is a grower-led and grower-funded effort, ensuring funds are spent wisely and productively to find solutions. The Board is also primed to rapidly respond to new challenges, such as the swift response to the European grapevine moth in Napa County in 2010.

"Thanks to the ongoing support of California's winegrape growers, the PD/GWSS Board has accelerated focused, groundbreaking research to advance knowledge, improve

The threat of grapevine pests and diseases is a constant battle, but research driven by the Pierce's Disease and Glassy-Winged Sharpshooter Board for the past 25 years remains the cornerstone for developing effective management and long-term solutions.

management practices and rapidly respond to emerging threats," said Karen Ross, California Secretary of Agriculture. "Growers' commitment allows us to sustain powerful partnerships with local, state and federal agencies, and other industries, ensuring the long-term sustainability of the winegrape industry."

The Board enlists top scientists, with research priorities shaped through external reviews to ensure efforts remain impactful. Guided by a research coordinator and scientific review panel, the Board selects projects that are practical, relevant and aligned with growers' needs. Currently, it's supporting 35 projects and will evaluate new proposals in April.

"Science takes time, but it's amazing to see the progress made in tackling PD, GWSS and viruses," said Randy Heinzen, Board chair. "Research has evolved from understanding how these diseases and pests spread to developing PD-resistant grape varieties, genetic tools to block disease transmission, biocontrol options, resistant rootstocks and better management practices."

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New Research Priorities Chart Path for Grapevine Health

California's wine and winegrape industry faces mounting challenges from two formidable grapevine diseases: red blotch and leafroll.

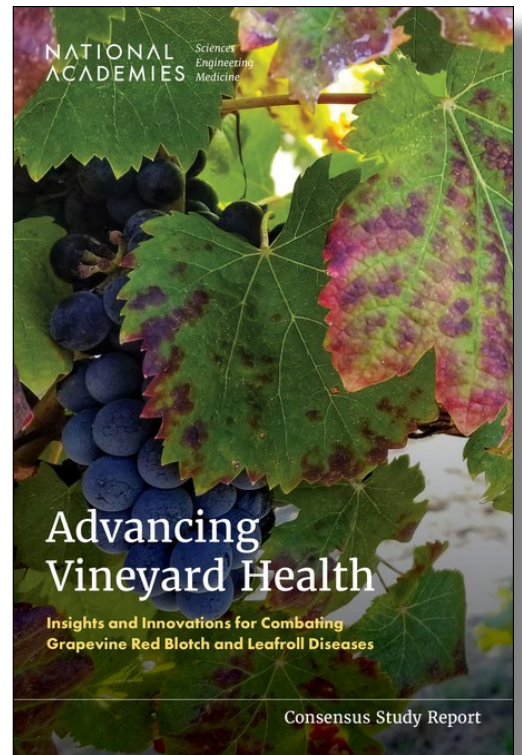
A groundbreaking report from the National Academies of Sciences, Engineering, and Medicine, "Advancing Vineyard Health: Insights and Innovations for Combatting Grapevine Red Blotch and Leafroll Diseases," has identified key research priorities aimed at curbing the spread of these viruses and mitigating their economic impact.

Funded by the PD/GWSS Board, the independent report provides a roadmap for future research and action, offering innovative solutions to safeguard the vitality of California's vineyards. The PD/GWSS Board will consider the recommendations when evaluating new research and outreach proposals.

"Grapevine viruses pose devastating threats to California's winegrape industry, making investing in strategic research that delivers long-lasting solutions critical," said Kristin Lowe, PD/GWSS Board research coordinator. "These new recommendations provide a clear roadmap to guide the PD/GWSS Board in funding projects with the greatest potential to make meaningful impacts."

Developed by leading scientists, the report examines what is currently known—and unknown—about grapevine red blotch and leafroll diseases, identifies the most promising avenues for research and management and provides guidance for shaping future studies to address these challenges.

"The committee was motivated by the goal of providing tangible and forward-thinking solutions for these emerging diseases," said Anna E. Whitfield, chair and Alexander Karasev, vice chair of the National Academies of Sciences, Engineering, and Medicine committee. "We express hope that the science-based and experience-informed findings, conclusions and recommendations in this report will provide the PD/GWSS Board with a pathway toward controlling vector-borne viruses of grapevines."



Read the highlights and full report online at <https://www.cdfa.ca.gov/pdcp/avhr.html>.

The two-year project, funded by the PD/GWSS Board, involved a committee of 12 external experts evaluating grapevine red blotch and leafroll viral diseases and the PD/GWSS Board's research program, which began funding research on grapevine viruses in 2015. The independent and impartial committee analyzed research studies and outcomes, examined the PD/GWSS Board's annual request for research proposals process, met with growers, scientists and extension specialists and visited vineyards, nurseries and clean plant centers.

The report presents 88 key conclusions and 64 actionable recommendations, focusing on high-priority research to close knowledge gaps and pursue the most promising management solutions.

High-priority action items for growers include:

- Use clean plant material
- Remove infected vines
- Participate in areawide vector management programs

on the RESEARCH FRONT



CALIFORNIA PD/GWSS BOARD

Partnership for Winegrape Pest Solutions



Foundation Plant Services moved over 1,300 plants to a new greenhouse in 2024

Propagating the Premier US Grape Collection for Protection in a Foundation Greenhouse

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

The PD/GWSS Board is funding Foundation Plant Services to propagate, test and treat priority grapevine selections so they can be maintained in the FPS greenhouse as a source of high-quality grapevine stock for distribution to nurseries. FPS moved over 1,300 plants, representing one-third of the priority core collection, to a new greenhouse in 2024 with more plants in the propagation pipeline. Each plant must undergo final disease testing and DNA ID for the CDFA Grapevine Registration & Certification program. The greenhouse will ultimately house approximately 2,000 vines, or 250-750 selections depending on the number of vines per selection, with industry-ranked selections prioritized.

Blocking the Acquisition and Transmission Cycle of *Xylella Fastidiosa* by Glassy-Winged Sharpshooter Using Genetic Control

Project leaders: Peter Atkinson, Richard Redak, Linda Walling and Jason Stajich, University of California, Riverside

This project aims to create strains of the glassy-winged sharpshooter (GWSS) that cannot pick up or spread *Xylella fastidiosa* by using CRISPR-based technology to genetically modify GWSS. The team has established both knock-out (gene function elimination) and knock-in (gene insertion) mutants and has shown that it is possible to insert a gene into the GWSS genome. This research sets the foundation for generating and testing genetic control strategies for GWSS.



Examples of the mosaic eye and orange eye phenotypes in genome edited glassy-winged sharpshooter



Grapevine fanleaf virus infected grape leaf.

Investigating Fanleaf Symptom Development and Nematode Transmission to Imagine Novel Management Strategies

Project leader: Marc Fuchs, Cornell University

Researchers are addressing grapevine fanleaf virus (GFLV) by studying its interaction with plant hosts, as current management strategies relying on resistant rootstocks can delay but ultimately do not prevent infection. By studying the effects of a specific GFLV protein amino acid in the model plant *Nicotiana benthamiana*, researchers identified key plant genes and proteins involved in symptom expression. These insights will be applied to winegrapes to potentially develop new disease management options by altering the expression of plant genes and proteins to prevent the virus from causing root and foliar symptoms.

Improving PD Management in Northern California

It can be hard to predict when and where Pierce's disease (PD) will be a problem, particularly in Northern California, which tends to have distinct episodic issues.

Researchers conducted an extensive study to investigate the role of the blue-green sharpshooter (BGSS), the dominant vector in the area, in spreading PD and whether current management practices are adequate.

The study, led by Matthew Daugherty with the University of California, Riverside, included among the most comprehensive testing of BGSS infection status to date. The research confirms that growers need to manage BGSS populations in spring and remove infected vines, and also suggests late summer and fall vector management may be warranted.

Over the course of the study, the team monitored 32 vineyards across Napa and Sonoma counties from Spring 2016 to Fall 2018. They placed traps, recorded BGSS captures, surveyed the surrounding plant communities, and assessed the natural infectivity of BGSS by testing for the pathogen *Xylella fastidiosa* (*Xf*), which causes PD. As anticipated, the team found normal peaks of BGSS activity in the spring.

However, the study revealed that BGSS may be picking up *Xf* from infected vines within the vineyard in addition to the surrounding plant environment. The number of BGSS in vineyards carrying *Xf* was high in the winter, dropping steadily through the late spring and summer, but rose significantly in the late summer into fall.

"We expected infectivity to be pretty consistent across the year, but it is really influenced by seasonality," explained Daugherty. "Climate likely plays a role, with warmer winter and spring conditions allowing the infection to persist in diseased vines, instead of being lost over cold winters."

The findings suggest that some BGSS are picking up *Xf* from diseased vines, meaning there could be a more rapid spread of the disease. This also means that current management strategies may need to be reevaluated.

"We need to manage BGSS not only in the spring but also potentially in late summer and fall, which hasn't traditionally been recommended," explained Daugherty. "Additionally, the research indicates that more proactive, aggressive removal of infected vines may help prevent them from becoming a source of infection for BGSS during the late summer and fall."

This refined understanding of the role and infection patterns of the BGSS invites further research into more effective disease management strategies in Northern California vineyards.

Read the full study in the Annals of the Entomological Society of America online at bit.ly/4gev7TB.



WHAT IS UP FOR A VOTE?

- Extending the PD/GWSS Winegrape Assessment through March 2031
- The assessment funds research and activities to lessen the impact of pests and diseases
- The last referendum passed with 78% approval

WHO VOTES?

- Every winegrape producer entity that paid the 2024 assessment will receive a ballot in the mail in April 2025
- Growers who operate multiple entities will receive a separate ballot for each entity; each ballot should be voted and returned

WHAT ARE THE PASSAGE REQUIREMENTS?

- At least 40% of ballots must be returned
- **Either** (a) at least 65% of those voting, representing a majority of assessments paid, vote "yes" **OR** (b) a majority of those voting, representing at least 65% of assessments paid, vote "yes"
- Results announced in June 2025