



Background

Dr. Tim Gottwald, Research Leader/Plant Epidemiologist, at the USDA-ARS U.S. Horticultural Research Laboratory in Ft. Pierce, FL, has been studying the use of **canine “technology” for disease detection** in citrus since 2017.

The exceedingly high levels of success Dr. Gottwald and his USDA team have shown with dogs in the early detection of huanglongbing/citrus greening shows great promise for application in diseases of grapevine that are similarly difficult to assess and have similarly devastating effects on vineyards. In fact, **an issue has arisen in California that has dire implications for the industry’s supply of clean planting material, and we are keen to enlist Dr. Gottwald’s team to help as soon as possible.**

CRISIS! Grapevine Red Blotch Virus Impacts Nursery Stock

- Foundation Plant Services at UC Davis is the multi-state source of Registered or Certified disease-tested wine, table, raisin and rootstock grape selections.
- FPS is considered the gold standard for nursery stock certification, selling disease-tested propagation material to grapevine nurseries nationwide. It is a critical source for clean plants not only to California but to the U.S. grape and wine industry at large.

- **One of FPS’ foundation blocks, Russell Ranch Vineyard (RRV), has suffered an outbreak of grapevine red blotch virus (GRBV), a relatively new disease of grapevine.**
 - In 2017, five of its 4,132 vines (0.1%) tested positive for the virus. Despite significant efforts to prevent the spread of the disease, the infection increased to 24 vines (0.5%) in 2018 and 339 (7.1%) in 2019, when FPS stopped the sale of material from RRV completely.

This is a critical loss and urgent issue for the U.S. grape and wine industry and its more than \$220 billion economic contribution to the nation.

Dogs Are a Promising Solution

The GRBV outbreak at RRV has key features that make it a good candidate for research into detection by dogs:

- **The disease is of high concern for grape growers across the U.S. In Napa County alone, the economic impact could be as high as \$65,548/ha.**
- The infection at FPS provides a unique opportunity to test canines under highly controlled field conditions.
- The Foundation blocks are subject to an annual diagnostic census using qPCR and sequencing that provides a unique, definitive standard against which to evaluate the canine detector teams.
- The infection at Russell Ranch is such that blocks with a range of disease incidence are available and locations of diseased plants are known.

Dr. Gottwald, the USDA canine detection team and UC Davis collaborators estimate that **a project to explore the use of dogs in the detection of GRBV at RRV would cost approximately \$530,000. This is a small price to pay to apply extensive world-class expertise to major issues threatening the grape industries.**

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The elemental need for clean plants and the crippling outbreak of red blotch disease at our primary source for certified plant material makes this a high priority for the promising results of Dr. Gottwald’s research in citrus. **We seek funding for ARS to expand his team’s focus to tackle the outbreak of red blotch disease NOW.**

Future Applications of Canine “Technology”

GRBV is not the only disease (or pest) that the grape and wine industry would be interested in tackling with dogs. The shortlist of other important targets would include:

- Leafroll virus and/or its mealybug vector
- Pierce’s Disease, a bacterial disease for which there is no cure
- Phylloxera, another disease of grapevine for which there is no cure; only just discovered in Washington State in 2019

The National Grape Research Alliance is comprised of leaders from across the US grape industry including representatives from the wine, juice, table grape and raisin commodity sectors and from all growing regions nationwide. Beyond this urgent need at FPS, there is wide—and eager—interest among our industry in collaborating on this work going forward.

Request at a Glance

- **Appropriations requested:**
\$600,000 in FY2021 and \$500,000 annually thereafter
- **Constituent base:**
Grapes are grown and/or wine is made in all 50 states; California, Washington, Oregon, New York and Texas are the largest producers
- **Economic impact:**
Costs to growers could be as high as \$65,548/ha, as in Napa, CA. The grape and wine industry contributes more than \$220 billion annually to the U.S. economy.
- **Urgency:**
High

For more information:

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