

Virginia Wine Board Grant Final Report

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Title: Grape Pathology Projects

Proposal Number: PVTVNXHS

Project Type: ☒ Research ☐ Education ☐ Marketing

Is this a multi-year grant? ☒ Yes ☐ No

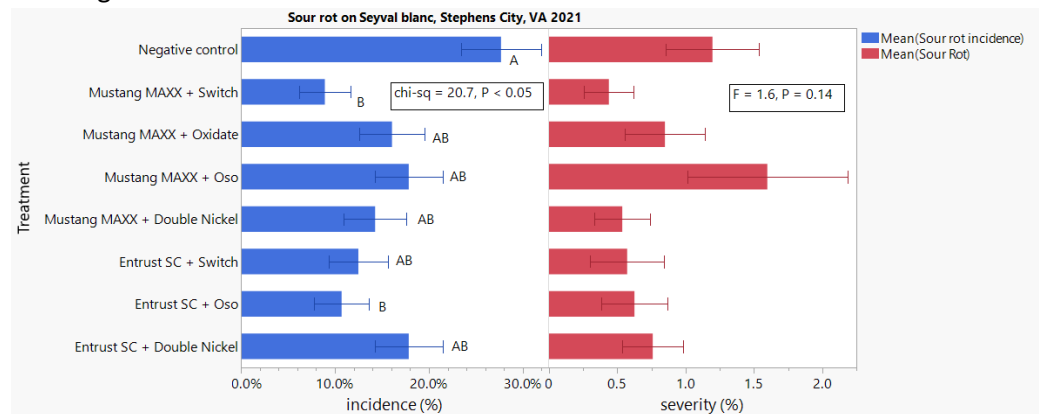
If yes, which year does this report address? 1st of 2~2.5-year grant

Original Funding Amount: \$47,234

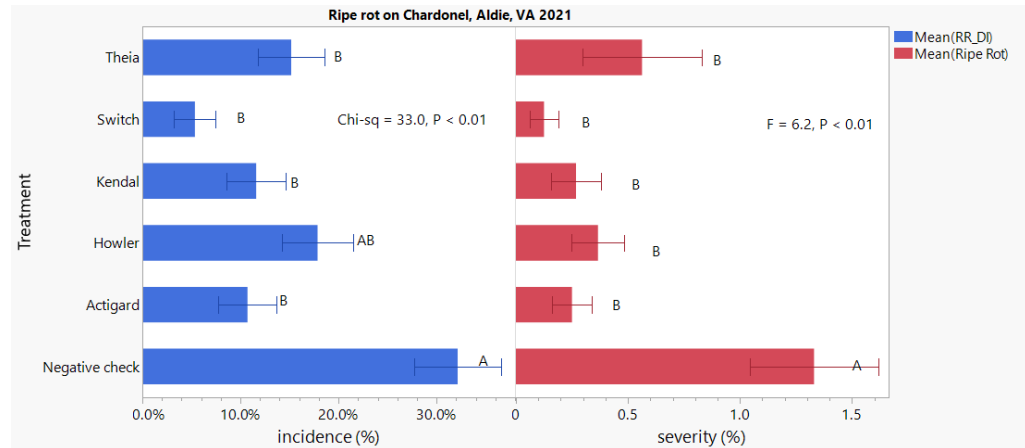
Current Balance: \$130.08

Objectives and Corresponding Achievements:

- A. Evaluate the efficacy of insecticide and fungicide combinations against grape sour rot
 - a. Field trials were conducted at three locations (AHS AREC, Stephens City, and Leesburg)
 - b. Preliminary results showed promising reduction of sour rot with a combination of Mustang Maxx + Switch and Entrust SC + Oso

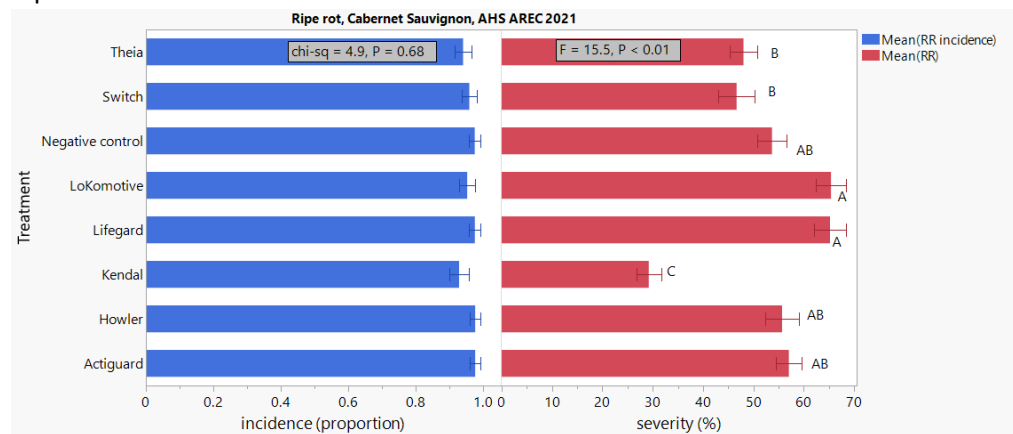


- c. However, there were high variability among clusters, blocks, and clusters thus, it is crucial to repeat the experiment.
- B. Evaluate the efficacy of newly introduced and non-conventional materials against ripe rot
 - a. Field trials were conducted at AHS AREC, Purcellville, and Aldie
 - b. Preliminary results indicated that under moderate level of ripe rot development, some of tested treatments (Switch, Kendal, Actigard, and Theia) were able to reduce ripe rot incidence. Also, all treatment tested at Aldie location showed significant reduction in ripe rot cluster severity.



c.

- d. However, at very high level of ripe rot, only Kendal showed a significant reduction in ripe rot severity, indicating that these treatments were not “stand alone”, which we expected.



e.

- f. It is not a part of the objectives; however, we observed black rot and sour rot in some of tested locations. The results indicated these products do work against black rot or sour rot.

C. Publication of late-season rot extension materials

- We conducted isolation from late-season rot berries collected from four vineyards located in Linden, Markham, and Winchester, VA. We isolated several *Botryosphaeria* species, *Colletotrichum* species, and *Pestalotia* species.
- We will continue our effort of isolation in next season

Problems and Delays: We were not able to find a graduate student for the fall; however, Mr. Manoj Subedi joined my lab January 2022. As indicated above, there were wide range of variation among clusters, blocks, and locations, which makes it difficult to collect data consistently. That’s one of the reasons for multiple location + year trials proposed in this study. This year’s data showed that our approach was correct. For both sour rot and ripe rot trials, we were able to obtain data from two out of three locations due to the lack of disease development at one location. With sour rot, due to the variation, it was difficult to observe a statistically significant difference among treatments.

Overall Benefit for Virginia Wine Industry:

All off-site trials are conducted as a supplemental application to the growers standard; however, we were still able to find ripe rot or sour rot in their vineyards. This indicates the issues possessed by these two

diseases. The benefit from this project is that now we are in the path to find out management tools for these two economically important late-season diseases.

Ripe rot: As we showed in the previously funded programs, ripe rot, in particular, is shown to be a very difficult disease to control. However, our “soft” materials were able to reduce the level of ripe rot. We believe that with a right combination of the materials and timings, we should be able to control ripe rot.

Sour rot: One of the issues with sour rot is the lack of information. Previous studies delivered a wrong impression to growers that we need to have a repeated application of Mustang MAXX and Oxidate; however, our field trials showed that two applications will significantly reduce ripe rot.

Publications and Activities Associated with Project:

Nita (2022) “Grape Disease Management Update: Downy mildew, Ripe rot, and Sour rot”, Virginia Vineyard Association Summer Meeting, Charlottesville, 13 May 2022.

Nita (2020) “Downy mildew and Ripe rot”, Virginia Vineyard Association Winter Meeting, Charlottesville, 18 February 2022.

Nita, M. and Savia, K. (2021) “Fungicide Field Trials: grape late season rots and protective materials, Winchester, VA 2021”, Cumberland-Shenandoah Fruit Workers Conference, online, 1 to 3 December 2021.

Nita, M., Lee, J. and Nahiyan, A. (2021) “Efficacy of Acibenzolar-S-methyl on grape downy mildew and ripe rot, preliminary results”, Plant Health, American Phytopathological Society annual meeting, 6-10 August 2021

Future Work:

With an addition of Mr. Subedi, we continue our three-location trials in 2022. In addition, we have added two trials where we test a combination of better performing materials to investigate their effects. We will continue work on late-season rot identification and sample collection for the future extension and research topics.

Final Budget and Justification:

Item Type	Original Awarded Amount	Final Amount Spent
Personnel	\$26,307	\$27,698
Fringe	\$2,524	\$2,384
Travel	\$840	\$1,000
Supplies & Materials	\$2,568	\$8,598
Contractual	[\$0.00]	[\$0.00]
Other	\$15,065	\$7,514
Total	\$47,234	\$47,107

Due to the delayed recruitment process, a part of tuition was transferred to supplies to stock up for FY2023. The budget adjustment was submitted and approved by the Wine Board in March 2022.

References: [List all references.]