

**Virginia Wine Board Grant
Final Report**

9/22/2023

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Title: Wine Acidity 201: Basics and Beyond

Proposal Number: PKSZCPLR

Project Type: ☐ Research ☒ Education ☐ Marketing

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

If yes, which year does this report address?

Original Funding Amount: \$14,676.

Remaining Balance: \$5,381.

Objectives and Results:

The overall aim of this proposal was to create a multi-faceted, multi-level curriculum on wine acid that can be utilized by those involved in grape growing and wine production in Virginia. This wine acid education series will be the first of an online collection of works focused on practical topics for industry stakeholders to reference, refresh, and enhance their knowledge of core concepts and analytical methods useful in Virginia wine grape production.

The aims of this project were met, as described below:

A webinar entitled “Wine acidity: chemical foundation & complexities” was presented by Dr. Chang on 01/11/23. This event covered the basics of wine acid chemistry and mitigation strategies including topics such as understanding deacidification agents and cold stability. There were 78 registrants, and a similar number of attendees. The session was recorded so that it could be shared for future reference. Informal session feedback was very positive.

A wine acid sensory workshop, led by Dr. Chang, with support from the VWRE, was held at the AHS AREC on 03/08/23. The session was completely full (capped at 30 participants). The event involved a presentation by Dr. Chang on the chemistry behind acid sensory detection, and sensory evaluation of both different types and different concentrations of acids in wine. A survey was conducted following the event, with 17 respondents. Feedback was highly positive; 14 of the 17 responses rated their level of knowledge gain as “moderate to high”. A comfortable space for dialogue had been an aim for the session, so we were pleased to see that all respondents rated satisfaction with “ability to ask questions” and “interesting/meaningful discussion” as somewhat to extremely satisfied. A few direct quotes from the survey include,

“The knowledge, expertise, and professionalism of Doctors Chang and Ting reflect highly on Virginia tech and the Virginia wine boards investment in WRE. The substance and structure of the course was well thought out and insightful for myriad backgrounds and education. Based on the engagement of

participants, well-designed workshops such as these are critical to the ongoing and future success of the Virginia wine industry writ large.” “This was fantastic. The conversations that we had about the different acids were a huge help for the future. It gave me the knowledge that I never thought would use in my winemaking. Thank you for having this event!” “Presentation was educational and very interactive and informative. Well done. Glad I attended, will help me advance my wine making skills.”

The final component of this project was an instructional video series. The series features (4) short videos on grape and wine chemical analysis: measuring pH, measuring titratable acidity, measuring malolactic conversion (aka MLF) via chromatography, and conducting acid addition sensory trials. Each video is accompanied by a step-by-step written protocol. Partnerships have strengthened the applicability, accessibility, and quality of these videos. Joy Ting, Jenna Barazi and Beth Chang have spent countless hours revising and polishing the scripts and protocols for content precision and easy comprehension by reader/viewership. AJ Greely from Hark Vineyards generously allowed us to film on location at their in house winery, so the videos reflect equipment, space, and resources that would be typical to a small-to medium commercial production facility in Virginia.

Dr. Chang worked with PVCC (Piedmont Virginia Community College) to identify Jhen Sullivan, a recent graduate from their videography and graphic design program, to record and edit the series. Jhen is also providing animated graphics to aid in visualization of key takeaways in the series. Finally, Alex Hood, Virginia Tech Food Science and Technology Communications Coordinator, has kindly served as an informal consultant throughout the project to source the videography skills that we desired, and to ensure that this learning series is compliant with Virginia Tech/Virginia Cooperative Extension guidelines, and adheres to general educational resources accessibility standards. The protocols are completed, and the videos are in their final stage of editing, to be released in the next 4-6 weeks. The series will be housed on both the Virginia Tech FST and VWRE platforms, as well as Dr. Chang’s blog (until the enology extension role is re-filled, at which point it will be at the discretion of the new enologist). We are excited to share this resource; the video quality exceeded expectations, and we think that they truly will be the best-to-date of their kind.

Problems/Delays: As the VWB is aware, a 1 year no-cost extension was granted due to Dr. Chang’s maternity leave. Also, the proposal planned for a webinar on the microbiology of acid formation in wine. Dr. Chang reached out to multiple colleagues, but unfortunately was unable to identify anyone with the time or knowledge base necessary to give such a presentation. As mentioned below, a suitable project assistant could not be sourced, so that has meant a heavier workload for Dr. Chang. Therefore, while we (Chang, Ting, Barazi, Sullivan) anticipated delivering 2 of the 4 videos by the beginning of harvest 2023, all 4 videos will now be launched at the end of the season.

Overall Benefit for Virginia Wine Industry:

Our proposal described the overall benefit as follows, “A poll during the 2020 VWA industry conference found that 69% of session attendees rated “avoiding appearance of spoilage character” as their chief concern during crush. Pre-crush harvest decisions and careful acid management during (and after) crush can greatly decrease this risk. It is also essential for those seeking to explore low and no intervention winemaking trends. Therefore, assisting Virginia makers in their understanding and ability to manage acidity will translate to higher bottle prices, increased consumer satisfaction and quality assurance, and safeguarding our wine brand identity... With this multi-faceted educational series, we will not only train the current workforce, but also develop resources to be utilized by future producers and during the next

difficult vintage.”

The achieved project aims deliver these benefits, especially since the interest in no-and-low intervention wines, as well as lower alcohol wines, has continued to increase in the past few years [lower alcohol = less microbial inhibition, so pH, MLF tracking increase in importance for overall stability]. In addition, since project proposal submission, no similar freely accessible series has been launched from any peer institution or educational body. This reenforces the impact that these videos will have on the Virginia, Mid-Atlantic, and broader winemaking communities, especially small-and-medium sized producers, and therefore will bring visibility to the Virginia Wine Board, Virginia Tech, and the Virginia Winemakers Research Exchange.

Publications and Activities Associated with Project:

As described above, outputs include a webinar, a workshop, and a video series.

Future Work:

Translating these videos into Spanish would be a highly impactful value-add, and vault them into a unique sphere as one of the first (if not the first) high quality wine chemistry videos to be available in both English and Spanish. Dr. Chang has already discussed this sub-project with multiple parties, including consulting Alex Hood about university guidelines, and identifying talent to serve as translator. The aforementioned talent is Beth Sastre, Virginia Tech/Virginia Cooperative Extension Commercial Horticulturalist for Loudon County, and a native Spanish speaker who frequently conducts winegrape trainings in Spanish. Beth Sastre enthusiastically supports the idea. Jhen Sullivan would also be willing to handle the videography/voiceover component. The project would need oversight, and – depending on Beth Sastre’s comfort with the chemistry terminology and bandwidth -- an additional translator may be needed to assist with closed captioning (note: after consulting with Alex, it is highly unadvisable to “skip” the CC). Dr. Chang has another colleague (also a native Spanish speaker, with a strong chemistry background and affiliated with grapes and wine) who may be able to assist, if needed.

In addition, as mentioned in the proposal, this video series serves as a template or pilot for a larger body of work surrounding frequent high-impact wine analysis topics, e.g. SO₂, sugars, etc.

Final Budget and Justification:

Item Type	Original Awarded Amount	Final Amount Spent
Personnel	\$1,462	\$1,462
Fringe	\$113	\$113
Travel	\$1,101	\$879
Supplies & Materials	\$5,100	\$2,485
Contractual	\$6,900	\$5,930
Other	[\$0.00]	[\$0.00]

Total	\$14,676	\$9294
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No major changes to the budget. An assistant to support the project could not be identified, so no wage personnel was utilized. Fewer material and supplies were needed than originally budgeted due to generous partnership with AJ Greely/Hark Vineyards for recording of educational videos. The speaker honorarium (\$500) was not utilized because a suitable expert in wine microbiology could not be identified/was not available.

References: [List all references.]