

EXHIBIT D

Dr. Kelly's First Promotion Dossier (2023-2024)



Dr. Molly Kelly

Extension Educator (Level 4)

**Dossier for the Promotion to
Extension Educator (Level 5)**

November 15, 2023

Molly Kelly

Elise Gungor

Candidate Signature: _____ Date:

__11/15/23__

ADP Signature: _____

Date: __11/15/2023__

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II. Candidate and Position Information

Name: Dr. Molly Kelly

Penn State Grape and Wine Team: co-Team Leader

Extension Unit: Industrial Food Safety and Quality

Current Educator Level: 4

Rank for which applying: 5

Date of Hire: February 1, 2018

Date of Last Promotion: Not applicable

Education

PhD. 2013. Enology-Grape Chemistry Group, Department of Food Science, Virginia Tech, Blacksburg VA

Dissertation: *Effect of Foliar Nitrogen and Sulfur Applications on Aroma Profile of Vitis vinifera L. cv. Petit manseng using Modified Quantitative Descriptive Analysis, SPME GC-MS and Electronic Nose Technology*

A.A. 2006. Viticulture and Enology, Surry Community College, Dobson, NC.

M.S. 1994. Biology, University of Texas at San Antonio, San Antonio, TX.

B.S. 1987. Medical Technology, Indiana University of Pennsylvania, Indiana, PA.

Certifications

Certified ServSafe Proctor

Responsible Alcohol Management Program (RAMP)

License

Medical Technologist (ASCP): Laboratory Technologist (Microbiologist)

Position Description

Dr. Molly Kelly has served in the position of Enology Extension Educator, based at University Park, since February 1, 2018. She serves the Pennsylvania winemaking industry state-wide. She is also a member of the Grape and Wine Team of which she is a co-team leader.

The overall goal of her programming is to make PA wineries more competitive and sustainable through improving quality and operational efficiency. This has been accomplished through educational programming, working directly with constituent members and conducting valuable research to support the industry. She is actively involved in various associations, has been a prolific speaker at various technical meetings, supports undergraduate research, and has built a significant network through developing strategic partnerships. Prior to coming to Penn State for family matters, Dr. Kelly served as the Enology Extension Specialist at Virginia Tech Extension, providing educational programming and conducting enology research. She brings that experience and knowledge of working with a more recognized wine industry to the Pennsylvania wine producers.

Dr. Kelly has provided an array of educational programming aimed at improving knowledge of winery owners, managers and employees. Through face-to-face workshops and webinars, she has helped wine makers and their employees better at evaluating wine and managing wine operations. Utilizing her laboratory and commercial winemaking background, she has developed and delivered programs focused

on the analysis of juice and wine analysis, to include chemical, microbiological and molecular protocols. She is also working on the first on-line winemaking certificate program offered by Penn State extension. She has worked with the creative team to develop six animated videos and seven videos as well as program content (in collaboration with Bob Green, Penn State Berks).

Direct consultations are a critical aspect for helping wine operations, especially with it comes to problem solving and process improvement. Dr. Kelly has conducted numerous onsite visits to provide one-on-one instruction to wineries. This in addition to direct interaction via phone and email.

Dr. Kelly maintains an active applied enology research program. She has written and secured grants as part of a collaborative Grape and Wine Team member. She is also co-PI on several Food Science faculty grants (funded by both the Pennsylvania Wine Marketing Research Board (PWMRB) and USDA). Her current research includes the impact of spotted lanternfly on wine quality as well as the use of non-Saccharomyces yeasts in winemaking (funded by departmental funds and funds from the PWMRB for extension programming).

Since starting the position in 2018, Dr. Kelly has mentored/supervised five undergraduate students. She currently supervises one wage-payroll student assisting with extension programming and applied research. She provides leadership for graduate students' research winemaking, a vital component in meeting grant objectives. In most cases, these students gain employment with wineries after graduation.

Dr. Kelly is actively involved in various organizations that support the wine industry in board membership roles, conference planning and execution, and delivering technical presentations. She is an active member in the American Society for Enology and Viticulture, a professional organization for enology, serving on the board of directors for the eastern section branch. She is also active in the national organization serving on the student competition committee.

Dr. Kelly is heavily involved in the Eastern Winery Exposition Conference, an important conference for supporting the wine industry on the East Coast. Each year since 2019 she has been an invited speaker, providing information on wine processing, fermentation control, and flavor enhancement for novel grape varieties. As an example of her regard, some of the comments on her 2023 presentation on Fining and Filtration included: "By far my favorite presentation was Molly Kelly. She was top-notch, well prepared and well spoken." Another attendee noted that "The Fining and Filtration presentation was the best of the day."

Dr. Kelly continues to develop her skills to create new opportunities for Extension. She is currently pursuing a Brewing Certificate, on her personal time, through the Penn State Berks continuing education program to better support the cider and craft beer industries. She continues to hone her educator skills and knowledge through participation in appropriate continuing education and professional development activities, including those supporting DEI.

Dr. Kelly has continued to build a network of partnerships with winery owners, winemakers and home winemakers, suppliers, and other land grant universities. She has established strategic relationships with suppliers, such as Scott Labs, who then help support her applied research program through charitable support. For example, she has procured much of her research winemaking supplies free of charge. They also donated thousands of dollars' worth of non-Saccharomyces yeast strains that Dr. Kelly then distributed across the commonwealth to help small wineries improve wines. Many of these wineries benefited by producing wines with increased aromas and mouthfeel and improve overall wine quality, and thus increased sales.

As a member of the Penn State Grape and Wine team, she collaborated with sixteen land grant institutions to offer Eastern Enology and Viticulture Town Halls, a venue to provide timely answers to viticulture and enology questions. This series ran from June 2021 to September 2021 with one town hall a month. More recently, the team collaborated with Virginia Tech and Cornell on the Eastern Viticulture and Enology Forum to organize and moderate webinars on important winemaking/grapegrowing topics. She has invited speakers, organized and moderated many of these webinars. This series ran from November 2020 until April 2023. The enology forum will resume in November 2023 under her leadership and direction.

Demographics of Audience

The Penn State Extension Grape and Enology team supports the outreach mission of Penn State Extension by utilizing unbiased research-based information to improve grape and wine quality in Pennsylvania. The team works to research and create innovative solutions that address the significant problems facing Pennsylvania's grape and wine industry.

The Penn State Extension Viticulture and Enology programs not only strive to refine Pennsylvania grape and wine quality but also work to enhance awareness of the wine industry throughout the state, Mid-Atlantic region and United States. Grape production and winemaking are important and growing industries in Pennsylvania, and the team aims to deliver both research and science-based education that will ensure sustained growth for these partners. Target audiences include the Pennsylvania commercial grape and wine industries, Penn

State Extension, Pennsylvania Winery Association (PWA), Pennsylvania Wine Marketing and Research Board (PWMRB), Pennsylvania residents, and the Mid-Atlantic wine region.

In April 2021, A Winegrower Needs Assessment was conducted in Pennsylvania. The needs assessment survey, which was open for 5 weeks, collected 46 responses with 35 participants completing the survey in its entirety. Regarding information gathered about other demographic characteristics, respondents were most likely to be male (82.62%, $n = 26$), non-Hispanic or Latino/a (92.31%, $n = 26$), and white (88.46%, $n = 26$).

Data gathered from Wine America and the Pennsylvania Wineries Association shows that the wine industry generates close to \$7.09 billion in total economic activity in the State of Pennsylvania, dramatically illustrating that wine is the ultimate value-added beverage. The broader economic impact flows throughout the state, generating business for firms unrelated to the wine industry. These industries include farming, banking, accounting, manufacturing, packaging, transportation, printing, and advertising.

The Pennsylvania wine industry includes a total of 376 wine producers as well as 943 acres of vineyards. Pennsylvania wineries are the home to multi-generational winemakers, international winemakers, emerging winemakers under the age of 30, and winemakers who have embraced wine production as a second career.

The Pennsylvania wine industry directly employs as many as 31,905 people and generates an additional 8,844 jobs in supplier and ancillary industries which supply goods and services to the industry, and whose sales depend on the wine industry's economic activity. Ultimately, 53,943 jobs are created and supported by the wine industry.

Serving the entire state as the sole enologist can present a challenge. Most wineries are located in the southcentral and southeastern part of the state. These are also predominantly those producing higher priced, *Vitis vinifera* wines. Note that they can ripen *Vitis vinifera* more easily than some other parts of the state. However, there are wineries in all six regions of the commonwealth. Dr. Kelly therefore strives to reach all of them. In addition to year-round site visits and workshops, she travels for 6 weeks each year to all six state regions (~2000 miles/yr.). She offers a community preharvest roundtable in each region. Using social media (Facebook) she posts upcoming events and keeps the industry engaged in ongoing enology activities.

In his dissertation, A Comprehensive Analysis of the Pennsylvania Wine Industry with Actionable Recommendations for Industry Improvement and Growth” (2022), Seth Porter made policy recommendations for the industry including: “Attend Penn State Extension Trainings for Quality Improvement. Individual wineries and producers should attend Penn State Extension winemaking trainings. This simple action would improve overall quality and, specifically, human capital within the state through professionalization of aspects of the

trade. Trainings and information sharing sessions include multiple overviews on important winemaking processes.”

References:

Dunham, J. (2017). Wine America PA economic impact report. The National Association of American Wineries. John Dunham & Associates. 2017-WineAmerica-PA-Economic-

Impact-Report.pdf (pennsylvaniawine.com).

Dunham, J. (2018). Economic impact of the Pennsylvania wine and grape industries.

Pennsylvania Winery Association. John Dunham and Associates.

https://pennsylvaniawine.com/wp-content/uploads/2020/02/PWA_EconomicImpact-

FNL.pdf

Porter, Seth, "A Comprehensive Analysis of the Pennsylvania Wine Industry with Actionable Recommendations for Industry Improvement and Growth" (2022).

West Chester University Doctoral Projects. 139.

https://digitalcommons.wcupa.edu/all_doctoral/139

III. Extension Education Programs

II.A. Improving Wine Quality Initiative

Needs Assessment

One significant way to improve wine profitability is to improve overall wine quality. Three programs to achieve wine quality are highlighted here: the Wine Quality Improvement Workshop, Juice and Wine Laboratory Analysis Workshop and the Winery Sanitation Monitoring Study.

As part of the needs assessment (phase 1 of the PDP), data from the initial focus groups was gathered from two separate sessions and groups: winery owners and wine makers, with 11 respondents in the owner session, and 10 respondents in the wine maker session.

Survey respondents prioritized topics with juice/wine laboratory analysis, winery sanitation, and the influence of winemaking practices on wine composition and flavor ranked important (56%, 63% and 71%, respectively).

Fifty-seven percent of respondents reported controlling microbiological contaminants during aging was very important, and 50% re-

ported that sensory defect training was very important and necessary for success.

Educational Objectives

1. Producers will increase their knowledge of sensory defects to determine wine quality.
2. Producers will increase their knowledge of chemical assays to determine wine quality.
3. Producers will increase their knowledge of winery sanitation.

Program Activities and Teaching Methods

The Wine Quality Improvement (WQI) workshop is a two-day training seminar that covers standard sensory evaluation with a focus on identification, prevention, and remediation of wine defects. The WQI seminar is a hands-on experience, where attendees can actively fine tune their sensory skills.

The Juice and Wine Laboratory Analysis workshop is a two day, in-person event that offers instruction both in the classroom as well as in the laboratory. Topics covered include basic and intermediate laboratory analysis of juice and wine, proper laboratory techniques, lab safety, testing, and interpreting lab results.

The Summer Viticulture and Enology Experience Program is an 8-week, USDA grant funded program at the Lake Erie Grape Research Station in North East, PA. Undergraduate students from across the country apply and up to six are selected for this program (year 3 of 4). They gain viticultural experience at the Lake Erie Grape Research and Extension Center and spend afternoons in host wineries. In addition, each student chooses a project to complete. Dr. Kelly developed the winery sanitation project. Here, the candidate works with the students assessing winery sanitation practices. Students take samples and analyze for spoilage organisms using PCR (polymerase chain reaction). Results are shared with wineries and recommendations provided to improve sanitation protocols. Three years of data will be compiled and published to share with the industry. These results will help to improve sanitation practices and result in improved wine quality.

Impact

Program Impact: Wine Quality Initiative

Of the 21 attendees, a post workshop survey identified that 80% (n=20) either agreed or very much agreed that they increased their understanding of the importance of identifying sensory defects. Sixty-four percent were either likely or very likely to implement

quality improvement programs in their wineries (n=19) with 68% planning to do so in the six months following the workshop (n=19). Many attendees (65%, n=20) planned on attending future extension events.

Program Impact: Juice and Wine Laboratory Analysis

Twenty-five of participants ($N = 25$) enrolled in the course during the 2022 program year.

A post course evaluation was distributed at the end of day two with 25 participants ($n = 25$) responding (100%).

- 84% increased their knowledge of chemical laboratory analysis practices and techniques to assess and increase wine quality.
- 84% were more confident in their ability to solve problems in the laboratory.
- 100% stated they were highly likely to use information from the course within the next 6 months.

A one-year, follow-up evaluation was conducted during the 2023 program year, with 6 participants ($n = 6$) choosing to respond for a response rate of 24%. One hundred percent of participants applied knowledge from the course to their business practices, including:

- One participant went from doing no wine testing before the course to conducting weekly testing on their wine.
- One participant responded “The quality of our wine has gone up by an order of magnitude.”

Program Impact: Winery Sanitation Monitoring

As part of the USDA Summer Experience in Viticulture and Enology, interns collected environmental samples at three different wineries for spoilage organisms.

One winery owner commented: “The sampling that was completed at our winery was invaluable to our operation. We know that the procedures that we use for sanitizing our equipment is providing us with fault free and stable wines that are of high quality for our customers. I feel that if these tests were conducted in more wineries that the quality of Pennsylvania wines would be much greater. Thank you for all you do to help the wineries in the state of Pennsylvania.”

Evaluation Methods

Evaluation data was collected in various methods. Pre and Post evaluations were conducted at workshops. A one year follow-up evaluation was conducted for the Laboratory Analysis workshop using Qualtrics. Participants in the winery sanitation monitoring program provided evaluations over the phone and via email.

II.B. Grant Funded and Applied Research

Needs Assessment

A Winegrower Needs Assessment (April 2021) identified that securing labor was of highest concern on average (60%, $n = 27$) followed by the importance of apprenticeships or internships (56%, $n = 27$).

As part of the needs assessment (phase 1 of the PDP), data from the initial focus groups was gathered. A majority of respondents reported high levels of concern (i.e., “extremely” or “fairly” concerned) for management of spotted lanternfly (i.e., 85.19%) and its’ impact on final wine quality.

Survey respondents prioritized topics with juice/wine laboratory analysis, winery sanitation, and the influence of winemaking practices on wine composition and flavor ranked important (56%, 63% and 71%, respectively).

Educational Objectives

1. Train a new workforce to strengthen the infrastructure for the future of the winegrape industry in PA.
2. Identify the impact of spotted lanternfly on wine quality.
3. Enhance Wine Diagnostics to better serve the PA industry to increase wine quality.

Program Activities and Teaching Methods

Undergraduate Experience in Viticulture and Enology (USDA funded) \$393,649

To address the need for trained interns in the vineyard and winery, a USDA grant was secured (Summer Experience in Viticulture and Enology). The program has run for three summers and has had 14 interns and 2 student mentors. Two industry partners have hosted interns and instructed them in winemaking, sanitation and laboratory analysis.

The candidate mentored students in the production of four learn now videos that are available through the extension web site. These videos focus on winemaking topics of interest such as volatile acidity and *Brettanomyces* spoilage. Please refer to supplemental document.

Students also participated in a winery sanitation project (see II.A.).

Spotted Lanternfly Risk Management Education for Grape Growers in the Northeast \$41,808

Dr. Kelly is a co-PI on the grant-funded project: Spotted Lanternfly (SLF) Risk Management Education for Grape Growers in the Northeast (North East Extension Risk Management). Findings of

this grant will help growers and wineries to better manage the production risk posed by SLF.

One workshop took place on August 15th in Breinigsville PA. Dr. Kelly presented on her current research on the impact of SLF on wine quality. Please see PowerPoint presentation from the August 15th workshop.

Further analysis of volatile aroma compounds and formal sensory testing will elucidate the impact on wine quality. This vital information will be shared with the industry.

Improving PA Wine Quality through Enhanced Diagnostic Capabilities (PWMRB Funded) \$99,188

One of the deliverables for this grant was offering the Juice and Wine Laboratory Workshop discussed in Section II.A. An additional component of this grant was the acquisition of equipment to analyze PA juice and wine samples for potential spoilage organisms. Under Dr. Kelly's direction, molecular technology (Invisible Sentinel thermocycler) was introduced. These analyzers can quickly and accurately identify the presence of major spoilage organisms such as *Brettanomyces/Dekkera* and *Acetobacter* species. This technology was introduced to industry members at the 2023 Juice and Wine Laboratory workshop.

Impact

Undergraduate Experience in Viticulture and Enology

The program has run for three summers and has had 14 interns and two student mentors. Two industry partners hosted interns and instructed them in winemaking, sanitation and laboratory analysis.

The workforce in the grape and wine industry is aging. Younger individuals are urgently needed to enter the industry. This program introduces young people to an industry that they may not have known existed. After completing the eight-week program, one student commented:

“I love how the program was a great mix of lab work and physically being out in the vineyard. It introduced me to so many new things and emphasized teamwork.”

Spotted Lanternfly Risk Management Education for Grape Growers in the Northeast

This research has also allowed for the training of undergraduate students in applied research. One student that assisted Dr. Kelly with research winemaking noted: “Participating in winemaking research

while working on the spotted lanternfly project with Dr. Kelly provided me with fundamental research skills that allowed me to formulate my own original research projects and become an effective student and researcher.”

Improving PA Wine Quality through Enhanced Diagnostic Capabilities

The acquisition of the Invisible Sentinel PCR technology, under the direction of Dr. Kelly, will revolutionize wine analysis in PA, providing rapid and sensitive detection of major spoilage organisms. Spoilage organisms are the leading cause of inferior wine quality.

Evaluation Methods

For the Summer USDA program, students completed exit surveys upon completion of the program. Dr. Kelly also conducted interviews with those students working on enology-focused projects. Post workshop surveys were distributed after the SLF workshop. Personal correspondence was also utilized.

II.C. Eastern Viticulture and Enology Forum Webinar Series

Needs Assessment The Eastern Viticulture and Enology Forum Webinar Series is a monthly webinar series that provides the latest in research results in viticulture and enology, with a focus on concepts that underlie the practical aspects of growing grapes and making wine. Launched in the Fall of 2019, this forum is comprised and organized by researchers at Penn State Extension, Cornell AgriTech, and Virginia Tech Extension, and these webinars bring together researchers, grape growers and winemakers across the country.

The following outlines the need/justification to continue to support this product/programming:

- Data from the initial focus groups was gathered from two sessions, focusing on Pennsylvania-specific issues, varieties of wine, challenges, the PA wine market, sanitation practices, FSMA, business models as well as marketing support.
- Survey respondents prioritized topics with juice/wine laboratory analysis, winery sanitation, and the influence of winemaking practices on wine composition and flavor ranked important (56%, 63% and 71%, respectively).

Webinar topics have included the proper use of oak barrels, sulfur dioxide in winemaking, laboratory quality control, sparkling wine production, trends in winemaking, the use of non-Saccharomyces yeast and many others. Here, two webinars are highlighted: Oxygen Management During Winemaking and Bottling and The Food Safety Modernization Act for Wineries. For 2022, the enology webinar series had 361 registrants. In 2023, 419 have registered.

Educational Objectives

1. Provide timely topics in enology to a large audience, primarily in PA and the East coast.
2. Collaborate with other East coast land grant institutions to address issues important to the industry.
3. Survey audiences to see what additional topics are of importance to the industry.

Program Activities and Teaching Methods

All webinars were advertised via Cvent, the Grape and Wine Teams' Facebook page and in the quarterly newsletter. Webinars were also marketed by collaborators Cornell and Virginia Tech extension websites. Registration was free of charge. All webinars were live and also recorded for later posting on the enology website. The candidate invited 90% of program speakers ($N=12$) and moderated 80% of webinars (answering questions in chat and asking speaker questions from attendees).

Impact

Program Impact: Oxygen Management During Winemaking and Bottling

This webinar was presented by Todd Steiner, Enology Educator at Ohio State University on May 23, 2023

- 59 participants ($N = 59$) attended the live webinar. Attendees were from 24 different states, including 18 from PA. The webinar was recorded and posted on the extension website.
- A post course evaluation was conducted online following the webinar with 51 participants ($n = 51$) choosing to respond for a response rate of 86%.
 - 98% increased their knowledge about the meaning of dissolved oxygen and total package oxygen, the impact of dissolved oxygen on wine quality, cellular practice to limit dissolved oxygen, and best bottling practices to lower dissolved oxygen.
 - 86% reported being likely (i.e., “somewhat” or “extremely” likely) to apply knowledge or use skills they learned from the webinar, including:
 - * Purchasing and incorporating dissolved oxygen meters into their businesses
 - * Using recommended procedures for reducing or removing oxygen from products

- One attendee commented “The benefits of this webinar are too numerous to count! I’ll be processing the information presented for a long time and translating it into action over time.”
- Additional topics of interest included use of a dissolved oxygen meter and chemical means of oxygen reduction.

Program Impact: The Food Safety Modernization Act for Wineries

- 207 participants ($N = 207$) registered for the webinar. Attendees were from 27 different states, including 51 from PA.
- A post course evaluation was conducted online following the webinar with 27 participants ($n = 27$) choosing to respond for a response rate of 13%.
 - 97% increased their knowledge about the Food Safety Modernization Act for their winery.
 - 97% reported being likely (i.e., “somewhat” or “extremely” likely to apply knowledge or use skills they learned from the course, including:
 - * Documenting employee training related to food safety practices for wineries.
 - * Posting handwashing signs for employees
 - * Creating standard operating practices documents for chemical storage, sanitation, and broken glass
 - * Creating pest mitigation action plans
 - * Additional topics of interest included legal implications and employee training protocols.

Evaluation Methods

A Qualtrics survey was posted in the chat towards the end of each webinar and attendees encouraged throughout the webinar to complete the survey. Included in the survey was a question to gauge interest in other topics for future webinars. These comments were used to form the 2024 webinar series.

III. Leadership

Since 2020 Dr. Kelly has served as the Grape and Wine Team Co-Leader for the 9-member team. As team co-leader, she assists in leading educator meetings and oversees the Program Development Process. She also leads the enology needs assessment. She served on search committees for a university-based Food Safety and Quality educator position and served on the search committee for the Viticulture Extension Educator position.

Leadership organization skills were demonstrated over the past five and a half years with a variety of programs. She developed and delivered multiple new

programs including Juice and Wine Laboratory Analysis, Introduction to Wine Microbiology, Winery Tasting Room Training and Wine Faults Training.

The candidate identified the need for updated winemaking equipment and led the effort to submit a sole source justification to purchase a new crusher/destemmer as well as a wine press (\$83,882). She also negotiated a 12% educational discount with the supplier. This equipment will allow researchers and students to work with equipment that they would encounter at a commercial winery. She has also updated the enological testing capabilities by purchasing a thermocycler to conduct polymerase chain reaction (PCR) testing for bacterial spoilage organisms.

Dr. Kelly has also partnered with two yeast producing companies (Scott Labs and Chr. Hansen) to obtain thousands of dollars' worth of free wine yeasts to distribute across the commonwealth. These yeasts will undoubtedly increase wine quality in PA.

In her role as Enology Extension Educator, she has mentored and supervised five Food Science undergraduate students. Students have received training in research winemaking, laboratory techniques (chemical, microbiological and molecular biology) and extension programming. One has moved on to a graduate career in fermentation science.

She has served on the educator advisory council since 2022 and acts as the Farm Show Committee Chair for the Wine Division. In this role, she has worked to increase the educational content presented at the show. She has also served on the planning committee for the annual PA Grape and Wine Conference since her hire. She has also participated as a speaker and is responsible for all wine panel tasting organization.

Dr. Kelly has revised the existing wine quality improvement and microbiology workshops to better serve the industry bringing her 30 years of microbiology, 7 years commercial winemaking and curriculum development experience to PSU extension. In collaboration with Bob Green, Penn State Berks, she is developing the first Penn State Extension on-line winemaking course. She has worked with the animation team and videographer to develop many videos to include in the course and continues to work on content.

The candidate represents Penn State Extension on a national scale by being an invited speaker at many professional industry meetings. She has served on the board of directors for the American Society of Enology and Viticulture (ASEV) (Eastern Section) as well as a student paper competition reviewer for national ASEV.

IV. Educator Activity Form

Presentations

Extension Programs-List all presentation at meeting or conferences that Penn State Extension hosted. Please put an X to indicate that pesticide credits or CEUs were offered at this presentation.

Date	Title of Presentation	Meeting/Location	Attendance
11/16/20	Wine Faults	Joint Commission of Extension Professionals annual meeting	50
8/20/22	Winemaking Considerations for Compromised Fruit	Preharvest Workshop, 1723 winery	45
3/2/23	The use of non-Saccharomyces yeast in winemaking	PWMRB conference	70
8/15/23	Spotted Lanternfly impact on wine quality	Spotted Lanternfly Update Workshop, Clover Hill winery	23
10/23/23	Wine Fundamentals Workshop	Professional Development Day, Food Families and Community Units Food Science/UP and Happy Valley Vineyards and Winery	40

Guest Presentations- List all presentations hosted by industry or community groups.

Date	Title of Presentation	Meeting/Location	Attendance
5/2/23	Impact of Oxygen on Wine Quality	NJ Winemakers Coop/Princeton NJ	~70

Extension Programs-List all presentation at meeting or conferences that Penn State Extension hosted. Please put an X to indicate that pesticide credits or CEUs were offered at this presentation.

Regional or National Presentations- List all presentations you delivered at regional or national professional organizations or conferences.

Date	Title of Presentation	Meeting/Location	Attendance	Credits
3/22/22	Fining and Filtration	EWE	Presentation: over 150 Meeting: >2000	
2/20/23	1)Understanding the Wine Microbiome and 2) How Clean is your Winery?	Ohio State Grape and Wine conference/Dublin OH	Over 150	
3/14/23	A Primer on Fining and Filtration	Eastern Winery Exposition/Lancaster PA	Presentation: Over 100 Meeting: >2000	
8/2/23	Yeast and Fermentation Management	Rutgers Wine Certificate Program/New Brunswick NJ	25	
8/3/23	Microbial and Chemical Analysis	Rutgers Wine Certificate Program/New Brunswick NJ	25	

Poster Presentations- List all poster presentations at local, regional, and national events.

Date	Title of Poster	Meeting/Location	Attendance
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Poster Presentations- List all poster presentations at local, regional, and national events.

6/2023	Vine to Table: An eight-week summer industry-academic program for undergraduates interested in viticulture and enology	Plant Biology 2023/Savannah GA	Over 1200
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IV.

One-on-One Assessments- List all one-on-one assessment consultations (i.e., farm visits, 4-H club meetings)

Date	Topic Discussed at Assessment	Location (County)	Assessment
1/2021 to 11/2023	Total Number of emails answered with educational information.		>300
	Total number of phone calls answered with educational information.		>100
	Total Number of “walk-in” consultations you provided with educational information.		~50 winery site visits
	Total number of social media posts you created to support team or unit social media presence.		~40 on Facebook (1300 followers)

Extension Website Articles- List all articles for which you are a contributor that was published on the Penn State Extension Website or team newsletter.

Date	Title of Article	Authors	Website Link
8/21	Preharvest Planning and Winery Sanitation	Molly Kelly	https://extension.psu.edu/preharvest-planning-and-winery-sanitation

Extension Website Articles- List all articles for which you are a contributor that was published on the Penn State Extension Website or team newsletter.

8/21		Molly Kelly, Bryan Hed, Michaela Centinari, Cain Hickey	https://extension.psu.edu/veraison-to-harvest-vineyard-and-winery-considerations
9/22 (updated)	Volatile Acidity in Wine	Molly Kelly, Denise Gardner	https://extension.psu.edu/volatile-acidity-in-wine
12/22	What's in the Wine Microbiome?	Molly Kelly	https://extension.psu.edu/whats-in-the-wine-microbiome
3/23 (updated)	Incorporating Microbiological Techniques in your Winery	Molly Kelly	https://extension.psu.edu/incorporating-microbiology-techniques-in-the-winery

Products and Publications

Peer Reviewed Articles- Please list all peer-reviewed articles for which you are a contributor published outside of Penn State Extension (i.e., scientific journals)

Date	Title of Article	Authors	Title of Journal
5/2023	Effect of Foliar Nitrogen and Sulfur Applications on Aroma Profile of Petit Manseng (<i>Vitis vinifera</i> L.) using Descriptive Analysis	Molly Kelly (first author) Gill Giese (Univ of Arkansas) Bruce Zoecklein (Emeritus: Virginia Tech)	Journal of Wine Research

Peer Reviewed Articles- Please list all peer-reviewed articles for which you are a contributor published outside of Penn State Extension (i.e., scientific journals)

4/2017	Effect of foliar nitrogen and sulfur on petit manseng (Vitis vinifera L.) grape composition	Molly Kelly (first author) Gill Giese Bruce Zoecklein Laura Lawson (VT) Ciro Cruze (VT) Melissa Wright (VT)	Journal of Wine Research
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Print/other publications- Please list articles for which you are a contributor that were published in the popular press. (i.e., local newspapers, agriculture publications, Lancaster Farming, etc.)

Date	Title of Article	Authors
7/2019	What's in the Wine Microbiome?	Molly Kelly

Extension Products- Please list all Penn State Extension products you are an author or contributor to, such as Learn Now Videos, publications, online courses, fact sheets, etc.

Product Type	Title of Product	Authors	Role
Recorded webinar	Trends in Wine	Duncan Hamm (Chr. Hansen yeast)	Arranged speaker/moderated/Q&A

Print/other publications- Please list articles for which you are a contributor that were published in the popular press. (i.e., local newspapers, agriculture publications, Lancaster Farming, etc.)

Web ap- plication		Molly Kelly, Michaela Centi- nari, Cain Hickey, Flor Acevedo, Bryan Hed, Andy Muza	contributor
Recorded webinar		Martin Buck- navage	Arranged speaker/moderated/Q&A
Recorded webinar		Eglantine Chauf- feur (Bucher Vaslin)	Arranged speaker/moderated/Q&A
Recorded webinar		Patricia Howe (ETS labs)	Arranged speaker/moderated/Q&A
Recorded webinar		Todd Stiener (OSU)	Arranged speaker/moderated/Q&A
Laboratory Manual	Laboratory Analysis for Small Wineries	Molly Kelly, Michael Leonardelli	Co-author

Research Projects

Research Projects- Please list all research projects in which you participated.

Title of Project	Role	Partnerships (out-side PSU)	Coverage Area (i.e., local, regional, statewide, multi-state)
Improving Tannin Extraction in Wines made from Interspecific hybrids (PLCB)	Co-PI (R. Elias)		\$89,782 (2020)
Defining Regional Typicity of Gruner Veltliner (PLCB)	Co-PI (H. Hopfer)		\$124,849 (2021)
Development of a Website and Digital Media to Educate and Support Grape and Wine Industry Stakeholders in PA	Co-PI (C. Hickey)		\$47,040 (ongoing)
Improving PA Wine Quality Through Enhanced Diagnostic Capabilities for Wine and Grape Quality Parameters:	Co-PI (M. Kwasniewski)		\$99,188 (ongoing)
Undergraduate Experience in Viticulture and Enology (USDA)	Co-PI (M. Campbell)		\$393,649 (ongoing)
Spotted Lanternfly Risk Management Education for Grape Growers in the Northeast (NERME)	Co-PI (C. Schmidt)		\$41,808 (ongoing)

Funding and Contributions

V.

Sponsorships, Donations, and Gifts- Please list all sponsorships, donations, or gifts you obtained in support of Penn State Extension programming.

Type	Source of Funds	Total Fund- ing Amount	Program funding will support
Funding	PA Wine Marketing and Research Board	\$15,000 annually	Enology extension programming
Equipment dis-count/Departmental savings	Bucher Vaslin Inc./ Secured 12% educational discount and sole source justification for new winemaking equipment	\$10,022.96	Extension and research winemaking for both Food Science and Plant Science departments.

In-Kind Contributions- Please provide a description and estimated value for any in-kind contributions to support programmatic activities. These may include items such as donated meals, meeting space, or other non-cash items.

Description	Source	Value of Item
All research winemaking supplies are donated annually	Scott Laboratories	\$2000-\$3000

In-Kind Contributions- Please provide a description and estimated value for any in-kind contributions to support programmatic activities. These may include items such as donated meals, meeting space, or other non-cash items.

Revenue Generation (Cost Recovery)-
Please list the amount of revenue that was generated from programs that you led.

Name of Program	Date	Amount
Juice and Wine Laboratory Analysis	May 17-18, 2022	\$1250
Wine Microbiology workshop	June 13-14, 2023	\$1400

Volunteer/Employee Management

Number of NEW volunteers recruited, screened, oriented/trained
Not applicable

Number of volunteers that continue to be trained

Volunteer Training developed, taught/led – record date, training title, attendance.

Date	Presentation Title	Attendance
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Number of NEW employees recruited, screened, oriented/trained-
Five

Number of employees directly managed: Currently one

Outreach and Community Service

VI.

Service to Extension- Please describe the service supporting an area, team, unit, or Penn State Extension. This activity may include leading a program team, serving as a mentor, serving on a committee, or other similar activities.

Description of Service (e.g., Committee or Task Group)	Role	Dates
Grape and Wine Team	Co-team leader	2020-present
Food Safety and Quality Outreach Team	Team member	2020-present
Educator Advisory Council	Council member	2022-present
Presenter Educator Institute pre-conference program	Organized/Presented	October 23, 2023
	day long session to educators about enology	

Service to the University- Please describe service in support of the university. These activities may include committee service, peer review of award nominations, or other similar activities that are outside of Penn State Extension.

Description of Service (e.g., Committee or Task Group)	Role	Dates
Search committee	Committee member to hire Viticulture Extension Educator	August 27-30, 2019
Search committee	Committee member to hire Food Safety and Quality Educator	March 1-31, 2022
Search committee	Committee member to hire Food Science Post-doc	February 10-14, 2023

Service to Extension- Please describe the service supporting an area, team, unit, or Penn State Extension. This activity may include leading a program team, serving as a mentor, serving on a committee, or other similar activities.

Service to your Community- Please describe the service performed as an Extension Representative for industry or community groups. This activity may include serving on a committee, judging contests, or other activities.

Description of Service (e.g., Committee or Task Group)	Role	Dates
Mifflintown Masonic Lodge	Presented an overview of the PA wine industry	March 10, 2022
American Wine Society	Presented to Scranton branch	January 18, 2023
Great Lakes Science Boot camp for Librarians	Presented at annual conference in University Park	July 19, 2023

Outreach and Community Service

VII.

Service to the Profession- Please describe the service performed supporting your profession. These activities may include roles in which you serve for state and national professional development organizations.

Description of Service (e.g., Committee or Task Group)	Role	Dates
American Society of Enology and Viticulture-Eastern Section	Served on Board of Directors	2019-2020
American Society of Enology and Viticulture-Eastern Section	Best student paper committee	2018-present
American Society of Enology and Viticulture-National	Best student paper committee	12/15/21-1/12/22

Professional Development

Professional Development Activities- Please list all professional development activities completed during the review year. Note: Each educator is required to obtain 8 hours of diversity-related training each year.

Date	Activity	Total Hours	Diversity Hours
2018-present	Eastern Winery Exposition	Minimum 10 hrs annually	
2018-present	Bucher Vaslin Technical Winemaking Webinars	Minimum six hours annually	
1/23-present	Penn State Berks Brewing Certificate Program	Forty (24 remaining)	As required annually

Professional Development Activities-
Please list all professional development activities
completed during the review year. Note:
Each educator is required to obtain 8 hours of
diversity-related training each year.

Annual Total:	40	8
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