



VitisGen III

Quarterly Newsletter, July 2024

Message from the Director

The first days of summer have come and gone, bringing extreme or unseasonable weather to us all. Even with these challenges, our objective teams have completed outdoor work including crossing and planting, conducting pilot studies with new equipment, and welcoming graduate students to their institutions. One of the biggest milestones of the year has also been cleared: our federal reporting has been submitted to USDA-NIFA! Below, we've attached our annual Continuation Narrative, which provides a succinct and engaging look at all of the progress we've made this year. This document will also be sent out ahead of our End-of-Year meeting in September. Please save the date for Friday, September 6th!

~Matt Clark



Photos by Kate Fessler

End of Year Meeting Information

Save the Date: Friday, September 6th at 8am PT/10am CT/11am ET.

This meeting is for all project members and our Advisory Board. It will give our objective leads the opportunity to update the AB on progress made during Y2 of the project.

This meeting replaces our 3rd quarter team meetings for 2024. Please expect to send update slides to your Objective's PI by August 15th, 2024.

[Zoom Link](#)

[Preliminary Agenda](#)

Questions about upcoming meetings? Email Kate at fessler023@umn.edu

Project Updates

We have submitted our annual USDA-NIFA reporting, and are so proud of the progress our objective teams have made over the course of Y2. In fact, our participants gave so many presentations this year that we far surpassed the character limit of the NIFA portal!

For a full update on our Y2 work, [click here](#) or on the preview below to open our Continuation Narrative.

Completing the grapevine powdery mildew resistance pipeline: From genes-on-the-shelf to sticks-in-the-ground

PD: Matthew Clark, University of Minnesota
Co-PD: Chengyan Yue, University of Minnesota
Co-PD: Lance Cadle-Davidson, USDA-ARS

Reporting Period: Sept 1, 2023 through June 20, 2024

Introduction:

This project was initiated in September 2022. It took several months to set up sub-contracts and roll-out the project. The project leadership team, with input from the Co-PIs and advisory committee chose to brand the project VitisGen3 (VitisGenIII wordmark) to highlight the continuation of research efforts from the previous NIFA funded projects (VitisGen 2011-51181-30635 and VitisGen2 2017-51181-26829). This narrative will describe each objective's progress as well as any pitfalls & changes encountered. The Executive Team has reviewed the originally proposed Gantt chart and utilized the REEport to highlight key accomplishments to include in this narrative. Updated Gantt charts are provided throughout this report with colorized annotations to indicate progress and changes in timeline. Although this narrative comprises information on progress, pitfalls, and changes made over the course of our second year, some key achievements from the first year of the project include:

- Objective 1:
 - Chromosome-scale assemblies of resistant vines
 - Identification of candidate genes for resistance
 - Reconstruction of several resistance loci
- Objective 2:
 - Distribution of phenotyping imaging systems to USDA-ARS Parlier and South Dakota State University
 - 19 Blackbird experiments analyzing over 107768 images
 - Development of 14 KASP markers for lower-cost marker assisted selection
 - Genome-wide rhAmpSeq predictions developed for 37 traits including 28 disease resistance alleles
- Objective 3:
 - Establishment of experimental spray trial vineyard in Geneva, NY
 - Marker assisted selection genotyping completed on over 12,000 seedlings across participating breeding programs
 - Creation of digital presence for the project as well as branding guidelines, outreach materials, and execution of extension events (6694 impressions)
- Objective 4:
 - Completion of focus group studies and eye-tracking literature reviews

Social media roundup

Click on an image to open the post!



25 Inspiring Women in Plant Biology

May 15, 2024 by Sarah Black

In March, the [ASPB Women in Plant Biology Committee](#) asked you to nominate remarkable women who shape our field for recognition by the ASPB community. We recognize these 25 women to highlight their achievements and leadership, celebrate their impact in plant biology, and inspire future generations. We will continue to build a more equitable and inclusive plant biology community.

Distinguished Researchers



Anne Fennell
Abiotic: Light & Temperature

Dr. Anne Fennell's research on grapevine bud dormancy, cold hardiness, and chilling fulfillment has had significant impacts on the global grapevine research community. Her research focuses on *Vitis riparia* Michx., a north American species used in grapevine root stocks around the world. Anne has developed a large and diverse populations of intergenic crosses involving this species enabling genetic studies for various complex traits significant for grapevine production under stress. In addition, her group has developed genomic resources including a complete genome for a northern ecotype of this Native American species, that is used in breeding for cold hardiness. Her genuine care for the students and her willingness to go the extra mile in making sure students learn the latest and most practical information necessary are unique qualities that are highly appreciated by students. Anne strives to meet individuals where they are and open and enhance their interest in the world of plant science research. She maintains a diverse lab experience for undergraduates through postdocs with studies in *rhizosphere genetics, genomics, and bio data and emphasizes national and international*



Announcements

Contact Kate Fessler at fessl023@umn.edu to add announcements to this newsletter

Congratulations to Dr. Anne Fennell on being named on of ASPB's "25 Inspiring Women in Plant Biology"! [Click here to read more about Anne's work and the other amazing women who were honored.](#)

Breeding programs: Please remember to send any updated selection names to the database team at Cornell so they can maintain the most up-to-date version for ease of data access.

Coloring book pages (appropriate for ages 2+) and grape breeding comics (ages 5+) are now available in the VG3 Resource Drive Extension Folder! Feel free to print a stack for any and all outreach events at your institution.

VG3 postcards have been printed. Send your mailing address to fessl023@umn.edu to receive a set to hand out at your next event.

Student Spotlight: Uma Parasuram





PhD candidate in Applied Economics, University of Minnesota
Advisor: Dr. Chengyan Yue

My role within the VitisGen research team is: being part of the Grapes on the table, socio-economics team (objective 4) as a student researcher. The objective is to:

1. To understand consumer preferences for wine from disease-resistant cultivars in the context of information overloading
2. To use eye-tracking and EEG technologies to identify what information consumers pay most attention on wine/raisin/table grape labels to improve the label design for products from disease-resistant cultivars

My favorite thing about my position is: Being able to learn to use new research tools like the eye-tracker and Electroencephalography (EEG) device. Oh! and tasting new wine is always a lot of fun :)

Upcoming Conferences

Click on underlined text for more information about each event

ASEV Eastern Section Conference, July 9-11, 2024 in Cleveland, OH

In Vino Analytica Scientia 2024, July 9-12, 2024 in Davis, CA

MSU Dirt to Glass Conference, **August 22-23, 2024 in Traverse City, MI**

Sustainable Ag Expo, **November 12-13, 2024 in San Luis Obispo, CA**

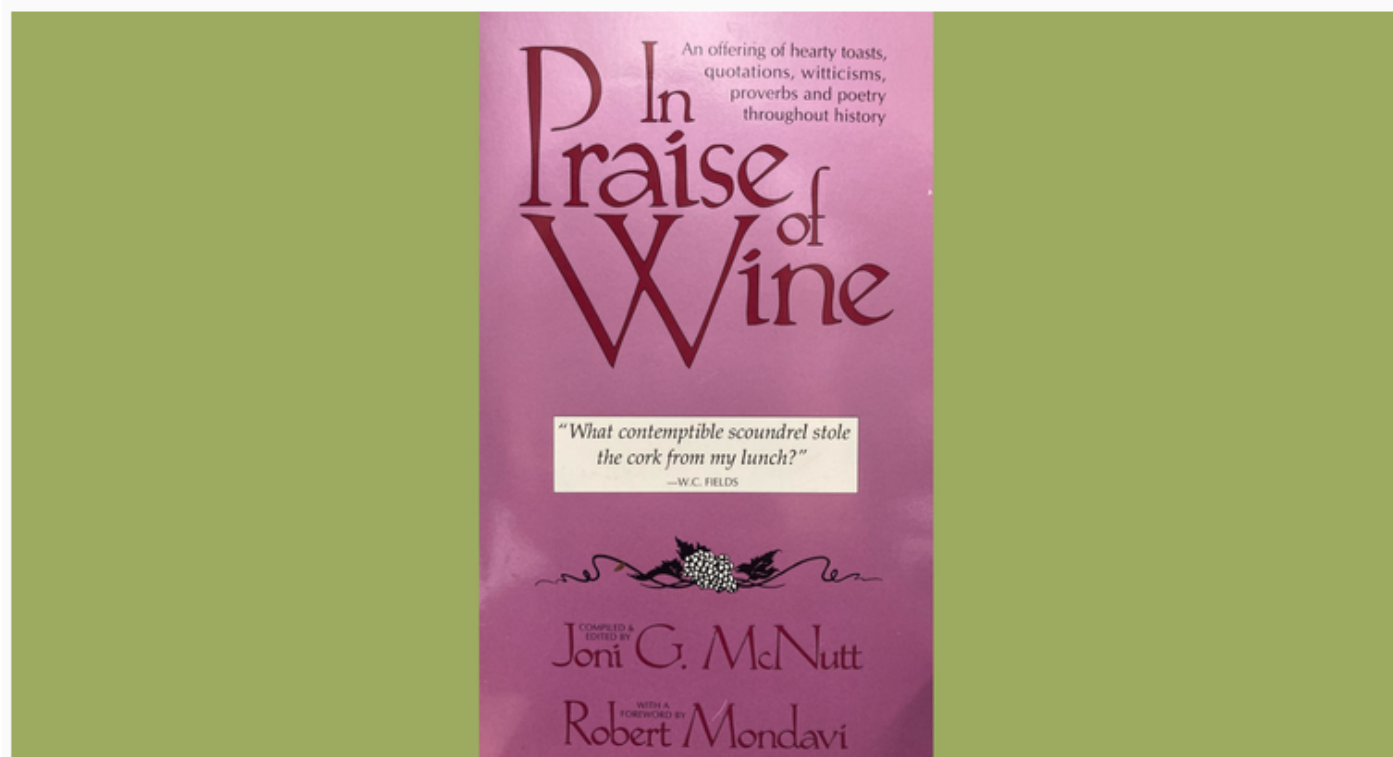
International Conference on Grapevine Physiology and Biotechnology, **December 18-19, 2024 in Barcelona, Spain**

Unified Wine & Grape Symposium, **January 28-30, 2025 in Sacramento, CA**

ASEV National Conference, **June 16-19, 2025 in Monterey, CA**

GiESCO 2025, **July 27-31, 2025 at Geisenheim University, Germany**

In Praise of Wine



Kate recently found a copy of Joni G. McNutt's *In Praise of Wine* at a secondhand shop! Please enjoy a selection from within:

"Penicillin cures, but wine makes people happy."

~Sir Alexander Fleming

English bacteriologist 1881-1955

Recent papers from VG3 PIs and Collaborators

Cantu, D., Massonnet, M., & Cochetel, N. (2024). The wild side of grape genomics. *Trends in Genetics*, S016895252400101X. <https://doi.org/10.1016/j.tig.2024.04.014>

Charles, A. P. R., Gu, Z., Archer, R., Auwarter, C., **Hatterman Valenti, H.**, Rao, J., & Chen, B. (2024). Effect of High-Tunnel and Open-Field Production on the Yield, Cannabinoids, and Volatile Profiles in Industrial Hemp (*Cannabis sativa* L.) Inflorescence. *Journal of Agricultural and Food Chemistry*. <https://doi.org/10.1021/acs.jafc.4c01668>

Gallardo, R. K., Hanrahan, I., Hong, Y. A., & Luby, J. J. (2015). Crop Load Management and the Market Profitability of 'Honeycrisp' Apples. *HortTechnology*, 25(4), 575–584. <https://doi.org/10.21273/HORTTECH.25.4.575>

Hatterman-Valenti, H., Kaya, O., Yilmaz, T., Ates, F., & Turan, M. 2024. Phenolic, Amino Acid, Mineral, and Vitamin Contents during Berry Development in 'Italia' and 'Bronx Seedless' Grape Cultivars. *Horticulturae* 10, 429. <https://doi.org/10.3390/horticulturae10050429>

Jeger, M., Beresford, R., Berlin, A., Bock, C., Fox, A., **Gold, K. M.**, Newton, A. C., Vicent, A., & Xu, X. (2024). Impact of novel methods and research approaches in plant pathology: Are individual advances sufficient to meet the wider challenges of disease management? *Plant Pathology*. <https://doi.org/10.1111/ppa.13927>

Kaya, O., **Delavar, H.**, **Shikanai, A.**, Auwarter, C., & **Hatterman-Valenti, H.** (n.d.). Assessing the Influence of Autumnal Temperature Fluctuations on Cold Hardiness in Different

Grapevine Cultivars: Variations Across Vine Age and Bud Positions. *Front. Plant Sci.*, 15.

<https://doi.org/doi: 10.3389/fpls.2024.1379328>

Liu, J., Bennett, D., Demuth, M., Burchard, E., Artlip, T., **Dardick, C.**, & Liu, Z. 2024. euAP2a, a key gene that regulates flowering time in peach (*Prunus persica*) by modulating Thermo-responsive transcription programming, *Horticulture Research*, uhae076, <https://doi.org/10.1093/hr/uhae076>

Ma, X., **Gallardo, R. K.**, Canales, E., Atucha, A., Zalapa, J., & Iorizzo, M. 2024. "Effects of the Added Sugar Labeling on Consumers' Willingness to Pay: The Case of Cranberry Products Under Different Nutrition- Related Information Treatments." *Journal of the Agricultural and Applied Economics Association*. 1–21. <https://doi.org/10.1002/jaa2.121>

Ma, X., **Gallardo, R. K.**, Canales, E., & Iorizzo, M. 2024. "Quality-related Descriptors to Increase Fresh Blueberries Purchase—Evidence from a Basket-based Choice Experiment." *Journal of the Agricultural and Applied Economics Association*. 1–20. <https://doi.org/10.1002/jaa2.118>

Medina, C. A., Zhao, D., Lin, M. ... **Sheehan, M. J.** ... et al. 2024. Pre-breeding in alfalfa germplasm develops highly differentiated populations, as revealed by genome-wide microhaplotype markers, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-4215295/v1>]

Meza, L., Deyett, E., Vallance, J., Gendre, L., Garcia, J. F., **Cantu, D.**, Rey, P., Lecomte, P., & Rolshausen, P. E. (2024). Grapevine pruning strategy affects trunk disease symptoms, wood pathobiome and mycobiome. *Phytopathologia Mediterranea*, 63(1), 91–102. <https://doi.org/10.36253/phyto-14778>

Pethybridge, S. J., Rea, M., **Gadoury, D. M.**, Murphy, S., Hay, F., Skinner, N. P., & Kikkert, J. R. 2024. Nighttime Applications of Germicidal Ultraviolet Light (UV-C) to Suppress Cercospora Leaf Spot in Table Beet. *Plant Disease*. <https://doi.org/10.1094/PDIS-12-23-2715-RE>

Petty, S., **Yue, C.**, & Watkins, E. (2024). Investigating How Nontariff Measures Impact the Turfgrass Seed Trade. *HortTechnology*, 34(4), 412-423. Retrieved Jun 25, 2024, from <https://doi.org/10.21273/HORTTECH05413-24>

Wang, Y., **Yue, C.**, Watkins, E., & Straw, C. (2024). The Driving Forces and Barriers of Golf Course Superintendents' Adoption of Precision Irrigation Technology. *Journal of Environmental Horticulture*, 42(2), 66–74. <https://doi.org/10.24266/0738-2898-42.2.66>

Wong, A. T., **Gadoury, D. M.**, & Mahaffee, W. F. (2024). Evaluation of germicidal UV-C light for suppression of grape powdery mildew and Botrytis bunch rot in Western Oregon. *Plant Disease*, PDIS-02-24-0279-RE. <https://doi.org/10.1094/PDIS-02-24-0279-RE>

Yue, C., Wang, Y., Abbey, M., Lai, Y., Smith, A. G., & Stowers, C. (n.d.). Factors Impacting Growers' Adoption of Genetically Modified and Gene Edited Crops. *Journal of Food Distribution Research*, 55(1), 62–78.

Yue, C., Cui, M., & Straw, C. (2024). Investigating the Challenges of Managing Natural Turfgrass and Synthetic Turf on Community Sports Fields. *HortScience*, 59(7), 887-895. Retrieved Jun 25, 2024, from <https://doi.org/10.21273/HORTSCI17795-24>

Zhao, D., Sapkota, M., Glaubitz, J., Bassil, N., Mengist, M. F., Iorizzo, M., Heller-Uszynska, K., Mollinari, M., Beil, C. T., **Sheehan, M. J.** 2024. A public mid-density genotyping platform for cultivated blueberry (*Vaccinium* spp.). *Genetic Resources* 5 (9), 36–44. doi: 10.46265/genresj.WQZS1824.

New to VG3? Click here to submit a profile for the website

Note: Due to privacy policies at the University of Minnesota, we are no longer able to publish student profiles on our website. Thank you for your understanding about this policy change!

Call for website contributions!

Do you have a research update to share? Some cool photos to show off? A student looking to add a byline to their CV? Email Kate Fessler at VitisGen3@umn.edu or fessl023@umn.edu