

Show Me Grape and Wine Conference and Symposium

March 9-11, 2022

Hampton Inn and Suites at the University of Missouri



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University of Missouri



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**Complimentary lunch buffet on
Wednesday, March 9 provided by**



**The Great Missouri Wine Tasting sponsored by the
Missouri Grape Growers Association and the
Missouri Wine and Grape Marketing Board**

Wednesday, March 9

11:00 A.M. **Luncheon** — Served until 12:30 p.m., University Atrium

12:30 P.M. **Conference Keynote Speaker:**

What's natural about wine?

Doug Frost, Master of Wine and Master Sommelier

Symposium

1:00 P.M. **Survey for alternate host plants of red blotch virus in Missouri vineyards**

Harper LaFond and Dean Volenberg, Grape and Wine Institute

1:20 P.M. **Impact of Grapevine leafroll-associated virus-3 and grapevine red blotch virus on yield and berry juice quality in the American grape variety Norton (*Vitis aestivalis*)**

Cooper Adams, Harper LaFond, Zhiwei Fang, Christine Spinka, Dean Volenberg, and James Schoelz, University of Missouri

1:40 P.M. **Sampling Missouri vineyards — A weed survey**

Michele Maile, Dean Volenberg, and Reid Smeda, University of Missouri

2:00 P.M. **Development of a sensitive method to detect agrobacteria causing crown gall**

Adam Uhls, Sylvia Petersen, and Wenping Qiu, Center for Grapevine Biotechnology, Darr College of Agriculture, Missouri State University

2:20 P.M. **Genetic study of grapevine rooting ability from dormant hardwood cuttings**

Jacob Schneider, Li-Ling Chen, and Chin-Feng Hwang, State Fruit Experiment Station at Mountain Grove Campus, Darr College of Agriculture, Missouri State University

Wednesday, March 9 — Symposium (continued)

2:40 P.M. From roots to shoots, the impact of grafting on *Vitis* microbiota

Joel F. Swift, Grace Trello, and Allison J. Miller, Saint Louis University;
Megan E. Hall, Donald Danforth Plant Science Center;
Zachary N. Harris, Ernest & Julio Gallo Winery;
Misha T. Kwasniewski, The Pennsylvania State University;
and Zoë Migicovsky, Dalhousie University, Canada

3:00 P.M. Break

3:30 P.M. The efficacy of selected fungicides for the control of a new wine-grape berry rot

Brogan Eyre, Zhiwei Fang, Harper LaFond, and Dean Volenberg, University of Missouri

3:50 P.M. Pre-prohibition Native American hybrid wine grapes

Whitney Ryan, Grape and Wine Institute, University of Missouri

Conference

4:15 P.M. 2022 Missouri Wine and Grape Board Highlights

Jim Anderson, Executive Director, Missouri Wine and Grape Board; and Annette Alden, Marketing Director, Missouri Wines

5:00 P.M. VESTA Resource Center and registered apprenticeships for the Industry

Bill Alter and Michelle Norgren, VESTA, Missouri State University

5:30 P.M. Break

6:00 P.M. Great Taste of Missouri Wine Tasting with heavy hors d'oeuvres until 9:00 P.M.

Hosted and sponsored by the Missouri Grape Growers Association and the Missouri Wine and Grape Board

Thursday, March 10 — Conference

8:00 A.M. Complimentary continental breakfast

9:00 A.M. Sifting and winnowing to identify fungal pathogens causing problems in Missouri vineyards

Dean Volenberg, Harper Lafond, and Zhiwei Fang, University of Missouri

9:45 A.M. Norton grapevine suppresses major grapevine viruses

Wenping Qiu, Susanne Howard, Sylvia Petersen, and Adam Uhls,
Center for Grapevine Biotechnology, Darr College of Agriculture,
Missouri State University

10:30 A.M. Break

11:00 A.M. To Pre or not to Pre? A very important question

Reid Smeda, Michele Maile, and Dean Volenberg, University of Missouri

11:45 A.M. Complimentary Lunch

1:00 P.M. Grafting in grapevines: History and future applications

Allison Miller, Saint Louis University

1:45 P.M. Educate. Energize. Engage.

Catherine Neville, Chief Curator, Hermann Farm and Museum Producer
and Host, tasteMAKERS

2:30 P.M. Break

3:00 P.M. Viruses of grapes: Separating the bad from the not so bad

James Schoelz, Cooper Adams, and Dean Volenberg,
University of Missouri

3:45 P.M. The role of grape mealybugs in spreading Grape leafroll disease in mid-Missouri vineyards

Jacob Corcoran, Biological Control of Insects Research Laboratory,
USDA — Agricultural Research Service

4:30 P.M. Adjourn

Friday, March 11 — Beginner Grape School

7:00 A.M. Complimentary continental breakfast

8:45 A.M. Welcome

Dean Volenberg, Grape and Wine Institute

9:00 A.M. Vineyard business planning

Dean Volenberg, Grape and Wine Institute

10:00 A.M. Fine-tuning site selection

Dean Volenberg, Grape and Wine Institute

11:00 A.M. Break

11:15 A.M. Successful vine establishment

Dean Volenberg, Grape and Wine Institute

12:15 P.M. Complimentary lunch

1:15 P.M. Grape insect pests and management

Dean Volenberg, Grape and Wine Institute

2:15 P.M. Grape diseases and management

Dean Volenberg, Grape and Wine Institute

3:15 P.M. Break

3:30 P.M. Managing non-bearing vines

Dean Volenberg, Grape and Wine Institute

4:30 P.M. Managing bearing vines

Dean Volenberg, Grape and Wine Institute

5:30 P.M. Questions and answers

Dean Volenberg, Grape and Wine Institute

Symposium Abstracts

Survey for alternate host plants of red blotch virus in Missouri vineyards

Harper LaFond and Dean Volenberg

Grape and Wine Institute, University of Missouri, Columbia, MO 65211

Grapevine red blotch virus (GRBV) is a recently identified virus impacting viticulture across the United States. GRBV was first confirmed in Missouri in a 2016 statewide survey in which 35% of composite samples tested positive. In 2018, we began a survey of potential insect vectors in four mid-Missouri vineyards. Recent research confirmed transmission of GRBV by two species of treehoppers, *Entylia carinata* and *Enchenopa binotata*, in a greenhouse setting. Plants in the family Asteraceae, typically herbaceous weeds are suitable hosts for *E. carinata* while Vitaceae, and woody plants are among suitable hosts for *E. binotata*. Based on the spatiotemporal data collected, potential vectors were found primarily along edge habitat surrounding vineyards. Wild *Vitis* sp. growing in vineyard peripheries have been found to be a reservoir for GRBV. Insect vectors may acquire GRBV from infected wild *Vitis* sp. and transmit the virus to cultivated vines in subsequent feedings. We conducted a survey of wild *Vitis* sp. and four species of common vineyard weeds (*Conyza canadensis*, *Ambrosia trifida*, *Ambrosia artemisiifolia*, *Solanum carolinense*) shown to be resistant to glyphosate, the active ingredient in Roundup. Leaves and petioles were collected from twelve sampling sites adjacent to cultivated vineyards, placed in a cooler and transported to the university for testing. Total DNA was extracted from the samples and tested for GRBV using standard PCR. Of the 137 wild *Vitis* sp. samples collected, 13.23% tested positive for GRBV. Interestingly, one sample of *Ampelopsis* sp., a vine in the family Vitaceae, was infected with GRBV. *Ampelopsis* sp. may be an alternate reservoir of GRBV and should be further investigated. All of the samples of the four species of weeds tested negative for GRBV indicating that GRBV may not infect species in the family Asteraceae. Further research is necessary including additional surveys of *Ampelopsis* sp. to help develop a best approach to alternate host plant and vector management.

Symposium Abstracts (continued)

Impact of Grapevine leafroll-associated virus-3 and grapevine red blotch virus on yield and berry juice quality in the American grape variety Norton/*Cynthiana* (*Vitis aestivalis*)

Cooper Adams, Harper LaFond, Zhiwei Fang, Christine Spinka, Dean Volenberg, and James Schoelz

Division of Plant Science and Technology, University of Missouri, Columbia, MO 65211

Grapevine leafroll-associated virus 3 (GLRaV3) and Grapevine red blotch virus (GRBV) are the two viruses that are considered to pose the greatest threat to grape and wine production in the United States. Both of these viruses are prevalent in Missouri vineyards, and in particular, in the variety Norton. However, most research on the impact of GRBV and GLRaV3 has been conducted in *Vitis vinifera*, and little is known about how they might affect the grape hybrids commonly grown in Missouri. In this study, we identified 10 vines infected with either GLRaV3, GRBV, or neither virus in a Norton vineyard, and compared different parameters associated with yield and vine health (cluster counts, individual berry weight, pruning weight), and berry juice quality (Brix, titratable acids [TA], pH). In measuring berry weight, Brix, TA, and pH, there were no significant differences between berry juice from vines infected with GLRaV3 and virus-free vines. By contrast, GRBV infection had a significant effect on several parameters in our study. Berries from vines infected with GRBV were significantly larger than berries from healthy vines and the TA of the juice was significantly higher. In one of the seven sampling dates, the pH of juice made from berries infected with GRBV was significantly higher than juice from virus-free berries. No significant impact on Brix was observed. We conclude that although Norton is susceptible to both viruses, this host may be tolerant to GLRaV3 infection and may be only moderately affected by GRBV infection.

Sampling Missouri vineyards — A weed survey

Michelle Maile, Dean Volenberg, and Reid Smeda

Division of Plant Science and Technology, University of Missouri, Columbia, MO 65211

Weed surveys are an important tool to periodically identify current weed species diversity and density in a crop. Surveys can then serve as a guideline for developing effective weed management strategies. A weed survey was conducted in ten Missouri vineyards across the state in fall 2021. Prior to surveying, the number of sample points was established based upon the total acreage of each block (an area of the same hybrid with similar management practices). Each sample point consisted of three, 0.25 m² areas selected at random throughout a vineyard. Each species and the number of individual plants was tallied. Across all vineyards, the two most abundant (based on percentage of sample points detected) perennials included white clover (*Trifolium repens*) (22%) and horsenettle (*Solanum carolinense*) (2.4%). Annual broadleaves included common purslane (*Portulaca oleracea*) (13%) prickly sida (*Sida spinosa*) (3.9%) and prostrate knotweed (*Polygonum aviculare*) (3.53%). Annual grasses included large crabgrass (*Digitaria sanguinalis*) (36.4%) and tall fescue (*Festuca arundinacea*) (12.3%). A total of 34 species were detected at the 10 vineyards (447 sample points), with 3.4 being the mean number of species found at each vineyard. It is likely that the species composition and density is a reflection of weed management practices. Each vineyard will be sampled again in spring 2022 to estimate winter annual weed populations.

Symposium Abstracts (continued)

Development of a sensitive method to detect agrobacteria causing crown gall

Adam Uhls, Sylvia Petersen, and Wenping Qiu

Center for Grapevine Biotechnology, Darr College of Agriculture, Missouri State University, Springfield, MO 65897

Crown gall disease leads to the decline, or even death, of affected grapevines. The disease is present in Missouri vineyards and its incidence on some grape cultivars is rising. It is caused primarily by the bacterium *Allorhizobium vitis* (formerly *Agrobacterium vitis*) that carry oncogenic plasmids. Early detection of *A. vitis* is crucial for the management of crown gall disease. We developed and tested several sets of primers designed to amplify the highly conserved VirD2 and VirD3 region of the oncogenic plasmids found in Missouri strains of *A. vitis*. We also developed DNA extraction methods from grapevine cuttings and soil that allow sensitive detection of both the oncogenic plasmid and the *A. vitis* chromosome. These methods will allow us to assess the presence of crown gall causing bacteria in cuttings from nurseries and vineyards, and also in soil before a new vineyard is established. Implementing preventive schemes of early detection of the pathogenic agrobacteria, removing bacteria-containing grapevines from vineyard sites and planting crown gall-free grapevines is most effective in reducing incidence of crown gall disease.

Genetic study of grapevine rooting ability from dormant hardwood cuttings

Jacob Schneider, Li-Ling Chen, and Chin-Feng Hwang

State Fruit Experiment Station at Mountain Grove Campus, Darr College of Agriculture, Missouri State University, Springfield, MO 65897

In the grape and wine industry, vegetative propagation by dormant hardwood cuttings is the preferred production method for large quantities of planting stock. Unfortunately, not all grapevines are easy to root via hardwood cuttings. *Vitis aestivalis*-derived 'Norton' grows natively in the Midwest and eastward to the coast. Adapted to the selection pressures of this region, it is resistant to most fungal pathogens, is cold-hardy, and possesses other traits that non-native cultivars lack. However, a significant limiting factor in 'Norton' propagation is that it is difficult to root by dormant hardwood cuttings. This results in limited availability of planting stock to meet grower needs. Breeding 'Norton' with other cultivars that are easy to root could improve this viticultural trait. For example, *V. vinifera* 'Cabernet Sauvignon' is a premium cultivar that is not adapted to the pressures of the region, yet hardwood cuttings of 'Cabernet Sauvignon' can be induced to root during dormancy. Hybrids of these two cultivars segregate for dormant rooting. Finding markers associated with quantitative trait loci (QTLs) for adventitious rooting would aid breeding efficiency and be economically significant for commercial propagation of 'Norton' grapes. Furthermore, QTLs (for rooting ability) discovered in this hybrid population may be applied to marker-assisted selection in other cultivars.

Symposium Abstracts (continued)

From roots to shoots, the Impact of grafting on *Vitis* microbiota

Joel F. Swift², Megan E. Hall³, Zachary N. Harris^{1,2}, Misha T. Kwasniewski⁴, Zoë Migicovsky⁵, Grace Trello¹, and Allison J. Miller^{1,2}

¹ Department of Biology, Saint Louis University, 3507 Laclede Ave, St. Louis, MO 63103, USA

² Donald Danforth Plant Science Center, 975 North Warson Road, St. Louis, MO 63132, USA

³ Ernest & Julio Gallo Winery, Healdsburg, CA 95448, USA

⁴ College of Agricultural Sciences Department of Food Science, The Pennsylvania State University, 326 Rodney A. Erickson Food Science Building, University Park, PA 16802, USA

⁵ Department of Plant and Animal Sciences, Faculty of Agriculture, Dalhousie University, Truro, NS, B2N 5E3, Canada

Commercially-grown grapevines (*Vitis* spp.) are typically a combination of two distinct genotypes. This is accomplished via the horticultural practice of grafting, which surgically connects the root system of one plant (the rootstock) to the shoot system of another plant (the scion). Within viticulture, grafting is used ubiquitously to confer superior performance to scions in terms of vigor, resistance to pest and pathogens, and tolerance to chalky soils. However, there remains much to be uncovered about the interaction between root and shoot systems in *Vitis*. Here, we present the results of two studies that aimed to advance our understanding of the impacts of grafting on the natural microbiota (bacteria and fungi) of the vine. We sampled the microbiota of root, berry, and leaf compartments in order to quantify grafting's impact on the vine as a whole. The first study utilized an experimental vineyard with 'Chambourcin' vines grafted to three different rootstocks. The second study utilized three commercial vineyards with multiple scion and rootstocks spread across the Central Valley of California. We show that rootstock genotype has only subtle impacts on the richness and composition of the microbiota of the vine as a whole, but compartment specific microbial taxa do show significant patterning by rootstock genotype and its interaction with other experimental factors such as irrigation. Taken together, these results indicate that rootstock choice and grafting influence the microbiota of in subtle but meaningful ways, which warrants continued exploration.

Symposium Abstracts (continued)

The efficacy of selected fungicides for the control of a new wine-grape berry rot

Brogan Eyre, Zhiwei Fang, Harper LaFond, and Dean Volenberg

Grape and Wine Institute, University of Missouri, Columbia, MO 65211

In 2015, the grape berries from the cultivar Norton from Owensville, MO, was diagnosed to be infected with an obscure fungal organism-*Pestalotiopsis*. *Pestalotiopsis* is a new pest problem in grape production and therefore fungicide labels do not include *Pestalotiopsis* within the label. In turn, grape growers encountering grape berry rot from *Pestalotiopsis* have no information on fungicide products that can control *Pestalotiopsis*. The objective of this experiment was to assess the efficacy of seven fungicides for control of *Pestalotiopsis* berry infection. An in-vivo assay was developed using detached grape berries.

Briefly, berries were surface sterilized, rinsed with ddH₂O and air dried. Each berry received five pinpricks and then submerged in a 10⁶ conidia/L *Pestalotiopsis* solution. After inoculation, the berries were air dried and then treated with one of the seven fungicides at the labeled field rate and placed onto a ddH₂O moistened filter paper placed within a petri dish. The petri dish was then enclosed within a plastic bag to maintain humidity. The petri dishes were maintained at 25 C with supplemental light providing a 14-hour photoperiod. The percent infection was evaluated after 48-72 hours by visual examination of berries, a berry was considered infected if fungal growth was apparent. The experimental design consisted of three replications with each replication containing five berries. The experiment was repeated two times. Captan, Manzate Pro-Stick and Pristine reduced infection by 100, 97, and 98%, respectively; whereas Topsin M, Sonoma, Badge, and Rhyme reduced infection by 52, 33, 18, and 13%, respectively.

Pre-prohibition Native American hybrid wine grapes

Whitney Ryan

Grape and Wine Institute, University of Missouri, Columbia, MO 65211

The purpose of this presentation is to introduce myself and provide information about lesser-known pre-prohibition native grapes that I have experience growing and making wine from. These are grapes bred or used in research by Thomas Volney Munson. They are complex hybrids bred from the native species; *V. berlandieri*, *V. rupestris*, *V. aestivalis*, *V. cinerea*, *V. lincecumii*, *V. labrusca*, and the European species *V. vinifera*. Like Chambourcin, they were selected from many generations of breeding and have inherited characteristics of as many as seven different species. I will include slides describing the qualities and challenges of growing and producing wine from each of them. I will explain the parentage of the varieties I can find that information for. I will also talk about the opportunities to explore new wine styles like, low alcohol, pet nat, terroir driven, and natural wines by using these native grapes. Possibly, leading to appealing to new consumers. Having a broader pallet of grapes to choose from also gives the opportunity to naturally achieve desirable characteristics and complexity by cofermenting or blending.

Special Thanks

to the Missouri Wine and Grape Board Technical Committee for their support of many of the symposium research projects presented.

Missouri Wine and Grape Board Technical Committee Members

Jon Held — Technical Committee Chairperson, Stone Hill Winery

Dave Baker — Assistant Dean Emeritus and Associate Professor Emeritus, CAFNR,
University of Missouri

Eli Bergmeier — Crown Vineyards

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Rick Ryan — Apertus Pharmaceuticals

Bill Sadler — Sadler's Natural Solutions

Sarah Schmidt — Missouri Wine and Grape Board Member, Baltimore Bend Winery

Notes

Conference Speakers — Wednesday

Keynote — What's natural about wine?

Doug Frost, Master of Wine and Master Sommelier

Doug Frost is a Master of Wine and Master Sommelier as well as an author and wine consultant based in Kansas City, Missouri. Frost is one of three individuals in the world to hold simultaneously the Master of Wine and Master Sommelier titles, achieving his MS in 1991 and MW in 1993.

In 1991, he passed the rigorous Master Sommelier examination and two years later became America's eighth Master of Wine. He was the second person in history to complete both exams and more than a quarter century later he is still one of only three people in the world to have achieved both these remarkable distinctions.

According to *USA Today*, "Frost likely knows as much as anyone in the world about how to make, market, serve and identify wines."

The *Wine Spectator* has bestowed the accolade of Master of Spirits on Mr. Frost. In 2006, Frost — along with partners Dale DeGroff, Steve Olson, Paul Pacult, Andy Seymour, and David Wondrich — created BAR (Beverage Alcohol Resource), a spirits and cocktail educational organization; *Cheers Magazine* selected BAR and its founders as Innovators of the Year for 2007. Frost was awarded Beverage Innovator of the Year 2009 by *Cheers Magazine*. He continues to teach and examine for BAR and within the Master Sommelier and Master of Wine programs. In the past, Frost was a fine wine wholesaler and importer for fourteen years and represented many of the best wineries and estates from America and the world.

His first book, *Uncorking Wine*, was released in the summer of 1996, and Frost's second book, *On Wine*, published by Rizzoli International, was released in the fall of 2001. The *Washington Post* called it "fabulous, witty, engaging and wise... conveys more accumulated wine wisdom than most books 10 times as thick." Frost's most recent book, *Far From Ordinary: The Spanish Wine Guide*, was released in October 2005; the third edition was released in 2011. He is a contributing editor for the upcoming *Oxford Companion to Spirits and Cocktails*, due to be released in 2022.

Frost is also a contributor to the *Oxford Companion of Wine*, *Opus Vino*, *The World Atlas of Wine* by Hugh Johnson, *Lonely Planet Wine Trails*, *The Wine Report* (edited by Tom Stevenson), and the *Sotheby's World Wine Encyclopedia*. He has written about wine and spirits for many publications, including the *San Francisco Chronicle*, the *Underground Wine Journal*, *Arts Culinaire*, *Drinks International*, *Feast Magazine*, *Fine Cooking*, *Fine Wine*, *HER Life*, *Practical Winery & Vineyard*, *Wines & Vines*, *Wines & Spirits*, *Cheers Magazine*, *Sante Magazine*, *Hemispheres Magazine*, *Missouri Life*, *Sommelier Journal*, *Epicurious.com*, *Le Pan*, and the *Kansas City Star*.

Frost is the creator and host of the KCPT-TV hosted short series called *FermentNation*; the show has won two Mid-American Regional Emmy® Awards, in 2015 and 2017. His previous



Conference Speakers — Wednesday (continued)

TV show, *Check Please, Kansas City*, was also nominated for a Mid-American Regional Emmy® Award. He appears as a featured judge on Public Television's *The Winemakers*, PBS's first nationally broadcast reality show. After 15 years, Frost continues as United Airlines global wine and spirits consultant, selecting tens of thousands of cases of wines and spirits each year for service aboard the world's most important worldwide carrier.

He is the founder and director of the Jefferson Cup Invitational Wine Competition, a 21-year-old national competition. He consults with many retailers, restaurateurs, wineries and distillers in the realms of marketing, merchandising, sales, education and sensory perception. Frost lives with his wife and two children in Kansas City, where he spends his spare time listening to his massive punk rock, vintage jazz and weird music collection.

2022 Missouri Wine and Grape Board Highlights



Jim Anderson, Executive Director, Missouri Wine and Grape Board

Jim Anderson has led the Missouri Wine and Grape board as Executive Director for more than 20 years. During his years at the helm, Anderson has overseen the expansion of Missouri wineries from 28 to 127. As Wine and Grape Board director, his duties are to coordinate and support the wine and grape program in Missouri, which aims to guarantee long-term sustainability in the industry. His overall goal is to have a resourceful program that assures quality wine and juice products, and serves to stimulate growth of a viable grape and wine industry in Missouri.



Annette Alden, Marketing Director, Missouri Wine and Grape Board

Annette Alden has served as the Missouri Wine and Grape Board marketing director since 2016. She finds fulfillment in supporting wineries across the Show-Me state and enjoys sharing her passion and the stories behind Missouri wine with the people she encounters. During her tenure with the program, she has overseen the launch of the MVP loyalty incentive program, curated events with key partner organizations and set up an influencer outreach program to promote Missouri wines to a broader audience.

Conference Speakers — Thursday

Identification and diagnosis of grape bunch rots

Dean Volenberg, Viticulture Extension Leader, Grape and Wine Institute



Dr. Dean Volenberg cut his teeth on cold-climate viticulture in the far reaches of Wisconsin. During his tenure in Wisconsin, Volenberg established three replicated cultivar trials in three different USDA plant hardiness zones. In the far northern zone trial, the objective was to learn which cultivars would survive and produce grapes in extreme cold temperatures ranging from -45 to -50 °F. Further, Volenberg helped establish the Wisconsin Grape Growers Association and over his eight-year tenure in Wisconsin, the Wisconsin wine industry grew from 40 wineries to more than 120. Currently, Volenberg is the extension program specialist for viticulture and winery operation at the Grape and Wine Institute at the University of Missouri. Volenberg's current research program is focused on applied and hypothesis driven discovery of pests that have economic implications for Eastern United States grape growers. Volenberg was first to confirm the

presence of Grapevine Red Blotch virus (GRBV) in Missouri. These results led to a statewide survey of grapevine viruses. Further research on GRBV is surveying potential insect vectors of the virus. His extension program is multifaceted with attention focused on fungal and viral pests and their management.

'Norton' grapevine suppresses major grapevine viruses



Wenping Qiu, Director and Research Professor, Center for Grapevine Biotechnology, Darr College of Agriculture, Missouri State University

Dr. Wenping Qiu is a research professor in the W. H. Darr College of Agriculture, Missouri State University. Qiu directs the Midwest Center of the National Clean Plant Network-Grapevine that provides virus-tested clean American and hybrid grape cultivars to the Midwest grape and wine industries. His research group focuses on understanding the molecular and genetic basis underlying Norton's disease resistance. His team discovered grapevine vein clearing virus (GVCV), the first DNA virus of grapevines, unveiled natural reservoirs of GVCV, and found the insect vector responsible for spreading GVCV. Qiu and his team

found that Norton and Chambourcin grapevines are resistant against GVCV. He and his team bred a new grape cultivar from a Norton-Cabernet Sauvignon cross. A new style of wine has been made from this new cultivar and well received in tastings. Qiu has mentored many students over the years, training them in plant science and biotechnology along with transferrable skills necessary for a successful career.

Conference Speakers — Thursday (continued)

To Pre or not to Pre? A very important question

Dr. Reid Smeda, Plant Sciences Professor, University of Missouri



Dr. Reid Smeda is a professor in the Division of Plant Sciences at the University of Missouri. His responsibilities include teaching weed science courses for undergraduate and graduate students. His research program encompasses: a) biology and management of problem weed species in agronomic crops; b) physiology and mechanism(s) for weed species resistant to herbicides; c) control of invasive species in non-crop and industrial vegetation management habitats; and d) response of horticultural crops to off-target movement of herbicides. Smeda has an active graduate education program, having trained over 30 MS and PhD students. This has led to more than 75 peer-reviewed publications, as well as numerous book chapters.

Grafting in grapevines: History and future applications

Allison Miller, Biology Professor, Saint Louis University, and Principal Investigator, Danforth Plant Science Center



Dr. Allison Miller is a professor in the Department of Biology at Saint Louis University and a member and principal investigator at the Danforth Plant Science Center. She is a research associate at the Missouri Botanical Garden. Since September 2021, she has served as the director for the NSF-funded New Roots for Restoration Biology Integration Institute. Miller's research program focuses on understanding evolution and plasticity in perennial (long-lived) crops and emerging perennial candidates for domestication. The long-term goals of her work are to improve existing perennial crops and to develop new ones to support sustainable agricultural systems. Ongoing projects focus on grapevines, perennial, herbaceous grasses, legumes, and sunflower relatives. Originally from the Chicago suburbs, Miller became passionate about plants

through trips to nearby prairie patches and summer vacations in northern Wisconsin. She earned BS and MS degrees in botany from Miami University in Oxford, Ohio, and Colorado State University respectively, and holds a PhD in Ecology, Evolution, and Population Biology from Washington University in St. Louis. She completed postdoctoral training at the University of Colorado Museum. Miller lives in St. Louis, Missouri, with her husband and two children. More information is available on the Miller Lab website (www.perennialplantdiversity.org) or on twitter (@ajmiller4233).

Conference Speakers — Thursday (continued)

Educate. Energize. Engage.

Catherine Neville, Chief Curator, Hermann Farm and Museum, and Producer and Host, tasteMAKERS



Catherine (Cat) Neville is an award-winning creator. She has launched a number of food media platforms during her 20-year career and today is the curator at Hermann Farm, working build the 200-acre historic site into a national-level farm museum and gathering place to support and promote the food, farming and beverage industries. She is also producer and host of Emmy-nominated and M.F.K. Fischer Prize-winning tasteMAKERS, a food-focused television series that debuted on PBS stations nationwide in October 2018. The show explores the maker movement from coast to coast and is distributed through American Public Television. Neville has served as a judge for the James

Beard Foundation's restaurant and journalism awards and has been a member of the Association of Food Journalists, American Society of Magazine Editors, the National Association of Press Women and Les Dames d'Escoffier.

As founder and publisher of Feast Magazine, she grew the regional publication's monthly readership to over 250,000 since its 2010 launch. Feast and Field, a national expansion of Feast Magazine, debuted in March 2021, engaging a broad audience in the evolving conversation about food and drink. She was producer and host of Feast TV, which aired on public television stations across the Midwest for seven seasons. The series won eight regional Emmy Awards between 2013 to 2018. In 2016, Feast was awarded the Navigator Media Award by the Missouri Department of Tourism as well as Media Outlet of the Year by the Kansas City Restaurant Association. In 1999, Neville co-founded Sauce Magazine and oversaw its evolution for a decade until selling her interests in 2010. Feast and Sauce each received nominations for James Beard journalism awards under her direction.

In 2021, tasteMAKERS was nominated for an Emmy Award in the Outstanding Culinary Series category and was awarded the M.F.K. Fischer Prize. In 2015, Neville was named one of Folio's Top Women in Media in the Entrepreneur category. Neville was awarded Lee Enterprises President's Award for Innovation twice and won an Eddie Award in 2014 for feature writing and was also named Media Person of the Year by the Missouri Restaurant Association. She was named one of St. Louis' 30 Under 30 by the St. Louis Business Journal in 2005.

Conference Speakers — Thursday (continued)

Viruses of grapes: Separating the bad from the not so bad

James Schoelz, Plant Sciences Professor, University of Missouri



Dr. James Schoelz is a professor in the Division of Plant Sciences and Technology at the University of Missouri. He received his PhD degree in plant pathology at the University of Kentucky and subsequently worked as a postdoctoral associate at Cornell University before joining the faculty at the University of Missouri in 1987. His primary teaching responsibility is in teaching Introductory Plant Pathology. Schoelz has an active research program focused on how plants recognize and defend themselves against plant virus infections, as well as how plant viruses cause symptoms in their hosts. He has over forty years of experience working on diseases caused by a variety of plant viruses.

The role of grape mealybugs in spreading Grape leafroll disease in mid-Missouri vineyards

Jacob Corcoran, Biological Control of Insects Research Unit Scientist, USDA-ARS



Dr. Jacob Corcoran moved to Missouri in February 2020. He earned his doctorate in New Zealand, studying the chemical ecology of agricultural pest insects. He then worked as a research scientist at Lund University in Sweden, where he expanded his research into the molecular aspects of the insect olfactory system. After that he returned to the US to work for the USDA-Agricultural Research Service in Corvallis, Oregon, where he applied his skillset to combating insect pests of vineyards and berry farms. He is currently working as a scientist for the USDA-ARS in the Biological Control of Insects Research Unit in Columbia, Missouri, where his research focuses on developing new technologies to control and monitor agricultural pest insects.



Grape and Wine Institute

University of Missouri

On behalf of the Grape and Wine Institute, I would like to thank all of you for attending the 2022 Show Me Grape and Wine Conference and Symposium. A lot has happened in the past two years, and I am excited about moving the Missouri grape and wine industry forward into the future. I consider myself fortunate to have such a great group of individuals within GWI and the state of Missouri to bring to you the latest research occurring within the Missouri grape and wine industry. We have several industry professionals joining us as well as those just joining the grape and wine industry. The conference venue provides an opportunity for all of us to learn something from each other. The speakers, the vendors, and you the attendees, we are all here as one collective to build community and help build our industry. Take the initiative to reach out to speakers, vendors and other attendees — be amazed and open to learning something new. Special thanks to all our speakers and vendors for making the 8th Show Me Grape and Wine Conference and Symposium a success. Thanks to the Missouri Wine and Grape Technical Committee for your continued support.

Dean Volenberg
Viticulture Extension Leader

Conference and Symposium Venue

Hampton Inn & Suites — Columbia (at the University of Missouri)

1225 Fellows Place, Columbia MO 65201

Phone: 573-214-2222 or 800-426-7866

Cross Streets

The Hampton Inn & Suites at the University of Missouri is on the corner of College Avenue (Rock Quarry Road) and Stadium Boulevard.

I-70 exits

East: Highway 63 (exit 128A)

West: Stadium Blvd (exit 124)

Directions from US-63

Take US-63 to Stadium Blvd., then turn west into downtown. Travel to College Avenue (Rock Quarry Road) and turn left. The hotel is on your immediate right.

From Lambert-St. Louis International Airport (STL)

Take I-70 West to US-63 South. Distance from hotel: 112 miles.
Drive time: 1.75 hours.

From Kansas City International Airport (MCI)

Take LP Cookingham Drive to I-435 East to I-70 East. Travel I-70 East to US-63 South. Distance from hotel: 150 miles. Drive time: 2.25 hours.

From Columbia Regional Airport (COU)

Take Airport Road to Highway H. Turn left, travel to US-63 North to Stadium Blvd. Distance from hotel: 12 miles. Drive time: 15 minutes.