Session 1

8:30  Deacclimation rates of cultivated and wild grapes in controlled environment. Al Kovaleski, Horticulture, Cornell NYSAES, and Jason Londo, USDA-ARS Grape Genetics Research Unit.
8:45  Epidemiology of Grapevine red blotch-associated virus. Elizabeth Cieniewicz, Marc Fuchs, Plant Pathology & Plant Microbe Biology, NYSAES, Cornell, and Keith Perry, Plant Pathology & Plant Microbe Biology, Cornell.
9:15  Does taste physiology matter in marketing? The influence of innate characteristics and consumer product expertise on wine purchasing decisions. Jie Li, PhD Candidate in Applied Economics and Management; Miguel I Gomez, associated professor in Applied Economics and Management
9:45  Evaluating ‘Concord’ vineyard suitability for variable rate management implementation... Cain Hickey, Terry Bates, and Rhiann Jakobowski, Horticulture, Cornell Lake Erie Research and Extension Laboratory
10:00 Break

Session 2

10:30  The genetic architecture of grapevine leaf morphology. Elizabeth Demmings, Bruce Reisch, Cornell, NYSAES, Dan Chitwood, Donald Danforth Plant Science Center; Cheng-Ruei Lee, National Taiwan University; and Jason Londo, USDA-ARS GGRU
10:45  Saccharomyces cerevisiae Strains Identified in Uninoculated Riesling Fermentations in the Finger Lakes Region. Marie Guido-Miner, Anna Katharine Mansfield, Food Science, and Jenny Kao-Kniffen, Horticulture, Cornell
11:00  An Improved Understanding of the Etiology and Management of Sour Rot. Megan Hall, Plant Pathology & Plant Microbe Biology, NYSAES Greg Loeb, Entomology, NYSAES, Cornell, and Wayne Wilcox, Plant Pathology & Plant Microbe Biology, NYSAES
11:15  Palissage: An Alternative to Mechanical Hedging in Vinifera Vineyards. Justin France and Dr. Justine Vanden Heuval, Horticulture, Cornell University
11:30  Pre-fermentation Removal of Proteins Increases Tannin Extraction. Gavin Sacks, Lindsay Springer, Lei-An Chen, Food Science
11:45  Winery Sustainability Practices and the New Workbook. Chris Gerling, CALS Food Science, Patricia Donahue, David Fister, Eugene Park, Rochester Institute of Technology
12:00 Lunch – On Your own or Conference Buffet with Keynote speaker (preregistration required)

Session 3

14:00  Promotional video for Grape Extension Teams. James Monahan, Finger Lakes Grape Program and Tim Martinson, Horticulture, NYSAES
14:30  Effect of copper oxidation state in the ability of copper fining treatments to release hydrogen sulfide during storage. Rachel Allison & Gavin Sacks, Cornell University, Food Science
14:45  Climate Smart Farming: Introduction to Decision Tools. Luke Haggerty, Lake Erie Regional Grape Program, Cornell Coop Extension
15:00  Northern Grapes: Five years of field studies with Marquette and Frontenac. Alex Koeberle and Tim Martinson
Talk Summaries
CRAVE 2016
November 2, 2016
ILR Conference Center

Session 1

8:30  Deacclimation rates of cultivated and wild grapes in controlled environment. Al Kovaleski, Horticulture, Cornell NYSAES, and Jason Londo, USDA-ARS Grape Genetics Research Unit.

Ecodormant buds are highly responsive to heat. Current predictions for climate change suggest an increase in winter temperature variability. Understanding species' responses to temperature can aid in breeding efforts to prevent winter damage. Deacclimation rates were measured through LTE measurements. V. vinifera and V. aestivalis had the lowest deacclimation rates, V. riparia was intermediate, and V. amurensis had the highest deacclimation rate.

8:45  Epidemiology of Grapevine red blotch-associated virus. Elizabeth Cieniewicz, Marc Fuchs, Plant Pathology & Plant Microbe Biology, NYSAES, Cornell, and Keith Perry, Plant Pathology & Plant Microbe Biology, Cornell.

Red blotch is a viral disease of Vitis spp that reduces fruit quality and threatens vineyard profitability. Its causative agent, Grapevine red blotch-associated virus (GRBaV), is the type member of a new genus tentatively named Grablovirus in the family Geminiviridae. Understanding the transmission of GRBaV is critical to disease management. The purpose of this research is to evaluate the role of Spissistilus festinus, the three cornered alfalfa treehopper in spread of GRBaV.


We calculate benefit-to-cost ratios of Federal Government investments in Grape National Clean Plan network centers in New York and California. Preliminary results indicate high rates of returns to these investments.

9:15  Does taste physiology matter in marketing? The influence of innate characteristics and consumer product expertise on wine purchasing decisions. Jie Li, PhD Candidate in Applied Economics and Management; Miguel I Gomez, associated professor in Applied Economics and Management

Consumers preferences and tastes are constantly changing, and their food and beverage choices are influenced by many factors. On the one hand, extensive consumer research indicates that consumer product expertise, or learned experience, plays an influential role in determining their choices and shopping behavior. On the other hand, the food science literature suggests that consumer taste physiology, an inherited trait that remains stable over time, also contributes to heterogeneous food preferences. To understand to what extent are our preferences and behaviors learned and to what extent are they innate, we conducted a field experiment in wineries to examine how consumer heterogeneous taste physiology and wine expertise influence purchasing behavior, particularly when wine description cues are presented.


The VitisGen project, funded in 2011 by the USDA-NIFA Specialty Crop Research Initiative (Award No. 2011-51181-30635), was a five-year multi-institution collaboration to bring the power of Next-Gen DNA sequencing technology to grapevine improvement efforts in the United States. Grape industry surveys and scientist-stakeholder workshops repeatedly identify three traits of high importance to U.S. grape growers for cultivar improvement: powdery mildew resistance, cold tolerance, and fruit quality. This long-term project provided cutting-edge molecular marker technologies; rigorous centralized facilities to characterize traits; and molecular breeding expertise to grape breeders across the country. A selection of the project’s key accomplishments will be reviewed.

Variable rate management is a general term that refers to differential vineyard management strategies that have been prescribed by precision viticulture maps. For example, vine capacity may be increased in “small-vine” vineyard sections if weed management and/or crop thinning are differentially intensified in those sections. Not all vineyard blocks are suitable for variable rate management, however, and this is particularly true if the production variation is small and lacks structure. Canopy, soil, and crop data will be used to describe plans for variable rate management implementation using case study vineyards from the Lake Erie ‘Concord’ region.

10:00   Break

Session 2

10:30   The genetic architecture of grapevine leaf morphology. Elizabeth Demmings, Bruce Reisch, Cornell, NYSAES, Dan Chitwood, Donald Danforth Plant Science Center; Cheng-Ruei Lee, National Taiwan University; and Jason Londo, USDA-ARS GGRU

Leaf shape plays important roles in water use, canopy structure, and physiological tolerances to abiotic stresses. Historically, researchers have used ampelography, the study of leaf shape in grapevines, to differentiate Vitis species and cultivars based on finite leaf attributes. However, these individual measurements do not comprehensively illustrate the entirety of leaf shape. We used digital image analysis to reconstruct grapevine leaves from five interspecific mapping families. We used these digitally reconstructed leaves in QTL analyses to identify regions of the grapevine genome that control several different aspects of leaf shape. Based on our results, we plan to develop molecular markers for marker-assisted breeding of leaf morphology and to provide a genetics-based tool to differentiate Vitis species.


Spontaneous fermentations are increasingly popular in wine production, but little is known about the native yeast populations that drive these fermentations. This ecological survey of the native microflora of Riesling grapes in the Finger Lakes region is a preliminary investigation of the possible existence of distinct microflora, specifically Saccharomyces cerevisiaeÂ strains,Â which contribute to regional wine characteristics. In 2015, single-vineyard Riesling wines were followed through harvest and spontaneous fermentation at two wineries in the Finger Lakes.Â Over 15 unique yeast species were identified, with the S. cerevisiae being a mix of commercial and unknown strains. This regional microbiome study adds to our understanding of New World yeast populations.

11:00   An Improved Understanding of the Etiology and Management of Sour Rot Megan Hall, Plant Pathology & Plant Microbe Biology, NYSAES Greg Loeb, Entomology, NYSAES, Cornell, and Wayne Wilcox, Plant Pathology & Plant Microbe Biology, NYSAES

Sour rot is a disease affecting grapes in cool-climate viticulture regions. The visual and olfactory symptoms, which are characteristically associated with the discoloration of the berry skin and the smell of acetic acid, were first reproduced in the lab in 2014, in which healthy berries were wounded, inoculated with Saccharomyces cerevisiae and Acetobacter aceti, and exposed to D. melanogaster adults. In field trials conducted on interspecific hybrid cv. ‘Vignoles’ in 2013-16 in the Finger Lakes region of New York, when both insecticide and antimicrobial treatments were applied together, sour rot development was significantly reduced. In 2015, untreated vines averaged 20.5% sour rot severity, which was reduced by 73-81% on vines treated prophylactically post-veraison with weekly sprays containing a combination of the insecticide zeta-cypermethrin (Mustang MAX) plus the antimicrobial potassium metabisulfite or hydrogen dioxide (Oxidate 2.0).
11:15  **Palissage: An Alternative to Mechanical Hedging in Vinifera Vineyards**  *Justin France and Dr. Justine Vanden Heuval, Horticulture, Cornell University*

Hedging grapevines is a common canopy management practice in Northeast vineyards. Hedging can manipulate vine vigor, yield, fruit composition, wine quality, winter hardiness, and canopy microclimate. Although mechanical hedging is common practice in many vineyards, it is criticized as being a "Band-Aid solution" to vine vigor because it may stimulate lateral growth, resulting in a cycle of hedging and leaf removal that costs growers time and money. Palissage is a new canopy management tool that can potentially replace traditional mechanical hedging. Instead of hedging, long shoot tips are tucked or wrapped horizontally along the top of the canopy. Anecdotally, growers report that palissage initiated earlier cessation of shoot growth during the growing season and the technique reduced or eliminated the need for leaf removal in the fruiting zone due to fewer laterals.

11:30  **Pre-fermentation Removal of Proteins Increases Tannin Extraction.**  *Gavin Sacks (Food Science), Lindsay Springer (Food Science), Lei-An Chen (Food Science)*

Grape proteins can limit extraction of tannin during fermentation, as well as retention of exogenous tannins added post-fermentation. To evaluate if protein removal could enhance tannin extraction, we used four different techniques (bentonite, cryo-extraction, heating, and tannin addition) to remove protein from must prior to fermentation. Although all four techniques resulted in a significant decrease in protein, only bentonite increased tannin extraction into the final wine.

11:45  **Winery Sustainability Practices and the New Workbook.**  *Chris Gerling, CALS Food Science, Patricia Donahue, David Fister, Eugene Park, Rochester Institute of Technology*

Modeled after the success of the VineBalance program, the extension enology lab partnered with RIT’s Pollution Prevention Institute to come up with a book to support sustainable practices in the winery. After a couple of years of data collection and writing, the book is now in an advanced draft form. The next challenge is winery adoption and adaptation as well as developing an optimal format to promote use and further data collection.

12:00  Lunch – On Your Own, or Conference Luncheon with Keynote speaker (preregistration required)

**Session 3**

14:00  **Promotional video for Grape Extension teams.**  *James Monahan, Finger Lakes Grape Program and Tim Martinson, Horticulture, NYSAES*

The grape PWT special projects fund has supported a 6 minute promotional video highlighting grape and wine extension programs throughout the state. Jim Monahan, videographer has put together a rough cut of this video, which we will show.

14:15  **"The Perception Sauvignon Blanc Aroma: Defining Quality".**  *Terry Acree, Food Science, Geneva*

14:30  **Effect of copper oxidation state in the ability of copper fining treatments to release hydrogen sulfide during storage.**  *Rachel Allison & Gavin Sacks, Cornell University, Food Science*

Volatile sulfur compounds can be remediated when they are formed during winemaking, but the release of reduced aromas in-bottle from unknown precursor forms has led to various theories for formation in-bottle. Copper fining treatments using CuSO4 to remove excessive hydrogen sulfide and other thiols have been demonstrated to result in very high levels of residual copper in wines, as well as producing wines that can later evolve sulfur-life off-aromas. Using a reduced form of copper (Cu(I) vs. Cu (II)) for copper fining treatments, it is proposed that more stable copper-sulfide complexes will form, and that they will not regenerate H2S or other thiols during simulated storage.
14:45  Climate Smart Farming: Introduction to Decision Tools.  Luke Haggerty, Lake Erie Regional Grape Program, Cornell Coop Extension

The Climate Smart Farming Extension Team established the first CSF Extension Team in the nation to provide resources related to economic development, grapes, dairy, small fruits, vegetables, integrated pest management, field crops, and soil health issues - answering farmers’ questions about climate variability and farm management. Climate Smart Farming tools, practices, and training programs are being developed to encourage wider adoption of climate change adaptation and mitigation practices to sustainably increase farm productivity and incomes.

15:00 Northern Grapes: Five years of field studies with Marquette and Frontenac.  Alex Koeberle and Tim Martinson

Over five years of the Northern Grapes Project, high cordon training has outperformed mid-wire cordon and umbrella kniffen training for Marquette and Frontenac grapes.  Downward shoot positioning on high cordon with rake wires was compared to shoot combing and cluster-zone leaf removal for improving light exposure to the fruiting zone.  Exposed clusters have lower titratable acidity and higher soluble solids than shaded clusters.

15:15 End.