

LERGP Crop Update

October 27, 2016



Building Strong and Vibrant New York Communities

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.



Tuesday, March 14, 2017- Annual Winter Grape Grower Conference

Wednesday, March 15, 2017- Shaulis Symposium

March seems like a long time from now, but it will be here before we know it!

We will be having our Winter Grower Conference on Tuesday, March 14th, followed the very next day(Wednesday, March 15) by a one day Shaulis Symposium. This Symposium will consist of topics addressing Vineyard Efficiency, such as; Precision Viticulture, Variable Rate Management, and Mechanization. We also hope to tie the two meetings together with dinners on both Tuesday and Wednesday evenings. These events are in the early planning stages, more information will become available as plans are confirmed.

Business Management

Kevin Martin, Penn State University, LERGP, Business Management Educator

2016 Harvest in Review

On the business side of things, 2016 was another challenging year. From a yield perspective, yields are slightly above average. For the most part, vines were able to compensate enough to overcome most weather related challenges.

The large majority of the crop, marketed through Cooperatives, saw increases in harvest advance prices. We continue to expect those prices to remain low, but there is no indication they'll fall as low as the cash market bottom.

The cash market is still being held up by the continued growth in wine consumption. The slow growth has allowed prices to remain significantly higher than forecasted. While the average performance of the industry was a bit



Figure 1: Ted Taft tending bin for the CLEREL harvest. Photo by Luke Haggerty

better than we thought, the isolated challenges for specific growers became worse. Wine grape prices for natives other than Concord were actually up a bit. Since some of those varieties did have an average crop this year, it has helped some of the diversified growers as well. It remains less likely that this boost will continue.

A significant reduction in use of native grapes for juice actually resulted in the value of Concorde increasing from 2016. Cash market prices for grapes specifically used in juice continued to decline. Low prices led to some additional acre reductions. Reduced tonnage contracts and low prices just make production non-economical for growers without healthy marketing contracts.

As this challenging market continues the likelihood that the impact could be permeant against the region as a whole becomes more likely. This isn't just unfortunate news for some long time grape farmers. As this market remains in surplus the possibility of long-term reduction in acreage becomes greater. Overall, that long-term reduction will weaken our industry and our ability to compete as a region. The market continues to send enough mixed messages to make it clear that challenges will continue into 2017. However, predicting the precise direction of a trend would be premature. As much as we get bad news, we also get good news.

Cultural Practices

Luke Haggerty, Viticulture Extension Associate, Lake Erie Regional Grape Program

Late Season Rains Help the 2016 Sweet Concord Crop Reach Near Average Yields

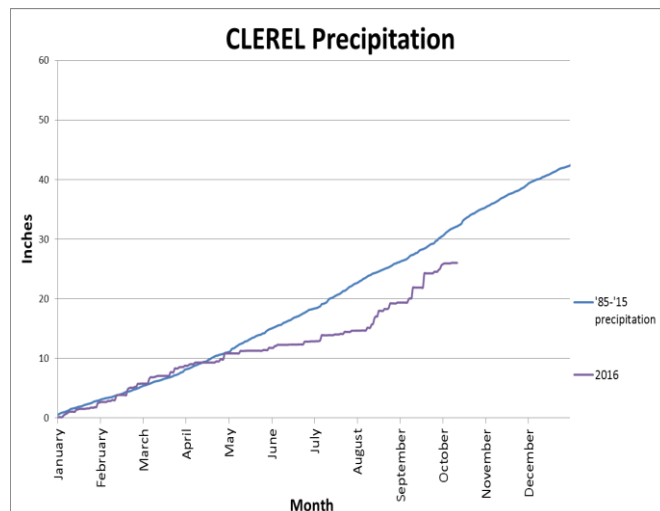
For all Lake Erie grape growers, 2016 was one of the hottest and driest growing seasons on record. Many area vineyards showed water stress symptoms at some point between bloom and veraison. Very timely rains, starting around veraison, increased vine health and berry size pushing this year's Concord crop very close to the 10 year average. The hot, dry weather contributed to a very sweet crop. With brix averages in the upper 16's to mid-17's and some reports above 18, 2016 will go down as one of the sweetest crops in recent history.

Minor Spring Frost Event. A mild winter and a warm March jumpstarted a relatively early deacclimation process that brought many frost concerns to the Lake Erie region.

Temperatures fell below freezing on April 26th causing isolated bud freeze/frost damage to parts of Cattaraugus County, Erie County and the northeastern part of Chautauqua County. For growers in these areas the damage was severe. However the impact from the frost damage was isolated, and the majority of the region escaped this frost event.

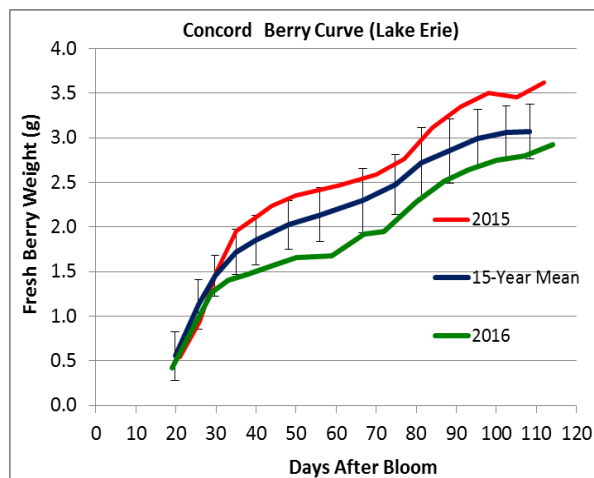
Drought. For all Lake Erie grape growers, it has been an extremely dry season. Most of the region received less than ten inches of rain for the months of May, June, July, and August combined. As the growing season progressed into late August and early September, the area started to receive timely rains.

CLEREL Precipitation:



2016 precipitation levels compared to the 30 year average

Small berries and large crop contribute to average Concord crop. For much of the season the lack of water was having a great impact on berry size. During the dry portion of the season, berry weight was 20% below average. Late season rains increased berry size to within 8% of average by the time harvest started.



Berry Curve: From mid-season on, Concord berries were 0.2-0.5 g lighter than the long-term average.

Late Season Weed Management

As harvest comes to a close, it signals the time of year where you can reflect on how the season went. Fall is an excellent time to see how your vineyard weed management program worked, as well as being one of the best times to accurately identify weeds (for weed ID, you cannot beat the book *Weeds of the Northeast* by Uva, et. al.). While it is too late to do anything about the annual grasses and broadleaves that appeared out of nowhere once we actually got rain, it is not too late to look at starting your pre emergence program for next year. Always check the label of potential herbicides to make sure they are labeled to control the weeds (this is where proper weed id comes in) that you are trying to control. There are two materials that require a good amount of moisture to move them into the soil profile where they can be effective in preventing the germination of weed seeds. Both Alion and Solicam are persistent in the soil and can be applied in the fall. This helps to ensure that the required moisture from rain and snow melt is available to get the herbicides where they need to be.

The Alion label states that best weed control is obtained when Alion herbicide is applied to a dry soil surface followed by 48 hours without rain (or irrigation), and then followed by adequate moisture from rain (or an irrigation event) within 21 days.

Both labels (Alion and Solicam) state that weed control activity may be reduced if the herbicide is applied to dense weed growth or to soil covered in heavy crop (shelled berries?) or weed debris that prevent a uniform distribution of the product reaching the soil. So, check out the vineyard floor before making plans on spraying either of these products. If you have a barrier between the application nozzle and the vineyard floor you will have to either come up with a plan to remove weed growth and/or debris or change your weed management strategy to one that does not include a fall application of pre emergent herbicide.

Alion herbicide should only be used in established vineyards (at least three years after the vines have been planted and exhibiting normal growth and good vigor). Ensure that the grapes have 6 inches of soil barrier between the soil surface and the major portion of the root system prior to using Alion or injury may occur. Alion also should not be used in soils classified as having a texture of sand or those with greater than 20% gravel content. The application rate for Solicam is very dependent on soil texture. Make sure you know the percentage organic matter of your soil (should be available with your last soil test results). Check the label to determine the appropriate rate for your soil. The Solicam label states that the soil should be free of depressions around the grapevines where rain (or snowmelt) can concentrate. Rainfall (or snowmelt) is required to move Solicam DF into the soil profile. Be careful with both products as they have statements that you cannot exceed the maximum rate of application per year (i.e., 12 month period, not in a calendar year like in January – December 2016). If you have made an application in 2016, check the date and ensure that you do not reapply within that 365 day period.

The extended forecast does not look like we will be losing all of our leaves in the near future, but the warmer weather being forecasted has brought some questions about using systemic post emergent products (glyphosate materials) for perennial weed control. Keep in mind that while fall is a great time to use these products, they do not differentiate between the green tissue of a weed and the green tissue of the grapevine. In the fall the vine is moving carbohydrates into the root system so a mistake at this time of year can lead to damage next spring. You can attack perennial weed problems by careful application of a directed spray of your chosen glyphosate material to the weed and avoiding contact with green grapevine tissue. Or, you can wait until the leaves have all fallen from the vine and then apply the herbicide. While post emergent fall herbicide applications can be a great tool under the right conditions, I would recommend that you always err on the side of caution when implementing this practice.



Proudly Representing
Diversified
Crop Insurance Services



Helping farmers to protect their revenue and preserve their equity.

I will show you how crop insurance is a vital part of your overall risk management plan. Utilizing the policy that works best for your unique situation, you can take less risk and enjoy a better quality of life.

Mark C. Muir Agency
Mark C. Muir

Serving clients in NY, OH, and PA
10509 Route 6 • Union City, PA 16438-9707
Phone: (814) 397-0033

DCIS - Toll Free: (866) 669-3429 • Email: info@diversifiedservices.com | Diversified Crop Insurance Services is a company of CGB Enterprises, Inc. and is an Equal Opportunity Provider. #6398_030416



Commercial Driver's License (CDL) Training for Agricultural Producers and Employees

**3-day classroom training (20 hours) followed by
individual scheduled drive-time (20 hours for Class B or
25 hours for Class A)**

**Tuesday, November 29, Wednesday, November 30, and
Thursday, December 1, 2016**

**3:00 pm to 9:00 pm each of the three days &
the morning of Friday, December 2 (to apply for permit)**

To be held at Erie 2-Chautauqua-Cattaraugus BOCES, 2615 North Maple Road, Ashville, NY.

This CDL training (Class A or B License) is being organized by Cornell Cooperative Extension of Chautauqua County and will be taught by CDL instructors from Erie 2-CC BOCES, Ashville, NY.

The cost of the training is \$1,125.00 per person for Class B or \$1,250.00 for Class A, which includes the classroom training and the individual drive-time (scheduled individually following the classroom training and after obtaining the CDL permit). The cost of the CDL permit, road test and DOT physical will be an additional cost paid by each participant. Each person should also bring their dinner, beverages, and snacks each day.

To register for this CDL Training, please contact Lisa Kempisty, Cornell Cooperative Extension Educator at 716-664-9502 Ext. 203 or lj4@cornell.edu to request an application and additional details.

Please Note: Registration will be accepted on a first-come first serve basis (maximum of 12 participants) by date payment is received. Full payment must be received at Cornell Cooperative Extension of Chautauqua County, 3542 Turner Road, Jamestown, NY 14701 by November 15th to participate in this CDL training program. Once payment is received, additional details will be provided regarding the DOT physical which is required before the first day of class on November 29th.



NATURAL RESOURCES
CONSERVATION SERVICE
United States Department of Agriculture



Cornell University
Cooperative Extension



Cover Crop and Soil Health Workshop and Tour 11/4/16

- | | |
|--|---------------------|
| • Registration at Big Flats Community Building
@ Town of Big Flats Municipal Campus | 9:30 am – 10:00 am |
| • Speakers at Big Flats Community Building | 10:00 am – 12:15 pm |
| • Lunch | 12:15 pm – 1:15 pm |
| • Speakers (Cont.) at Big Flats Community Building | 1:15 pm – 1:45 pm |
| • Travel to Big Flats PMC | 1:45 pm – 2:00 pm |
| • Tour of Cover Crop Plots Big Flats PMC | 2:00 pm – 3:30 pm |

Bryan Emmett- Cornell University, Horticulture Section, Graduate Student in Laurie Drinkwater's lab, *Peering into the black box: the effects of plant genotype and agricultural management on the soil microbial community*

Quirine Ketterings- Professor, and **Sarah Lyons**, Graduate Student, Cornell University Dept. of Animal Science, Nutrient Management Spear Program; *Dilemmas and Solutions for Planting and Harvesting Winter Cereals Grown as Double Crops in Corn Silage or Sorghum Rotations.*

Heather Karsten- Penn. State University Dept. of Plant Science, Associate Professor of Crop Production/Ecology; *Comparing Red clover, and Hairy Vetch/Triticale mixture as green manures between winter wheat and corn: yields, weed control and economics.*

Sjoerd Duiker- Penn. State University Dept. of Plant Science, Associate Professor of Soil Management and Applied Soil Physics; *The utilization of annual forage species for grazing within cropping systems and their impact on soil health.*

Lunch (12:15 - 1:15)

Paul Salon- USDA-NRCS Soil Health Division; NE Region Soil Health Specialist. *The demonstration of cover crop calculator for systematic approach for developing cover crop mixes.*

Travel to the Big Flats Plant Materials Center (1:45 - 2:00)

Shawna Clark - (2:00 - 3:30) - USDA-NRCS, Plant Materials Center Manager, *National Adaptability Trial on Cover Crop Cultivars*; and **Paul Salon** NE Region Soil Health Specialist- *Tour of cover crop demonstration plots at Big Flats PMC, which includes a planting demo (species, varieties or mixes); some seeded at several seeding dates. Red clover seeded into corn at time of planting crop. Red clover seeded into cultivated corn. Corn seeded into rolled rye.*

****For more information and to register, click on the link below or copy and paste the URL**

<https://goo.gl/forms/LHr8KjjUnGwNNQtD2>

**For additional information contact paul.salon@ny.usda.gov or by calling 607-562-8404, ext. 103.

This is a field tour let us know if you have require any special accommodations.

Please bring \$10.00 to cover the cost of lunch, exact change would be appreciated.

Certified Crop Advisor and NY DEC pesticide credits applied for.

Directions to: Big Flats Community Building (476 Maple Street Big Flats, NY 14814):

Take Route 17 (I 86) to Exit 49 (from west make right off ramp, from east make left). At "T" make left. At the 4-way stop, continue straight about 100 yds. On right hand side, you will see a **sign Town of Big Flats Municipal Campus Community Building**.

USDA is an equal opportunity provider, employer and lender. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, 1400 Independence Ave., S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD)



CRAVE 2016

November 2, 2016

ILR Conference Center



Session 1

- 8:30 Deacclimation rates of cultivated and wild grapes in controlled environment. *Al Kovalski, 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.*
- 9:00 Assessing the Economic Impact of National Clean Plant Network-Grape Centers. *Jason Troendle, Leslie Verteramo, and Miguel Gomez, Applied Economics & Management, 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*
- 9:30 The SCRI VitisGen project (2011-2016): A final report. *B.I. Reisch, Cornell, NYSAES, L. Cadle-Davidson, USDA-ARS GGRU, E.M. Demmings, Cornell, NYSAES, and the VitisGen Team*
- 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*
- 14:15 "The Perception of 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*
- 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.

9:00 Assessing the Economic Impact of National Clean Plant Network-Grape Centers. *Jason Troendle, Leslie Verteramo, and Miguel Gomez, Applied Economics & Management, Cornell.*

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.

9:30 The SCRI VitisGen project (2011-2016): A final report. *B.I. Reisch, Cornell, NYSAES, L. Cadle-Davidson, USDA-ARS GGRU, E.M. Demmings, Cornell, NYSAES, and the VitisGen Team*

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.

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.*

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.

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.*

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 cerevisiae* strains, 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. 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 acetii*, 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-like 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 acid and soluble solids than shaded clusters.

15:15 End.



The Only FRAC Group U6 Fungicide
 Labeled for Grapes & Cucurbits
 Highly Effective on Powdery Mildew
 No Cross-Resistance
 Protectant / Preventative Action



FRAC Group 3
 Labeled for Grapes
 Controls Powdery Mildew & Black Rot
 Protectant + Curative Activity
 Highly Systemic



Badge X₂ 
 Fungicide/Bactericide
 High Quality Copper
 Excellent Mixing Characteristics
 Highly Active at Lower Rates
 Enhanced Crop Safety



Mite control on Grapes
 Knockdown and Residual

Dave Pieczarka
 315.447.0560



Torino® is a registered trademark of Nippon Soda Company, LTD. EPA Reg No 80333-103-10163. Mettler®, Badge® SC, Badge® X₂ are registered trademarks of Isagro USA. Mettler EPA Reg No 80289-8, Badge SC EPA Reg No 80289-3, Badge X₂ EPA Reg No 80289-12. NeXter is a trademark of Nissan Chemical Industries. EPA Reg No 81880-4-10163. Always read and follow label directions.



10401 Sidehill Road
 North East, PA 16428
 814-725-3102
www.cloverhillsales.com



Harvester Parts and Belting
 Southern Yellow Pine Posts
 And So Much More!!

Brookside Society
 of Professional Consultants

DAVID J. MAILLE
 Consultant
 Phone: (814) 898-0755
 Cell: (814) 572-5781
maillcon@aol.com

MAILLE CONSULTING SERVICES
 Agricultural-Environmental

Jared Mosier
 Phone: (301) 512-3977
jmosier1@gmail.com
 7653 Dutton Rd.
 Harborcreek, PA 16421

LERGP Website Links of Interest:



Cornell Lake Erie Research & Extension Laboratory Facebook page
<https://www.facebook.com/Cornell-Lake-Erie-Research-and-Extension-Laboratory-678754995584587/?fref=ts>

SCRI project web-site:
<https://www.efficientvineyard.com/>

Table for: Insecticides for use in NY and PA:
<http://lergp.cce.cornell.edu/submission.php?id=69&crumb=ipm|ipm>

Crop Estimation and Thinning Table:
http://nygpadmin.cce.cornell.edu/pdf/submission/pdf65_pdf.pdf



Appellation Cornell Newsletter Index:
<http://grapesandwine.cals.cornell.edu/cals/grapesandwine/appellation-cornell/>

Veraison to Harvest newsletters:
<http://grapesandwine.cals.cornell.edu/cals/grapesandwine/veraison-to-harvest/index.cfm>

Go to <http://lergp.cce.cornell.edu/> for a detailed calendar of events, registration, membership, and to view past and current Crop Updates and Newsletters.

**BOLD.
POWERFUL.
NARROW.**

THE NEW T4F AND T4V SERIES TRACTORS COMBINE A BOLD NEW STYLE WITH MORE POWERFUL FEATURES IN A STREAMLINED DESIGN THAT'S IDEAL FOR NARROW ROWS.

Introducing the new face of narrow tractors from the world's leading supplier of narrow tractors: New T4F and T4V Series narrow tractors. A sleek new look, enhanced ergonomics, advanced driver safety and powerful new hydraulic options.

- Powerful, responsive and efficient 4 cylinder, 207 cu. in. engines up to 93 PTO hp
- Choice of open platform, standard Blue Cab™ or new Blue Cab™ 4 with cab level 4 protection (meets European Standards for filtration and pressurization EN 15695-2:2009 and EN 15695-1:2009)
- Large rear hitch lift capacity up to 4,400 lbs

Larry Romance & Son Inc
2769 Rt 20 - Box 38
Sheridan, NY 14135
(716) 679-3366
www.LarryRomanceandson.com

© 2016 CNH Industrial America LLC. All rights reserved. New Holland is a trademark registered in the United States and many other countries, owned by or licensed to CNH Industrial N.V., its subsidiaries or affiliates.



Lake Erie Regional Grape Program Team Members:

Andy Muza, (ajm4@psu.edu) Extension Educator, Erie County, PA Extension, 814.825.0900

Tim Weigle, (thw4@cornell.edu) Grape IPM Extension Associate, NYSIPM, 716.792.2800 ext. 203

Kevin Martin, (kmm52@psu.edu) Business Management Educator, 716. 792.2800 ext. 205

Luke Haggerty, (llh85@cornell.edu) Grape Cultural Practices, 716.792.2800 ext. 204

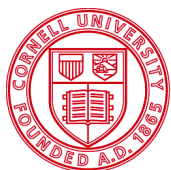
This publication may contain pesticide recommendations. Changes in pesticide regulations occur constantly, and human errors are still possible. Some materials mentioned may not be registered in all states, may no longer be available, and some uses may no longer be legal. Questions concerning the legality and/or registration status for pesticide use should be directed to the appropriate extension agent or state regulatory agency. Read the label before applying any pesticide. Cornell and Penn State Cooperative Extensions, and their employees, assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsements of products are made or implied.

Cornell University Cooperative Extension provides equal program and employment opportunities.

Contact the Lake Erie Regional Grape Program if you have any special needs such as visual, hearing or mobility impairments.

CCE does not endorse or recommend any specific product or service.

THE LAKE ERIE REGIONAL GRAPE PROGRAM at CLEREL
6592 West Main Road
Portland, NY 14769
716-792-2800



Cornell University
Cooperative Extension



College of
Agricultural
Sciences