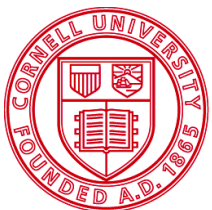


LAKE ERIE REGIONAL GRAPE PROGRAM- *Vineyard Notes*



Harvest Wrap up Edition 2015

November 2015



Cornell University
Cooperative Extension

PENNSTATE



College of
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Sciences

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SAVE THE DATE:

Tuesday, March 22, 2016

The LERGP Annual Winter Grower Conference will be held at the Williams Center at SUNY Fredonia.

More information will follow as it develops.

~ March 2016 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13 Daylight Saving Time Begins	14	15	16	17 Saint Patrick's Day	18	19
20 Spring begins (Northern)	21	22 LERGP Annual Winter Grower Conference	23	24	25 Good Friday	26
27 Easter	28	29	30	31	Notes:	

Downloaded from WritCalendar.com. More Calendars: 2016 Excel Calendar, PDF Calendar.



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ANNOUNCEMENT:

Lake Erie Regional Grape Program Leads \$6M USDA Project in Precision Viticulture

Cornell University research into precision viticulture will get a \$6 million federal funding boost towards a project that gives grape growers access to digital maps detailing the health of their vineyards at a level never before achieved.

Led by Terry Bates, director of the Cornell Lake Erie Research and Extension Lab in the College of Agriculture and Life Sciences (CALS), the project focuses on bringing precision agriculture technology to the juice, wine, raisin, and table grape industries in the U. S.

The grant from the USDA's Specialty Crop Research Initiative (SCRI) will fund research over four years to develop and implement digital mapping technology for use by growers of various scales cultivating all grape species.

The project uses a suite of mobile sensors that measure conditions related to the soil, canopy and crop. Software developed by the project team crunches thousands of data points to produce digital maps layered with information detailing specific conditions.

The maps give farmers and vineyard managers an unprecedented vantage point to compare sections within their vineyards. Armed with that information, growers will be able to address areas of weakest productivity and significantly enhance their ability to predict crop size, yield, and quality across their entire vineyard.

Bates said that in the past even sophisticated growers have been unable to adequately determine vineyard health at a spatial level. By creating a visual representation of a vineyard, the new technology allows underperforming sections to be spotted, giving growers the information they need to make targeted approaches to decrease variability and increase productivity.

Growers already have the tools needed to improve crop health, from fertilization to pruning techniques, Bates said. Now, growers will have data needed to spot areas of lagging productivity, and inform their decision on how best to deploy resources.

"Visually they start to see areas of their vineyard that are not producing as well, and where it's costing them money," said Bates. The project aims to increase yield by 20 percent, and decrease the variability across sections by 30 percent.

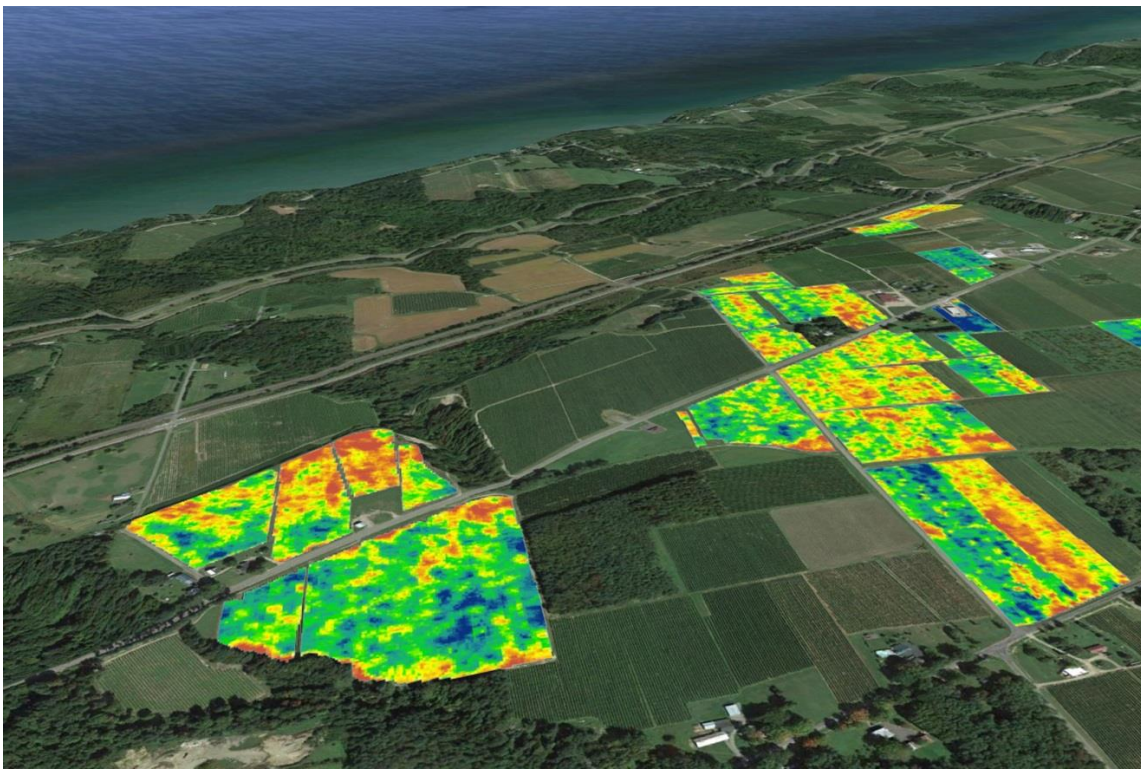
The project is the top priority of the National Grape and Wine Initiative, a national grower-led entity whose membership includes all grape crops, spanning farms of all sizes in all grape producing states. Cornell researchers are joined by Carnegie Mellon, Penn State, Newcastle University, and U.C. Davis on this nationwide project.

"On behalf of the College of Agriculture and Life Sciences, I would like to thank Senator Schumer and Senator Gillibrand for their support of this incredibly important initiative that will bolster New York's juice and wine grape businesses by integrating new technology with existing practices for improved production efficiency," said Kathryn J. Boor the Ronald P. Lynch Dean of the College of Agriculture and Life Sciences. "This project is yet another

example of the vital research and extension work initiated in New York that has nationwide impact on local food systems and regional economies.”

It is unusual for a project of this magnitude and national scope to be awarded to, and managed by, a relatively small regional program in western NY. “We have an excellent project and a talented research and extension team,” Bates commented, “but without the support of the industry groups, university administration, and legislative representatives, we would not have secured funding.” Bates specifically pointed to the support of N.Y.S. Senator Catharine Young, who not only supported the USDA proposal but was also instrumental in building the Cornell Lake Erie Research and Extension Laboratory in Portland, NY.

Western NY boasts one of the largest juice grape production regions in the world growing over 30,000 acres of Concord and Niagara grapes for Welch’s and other juice processors. It is also one of the fastest growing wine regions with 24 wineries in the Lake Erie Wine Trail and 22 wineries in the Niagara Wine Trail.



Concord vineyards along the shore of Lake Erie overlaid with spatial sensor canopy data. In this case, blue areas show vines with strong growth and high production and red areas show problem areas of poor growth and production. In conjunction with other spatial data layers, such as soil and yield maps, vineyard managers can develop variable rate management plans for their vineyards to reduce variation and improve production and fruit quality.

Concord Crop Average Despite Winter Injury; Niagara Crop Reduced

*Luke Haggerty, Viticultural Extension Associate & Kevin Martin, Extension Farm Business Management Associate
Lake Erie Regional Grape Program*

For all Lake Erie grape growers, 2015 has been a year of extremes. We had a very cold winter, extremely wet June and July, and a dry August, September and October. All of these climatic events resulted in a Concord crop with great variability, but once averaged out, one that fell just shy from the 10 year average.

Winter cold event. The past two years, the Lake Erie region harvested near-record Concord crops, and with exceptional growing conditions in 2014, there were high hopes of another bumper crop this year. Optimism shifted to worry on February 16, when low temperatures fell from -17°F to -30°F throughout the region and to some extent inflicted freeze damage to all grape varieties.

Bud mortality assessment. In response, the Lake Erie Regional Grape Program assessed over 15,000 grape buds for damage and found a large range of primary bud mortality ranging from 10% to 80%. Hardest hit Concord vineyards were either in low line areas that have a tendency to hold excess water or vineyards with health issues. A representative bud assessment for every Concord block within the area is not feasible, therefore efforts were made to educate growers how to examine their own grape buds for freeze damage.

Growers Modify pruning Practice. To compensate for this type of damage, many growers left more buds than they typically do. A survey of 161 growers who attended Coffee Pot meetings in 2015 showed that 63% of growers used Extension information to assess 2015 freeze damage and modify their viticulture plan (adjust pruning levels). And 36% of growers used Extension information to conduct their own on-farm assessment of bud survival. Growers who were able to accurately estimate bud damage adjusted pruning levels accordingly.



Berry weight was above average for the 2nd year in a row

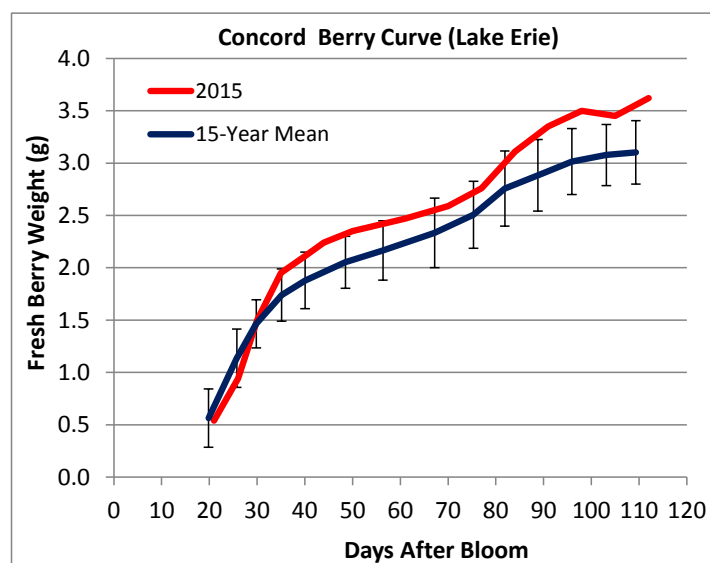
Large berries and more buds contribute to average Concord crop. As a result of the bud compensation efforts, most Concord vineyards produced larger crops than those pruned before the winter damage. Another contributing factor to this year's crop was the large berry size. Much like last year, fresh berry weight was significantly larger than the 15 year average. Results from the Lake Erie Concord berry curve showed average berry weights above 3.5 grams... those are big berries! Although these contributing factors helped push Concord production to near average, they were not enough to make much of a difference to the freeze damaged Niagara crop.

Production. Compared to last year's bumper Concord crop, production was down approximately 14% and near average. Niagara totals were slightly below average last year due to winter injury in 2014, but this year's freeze damage caused production to fall a staggering 45%. The winter damage caused moderate to severe trunk injury in most Niagara vineyards, and this could take up to three years to rehabilitate back to full production.

Markets and prices. The demand for bulk and retail grape juice remains largely unchanged. As established by prior market cycles, the demand curve for grape juice is particularly inelastic. The 2015 harvest is the first year low prices will really transfer to the majority of grape growers. In 2014 low prices were limited to a few processors. The larger story was the effort to reduce supply through a number of contract cancellations and contract reductions. In 2015 cancellations were relatively minimal, but prices will be significantly lower.

Average cash market prices for juice growers will be below \$150 per ton. Average cash market prices for ConCORDs used in wine production may be slightly above \$200 per ton. The range for wine grape ConCORDs is \$100 - \$275 per ton. With the discrepancy in prices between markets, there would be more room for average price declines in 2016. That will depend on how markets move the supply over the next eight months.

The fiscal health of all Cooperatives remains significantly stronger than the last period of declining Concord prices. We have seen large declines in cooperative payments, and payment schedules vary significantly among cooperatives. Those schedules will impact the length of time growers are subject to lower prices. At the very least, we may see these low prices impacting grower cash flow into 2020.



Concord berry curve. *From mid-season on, Concord berries were 0.2-0.5 g heavier than the long-term average. Dr. Terry Bates*

Cover Crop Project: “Using Cover Crops to Improve Soil Health and Vine Productivity in Intensively Managed ‘Concord’ Vineyards”

Luke Haggerty

As a perennial crop, grape production implicates many practices that deplete soil health and overtime decrease or limit vine productivity. A majority of the vineyards in the Lake Erie grape region have been in production for over 50 years, with an intense regiment of management practices leading to a range of soil health problems. To combat problems like soil compaction, some growers are turning to cover crops as a floor management practice.

The New York Farm Viability Institute awarded a grant to the Lake Erie Regional Grape Program (LERGP) titled “Using Cover Crops to Improve Soil Health and Vine Productivity in Intensively Managed ‘Concord’ Vineyards”. With this funding, we are measuring how planting different cover crop mixes affects soil health and vineyard productivity over the course of two years. Although cover crops are not new to area vineyards, our program wants to analyze what is happening above and below ground in order to provide research-based recommendations for cover crop seed mixes in Concord vineyards.

In this project we are teaming up with area growers currently using cover crops in order to measure possible benefits in different seed mixes. The focus of this project is to collect physical, chemical, and biological measurements, soil compaction, vine size, and noxious weed data and identify cover crop mixes that have a benefit to Concord production.



Evaluation of Replant Practices in Lake Erie Region Vineyards

Luke Haggerty

The process of replanting missing vines is a task all grape growers will have to endure at some point. Extremely low temperatures in 2014 and 2015 inflicted winter injury on many grape cultivars throughout the Lake Erie region, New York State, and elsewhere in the northeast. With the need to replace dead and damaged vines, we are evaluating different methods of replant practices based on vine performance and cost effectiveness. Results will identify survival rates, growth performance, and labor costs. From this information we will be able to identify replanting best practice for area grape growers. During the 2015 growing season, we timed five different replant methods and collected data on vine performance. We will be collecting data on these vines until they are in full production.

Vineyard NDVI Sensing

Luke Haggerty

The NDVI sensing efforts expanded again this year with 45 area growers participating allowing the project to cover a total of 720 acres. With this information we look for patterns within a block that indicate where vine vigor (size) is relatively small or large. If desired, the canopy sensor data can then be calibrated to an actual vine size by taking pruning weight measurements within the block. The SCRI grant awarded to Dr. Bates will allow advancements in this technology (above information). Other practical uses of NDVI include targeted crop estimation, soil and petiole sampling or identifying production-limiting factors in the low vigor areas; which will lead to solutions on how to remedy these issues.

We are planning to offer NDVI sensing for area growers during the 2016 season. However, we also plan to have extra NDVI sensor units at CLEREL to lend to interested growers so they can collect NDVI information while spraying or conducting other viticultural practices. Growers who want to participate are encouraged to talk to the LERGP extension team.

Winter Damage and Bud Assessment

Luke Haggerty

The Lake Erie grape region experienced a second extremely cold winter. As the region went into the deep freeze with minimum temperatures ranging from -17°F to -30°F, there were efforts to gauge the extent of the damage. With ‘all hands on deck’ the LERGP team cut into over 20,000 grape buds to assess the damage. It was clear there was damage, but it seemed to vary from block to block. Area growers were encouraged to conduct their own assessments. From surveys at coffee pot meetings, we found that 63% of growers used Extension information to assess 2015 freeze damage and modify their viticulture plan (leaving more buds at pruning). Also, 36% of growers used Extension information to conduct their own on-farm assessment of bud survival. At harvest it was evident that compensation efforts made by growers paid off.

Frost Prevention: KDL

Tim Martinson (Senior Extension Associate), Luke Haggerty, Hans Walter-Peterson (Finger Lakes Grape Program Extension Associate)

Spring frost after bud burst can cause losses to grape growers as there are very few ways of protecting tender green tissues in the spring. KDL, a potassium salt-based material has shown promise as a material that can protect from freeze injury when applied within 24-48 hours of a frost event. Chemical company AgroK supplied KDL product and funding to assess the effectiveness of their product against frost. Twenty five vineyard blocks in New York and Pennsylvania were flagged for control, and treatment sections and area growers were ready to spray at a moment’s notice. In the Lake Erie region, forecast predicted below freezing temps, and two trial plots were sprayed; one block showed symptoms of frost injury. The results showed no difference. However, a treated vineyard in the Finger Lakes region showed moderate effects. We will continue this project in 2016.

Educational Programming

LERGP Extension Team - Tim Weigle, Andy Muza, Kevin Martin and Luke Haggerty

A total of 1,005 grape growers and members of the Lake Erie grape industry participated in 26 LERGP educational events during the 2015 growing season. These events included weekly Coffee Pot meetings (17), Hops Conference (2), CORE Pesticide Training, Winter Grape Grower Conference, Twilight meetings (2), New Grower Workshop, meetings in conjunction with Farm Credit and Farm Bureau, as well as the annual meeting held in conjunction with the Erie County PA Hort Society at Gravel Pit Park in North East, PA.

Members of the LERGP Extension Team provided 1,217 phone and on-site consultations on IPM, business management and viticulture practices to growers. In addition, the team conducted implementation and applied research projects in the commercial vineyards of 47 cooperating growers.

Funding Source: Chautauqua, Cattaraugus, Erie and Niagara County Cooperative Extension Associations in New York, Erie County Extension Association in Pennsylvania, National Grape Cooperative, Constellation Wine, Walker's Fruit Basket, Cornell and Penn State Universities and NY Ag & Markets.

Coffee Pot Survey

LERGP Extension Team - Tim Weigle, Andy Muza, Kevin Martin and Luke Haggerty

A survey of 161 growers who attended Coffee Pot meetings in 2015 was taken to help the LERGP team identify effectiveness, interest, and awareness of programming provided.

Highlights include:

- 80% of Growers report an understanding of cash flow. Growers reporting not understanding their cash flow situation decreased throughout the year. By the end of coffee pot meetings 70% were not concerned about medium term cash flow issues.
- 82% of growers report making strategic operational changes in the last three years. Nearly 30% report increasing the size of their vineyard operations.
- Growers identified Extension as the single most important source of information when making operational changes that relate to vineyard profitability.
- Over 60% of growers carry recommended levels of crop insurance to manage weather related risks.
- Almost 70% of growers use NEWA. 65% of growers using NEWA report an increase in net profits.
- 62% of growers are following Cornell and IPM recommendations by using a multifaceted approach to Grape Berry Moth Control. That approach includes the Risk Assessment Protocol, NEWA and/or experience.

- Only 29% of growers have recent experience in cover crops. 30% are interested in using cover crops.
- 63% of growers used Extension information to assess 2015 freeze damage and modify their viticulture plan. As recommended by extension 36% of growers used Extension information to conduct their own on-farm assessment of bud survival.
- 75% of growers report that production practice costs and grape market updates is critical to their operation given current challenges. Coffee Pot meetings, crop updates and newsletters focused heavily on these issues in 2015.

Funding Source: Chautauqua, Cattaraugus, Erie and Niagara County Cooperative Extension Associations in New York, Erie County Extension Association in Pennsylvania, National Grape Cooperative, Constellation Wine, Walker's Fruit Basket, Cornell and Penn State Universities and NY Ag & Markets.

Alternative Management Materials for Grape Rootworm

Tim Weigle, Greg Loeb, Elson Shields and Tony Testa

Grape rootworm, *Fidia viticida* (Walsh), was once considered to be the primary insect pest of grapes in the eastern United States. Feeding on the roots of the vine by the larvae can lead to significant reductions in vine vigor and even death of the vine in as little as three years in heavy infestations. The introduction of the pesticide DDT has been credited with bringing this pest under control in the vineyards of the Lake Erie Region of New York. Grape rootworm is making a comeback in Lake Erie vineyards, reducing vine size and yield. Having dropped from the designation of a primary pest, NYS grape growers found they had only one choice for labeled insecticides to combat this pest. In conjunction with Greg Loeb, Professor, Department of Entomology, NYSAES, two replicated spray trials using 4 insecticides currently registered for use on grapes in New York State were conducted in grower vineyards with grape rootworm populations during the 2014 growing season. The results of these trials were used to apply for, and receive, FIFRA 2ee recommendations for Admire Pro, Danitol, Leverage 360 and Sniper. In 2015 the project looked pest biology (when do the adults show up and how long are they present) and the timing, and effectiveness, of insecticide applications using the FIFRA 2ee materials.

In a separate experiment, a potted vine study using entomopathogenic nematodes provided by Elson Shields Lab was undertaken at CLEREL. Five replications of four treatments (three combinations of three different nematode species and a control) were applied to the pots in early June to allow them to become established before the grape rootworm were added in July. Each pot was “seeded” with 25 adult grape rootworm captured during evaluations of the above mentioned spray trials. The pots were destructively sampled for the presence of grape rootworm larvae in October and we were surprised to find no grape rootworm larvae present in any of the pots, including the controls.

Funding Source: Lake Erie Regional Grape Research and Extension Program, Inc. and NYS Wine & Grape Foundation

State Cooperative Agricultural Pest Survey (CAPS)

Tim Weigle (NYS IPM Program and LERGP), Kim Knappenberger (LERGP), Alice Wise (CCE Suffolk County,) Hans Walter Peterson (Finger Lakes), James O'Connell (Hudson Valley Lab) and Marc Fuchs (NYSAES, Geneva)

For the fifth straight year grapes were selected for inclusion in the State Cooperative Agricultural Pest Survey. The purpose of this survey is to protect New York State's ability to freely export agricultural commodities. By trapping for potential invasive species that have been found in other areas of the United States, or that have the potential to make their way into New York from foreign soils, we compile the negative data necessary to ensure that we are not shipping a targeted invasive species with a commodity from a specific region. The 2015 grape commodity survey was conducted in conjunction with Cornell Cooperative Extension's NYS IPM Program and Grape Programs in the main growing regions of New York State; Lake Erie, Finger Lakes, Long Island and the Hudson Valley. Traps were placed in vineyards and nursery blocks starting in early July in all regions and were serviced biweekly for a total of 6 visits. The four target moths involved in the survey are: European Grapevine Moth, Summer Fruit Tortrix Moth, European Grape Berry Moth, and Egyptian Cotton Leafworm. 328 traps were deployed in 29 vineyards total; 5 in the Hudson Valley, 7 in Long Island, 12 in the Finger Lakes Region and 5 in the Lake Erie Region. In addition, traps were deployed in 2 nursery blocks. New in 2015, traps were deployed in Long Island and Finger Lakes vineyards for vine mealybug, a potential vector for grape viruses. Once again, a visual inspection for Australian Grapevine Yellows and Flavescence doree was conducted in the same vineyards and nurseries used to conduct the Grape Commodity Survey (GCS). Leaves were collected from participating vineyards and nursery blocks and submitted to the March Fuch's lab for testing to determine the presence/absence of a myriad of viruses.

CALS-CCE Summer Intern Project

Tim Weigle and Greg Loeb

Once again, we were able to secure funding for a CALS-CCE Summer intern to participate in grape and hops research at the Cornell Lake Erie Research and Extension Laboratory. Nathan Watson spent his time as intern examining IPM strategies for insect and mites in grapes and hops in the Lake Erie region. Nathan concentrated on management of the grape rootworm in grapes and the two spotted spider mite in hops. If you are interested, you can follow Nathan's exploits as a summer intern by accessing his blog at

<http://blogs.cornell.edu/ccsummerinterns2015/category/ipm/>

The extension and applied research projects that the LERGP team and NYS Grape IPM Program work on come from a priority list developed by our advisory committees, individual growers, juice processors, wineries, and other members of the grape industry across New York State and Pennsylvania. If you have any suggestions to help us focus our research and extension programming we would like to hear from you.

2015 Plant Pathology Research and Extension Activities

Bryan Hed, Lake Erie Regional Grape Research and Extension Center, Penn State University

Efficacy of Fungicide and Insecticide Programs Without use of CA Prop 65 Listed Materials.

The Safe Drinking Water and Toxic Enforcement Act of 1986, otherwise known as California Proposition 65 (CA Prop 65), lists certain chemicals known to the state of California to cause cancer or reproductive toxicity. This list includes several pesticide active ingredients used to control grapevine diseases and insect pests in the Lake Erie region of Pennsylvania and New York such as kresoxim methyl (sold as Sovran) mancozeb (sold as Dithane, Penncozeb, Manzate, etc), and carbaryl. In the interest of being proactive, industry leaders have funded an examination of pesticide programs that exclude these chemistries, should the need arise to do so at some point in the future. Treatments were established in Concord and Niagara vineyards at the Lake Erie Regional Grape Research and Extension Center in North East PA. Treatments were compared for efficacy against all the major grape diseases and grape berry moth.

Mancozeb versus Ziram for early Phomopsis on shoots. Briefly, mancozeb did not differ from ziram in efficacy in 2014. However, in 2015 there was some separation between mancozeb (Manzate Prostick) and Ziram; both materials controlled the incidence of Phomopsis shoot lesions on Concord when applied at 3-5" shoots, but only mancozeb controlled shoot lesion severity.

Fruit protection. In both years, Quintec followed by Vivando in the post bloom period, provided control of the incidence and severity of powdery mildew on Concord fruit that was superior to a program of Sovran followed by Quintec. The reasons for this *may* relate to the development of powdery mildew resistance to Sovran (?), but to my knowledge, this has not yet been documented for the Lake Erie Region. We did not see these differences in Niagara (which may be a little less susceptible to powdery mildew). For Downy mildew, the winning program for Niagara in 2014 was a straight Ziram program (4 applications) through the first post bloom spray, that finished with an application of Revus Top for the second post-bloom timing. Only this program controlled (completely) both incidence and severity of the disease on Niagara fruit in 2014. In 2015, downy mildew pressure was greater as the weather was frequently wet during the peak fruit protection period (10.7 inches of rain fell on 22 of 38 days in June and July, from just before bloom to 3-4 weeks after bloom). However, overwintering inoculum levels were low resulting in more modest disease pressure than would otherwise be expected. Nevertheless, in Concord, nearly 10% of the crop was destroyed by downy mildew in check plots, whereas all chemical programs (mancozeb, ziram, kresoxym methyl) provided significant control of this disease on Concord. The results in Niagara were similar. And finally, for black rot on Concord, both programs compared (Sovran versus Ziram at immediate post bloom) provided statistically equivalent control of both incidence and severity, when compared to the check. The final verdict on grape berry moth control will be coming soon. Bottom line: substituting mancozeb products and Sovran with materials like Ziram, Vivando, and Revus Top (Niagara only) is very doable without sacrificing disease control, but it's important to note that the costs associated with non-prop 65 programs in this study were generally higher. For example, Ziram has been priced a little higher than mancozeb products (about \$1/A). On Concord, substituting Sovran (about \$13/A) with Ziram/Vivando in the post bloom period (about \$33/A) represents a substantial additional cost.

NE-1020: Multistate Evaluation of Wine grape Varieties and Clones. In its seventh year, this project involving 17 states has provided valuable information for those interested in wine grape production in the Lake Erie region (or anywhere else in the Northeast). The Pennsylvania portion of this project is headed by Drs. Michela Centinari and Rob Crassweller of the Horticulture department at Penn State, and the planting at the Lake Erie Regional Grape Research and Extension Center, North East, includes 18 varieties (10 hybrids and 8 of *Vitis vinifera*). For the past two years, data on bud cold hardiness has revealed some sharp differences between *Vitis vinifera* and the French hybrids. For example, the graphs created by Dr. Centinari (below) illustrate vine bud hardiness (Figure 1) and yield (Figure 2) in 2015 after an incredibly cold February when temperatures in the Lake Erie region dipped well below -10 F on several occasions. All *V. vinifera* were destroyed and had to be renewed from the graft up (for the second year!). And, there were large differences in French hybrids as the Minnesota varieties and Chancellor led the pack in bud cold hardiness, whereas NY 81 and Chambourcin were among the more cold sensitive varieties. Interestingly, Chambourcin still pulled through with a very respectable crop despite losing about 60% of primary buds; a testament to this variety's exceptional bud fruitfulness that generally requires fruit thinning every year.

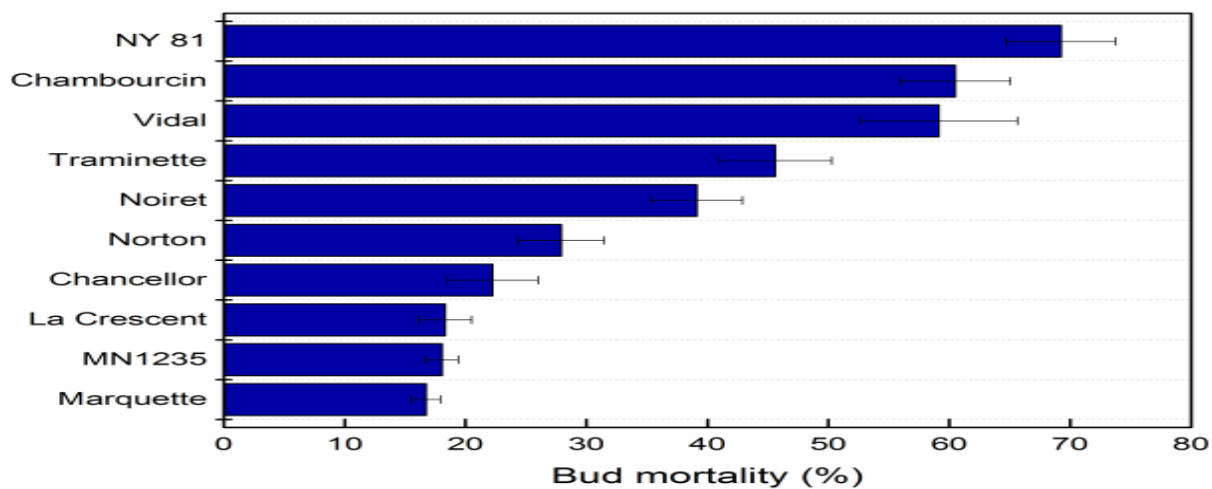


Figure 1. Bud mortality assessed as percentage of live buds over the total number of buds left with pruning at the Penn State Lake Erie Regional Grape Research and Extension Center.

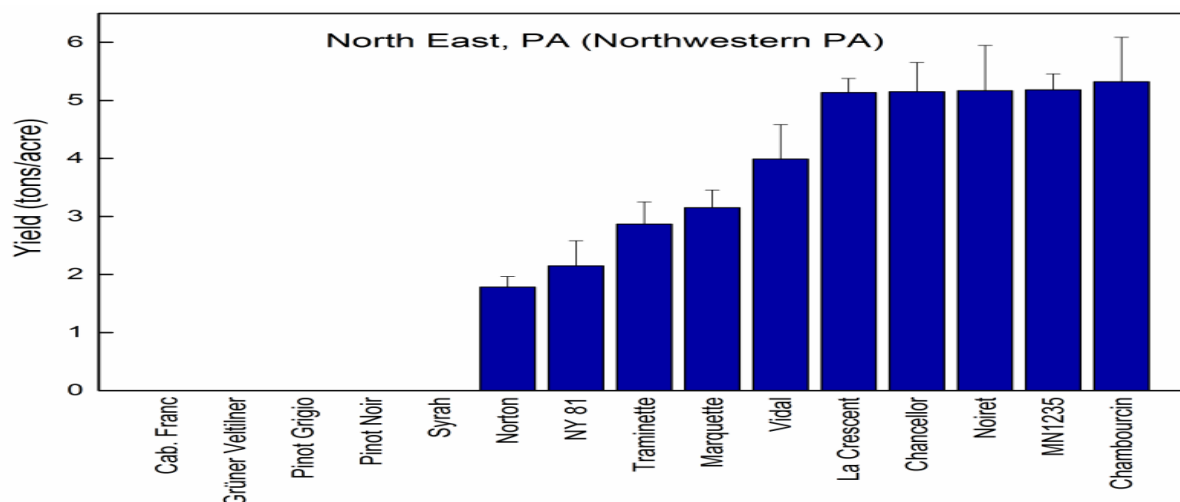


Figure 2. Yield data (tons/acre) of the 15 winegrape cultivars in the NE-1020 cultivar evaluation trial established at the Penn State Lake Erie Regional Grape Research and Extension Center.

The Mechanization of Early Leaf Removal in Pennsylvania Vineyards.

Cluster zone leaf removal is often integrated into bunch rot control programs for varieties like *Vitis vinifera* ‘Pinot Gris’, ‘Chardonnay’ and ‘Riesling’. This practice opens the fruit zone to better air, sunlight, and pesticide exposure, and is generally applied after fruit set. Mechanization of this practice has improved its adoption into eastern grape production systems.

Pre-bloom leaf removal is a more novel timing/approach to fruit rot control, involving the removal of leaves around inflorescences, and mechanization of this early leaf removal timing has not been evaluated in Pennsylvania. This early leaf removal timing (currently applied by hand) combines the benefits of an open fruit zone with a reduction in cluster compactness (which plays a large role in fruit rot susceptibility) and has generally been more effective at bunch rot control than post-fruit set leaf removal. In addition to benefits with bunch rot control, pre bloom leaf removal has also been shown to regulate yields for high-yielding hybrids (and natives?) that often require expensive thinning and to increase brix levels by harvest. Mechanization of the pre-bloom timing of leaf removal may help to provide Pennsylvania growers with an additional, cost effective approach to bunch rot control and crop thinning in Pennsylvania.

Field trials were set up in vineyards at the Penn State Lake Erie Regional Grape Research and Extension Center (North East PA) and four commercial vineyards in Pennsylvania. Pre-bloom mechanization of leaf removal in this study was by air-pulse leaf removal technology (Collard, Blue-line); a tractor mounted unit that shoots bursts of air into vines to shatter leaves in the cluster zone. In this first year of evaluation, this treatment appeared to have little to no negative impact on inflorescences. Trial varieties and trellis systems examined ranged from *Vitis vinifera* (Riesling) grown on a vertical shoot positioned trellis (VSP), to French hybrid wine grapes (Vignoles, Seyval, Foch, Vidal, Noiret, Chancellor) and even *Vitis labrusca* ‘Concord’ typically grown on high wire cordon/no tie systems (HWC).

Here is a brief early summary of our findings in 2015: Mechanized pre-bloom leaf removal efficiency ranged from 32-60%, when compared to that of manual (complete, by hand) leaf removal in the cluster zone, and was more effective on VSP than on HWC trellis systems. Cluster weights were generally reduced by 10-24% and yields were reduced by 14-25%. Early Mechanized leaf removal also reduced fruit rots, improved light penetration (and possibly fungicide penetration?) into the cluster zone, and increased brix by harvest (by 2.3 brix (or 16%) on Concord).

Vineyard Scouting Network – 2015

Andy Muza, LERGP Extension Team/Penn State Extension – Erie County

A Vineyard Scouting Network was continued in 9 sites extending from Girard to North East, Pennsylvania. Each week, during the growing season, designated vineyard blocks were scouted for insect and disease problems. Observations from weekly scouting along with pictures of problems were reported in the electronic Crop Update. The inclusion of pictures was to assist growers in accurate identification of insects, diseases and pest injury on leaves and clusters. The objective of the scouting network was to provide timely information to Pennsylvania and New York grape growers on developing pest problems in vineyards throughout the region. The most common problems observed during this season involved downy mildew on clusters and leaves and GBM feeding injury in clusters.

2015 GBM Degree Day Model Trials in Concord Vineyards in Erie County, PA

Andy Muza, LERGP Extension Team/Penn State Extension – Erie County

In 2015, GBM Degree Day Model trials were continued in 3 Concord vineyards in Erie County, PA., at the request of growers. In close collaboration with these growers, 3 high to severe risk blocks were managed using the GBM Model in NEWA to time spray applications. Insecticide applications for each generation were initiated according to the timings (810 and 1620 degree days) indicated by the model. Growers were advised to apply Intrepid, Altacor or Belt for the initial spray for each generation followed by an additional insecticide application of their choice 7 – 10 days later (back to back applications for second and third generations). Throughout the season, a total of 25 clusters from Border Rows (rows 1 and 2) were examined (non-destructive sampling) at each site to monitor GBM egg laying activity and injury levels to clusters. Preharvest, destructive sampling was conducted at the 3 sites where the model was used to determine GBM injury. In addition, 3 high to severe risk sites not directly involved in this study were also sampled to obtain comparative data. A total of 20 clusters from Border Rows and 10 clusters from Row 5 were collected at each site. The % Incidence (# clusters with GBM injury), % Severity (# berries with GBM injury), and % Missing Berries were recorded. Spray records and injury levels from these sites will be examined to determine the efficacy of the GBM Degree Day Model during the 2015 season.

GIS Technology:

Rhiann Jakubowski, Vineyard Sensor Technology

Kim Knappenberger, GIS Mapping Technology

What began in 2011 as a project aimed to identify the total number of grape acres in the Lake Erie region using GIS technology has become a way for researchers, extension educators, processors, and growers to obtain detailed, acreage-specific maps of local vineyards. Over the past four years, GIS mapping work has been done in the Lake Erie, Ohio, and Finger Lakes regions. In collaboration with National Grape Cooperative, a total of close to 29,000 grape acres have been identified by variety; including approximately 500 acres in Ohio, 3,000 acres in the Finger Lakes, and 25,500 acres in the Lake Erie Region. This project not only helps to classify the vineyard distribution among these regions, but it has also proven to provide growers a more accurate acreage calculation than other traditional methods.

Grape Berry Moth (GBM), Spotted Wing Drosophila (SWD), Brown Marmorated Stink Bug (BMSB)

Jody Timer, Penn State Lake Erie Regional Grape Research and Extension Center

Grape Berry moth (GBM) was in abundant supply this season. From trapping data collected over the past 11 years, this season appears to be one of the most copious. These numbers indicate that the record breaking temperatures of the winters of 2013-2014 and 2014-2015 had little effect on the survivorship of GBM. We have conducted the first year of timing trials based on percentage of GBM emergence and its correlation to spring temperatures. It is hoped that this experiment will lead to a more precise spray timing recommendation which can be incorporated into the NEWA model.

Spotted wing drosophila (SWD) trapping data over the past five years prove that SWD continues to emerge earlier each year. Research on a variety of grape cultivars showed that SWD was present at the end of the season in all varieties tested. This research also concluded that SWD prefer ripe fruit and rarely attack grapes before veraison. Testing will continue to discern what impacts these infestations have on the quality of grapes at harvest.

The Brown marmorated stink bug trapping over the last four years suggests that their presence in the area is increasing annually. Grapes are one of their preferred hosts and prior research showed that they can survive solely on a diet of grapes. However, their numbers are not plentiful in this area, and they are not presently presenting a risk to the grape industry. Research on their defensive odor and diet is in progress. Research on spray trials without the use of California Prop 65 materials over the past two years has shown that GBM can be controlled equally as effectively without including these materials in a spray program. It has further revealed efficacies of both conventional and sustainable spray materials.

GBM pheromone mating disruption tests over the past three years has demonstrated that puffer placement is crucial to the success of mating disruption treatment. With proper placement we have been successfully decreasing the vineyard edge infestations by fifty percent.

Enrollment changes for LERGP Membership for 2016:

Enrollment is shifting back to being managed by the CCE office of Chautauqua County. You will have received or, soon will receive, the combined enrollment form in the mail. The form has been reorganized and is very easy to understand and utilize. There are just 2 lines to mark for LERGP members. You will see that the base fee is already pre-filled, then you can opt for LERGP membership and if you want hard copy mailings, you will opt to pay the extra \$35.00 fee. Total the columns, make the check out to: CCE-Chautauqua County and mail it to them (not the LERGP Office) at 3542 Turner Rd, Jamestown NY 14701.

You will still have the opportunity to order Guidelines for Grapes through CCE- Chautauqua County as well. As indicated on the enrollment form, they will send out an order form once the guideline booklets are available. (look for this in January) This will be conducted completely through the Chautauqua county office as well.

If you have any questions, please feel to contact me (Katie) by phone at 716-792-2800 ext. 202, or e-mail me at kjr45@cornell.edu.



2016 Coffee Pot Season-

I know that the season has just ended, but March will be here before we know it and I will be looking for locations to hold our 2016 Coffee Pot meetings. If you, or someone you know, is interested in hosting, a date can be secured by contacting me (Katie) at 716-792-2800 ext 202 or by e-mail at kjr45@cornell.edu.

I look forward to hearing from you!



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