Lake Erie Regional Grape Program

Vineyard Notes-September 2017

The Lake Erie Regional Grape Program

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Cornell University
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Building Strong and Vibrant New York Communities

LERGP
OPEN HOUSE

AUGUST 12, 2017

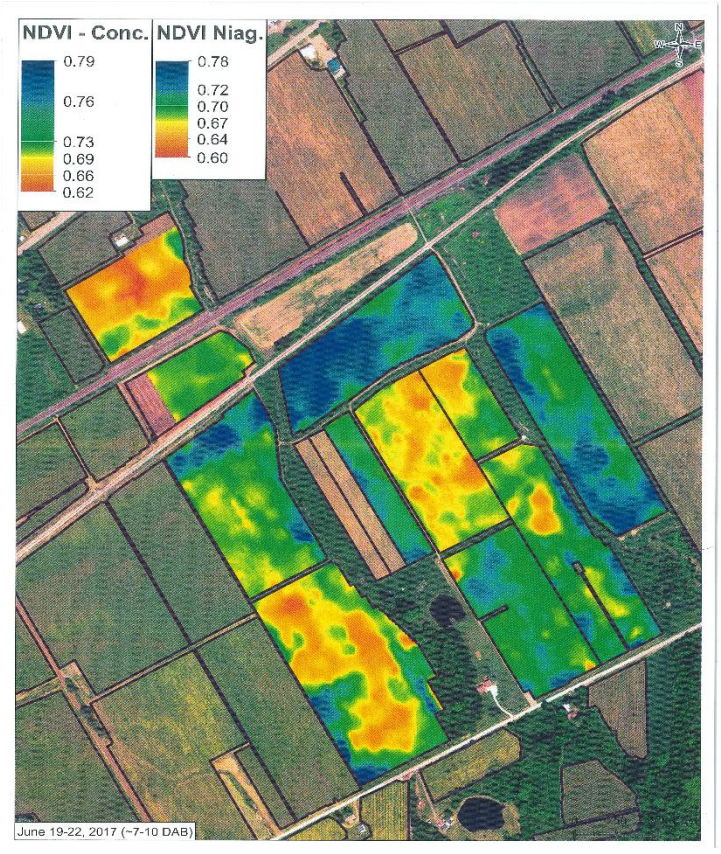
Business Management

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

Commercialization of Sensor Technology and Mechanization

CLEREL sensor technology work continues. The large SCRI grant, funded through USDA, has allowed significantly more development and collaboration. Our pool of talented researchers continues to grow and multiply the early efforts of Dr. Terry Bates. To investigate the commercialization of practices that do not exist require very different analysis than typical production cost comparisons. Integrating viticultural knowledge, models and data with economic information requires a high level of interaction and teamwork. I want to thank Dr. Bates and the research team for great communication and data sharing that allows any sort of economic analysis to be possible. The images included in these articles are an example of that collaboration and the information that is gathered by that team that eventually feeds into an economic analysis.

To determine the commercial potential for sensors and variable rate mechanization in bulk vineyards, the largest barrier will be return on investment (ROI). The majority of bulk juice acreage responds to a ROI even if there are technical or upfront cost barriers. Smaller growers, which are not an insignificant portion of the industry, will often have barriers to adoption beyond ROI. The goal of the project is to create tools that are useful and accessible to both large and small growers. It is important to forecast and predict adoption behavior beyond reasons of ROI, particularly with smaller growers.

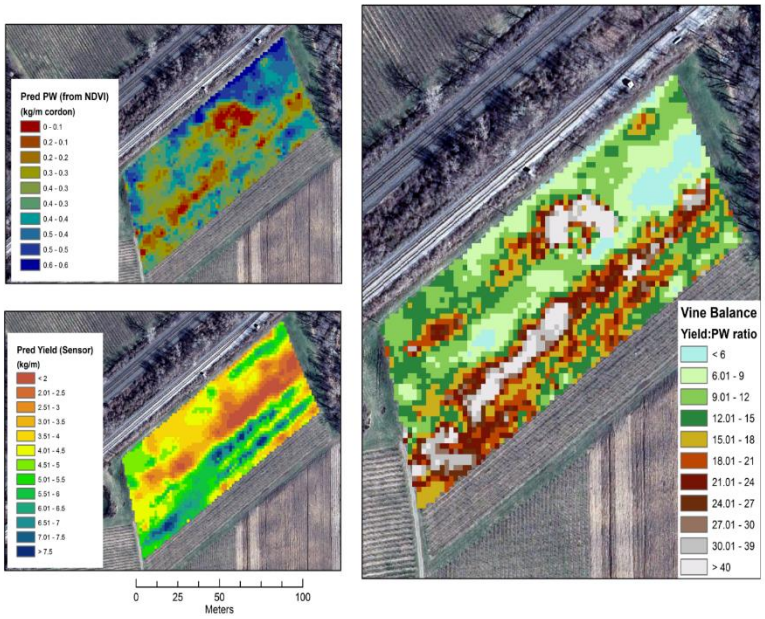


To assess ROI, the project first investigated baseline behavior. The promise of sensor technology and variable rate management is to decrease vine size variability within a block and to improve vine size, thereby improving yields while maintaining quality, in a cost effective manner. The first step was to assess vine size in commercial vineyards.

NDVI sensors were deployed by the Extension team in grower vineyards. First, extension field staff used sensors to map grower vineyards. Later, a loaner program was set up to familiarize growers with the technology. NDVI provides a relative measurement that approximates vine size. Sensors were deployed in over 3,000 acres. About 20% of participating growers took dry matter measurements to calibrate NDVI readings that allowed sensors to accurately predict vine size. The primary motivation of this activity was to engage growers in the technology and observe their use of the technology with the hopes of building the future knowledge required for commercial implementation. In the meantime, we were also able to gather a

significant amount of baseline data to measure vineyard performance without the assistance of technology. Average vine size was below 2.5 lbs. on standard spacing, many vineyard operators were averaging below 2.0lbs. The data indicated average vine size was between 35% and 60% smaller than research based recommendations. Variability within blocks was also extremely high. The differences between small and large vines within a block was often 50% or more. With this information we could start to create some assumptions about the potential of this technology.

With the effective application of technology, we hope to make bad vineyards good and good vineyards great. Compared to optimal levels of production preliminary results indicate that the region has a theoretical potential to increase yields by 40% while maintaining quality. Assuming just 50% of acreage could achieve 80% of full potential farm gate value of regional bulk juice production would increase from $32 million to $36 million annually. Current production methods tend to create cyclical crop production with years of high yield followed by years of low yield. This constant cycle undermines the value of the crop as new customers are expensive to reach and difficult to keep when the product is less available. The potential increases in yield also assume production is balanced, thereby severely limiting the economic impact of cyclical production.



We also took a look at baseline production costs and practices in the region. This allowed us to compare the performance we discovered with the current economic realities of the bulk juice industry. This cost survey shed light on the ability of growers to adopt technology that required an upfront capital cost. It also allowed us to measure reported costs of production practices to focus variable rate technology and extension guidance on areas that make the most economic sense.

Bulk juice, like other commodities are in surplus. Our data reveals growers are responding by lowering costs below Cornell recommended levels. Despite those cost reductions, growers were still making capital investments. Growers also reported establishing new vineyards and expanding their operations. At current production levels and prices, participating growers were not operating at sustainable levels. While gross revenue did exceed operating costs, it did not exceed the total cost of production.

Standard Grower Practices and Costs	Amount
Pruning & Brush Removal	233.34
Cordon Tying, Renewal & Replacement	107.38
Brush Chopping	28.65
Chem. Weed control (3x)	142.2
Trellis Maintenance	90.79
Spot Herbicide Treatment	36
Pesticide/Fungicide Treatments	193.14
Mowing (2x)	15.96
Lime 1 in 5 years	13.78
Nitrogen	29.96
Potassium and Other	63.3
Petiole Sampling	3.81
Soil Sampling	5
Harvest	$124
Total	**$ 1,087.31**

At current prices growers need to average 9 tons per acre to exceed the total cost of production. Such levels of production are only theoretically possible in an average season. This technology could provide growers with good sites the tools to be very close to sustainable. Being very close to sustainable when market prices are at a bottom would be a significant improvement for the average grower.

The idea behind this project is to lean on grower expertise, rather than reinvent that expertise. These tools provide growers with data and the practical ability to manage that data. Extension associates and researchers continue only in an advisory role. This should mirror a realistic commercial use of the technology. Growers that participated in NDVI studies were given maps and provided with the information to calibrate those maps. Interested growers also discussed results with extension viticulturists. Preliminary results ranged from extremely successful to GIS art. In the early stages of technology adoption, it is critical to demonstrate how sensors like NDVI create actionable data. Growers that decide not to act upon the data and just view it as art will see no economic impact of the technology. This pattern would undermine the adoption of sensor technology in field crops for years. There were, however, real success stories. Growers used the maps in different ways. Growers targeted renewal work to specific locations, selected areas (full rows) to thin, fertilize or prune differently. Growers also used the maps to manage whole blocks differently. When the maps made it clear that problem areas were becoming larger than the high-performing areas, growers changed their strategy in the block.

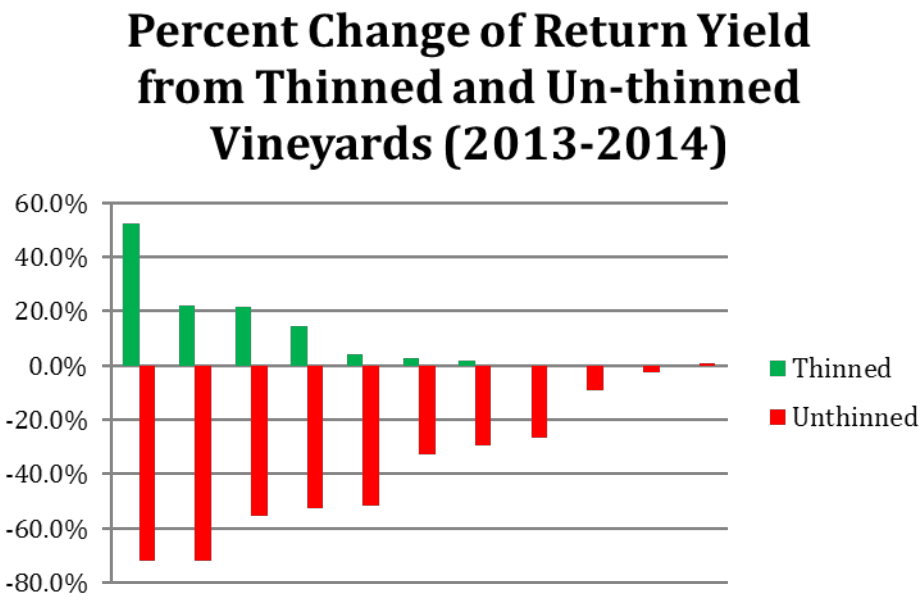
While the adoption of variable rate mechanization requires a larger investment, the preliminary work made it clear that it was practical for larger farms. Current variable rate mechanization trials include variable rate shoot thinning, fruit thinning, and fertilizer management. All mechanized production practices can be updated with variable rate technology. Viticulture research and economic data indicates that crop load management is likely to provide the most impact. One focus of this economic evaluation has dealt specifically with variable rate crop thinning on a commercial vineyard. This began after 2014 when significant over-cropping led to widespread commercial thinning with mixed results.

In a research and commercial setting fruit thinning works very well to balance crop load, improve fruit quality and improve return crop. Overall, the practice increases or maintains profitability at significantly lower levels of risk. On a commercial scale, the application of fruit thinning presents challenges. Many

growers infrequently fruit thin and mistakes and unexpected results are to be expected when engaging in an unfamiliar or new production practice. 2013 was an excellent example of both very successful fruit thinning and mixed results. Growers indicated that acreage was under-thinned, over-thinned and unnecessarily thinned. We took a look at a dozen growers and their tonnage in 2013 and 2014. On average thinned vineyards had a yield of 7 TPA in 2013 and returned with a yield of 8.1 TPA in 2014. Un-thinned vineyards averaged 8.5 in 2013 and 5 in 2014. On average, growers were very successful.

However, looking at individual blocks showed room for significant improvement. One small block was thinned down to 2 TPA. After that experience the grower did not thin the block in 2014 and vine size and fruit quality suffered as it was over-cropped. While growers are not always calculating the benefits of fruit thinning, they're certainly calculating the costs of unnecessary thinning.

In part, fruit thinning performance could be dramatically increased by additional samples and experience. Every harvester performs differently when harvesting green fruit. Vine size can also play havoc with samples. Technology will never be a replacement for sampling and experience. Sensor data will highlight areas where conditions have changed and growers need to take additional samples to prevent over-thinning. None of the growers that submitted yield data for 2013 and 2014 had adequately sampled yield prior to thinning. The most common reported practice was 1 – 2 samples per farm. Some reported no sampling.



Growers report that a successful thinning experience results in an increase in return crop equal to the tonnage removed. The data we gathered from 2013 seems to support this observation. With technology, there may be the potential to further improve those results.

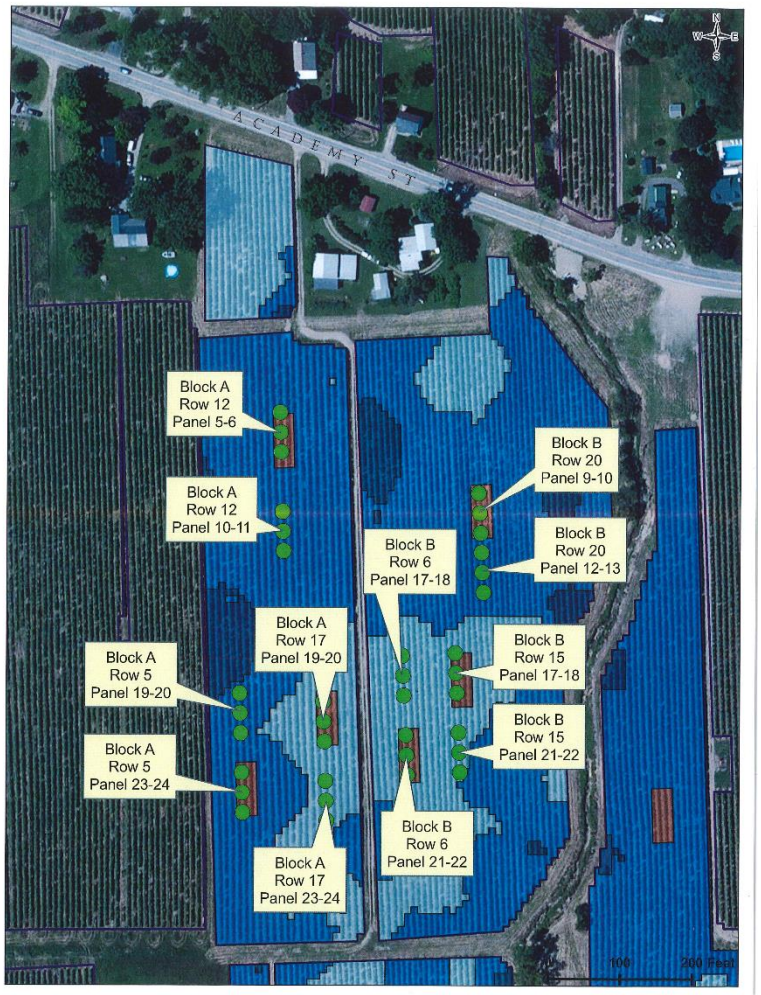
Updating a harvester to allow a prescription map and computer controller to change bow rod speed on the fly is not an inexpensive investment. Growers should expect to invest at least $5,000 into the harvester itself. GPS technology, cabling, tractor display and controllers is also required hardware that can be moved from harvester to tractor. In total a grower might invest $20,000 - $30,000.

To put another way, we need to find a way a grower can leave an extra 150 tons by properly thinning spatial areas, while maintaining vine size and fruit quality. Payback in a single year might require 10% more total crop. It is probably more realistic to anticipate a 5-year payback period as thinning is not

necessary every year. We continue to look at other ways to ensure a rapid and realistic payback period for variable rate technology. The core technology is precision agriculture software, a computer display, and GPS.

There is the opportunity to apply the technology across other production practices. Growers seem most excited about management and waypoint features. This would allow growers to reference points to return to at a later time. This technology also offers data tracking and mapping of farm activities. For our larger farms, monitoring activities accurately could add value and ease vineyard management challenges. Variable rate potassium applications may provide a real savings as well. Taken apart, these three practices would not likely justify the application of the technology. As tools to add value to the system, these applications could accelerate pay back.

CLEREL research staff and cooperating grower vineyards, like Betts farm, are a core test of commercial application of vineyard technology. Variable rate thinning on the Betts farm began in 2016. In 2016 an average of 1.5 tons were removed. The 2016 trial was really proof of concept, to learn more about how beater speed reacts to vine size and crop size. Adjustments in the harvester and variable rate settings did limit the amount of data available for review. That being said, the technology did show a lot of promise. For data that is available, it appears that return crop is larger than expected. Un-thinned areas were likely hit by drought stress and crop size appears to have significantly declined. Thinned areas took advantage of dry and sunny weather. By avoiding drought stress, it appears that return crop was above average.



These preliminary results reveal a return on investment increase of $194 per acre. Across two years the performance of the un-thinned area was less than total cost of production. In the thinned area it exceeded the cost of production, an unusual victory in the current market. While this result was surprising, we expect better results in 2017. Crop load is variable and significantly out of balance in some areas. This allowed us to test variable rate thinning over more acres that had a greater need for thinning. In 2017 variable rate thinning on the Betts farm was expanded, based on yield estimates, to 60 acres. This should provide

enough data to adequately show how the technology performs at scale. Changes in yield, vine size, and return crop will all be monitored to validate utility and performance of their investments in technology.

Sensor technology and variable rate vineyard management offers a host of tools that would have an economic impact on many different production practices, all which have the potential to add value to the investment. While individual growers sometimes focus on particular production practices, in this case the low hanging economic fruit appears to be crop load management through delayed yield manipulation. It is an area that many growers seem to find most challenging to respond to variable conditions. It is also a practice that has one of the largest short term impacts on gross revenue. While we continue to look at other opportunities that add value, delayed and variable rate crop load management will likely remain the basic building block for commercialization in bulk juice.

IPM

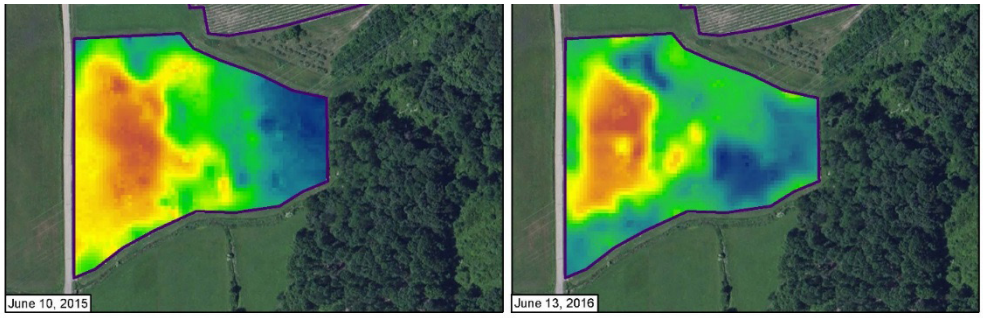
Tim Weigle, NYSIPM, Cornell University, LERGP Team Leader

Outreach and Adoption – Moving Efficient Vineyard Practices to Grower Vineyards

As the second full year of the Efficient Vineyard SCRI project comes to completion, it is interesting to examine the tools developed, and their use, to move project information into grower vineyards. The most obvious tool is the project website found at https://efficientvineyard.com that provides access to current research articles, bios, interviews and contact information for project participants (broken down by team), general outreach information on the project as well as blog posts, project publications, photos, and general resources found in the dropdown menu under News. Since the start of the project, 11 current research articles and 26 blog posts have been posted. Current research articles provide project team members the chance to provide in-depth information on their portion of the project and are posted every other month. The Efficient Vineyard blog posts have more of a "what's happening now" spin and are posted on a bi-weekly basis.

The initial survey of growers and project participants helped the Outreach and Adoption team determine the preferred methods of information transfer with these groups and it was not surprising that face to face interactions and meetings were found on this list. Members of the Lake Erie grape industry in NY and PA were able to access information on the Efficient Vineyard project through 18 "Coffee Pot" meetings, small group meetings held weekly during the growing season at grower venues across the Lake Erie growing region. In addition, the Efficient Vineyard project was highlighted with half-day sessions at both the Summer and Winter Growers conference of the Lake Erie Regional Grape Program.

Growers in the Lake Erie region were also given the chance for face-to face interaction by volunteering to participate in the loaner sensor portion of the project. Five growers scanned approximately 508 acres by simply driving through their vineyards completing normal vineyard practices such as spraying or mowing. A program technician assembled the sensors on their equipment, and when the grower was finished, collected the sensors and data card which allowed Rhiann Jakubowski, a member of the project oversight group, to produce maps to help growers develop management zones. NDVI scans have also been made in vineyards participating in a grape rootworm project to help identify problem areas and focus scouting efforts. As shown in the figure below, the NDVI scans indicated that the area affected by grape rootworm feeding has decreased with as little as one year of management practices aimed at the pest. The red and orange areas of the photo are lower vigor areas (caused by grape rootworm feeding on the vines root system). Green and blue areas indicate areas of highest vine vigor with yellow areas indicating moderate vine size. Without pruning weights to calibrate the maps, these NDVI scans only provide participants a relative vine size rating of lower, higher and moderate vine size.



Lake Erie Regional Grape Program Open House Celebrates 25 Years of Research and Extension

As you drive west on Route 20 in Chautauqua County, NY, just after leaving the Brocton/Portland area you will see a subdued brown sign that identifies the Cornell Lake Erie Research and Extension Laboratory (CLEREL) on the right. Over the years, many of those who have noticed the sign, and the facility, have asked the question "What do you do there?" To help in answering this question, and to celebrate its 25th Anniversary, the Lake Erie Regional Grape Program held an Open House on Saturday, August 12, 2017.

Approximately 85 members of the local community took the opportunity to meet extension and research staff from the Lake Erie Regional Grape Program, NYS IPM Program, Cornell Vegetable Program and Cornell Willow Breeding Program. Senator Cathy Young started the Open House with a presentation of a proclamation for the 25th anniversary of the Lake Erie Regional Grape Program. Jacqueline Chariot of Congressman Tom Reed's staff was also on hand to present a commendation congratulating LERGP on their 25th anniversary.

Open House participants were then off to explore the CLEREL facility and learn about the various research and extension projects through displays in and around the main building. A hay wagon ride amongst the vineyards, vegetable plots, willow plantings and hop yards found at CLEREL was available and participants heard directly from a project team member at five stops along the route. Between stations, Dr. Terry Bates, Director of CLEREL and Luke Haggerty, Constellation Brands, treated tour participants to a guided tour of the property and the history of grape growing in the Lake Erie region. After filling up with knowledge, open house participants enjoyed a hotdog and hamburger BBQ courtesy of the Lake Erie Regional Grape Program.

Research topics presented by LERGP specialists, and others, included variable rate bud thinning (Terry Bates) and sensor use to develop management zone maps in vineyards (Thom Betts –grape grower, Westfield, Rhiann Jakubowski and Jackie Dresser) - both part of the USDA/NIFA SCRI project, cover cropping in grapes and hops (Kevin Martin), Willow breeding program (Larry Smart - Department of Horticulture), sustainable and organic vegetable production practices (Darcy Telenko – Cornell Vegetable Team), and IPM projects on weed management and biological control of two spotted spider mites in hops, funded by the NY Farm Viability Institute.

If you missed the Open House and would like to hear more about what we do here at CLEREL and in the vineyards of grower cooperators, stop by or give us a call.

Rhiann Jakubowski, Jackie Dresser and Thom Betts speak to the audience about GIS mapping of vineyards and how it can be used for efficient vineyard management.

Tim Weigle demonstrates harvesting of hop cones with the hops harvester.

Cornell University
New York State
Integrated Pest Management Program

Timothy Weigle
Senior Extension Associate
Grape and Hop IPM Specialist
Lake Erie Regional Grape Program CLEREL
6592 West Main Road
Portland, NY 14769
Phone: 716-792-2800
Fax: 716-792-2805
E-mail: thw4@cornell.edu
www.nysipm.cornell.edu

NEWA Service Technician Position Available

A 19 hour per week position is currently available with the NYS IPM Program and Lake Erie Regional Grape Program and will be housed at the Cornell Lake Erie Research and Extension Laboratory in Portland, NY. This position will provide program support to ensure the reliability of data produced by the weather data loggers associated with NEWA. (Network for Environment and Weather Applications http://newa.cornell.edu) that will ultimately enhance the profitability and sustainability of the grape industry served by the LERGP.

Position responsibilities include, but are not limited to;

- Responsible for monitoring NEWA stations in the Lake Erie region.
- Assist project team members to ensure NEWA station malfunctions are identified and corrected through phone conversations and on-site maintenance visits.
- Assist project team members in increasing adoption of weather and pest model information found on NEWA through scouting vineyards of participating growers.
- Responsible for the completion of accurate reports and working with the Grape IPM specialist in submission of reports to funding partners.

Qualifications

Experience working as part of a project team. Must possess sound judgment, excellent reasoning and decision-making skills, meticulous record keeping and ability to work with diverse personalities. Must be able to work under pressure with a great deal of initiative. Must have excellent organizational skills with the ability to prioritize multiple projects. Ability to work well with others is required while creating a high-quality and respectful work environment. Must be able to work independently while supporting the efforts of an overall team. Ability to communicate with tact and diplomacy with a wide range of internal and external constituencies is a must. Excellent writing and verbal communications skills. Proficiency in the use of computer hardware and software used in communication. Demonstrated ability to work independently; yet be an effective contributor to team efforts. Will be a self-starter with the ability to troubleshoot, and suggest solutions to problems. Must be able to meet the travel requirements of the position, including having reliable transportation and having and maintaining a valid driver's license. Must exercise sound and ethical judgment when acting on behalf of the University.

Preferred Qualifications

Experience in troubleshooting and maintaining electronic equipment and digital communication devices is preferred.

Please contact Tim Weigle, NYS IPM Program, Cornell University at thw4@cornell.edu for more information.

PLEASE PARTICIPATE IN THE ONLINE NEWA SURVEY

EDITORS NOTE: *NEWA provides weather and pest model information for a large number of commodities across an ever increasing number of states. It is important for grape growers in New York and Pennsylvania to provide your input into this survey so any improvements to the NEWA website are made with the grape industry in mind. While this is a busy time of year, I encourage you to take the 10 minutes out of your busy day to complete this survey.*

The Network for Environment and Weather Applications (NEWA) wants you to take our online survey — it'll only take about 10 minutes of your time.

Take the survey now:
https://cornell.qualtrics.com/jfe/form/SV_0GRIhOIDI5HwbR3

Whether you've used NEWA's online pest forecast models for years or have never used NEWA at all, we will benefit from your responses. Why? Because we are building a new website at newa.cornell.edu, one that'll be as easy to use on your smart phone as on your desktop, and we want to build it *the way you want it to be*.

NEWA is an online agricultural decision support system that uses real time weather data, streamed over the internet from 573 weather stations throughout the Northeast, Midwest and mid-Atlantic. NEWA provides insect and plant disease pest management tools, degree days, and weather information for growers, consultants, Extension educators, faculty, and others.

NEWA models and resources are available free of charge, and are used to make informed localized crop management decisions. The NEWA website will be upgraded soon and we want to know what users', new and old, want and need out of the new website.

All responses are anonymous and confidential and will not be shared with any outside group.

Thank you for participating!

For more information:

Dan Olmstead
315.787.2207
dlo6@cornell.edu

NEWA Coordinator, New York State IPM Program
Cornell University, NYSAES
630 West North Street
Geneva, NY 14456

NEWA is a Partnership of the New York State Integrated Pest Management Program and the Northeast Regional Climate Center.

IPM Integrated Pest Management

Northeast Regional Climate Center

PA Update

Andy Muza, LERGP Extension Team, Penn State Extension- Erie County

Phomopsis Cane, Leaf Spot and Fruit Rot

Now, might not seem like a good time to be talking about Phomopsis since: the timing to manage this disease is early in the season and therefore nothing can be done, at this point, about infections that have already occurred on shoots, leaves, rachises or pedicels.

So, why am I talking about phomopsis this late in the season?

1) Because preharvest/harvest is the time that crop loss will be most evident from phomopsis infections that occurred early in the season. As we approach harvest, infections on rachises become more pronounced and can lead to girdling of the cluster stem resulting in loss of berries. Fruit infections can also occur at this time of the season as a result of the fungus moving into the berries from previously infected pedicels (Figures 1 & 2).

Figure 1. Severe rachis infection on Niagara cluster caused by Phomopsis. Photo: Andy Muza, Penn State.

Figure 2. Pedicel (berry stem) infections caused by Phomopsis resulting in Niagara berry infections. Photo: Andy Muza, Penn State.

2) Discussing phomopsis now also serves as an early warning for next season.

About the Disease

Phomopsis is present, to some degree, every year in vineyards in the Lake Erie Region. Spores of the phomopsis fungus are produced in fruiting structures called pycnidia which develop in diseased woody tissue in the trellis. In the spring, spores will ooze from pycnidia during wet weather and are then rain splashed onto green tissue. Frequent and extended periods of rainy weather during the early season provide ideal conditions for infections to occur. Vines are susceptible to these infections as soon as buds break in the spring and green tissue is exposed. The majority of spores are released from bud break through bloom (1).

Infected shoots develop black lesions which are usually located on the first few basal internodes. These lesions can elongate and split resulting in a blackened, scabby appearance (Figure 3). Numerous lesions on internodes can weaken shoots enough to cause breakage. Leaves which become infected exhibit small spots with dark centers surrounded by yellow, margins (Figure 4). Crop loss can occur if rachis lesions girdle cluster stems or pedicel infections cause shelling of berries.

Figure 3. Black, scabby lesions on Concord shoot due to phomopsis infection. Photo: Andy Muza, Penn State.

Figure 4. Phomopsis lesions on Concord leaf. Photo: Andy Muza, Penn State.

What Happened in the 2017 Season? (A before harvest recap of Phomopsis)

If you recall, back in mid-late May, discoloration (i.e., blackening, dark spotting) on shoots was the topic of discussion throughout the region. In fact, we started reporting in the Crop Update (May 18) about extensive phomopsis shoot infections in the region. Bryan Hed indicated in his report that, "There is no doubt that we did have favorable weather for Phomopsis to become established during the first week of May. During that period, NEWA recorded an infection period from May1-2, with heavy, at times driving, rainfall. The May 1-2 infection period appears to be the earliest possible infection period after bud break (16 hrs wetting, 56F) that could have produced such widespread symptoms. At that time, Concord shoots were out to about 1-3", but it was apparently enough, given what followed this, to produce extensive lesion development. From May 4-7, there was one long wetting period with zero gdds (growing degree days) and little or no evaporation; NEWA dismissed this period as an infection period, but the first half of this wetting period *was* an infection period and it may have been very favorable for incubating horrendous levels of infection at marginal temperatures. Symptoms were observed just a few days after this second, extensive wetting period. Under these cold conditions, vine defenses could be hampered (minimized?) and vines were essentially in a moist chamber for nearly four days. If the pathogen is still active at temps in the 40s (which the Bugaret Phomopsis model shows) but the vine isn't very active at all, it could help to explain what we're seeing (2)." Research conducted by Mike Ellis and students at Ohio State University does indicate that, "when inoculum is present, moderate-severe infection can develop after about 26 hr. of wetness at an average temperature of 48 degrees F, 16 hr, at 54 degrees F, and 12 hr., at 60 – 68 degrees F (3)."

Since few (if any ?) fungicide applications were applied in the region during the 1"- 3" stage of shoot growth, this left vines vulnerable to phomopsis infections. Weekly scouting of numerous Concord and Niagara vineyards during the season revealed that phomopsis infections (on shoots and leaves) are indeed extensive (i.e., moderate-severe) and widespread throughout the region.

Our initial concern, back in May, was not only the extent of shoot infections but more importantly infections of rachises and berry stems. We are now at a point in the season (preharvest/harvest) at which the severity of rachis and pedical infections may become apparent through crop losses. Fortunately, the majority of growers did apply fungicide applications for phomopsis after the 3" stage and through the first Postbloom spray. These sprays may end up being the reason substantial crop loss is averted.

Early Warning & Management of Phomopsis Next Season & Beyond

Due to the extensive number of shoot infections that occurred this season, throughout our region, expect that Phomopsis inoculum levels will be high for the next several years.

So, diligent management of phomopsis will be required to reduce inoculum levels and protect against new infections.

Reduce Inoculum Levels – the only way to reduce inoculum levels is to annually remove diseased canes and any dead wood from the trellis during the pruning operation. Prune out the most severely scarred canes.

Protect against new infections - an early season fungicide application(s) will be critical next season to protect against phomopsis infections. Growers should be prepared to apply a mancozeb spray at 1" shoot growth if rainfall is predicted during this stage. Otherwise, a mancozeb application should be applied no later than 3"– 5" growth stage. Additional fungicide protection against Phomopsis infections should continue through the FIRST POSTBLOOM SPRAY.

References

(1) Grape Disease Control, 2017. Wayne F. Wilcox, Department of Plant Pathology

Cornell University, NY State Agricultural Experiment Station, Geneva NY 14456 *Lake Erie Regional Grape Program Vineyard Notes- June 2017* https://nygpadmin.cce.cornell.edu/pdf/newsletter_notes/pdf83_pdf.pdf

(2) Crop Update May 18, 2017. North East, PA Update. Bryan Hed. Page 6. https://nygpadmin.cce.cornell.edu/pdf/newsletter_update/pdf378_pdf.pdf

(3) 2017 New York and Pennsylvania Pest Management Guidelines for Grapes. Timothy H. Weigle and Andrew J. Muza, *et. al*. Cornell and Penn State Universities. 150 pages.

Darcy Telenko, CCE Erie County Extension Vegetable Specialist and Stephen Reiners, Chair of NYSAES Horticulture Dept. speak to audience at the annual vegetable field day program held at CLEREL. Photo by: Thomas Bjorkman

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INSURING GRAPES

NY, 2017

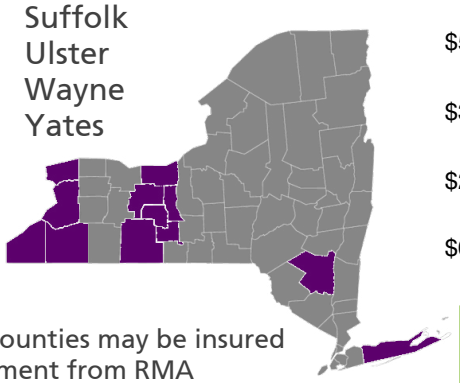
Crop insurance is a safety net for farmers that helps you **manage risk**. If you have a crop failure, crop insurance can help you farm again next year.

Important Insurance Deadlines

- **Aug. 15, 2017:** Premium Billing Date
- **Nov. 20, 2017:** Sales Closing, Policy Change, Cancellation, Termination Date
- **Nov. 20, 2017:** End of Insurance Period
- **Jan. 15, 2018:** Acreage / Production Report Date

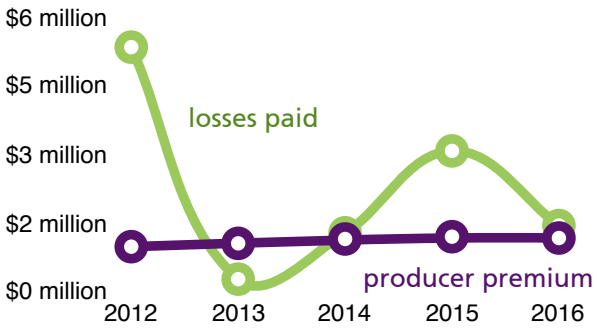
Over 40 grape varieties are insurable in these counties:

Cattaraugus
Chautauqua
Erie
Niagara
Ontario
Schuyler
Seneca
Steuben
Suffolk
Ulster
Wayne
Yates



Grapes in other counties may be insured by written agreement from RMA

NYS Grape Crop Insurance Performance



for every $1 grape producers spent on crop insurance premiums from 2012 to 2016, **they received $2.07** in losses paid, on average

Learn more & sign up:

Explore your personalized crop insurance costs and loss payments under different yield outcomes at ag-analytics.org. To sign up, contact a crop insurance agent. Find an agent using the Agent Locator tool at rma.usda.gov/tools/agent.html

Ag-Analytics.org
@aganalytics

USDA

6592 W. Main Rd.
Portland NY 14769

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. 202

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

Cornell University Cooperative Extension

PENNSTATE College of Agricultural Sciences