



## CROP UPDATE October 21, 2021

2021 CLEREL Harvest-Kate Robinson

#### Cornell Cooperative Extension Lake Erie Regional Grape Program



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The Lake Erie Regional Grape Program is a Cornell Cooperative Extension partnership between Cornell University and the Cornell Cooperative Extensions in Chautauqua, Erie and Niagara county NY and in Erie County PA.

#### **Contact Information:**

Jennifer Phillips Russo - LERGP Viticulture Specialist: jjr268@cornell.edu (716) 640-5350

Kevin Martin – LERGP Business Management Specialist: Kmm52@psu.edu (716) 397-9674

Andy Muza – LERGP Disease and Pest Management Specialist: Ajm4@psu.edu (814) 825-0900

Kim Knappenberger – LERGP NEWA and Vineyard Improvement Program Contact Ksk76@cornell.edu

Kate Robinson – Administrative Assistant Kjr45@cornell.edu

> <u>Click here to</u> watch LERGP <u>Podcasts</u>

photo credit-Kim Knappenberger

# LeVeL Up! w/ MyEV

## Take Your Vineyard Management to the Next Level with Precision Viticulture

Lake Erie vineyards have a lot of natural variation in soil type, vine growth, and crop yield, which impacts overall productivity and farm profitability. Precision Viticulture is the process of measuring, modeling, and managing vineyard variation on a sub-block level to improve production efficiency.

Getting started with precision viticulture can seem overwhelming with the need to purchase and learn new technology, such as vineyard sensors, GIS software, and variable-rate controllers. To address this challenge, Terry Bates (CLEREL) and Nick Gunner (Orbitist) developed an easy-to-use and web-based software platform for growers to benefit from spatial information on their own farms. The MyEfficientVineyard (MyEV) tool allows growers to collect, process, and map spatial observations in any of their vineyard blocks. There is an old saying that "the best fertilizer is the grower's footprints in the vineyard." MyEV now allows you to trace those footprints and spatially map what you observed so you can make the best management decisions for your vineyard blocks.

#### Sign up and learn the basics of MyEV!

• Tuesday, November 2, 2021 from 1:00-3:00 pm – Terry Bates and Nick Gunner will teach you the basics of the MyEV software. Growers will learn how to map the vineyard blocks on their farm, set up a spatial data collector tool, collect observations in the field, and map spatial observations. After the session, growers will have a week to test out MyEV on their own farms and ask questions of the research team over email.

• Tuesday, November 9, 2021, from 1:00-3:00 pm – We will have a "hands on" session at CLEREL to answer grower questions and walk through the mapping and data collection functions in the MyEV smartphone application.



#### **Evaluating Impact of Project on Profitability**

It has been about a year since we discussed Net Present Value (NPV) in the crop update. For a financial or business analyst NPV is a key benchmark as standard as pruning weight or yield per acre. As harvest continues some growers find themselves completing financial analysis of an investment; others tear into a diesel engine. Both represent value added skills, above and beyond the requirements of all growers.

Both skills lead to a competitive advantage. Hiring others to complete these tasks, relative to other tasks, is rather expensive. This year presents unique challenges to investing in projects as the availability of goods, services and labor is questionable. This has led to some early planning.

With these challenges it is important to differentiate your business model and to add value with skills and information. If you're thinking about making an investment that is more than 10% of your gross income, calculating your NPV (or paying a fee based financial advisor) should be step one. As a third alternative, you can always call your regional specialist.

- Why do you think the strategy will increase net income?
- Positive net income: What year does the project yield net income. How much? Do you expect net income to grow more significantly than inflation in some or all years?
- Net Present Value of the project
- NPV =  $\sum \{ \text{Net Period Cash Flow}/(1+R)^T \}$  Initial Investment

#### See excel example at end of this article

One important variable is the length of time required to recoup an investment. In no instance should an analysis exceed the useful life of the investment. In many cases, where market conditions are unfavorable, even that length of time is too long. For most growers, delaying investment in tractors will offer necessary flexibility to bridge the gap. Innovative machine purchases that reduce the number of tractors required for the operation will likely result in a relatively high NPV.

A detailed analysis of capital and large expenditures might seem like boring homework. It might also seem like a foreign language. However, harvest this year was large and avoiding taxes is a reasonable goal if only the investments are sound. Making it through a price trough of any length is going to require smart planning. Using this time to position the business to be successful in the future is how growers have always survived future market challenges. As always, good luck with harvest.

In Excel: Column A is the date. Column B is the Year number. Column C is the net income for that particular year. Cell C1 is the discount rate.

Column E contains both the formula as well as the Net present value of this hypothetical project.

_	A	B	С	D	E	F
1	Discount Rate		5%			
2	2016	1	-50000	NPV =	\$101,808.72	
3	2017	2	-50000	Formula	"=NPV(C1,C2:C	21)"
4	2018	3	0			
5	2019	4	20000			
6	2020	5	20000			
7	2021	6	20000			
8	2022	7	20000			
9	2023	8	20000			
10	2024	9	20000			
11	2025	10	20000			
12	2026	11	20000			
13	2027	12	20000			
14	2028	13	20000			
15	2029	14	20000			
16	2030	15	20000			
17	2031	16	20000			
18	2032	17	20000			
19	2033	18	20000			
20	2034	19	20000			
21	2035	20	20000			





Oxbo Harvesters, and Turbomist Sprayers. We also custom manufacture single and dual tank sprayers, spray booms, pre-pruners, brush sweepers, & wire winders.



### **Viticulture** Jennifer Russo, Viticulture Extension Specialist, LERGP

#### Around the Belt

Concord and some late red varieties harvest are still underway and some growers are hoping to let the fruit hang longer for sugar accumulation. The 2021 growing season started off in April with an unusual warm spell that woke the vines up a bit earlier than usual pushing tender green shoots. In late April and early May the cold weather returned, at minimum slowing growth and in some vineyard blocks, the primary shoots and flower clusters experienced damage and death due to frost/freeze events. Then the weather warmed up again and set the stage for a great fruit set after bloom. June was almost at drought levels and the vines grew well. The Concord industry experienced bloom a week earlier than the historical average increasing the growing season by a week. Research by Dr. Terry Bates developed a Concord berry curve and determined that at 30 days after bloom the berries are half of the size they will be at harvest, therefore we do crop estimates at 30 DAB to project the crop at harvest. The crop in the Lake Erie Region was much larger than usual and by some grower accounts, the largest they have ever seen. We educated the importance of balanced vines. An overcropped vine in a season like the first half of this one might be able to ripen a crop, but a severely overcropped vine would not. The weather has not been very forgiving the second half of our growing season delaying veraison and constant rains may have contributed to less photosynthesis, delayed sugar accumulation, and dilution factors. There have been guestions from growers as to why the sugar accumulation isn't as far along in some blocks as hoped. The below figure depicts the work that Dr. Terry Bates tested on different pruning level vines at different sizes and where those vines will be under-cropped, balanced, and over-cropped. A two-pound vine is balanced at 8 ton/acre and could ripen 10 ton/acre under the proper weather conditions, but it cannot ripen 12 tons/acre. This stresses the importance of knowing what your crop estimation in your blocks and also your options for crop management strategies. Keeping your vines balanced and your leaves clean will ensure quality standards and wood maturation for the dormant season and next year's potential.



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

#### Spotted Lanternfly – Reminder -

#### **Reporting**

**Early detection is vital for the management of SLF.** Personnel at ag related businesses should be inspecting incoming shipments/supplies/ equipment (including pallets, posts), especially from quarantined areas, for the presence of SLF (i.e., egg masses, nymphs, adults). Growers should also check supplies/equipment, purchased from quarantined areas or from ag related



businesses, for the presence of SLF. In addition, growers should be scouting throughout the season for the presence of SLF in and around your vineyards. Monitor tree-of-heaven and other highly desirable hosts (e.g., wild grapevines, black walnut) surrounding your vineyard to find potential sources of SLF.

If you observe an insect or egg masses that you suspect is SLF then **take pictures** (include something for scale such as a coin or ruler). If possible, **collect a sample** and place it in a freezer or in a jar with rubbing alcohol or hand sanitizer. **Record the location** of the find (address, intersecting roads, landmarks or GPS coordinates) and **immediately report it**. In addition, commercial grape growers in the Lake Erie Region, should also contact any member of the LERGP Extension Team.

#### PENNSYLVANIA

To **report a sighting**, go to: Have you seen a Spotted Lanternfly? <u>Let's Check!</u> OR use the <u>PDA SLF Reporting Tool</u> OR call the hotline at 1-888-422-3359.

#### NEW YORK

**Report a sighting** to: NYS Dept. Agriculture and Markets, using the <u>Spotted Lanternfly Public</u> <u>Report</u> OR email to <u>spotted lanternfly@agriculture.ny.gov</u>.

#### Resources

Extensive information about SLF (e.g., how to identify, how to report an infestation, how to comply with quarantine regulations, etc.) is available below.

#### Spotted Lanternfly

Spotted Lanternfly Management in Vineyards (factsheet)

Penn State Extension - Spotted Lanternfly website

Pennsylvania Department of Agriculture - Spotted Lanternfly website NYSIPM Spotted Lanternfly website

#### Grape Berry Moth

As usual, grape berry moth (GBM) injury is/was evident in Severe/High Risk sites in our region (Figures 1 & 2). The severity of injury is dependent on your GBM spray program (i.e., timing and number of applications, coverage and choice of materials used) and GBM population levels at your sites.

Growers were alerted to the possibility of a fourth generation of GBM in the 8/26/21 Crop Update and should have continued scouting and monitoring GBM DD using the GBM Model in NEWA. Egg laying for the fourth generation would have been occurring at 2430 DD and growers were advised (in Crop Update 8/26/21) to consider whether to apply a late season insecticide application, taking into consideration the history of GBM pressure in their vineyard blocks. (See the Table below of NEWA stations around the Lake Erie Region, that Kim Knappenberger provided, showing the Date when 2430 GBM DD was reached across the region).

Now is a good time to record areas where GBM injury levels were high, on your vineyard maps, in preparation for developing a management strategy for next season. During the winter months, compare areas where injury levels were high to your spray program to determine what adjustments are needed for management of GBM for next season. Feel free to contact me if you need assistance in developing a program for managing GBM for next season.



Figure 1. Concord cluster with injured berries caused by grape berry moth larvae. Photo – Andy Muza, Penn State.



*Figure 2. Grape berry moth larva emerging from injured Concord berry. Photo – Andy Muza, Penn State. 9917* 

	Wild Grape	Date 810	Date 1620	Date 2430
NEWA location	Bloom date*	GBM GDD	GBM GDD	GBM GDD
Ransomville	5/31/2021		8/9/2021	9/11/2021
Burt	6/6/2021		8/14/2021	9/19/2021
Corwin	6/2/2021			9/14/2021
Brant	6/1/2021		8/9/2021	9/12/2021
Versailles	6/1/2021	7/6/2021	8/11/2021	9/16/2021
Hanover	6/2/2021		8/10/2021	9/14/2021
Sheridan	5/22/2021	6/28/2021	8/1/2021	8/31/2021
Silver Creek	6/3/2021	7/7/2021	8/11/2021	9/13/2021
Silver Creek Double A	5/26/2021	7/2/2021	8/6/2021	9/6/2021
Forestville	5/27/2021	7/5/2021	8/9/2021	9/12/2021
East Fredonia	5/31/2021	7/6/2021	8/11/2021	9/14/2021
Fredonia	6/1/2021	7/6/2021	8/11/2021	9/15/2021
Brocton Escarpment	5/31/2021	7/6/2021	8/11/2021	9/14/2021
Portland	6/1/2021	7/6/2021	8/10/2021	9/13/2021
Portland (LERGP West)	5/27/2021	7/4/2021	8/7/2021	9/7/2021
East Westfield	6/1/2021	7/6/2021	8/10/2021	9/14/2021
Westfield	6/4/2021	7/8/2021	8/12/2021	9/14/2021
Ripley	5/27/2021	7/4/2021	8/8/2021	9/9/2021
Ripley Escarpment	5/26/2021	7/4/2021	8/9/2021	9/11/2021
Ripley State Line	5/26/2021	7/4/2021	8/8/2021	9/9/2021
North East State Line	5/26/2021	7/5/2021	8/9/2021	9/13/2021
North East Escarpment	5/25/2021	7/2/2021	8/7/2021	9/9/2021
North East Sidehill	5/25/2021	7/5/2021	8/9/2021	9/13/2021
North East Lab	5/26/2021	7/3/2021	8/6/2021	9/6/2021
Harborcreek	5/27/2021	7/4/2021	8/8/2021	9/9/2021
Harborcreek Escarpment	5/31/2021	7/7/2021	8/12/2021	9/18/2021
Lake City	5/26/2021	7/3/2021	8/7/2021	9/7/2021
*Estimated date provided				

### PAUpdate Bryan Hed, Research Technologist, Lake Erie Grape Research and Extension Center

As we finally near the end of another roller coaster ride, here's a brief look at the 2021 season.

On Concords here at the North East lab, we recorded 10% pink at about April 11, and 50% bud break on April 24, which was definitely earlier than average. As a result, in Erie county PA, the season started out pretty rocky for many vineyards positioned south of route 20, especially anything along or near, Sidehill road; late frosts caused tremendous damage to young shoots, leaving many vineyards with nothing but a 'secondary' crop for the remainder of the season. However, many vineyards outside this 'war zone', were eventually hanging a huge crop.

For us, the first Concord flowers opened on June 7 (several days ahead of average), and we recorded 50% bloom about a couple of days later. Here at the North East PA lab and elsewhere, fruit set was good and we could see an enormous crop brewing by early summer...possibly the biggest we ever had. We contemplated mechanical thinning this year (we did it last year) but ultimately decided against it; hail came along during the early morning hours of July 2nd and some vineyards along the lake, including ours, were thinned anyway...by Mother Nature. The "stones" were small and did relatively little damage to canopies, but injured a large percentage of the young, developing berries, mostly on the north side of our trellis. There was a wide range of injury to fruit on each cluster; berries with the grossest wounds quickly dried up and shelled, others attempted to scab over their wounds, but did not ripen and eventually appeared to fall away later, and some actually ripened, but slowly. The question arose: should we be concerned about Botrytis and other bunch rots in these hail damaged vineyards? We did not recommend spraying these vineyards for Botrytis as the damage occurred very early in berry development, when fruit are just not very good substrate for rot organisms. The hail actually 'touched' vineyards as far south as route 20 and beyond. I recall seeing the Hostas, planted outside the North East post office, looking as if someone had taken a machine gun to them.

As the season drew on, July delivered over 6 inches of rain, that made disease control on fruit somewhat challenging, especially for varieties susceptible to downy mildew. A trial we were running in our Chancellor vineyard, to evaluate a new, unregistered product for downy mildew control, was a great success; we lost over 80% of the crop in the unsprayed check plots (the ultimate challenge!), but the new product provided nearly 100% control of the disease. In addition to the new, 'mystery' product, we also had two "positive" checks in the trial; a registered product called Ranman, and of course, our old standard, Manzate ProStick (mancozeb). Like the new "mystery" product, Ranman provided nearly 100% control of the disease, under what I considered extremely high downy mildew pressure. On the other hand, the mancozeb product, although providing significant control when compared to the unsprayed vines, allowed for a crop loss of 14%. How did this happen? Well, as you know mancozeb products are strictly surface protectants and do not actually enter the tissues of the vine. And although the mancozeb molecule is very toxic against the pathogen that causes downy mildew, mancozeb products are not as rainfast as many of the newer generation of fungicides, that actually get into the tissue. The frequent and heavy rainfall in early July may have reduced the mancozeb residues on clusters to critical levels between spray intervals (our intervals at 3 lbs/A, varied from 11-13 days), resulting in greater than expected crop losses. This is an important lesson to keep in mind. Even though mancozeb is extremely effective against diseases like downy mildew and black rot, maximum rates (4 lbs/A) and shortened intervals (7-10 days) may be necessary to provide commercial levels of control under high rainfall conditions, especially on varieties susceptible to these diseases.

As the season drew on, vineyards that were fortunate enough to be hanging a large crop, needed all the warm, dry weather they could get. Some crops were enormous and there was very real concern that some vineyards would not get their fruit up to minimum standards by harvest. After a slightly cooler than average (and much wetter than average) July, we had lost some of the lead we had earlier in the season, and I think even veraison was somewhat delayed beyond what was expected. August turned out to be blazing hot, but right around average for rainfall. After veraison, which occurred for us on about August 20th, the 3-4 critical ripening weeks that followed were met with weather that was a bit warmer and drier than average; not bad, but not ideal for vineyards that were being overcropped. Overall, September ended up just a little drier and warmer than average, and the beginning of Concord harvest was pushed a little further back than originally anticipated.

Then came October and I think we lucked out: October 2021 has been warm, dry, and conducive to ripening. Our rainfall total for the month is currently 2.17 inches, way below average, and it all fell within 3 distinct wetting periods, leaving us high and dry more than 60% of the time. Also, we have accumulated nearly 300 growing degree days (gdds) during the first 3 weeks in October, much warmer than average, though heat accumulations have slowed over the past few days. In fact, looking at heat accumulation and rainfall, the first three weeks of October have basically been a repeat of the first three weeks of September (368 gdds, 2.23" rain)...a second chance to get things ripe! This October will also contribute to 2021 being the warmest growing season (April 1 to October 31) in at least the last 20 years. Unfortunately, many growers suffered through a rough start this season, from which there was little or no recovery. But I think at least some of those frost damaged vineyards saw a somewhat bigger crop develop than was originally expected. On the fortunate side of life, prices are up and most growers have had a good year so far.

The short-term forecast shows a 20% chance of rain for Friday, increasing to 50% during parts of Saturday and Sunday. High and low temperatures are holding steady in the upper and lower 50s, respectively.



### We Need Your Help-

It's that time of the year- Calendar preparation for 2022! We are reaching out to see if anyone has any fun facts or photos they would like to submit for consideration to go into the 2022 calendar. To be completely honest, the theme on these has not yet been decided but we thought your input might lend some direction. Not to mention, we are always interested in your input.



E-mail me with your content and/or suggestions-<u>kjr45@cornell.edu</u>



## Updates and Information

Kimberly Knappenberger, Viticulture Assistant, LERGP



#### **NEWA Update:**

Station news: The Portland Escarpment station has been disconnected as of Tuesday, October 19, 2021. It is no longer an option to choose on the NEWA map when selecting a station to view. This Rainwise station was 11 years old and experiencing sensor failures that could not be fixed. We would like to thank Chuck and Deb Kelley for hosting this station and for their patience with our troubleshooting issues through the years.

As a result of disconnecting that station we were able to move the high gain antenna that had been installed on it to the North East Side Hill station. This station had been experiencing connection issues and we are giving this a shot. So far so good! If you do a weather data query you will see that the data is now mostly actual data instead of estimated.

Most of you have probably been very busy with harvest and might not have had the chance yet to check out much on the new NEWA website. There are some great tutorials on how to navigate the new site that you can watch when you get a chance. You can find them at this <u>link on the NEWA website</u>. If you have

any questions please feel free to contact Kim at ksk76@cornell.edu. As always, if you notice something is not quite right on your favorite weather station please send an email to <u>ksk76@cornell.edu</u>.

#### VIP

If you have an abandoned vineyard and would like someone to come do a taste/smell test to verify Concord please let Kim know ASAP. Email her at ksk76@cornell.edu

Those grapes will probably fall off soon, so now is the time. Also, if you have been considering using this program to help with removal of an underproducing Concord vineyard you might want to submit your application soon. This program officially ends in October of 2023. Generally we allow for 1 year to



complete the removal and another 2 years to complete the replant if you plan to put in a vineyard or other specialty crop, but we don't have that much time left. If you are interested please visit the website at <a href="https://lergp.com/about-vip">https://lergp.com/about-vip</a> to learn more and to apply.

Any questions please contact Kim.

#### NY Wine & GRAPE CLASSIFIEDS GETS AN UPGRADE!

<u>The NY Grape & Wine Classifieds</u> received an upgrade. To users, it will mostly just be cosmetic - the process for posting ads is the same as it was before. The new format for the site puts more emphasis on pictures, so I encourage you to add a photo or two (maximum is 3 per ad) to your ads to make them stand out a bit more.

One of the bigger things we did "behind the scenes" was delete the spam user accounts that had accumulated over the past several years (THOUSANDS of them). We did our best to retain all legitimate users but it's likely that a few were deleted by mistake. If you try to login to the system and you get a message saying you don't have an account, this is probably why. If that happens, please <u>email Brittany Griffin</u> at <u>bg393@cornell.edu</u> with the following information:

Full Name Email address Company/Organization User ID (yours to choose)

You will receive an email once the account is created, and you can change your password to whatever you would like in your user profile. We are using this system to set up accounts in order to avoid the creation of more spam user accounts. We appreciate your patience while we do this.

We will be working on some further upgrades to the site over the winter that should improve the experience for both users and those of us who administer it. More about that in the coming months. In the meantime, let us know if you run into any problems with using the site.

NY Grape & Wine Classifieds: https://flgclassifieds.cce.cornell.edu/







## Far past the frozen leaves

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## Other links of interest:

LERGP Web-site:

Cornell Cooperative Extension website:

Cornell CALS Veraison to Harvest Newsletter:

**Efficient Vineyard:** 

Appellation Cornell Newsletter:



#### COVID-19 resources:

Need information? View the following Cornell CALS and CCE Resource Pages Updated Regularly

https://eden.cce.cornell.edu/

Food Production, Processing & Safety Questions:

https://instituteforfoodsafety.cornell.edu/coronavirus-covid-19/

Employment & Agricultural Workforce Questions:

http://agworkforce.cals.cornell.edu/

Cornell Small Farms Resiliency Resources:

https://smallfarms.cornell.edu/resources/farm-resilience/

Financial & Mental Health Resources for Farmers:

https://www.nyfarmnet.org/

Cornell Farmworker Program

www.farmworkers.cornell.edu

www.trabajadores.cornell.edu (en espanol)