



CROP UPDATE - MAY 10, 2018

Building Strong and Vibrant New York Communities

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

Dates of interest:

May 16, 2018- Coffee Pot Meeting 10:00am-Sprague Farms, 12435 Versailles Rd. Irving, NY 14081



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May 23, 2018- Coffee Pot Meeting 10:00am- North East Fruit Growers, 2297 Klomp Rd. Northe East, PA 16428

Tuesday, June 5- LERGP Hopyard Tour-6:00pm-7:30pm at CLEREL, \$5.00 per person, light refreshments

Saturday, June 30- Hops Conference, CLEREL

*Tuesday, July 10- LERGP Hopyard Tour-*6:00pm-7:30pm at CLEREL, \$5.00 per person, light refreshments

Thursday, August 2- LERGP Summer Conference at CLEREL 9:00am-4:00pm

Tuesday, August 7, 2018- LERGP Hopyard Tour- 6:00pm-7:30pm at CLEREL, \$5.00 per person, light refreshments

Mosier-Maille Ag Consulting Soil and Crops

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Business Management

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

The "Profit" of Bulk Grape Production

Price taking

The price of Concord has been at the forefront of the problems identified with profitable and sustainable production. After a period of 5 years, low prices mostly continue. The question remains, are some growers still profitable even with low prices? If not, what drives profits when prices are higher? In turn, what drives losses when prices are low? Why isn't everyone bankrupt?

Equipment Capital Expenses

The operating cost of equipment is around \$436 per acre. This can vary by about \$100 per acre for growers that have more efficient machinery and/or make less trips through the vineyard. Most growers actually incur additional depreciation that is not associated with their farming operation.

An extreme example might illustrate the inefficiency best. A top of the line vineyard tractor might be \$75,000. What is that vineyard tractor worth in 3 years with 3,000 hours? What is it worth in 3 years with 25 hours. Even though the tractor didn't get used it continued to depreciate. The large majority of tractors and harvesters accumulate less than 500 hours per year. This inefficiency will vary widely from farm to farm. Unless a grower reduced the number of farm tractors, this inefficiency will undermine the savings of reducing trips through the vineyard. A typical grower realizes about \$75 of equipment depreciation associated with under-utilized equipment. A brand new harvester that operates on less than 200 acres will essentially double that deprecation to \$150 per acre.

Labor

Total labor cost is approximately \$493 per acre. Actual paid labor costs vary between 0 - and 635 per acre. Not including trimming and vine renewals typical labor is about 8 hours per acre. Most unpaid labor savings is realized in that category. This category of labor has been rising faster recently as labor demand in non-ag just picked up in the last year. With a rising minimum wage in NYS, we have seen this cost increase from \$120 to \$150 and should continue on that pace to at least \$180. The value of unpaid labor for operating a tractor will also increase.

Debt vs. Return on Investment

A return on investment measures the gain or loss relative to the amount of money invested. Vineyard operations are capital intensive and the amount of money invested is a lot. The variance from farm to farm is enough to undermine profitability. A typical farm has about \$8,000 invested per acre. This will vary from \$5,000 to \$10,500. A reasonable long-term average ROI would be about 4.5% or \$570 per acre for an above average site. If a bank is making the bulk of this investment the farmer cannot expect an ROI. The interest payments are significantly higher than an average ROI. ROI can vary from year to year, without much concern from a financially savvy grower. Interest, however, comes due. An interest payment will average 2% more than a reasonable ROI. Not only is this payment typically fixed, it is an extra \$200 per acre above a reasonable ROI. The good news is; many loans have a fixed interest rate. The current inevitable trend of rising interest rates represents a cost increase of \$100 per acre.

With that, we have covered 75% of the cost of growing grapes profitably. At the moment these categories are all increasing in price faster than inflation. While revenue might be driven by price and yield, expenses are driven by labor and capital. The third category of interest/ROI is merely a percentage (4%-8%) of capital. If

profit margins are too thin the best options are to decrease debt and paid labor without sacrificing vineyard care.

Survival Mode

So why isn't everyone bankrupt? There is flexibility in realizing profits, or a lack thereof. Most growers have an unpaid labor expense of at least \$250 per acre and can increase that to \$300. They can accept a return on investment of \$0 or less. Growers can also refuse to realize depreciation expenses. Tractor fleets with an average age of 5 years can increase to 9. That means no new tractors for 4 years. This flexibility allows growers to shield low prices from impacting cash flow. Implementing these changes to an operation typically result in no changes to core fundamentals. Vine size and yields do not change. Repairs expenses may increase slightly. By implementing all of these changes total costs are reduced from \$2,160 to \$1,085. Prices of \$180 per ton might not be sustainable. They're just high enough to keep growers in business for a few years.

The Limitations of Cost Re					
	Labor Cost	Equipment	Material	Total Cost	
		Cost	Cost		
Total	493.58	436.16	615.93	2,160.67	
Pruning and Brush Pulling	237.76			237.76	
Tying & Renewal	\$101			101.01	
Brush Chopping (2x)	11.20	20		31.20	
Fertilizer (3x)	5.60	8.75	211.325	225.68	
Trellis	32.00	28	90.6	150.60	
Weed Control (3x)	19.60	41.25	120	180.85	
Mowing (2x)	22.40	20		42.40	
Fungicide, Pesticide (5x)	21.40	95.12	194	310.52	
Harvest	30.09	150.00		180.09	
Trucking	12.52	73.04		85.57	
Crop Insurance				90.00	
Debt/Return On Investment		4.5%		525.00	

Viticulture

Jacqueline Dresser, LERGP Viticulture Extension Support Specialist

It's official! Budbreak called at Portland Lab

Despite a very cool spring and virtually no GDD accumulation in April, budbreak has finally arrived in Concord at CLEREL. We track phenology for four different pruning treatments (90 node, minimal, balanced and 120 node) and call budbreak when the average of all four treatments show 50% of leaf edges exposed. Though you may see budbreak earlier or later in your vineyards, keeping track of phenology here at the lab allows us to keep track of historical averages. Dr. Golnaz Badr at CLEREL has been tracking trends in phenology in the Lake Erie region. You may remember her presentation at our winter grower's conference back in March, where she showed the dynamics of key phenological stages (Table 1).

Variable	Mean	Min	Max	Range
Bud-break(days)	5-May	19-Apr	20-May	31
Full-bloom (days)	15-Jun	31-May	26-Jun	26
Veraison(days)	23-Aug	5-Aug	3-Sep	29
Bub-break to Full-bloom (days)	40	32	62	30
Bud-break to veraison (days)	110	98	128	30
Full-bloom to veraison (days)	69	63	79	16

Table 1 Historical averages for key phenological stages at CLEREL

Keeping track of phenology in your vineyards will allow you to time vineyard operations more efficiently (such as getting that Phomopsis spray on at 3-5" shoots), will give you a leg up on crop estimation (if you know your exact bloom date on each farm, you will be able to time your crop estimation for 30 days after that and boost prediction accuracy), will allow you to make better crop load management decisions (if bloom is much later than average, that may incentivize more fruit thinning) and will provide a valuable archive to look back on in future years. Our historical data sets have provided tools that can be used to generate predictive models, such as the Lake Erie GDD model that Dr. Terry Bates uses to predict bloom. This year Concord bloom is predicted on June 15th, this is right on average based on Dr. Golnaz Badr's data (Table 1). So, despite the late budbreak, we are on track to have a typical growing season in the Lake Erie region with respect to phenology. When was budbreak in your vineyards? Why not write it down?





Tim Weigle, NYSIPM, Cornell University, LERGP Team Leader

Spotted Lanternfly – The Newest Invasive Species

Just a reminder that we need to be vigilant against a new invasive species that is currently entrenched in Southeastern Pennsylvania and has moved to areas of Virginia and Delaware. This pest has the potential to do great harm to the grape industry if it becomes established in the area, as grapes are one of its preferred host plants. The major method of movement for this pest is through hitchhiking by the adult and egg stages. Currently we would be concerned about egg masses that are moving into the areas from areas in PA that are infested. The spotted lanternfly adult lays it egg masses on almost anything and can be found on tree bark (it resembles a splash of mud when dried), or anything that is left outside during the period of egg laying such as children's toys, vehicles, picnic tables, pallets, bins, etc.

If you are purchasing, or moving, anything from the quarantine zone (See Figure 1 - red dots are in quarantine zone) please inspect it carefully for egg masses prior to moving from the area or as soon as you receive it. Kill the egg masses by scraping them off the surface, crushing the egg mass and then double bagging egg masses in plastic bags before throwing them away. They can also be submerged in a container of hand sanitizer to render them nonviable.

More information on Spotted Laternfly can be found in the updated fact sheet found in this crop update. You can also check out our podcasts on the Spotted Lanternfly at <u>http://LERGP.com/podcasts</u>



PestAlen



Spotted Lanternfly *Lycorma delicatula* (White, 1845) (Hemiptera: Fulgoroidea: Fulgoridae)

Origin and Distribution

The spotted lanternfly is an invasive sap-feeding planthopper, first discovered in the United States in Berks County, Pennsylvania in 2014. Field observations indicate that the tree of heaven, Ailanthus altissima, is an important host plant; however the spotted lanternfly is known to feed on a wide range of hosts including wild and cultivated grapes, stone fruits, willow, and various hardwoods. This species is thought to be native to China, and has spread to other Asian countries. In 2004, it was first detected in Korea, where its populations expanded and it became an economically important pest of grapevines and fruit trees. In Korea, it damaged plants directly by phloem feeding, but also caused indirect damage due to mold that grew on honeydew excretions deposited on the leaves and fruits of host plants. It was recorded utilizing 67 host plant species in Korea, many of which also occur in the U.S. Given the wide range of hosts it feeds upon, the spotted lanternfly poses a serious economic threat to multiple U.S. industries, including viticulture, fruit trees, ornamentals and timber.

Life Cycle and Identification

The spotted lanternfly population overwinters as egg masses and has a one year life cycle. In Pennsylvania, the first nymphs hatch in late April to early May and are less than ¼ inch long. Nymphs develop through four stages, all of which are wingless and incapable of flight. The first three nymphal stages are black with white spots and appear "tick-like." Fourth instars develop red patches on



Egg masses of *L. delicatula* covered by waxy deposits

the body and are over ½ inch long. Adults begin to appear in mid-July and are approximately one inch long and ½ inch wide, with wings folded. The forewing is gray with black spots near the base, and the tips are black with a dense series of lighter gray crossveins. The hindwings are bright red at the base, and have an adjacent region that is black with a white band. The abdomen is yellow with black bands down the center.





First instar spotted lanternfly (*Lycorma delicatula*) nymph

Fourth instar spotted lanternfly (*Lycorma delicatula*) nymph

Early instars feed upon a wide variety of host plants. Although it is not yet known whether SLF requires feeding upon tree of heaven to successfully complete its life cycle, later instars and adults show a strong preference to feeding on this host. In late summer to early fall 2017, large numbers of adults were observed to fly and feed upon previously uninfested hosts. Most notably, SLF flew into orchards and were observed to feed on apple trees for a number of days, before moving off to other hosts.

Adults mate in early fall in Pennsylvania and form large aggregations. Although these have been observed on grapevine, willow, maple, and other tree species, they most commonly occur on tree of heaven. Females lay eggs from late September through October and dozens of egg masses can be found near adult aggregations. Eggs are deposited on tree trunks, limbs, and loose bark as well as any smooth surface, including stone, vehicles, trash barrels, outdoor furniture, and other man-made structures. Newly laid egg masses



eNEWA for Grapes – a Daily Reminder of Pest Potential in Your Vineyard Operation

With the cost of inputs continuing to rise, wouldn't it be nice if you could get a daily reminder of the current weather and grape disease and insect model information found on NEWA (Network for Environment and Weather Applications) <u>http://newa.cornell.edu</u>? If so, then eNEWA is for you. eNEWA is a daily email that contains current weather and grape pest model information from a station, or stations, near you. The email will contain; 1) high, low and average temperature, rainfall, wind speed and relative humidity 2) the 5-day forecast for these weather parameters, 3) GDD totals (Base 50F), 4) 5-day GDD (Base 50F) forecast and 5) model results for powdery mildew, black rot, Phomopsis and grape berry moth. The weather information is provided for not only the current day but for the past two days as well. eNEWA is a great way to get an idea of pest potentials for your vineyard operation without having to click around the NEWA website. eNEWA is not meant to be a replacement for the website, rather it is a quick and easy way to determine if a visit to the website is warranted to provide information specific to your site to increase the accuracy of the output of the disease and grape berry moth models.

When you sign up for eNEWA, you can choose from any number of stations located near you for delivery of this information via email each day at a time specified by you. Please keep in mind that you will receive a separate email (approximately 3 pages in length) for each station you choose. Once during the growing season and again after harvest, you will be asked to complete a short survey to assist us in improving the eNEWA for grapes email system. If you would like to be a part of this project just fill out the form found in this Crop Update and return to: <u>thw4@cornell.edu</u> or send to me at Tim Weigle LERGP 6592 West Main Road Portland, NY 14769.



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Rev 02/17 BP&Ink

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Select eNEWA Delivery Times (write in times below) Delivery requests should be on the hour.

North East PA Update

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

Weather: We have accumulated just 0.63" of rainfall in the first 9 days of May at our site by the lake, which is a bit on the dry side. May has also been a bit warmer than average so far. However, that's about to change as the short term forecast, from Thursday, May 10 through Saturday, May 12, is mostly wet and cool; rain and high temperatures in the 50s and 60s, and overnight lows into the upper 30s, will slow things down.

Phenology: 50% bud burst in Concord and Niagara at our site, occurred on May 9 and 10, respectively.

Diseases: Rainfall over the next 3 days will put vineyards at risk of Phomopsis, even though we have not yet reached that more vulnerable 3" shoot stage. Here along the lake, buds are just barely at full bud break. Vineyards at this stage during last year's lengthy, early May wetting/infection periods, came out in pretty good shape, with very little Phomopsis lesion development. But farther inland (south of I90) there is currently 1 to 1.5 inches of shoot growth and though inflorescences are not fully exposed yet, the first internode region, and in many cases, the second internode region of shoots, are exposed enough to become infected and develop lesions. This possibility is made more likely given the high level of overwintering inoculum in Lake Erie vineyards. Looking at NEWA, the rain we are expecting from late Friday through Saturday and into Sunday morning will generate an infection period for Phomopsis, possibly a lengthy one.

Fungicides that contain mancozeb, ziram, or captan (if allowable by your processor) are the best choice at this time as all are effective. Captan and Mancozeb products are generally less expensive than ziram and mancozeb has the shortest reentry period. And you don't need to apply the full rate at this time either. All are strictly surface protectants, subject to wash off by rainfall; there are no fungicides that will take care of a Phomopsis infection after it's become established. Also, vineyards that have been machine pruned are going to be at higher risk and will likely benefit most from this spray.

Looking beyond this infection period and the cool temperatures that will slow shoot growth, we will all be into that 3-5" shoot stage very soon when inflorescences will be vulnerable and definitely need fungicide protection. For vineyards next to the lake, its likely we will not be at this stage until this infection period passes. For vine-yards at 1-1.5 inches, this first infection period will likely produce lesions on the first and second internodes, but inflorescences will not be at maximum vulnerability. After Sunday, the forecast looks relatively dry. But that can change, much the way the forecast for this current wetting period has evolved throughout the week (and depending on which weather forecast you put your 'faith' in). If you choose to withhold sprays to your acreage before rains on Friday, we highly recommend fungicide protection at least by that 3-5" shoot stage.





We sell and service CaseIH tractors, Oxbo Harvesters, and Turbomist sprayers. We also custom manufacture single and dual tank sprayers, pre-pruners, brush sweepers, wire winders.





May 2, 2018

LERGP **2018 COFFEE POT MEETING SCHEDULE**

Date	Time	Location	

T

10:00am Clover Hill Farm

Address

10401 Sidehill Rd. North East PA 16428

- May 9, 2018 10:00am Ann & Martin Schulze Winery 2090 Coomer Rd. Burt NY 14028
- May 16, 2018 10:00am Sprague Farms
- May 23, 2018 10:00am NE Fruit Growers
- May 30, 2018 10:00am Double A Vineyards
- June 6, 2018 10:00am Fred Luke Farm
- June 6, 2018 3:00pm Thompson Ag
- 10:00am Jim Vetter Farm June 13, 2018
- June 13, 2018 3:00pm Jerry Chessman Farm
- June 20, 2018 10:00am Duane Schultz
- June 20, 2018 3:00pm Brant Town Hall
- 10:00am Betts Farm June 27, 2018
- 3:00pm Beckman Farms June 27, 2018
- July 11, 2018 10:00am **CLEREL**
- July 18, 2018 10:00am Tom Tower Farm
- 10:00am Ziesenheim July 25, 2018

- 12435 Versailles Rd. Irving NY 14081
- 2297 Klomp Rd. North East PA 16428
- 10277 Christy Rd. Fredonia NY 14063
- 1755 Cemetery Rd. North East PA 16428
- Corner of Hanover and Dennison, Silver Creek NY 14136
 - 12566 Versailles Rd. Irving NY 14081
 - 11725 Middle Rd. North East PA 16428
 - 3692 Wilson Cambria Rd. Wilson NY 14172
 - 1272 Brant Rd. Brant NY 14027
 - 7365 East Route 20 Westfield NY 14787
 - 2386 Avis Dr. Harborcreek PA 16421
 - 6592 W. Main Rd. Portland NY 14769
 - 759 Lockport St. Youngstown NY 14174
 - 8760 W. Lake Rd. Lake City PA 16423



INSURING GRAPES

NY, 2017

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Important Insurance Deadlines



Over 40 grape varieties are insurable in these counties:

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NYS Grape Crop Insurance Performance



Learn more & sign up:

Explore your personalized crop insurance costs and loss payments under different yield outcomes at aq-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









LERGP Links of Interest:

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

LERGP Web-site: http://lergp.com/

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

Efficient Vineyard Web-site: https://www.efficientvineyard.com/

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

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

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

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

NEWA: http://newa.cornell.edu/





Lake Erie Regional Grape Program Team Members:

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

Cornell University Cooperative Extension provides equal program and employment opportunities. Contact the Lake Erie Regional Grape Program if you have any special needs such as visual, hearing or mobility impairments. CCE does not endorse or recommend any specific product or service.

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



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