



CROP UPDATE

July 15, 2021

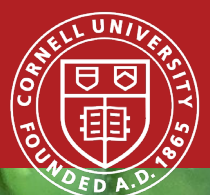
photo credit-
Kim Knappenberger

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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.

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Business Management

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

Cover Crops: Price Trends for Seeds vs. Blends

I plan on talking cover crops once or twice in the next few weeks. Field crop ground is taking over and these guys are doing everything they can to boost yields and invest. Farming for them is all about maximum bushels. Not unlike grape farming right now. Any and all effective practices that boost yield and yield potential are far more likely to be solid investments than they were just five years ago. Enter cover crops.

The cost of specific seed types has increased, as much as 250% in three years. There is less land to produce seed and more people interested in planting. The good news is, most of our core mixes that require a lot of seed have not increased substantially at all. Clover and daikon radish are two widely used products that have seen price increases. These price increases are not like fertilizer. The trend upward has taken years but has added up to sharp increases.

For those new to cover crops the cost of a starter blend has not increased at all. If you're just getting started it is recommended that pH be adjusted to at least 5.8, with no seeding at all if pH is below 5.2. Once pH is adjusted a blend should include at least one cool season grass, daikon radish and buckwheat. The latter is a great insurance policy. If seed contact or summer weed termination is inadequate, buckwheat will be the most resilient at getting established and providing some cover.

This blend is up about 20% in cost as most cool season grasses have not seen substantial price increases. For soil health the cost would be \$14 – \$25 per acre in seeds. The variability would depend on the quantity and source of seeds. Stick to oats, grain rye or annual rye grass if you're just starting out.

To move beyond this basic blend a grower needs to have success in growing cover crops. There are skills, knowledge and abilities that are not historically necessary for viticulture production. A grower needs to know how to run and calibrate the seeder they are using. Poor soil contact, a seeder that leaks seed or bad calibration can result in seeding costs that are too high to justify. Timing of termination and establishment are also a bit of science and art based on specific sites and weather. When this does not go well the benefits of cover crop cannot be established. The best thing cover crops do is weed control. Poor timing or establishment can lead to very



poor weed control. I've done it.

Once you've got this down it can become economically beneficial to establish more concrete goals and capture exactly what you want your cover crop to do at each site. It is likely that this could lead to more complex mixes that do even more for soil health, nitrogen recycling or compaction. One might drop buckwheat as an insurance policy but invest more in legumes, cool season grasses, or other brassicas such as turnips.

A blend of radish, triticale, rye, crimson clover buckwheat, and winter pea is about as high end as it would get. At \$50 an acre it's a substantial investment in soil health. However, successful establishment may produce just as much biomass all while accomplishing other goals more rapidly. The risk of course is a failed establishment resulting in a larger economic loss. Calibration errors also cost twice as much. In particular, a diverse mix like this may be more likely to provide additional ground cover at varying times. Keep in mind that legumes do not produce nitrogen if there is no additional nitrogen. They do, however, climb up grasses and increase the density of the cover.

These more advanced and complicated blends have increased in price more than blends that rely heavily on cool season grasses. Prices are up 25% - 40% in 5 years depending on goals. Even with that, it seems likely that these are a good investment when well managed. A grower with a lot of experience may also be more likely buying in higher volumes. Bulk purchases are an effective strategy for reducing seed cost. With the right blend, at the right volume, some growers may see little change in seed cost.

Trials for spring and summer cover crops continue. Success in this area offers huge rewards and potential improvements in soil health, temperature and weed control. Failure would mean increased competition for soil moisture and smaller crops. Starting with basic mixes now puts growers in a place to take advantage of this research if cooperating growers, CLEREL and Dr. Bates can make it work. For now, occasional planting of buckwheat seems relatively safe. In the future maybe we can integrate buckwheat with warm season grasses and other seed varieties to do more than just weed control and slightly decrease erosion.



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Viticulture

Jennifer Russo, Viticulture Extension Specialist, LERGP

Crop Estimation

This Saturday, July 17th, is 40 Days After Bloom (DAB) for Cornell Lake Erie Research and Extension Laboratory's Concord grapes. Crop estimations for our blocks were taken at 30 DAB and, like many of you, there is a big crop hanging out there. I have been working on crop estimations across the belt this past week and confirm that many growers are looking at larger than average crops. The photo below is a 50 cluster Concord sample that has 2688 berries and weighing in at just under 9.5 pounds.

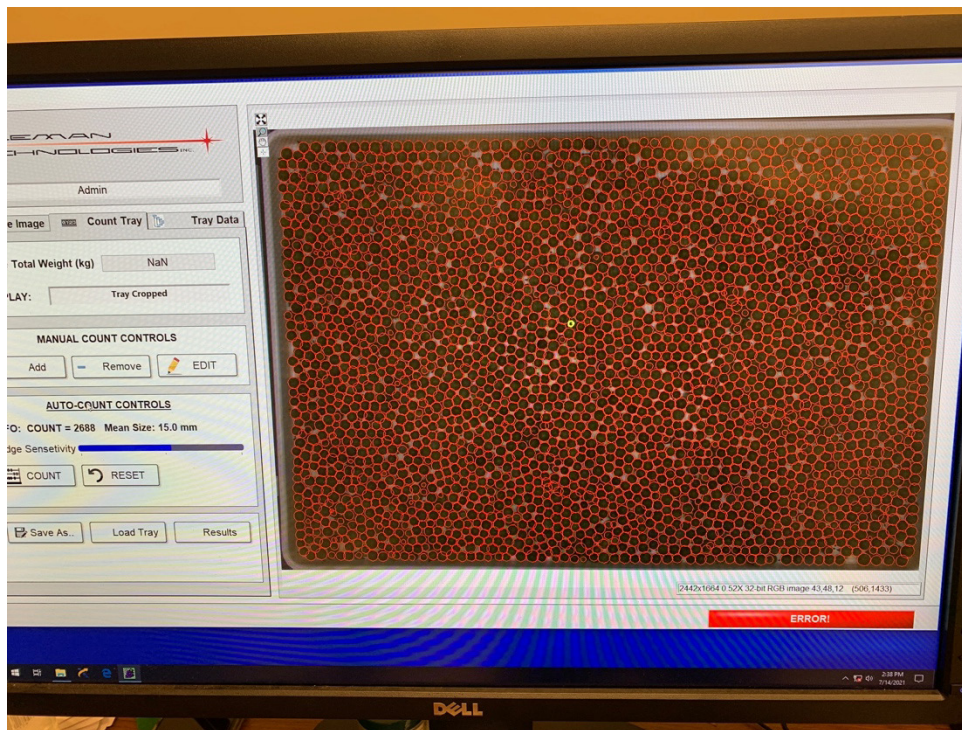


Photo 1. Photo of the Cornell Grape Counting Machine with a red circle around each Concord berry in the sample

That equates to a 5-gram berry at harvest providing that the sample was collected at 30 DAB. Now, this is one of the largest samples that I have looked at but the average berry size at harvest out of 129 Concord samples analyzed thus far is 3.08 grams, which is 10% larger than last year. Please see the table below to see how the crop estimation samples at 30 DAB compare to 2020. I know that this is

creating some anxiety between the viticulturist in our growers and your potential revenue this fall. However, knowing your vine size and what your average tonnage is may help you make the correct decision to thin or not. The goal of cluster thinning, then, is to achieve both the quality *and* quantity parameters that will satisfy both the grower and their buyers.

Year	# of Samples	Average	Average	Average	Average	Average	Average	Ave
		Cluster	Berry Ct	Weight (g)	Diameter (mm)	Berry Wt (g)	Bry/Clst	Harvest berry wt
2021	129	51	2130	3880	16.4	1.54	32.43	3.08
2020	171	50	1563	2259	15.2	1.44	30.99	2.88
	42	0.75	566	1621	1.2	0.10	1.44	0.21

Table 1. Average berry parameters for 2020 and 2021 Concord crop estimation samples at 30 days after bloom

The graph below is based on Terry's and past researchers work on Concord growth and development, but it illustrates the point quite well. Vines that are over cropped have a low leaf area to fruit ratio and would be located on the left end of the graph (Figure 1). By removing some of the clusters, you increase the ratio of leaf area to fruit (moving to the right on the curve), approaching the point where the curve starts to level off. The goal of the viticulture research that we extend to you to do in the vineyard is to maintain the vines as close to that “shoulder” of the curve as possible. That is where vineyard production is most efficient – achieving optimum quality while producing a full crop. Overcropping your vines will drive down future production and creates the risk of not meeting sugar accumulation standards before harvest.

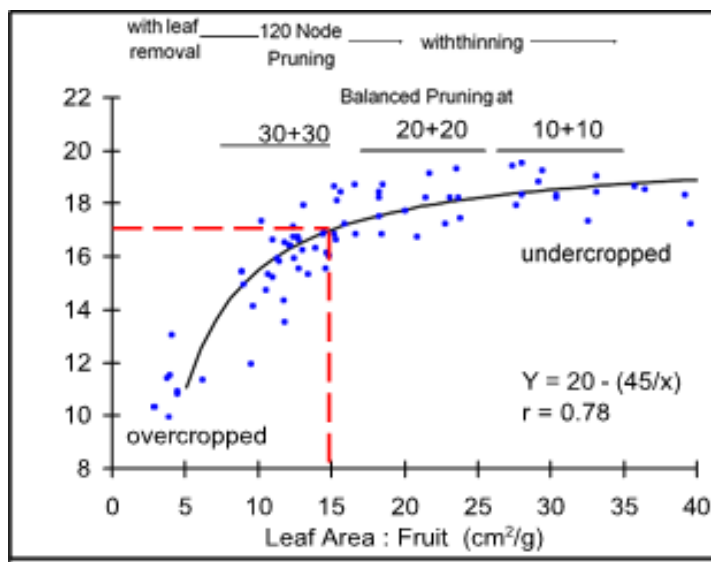


Figure 1. Relationship between leaf area to fruit weight ratio and soluble solids in Concord. Similar relationships have been found in studies with other grape varieties.
Source: Dr. Terry Bates, Cornell University

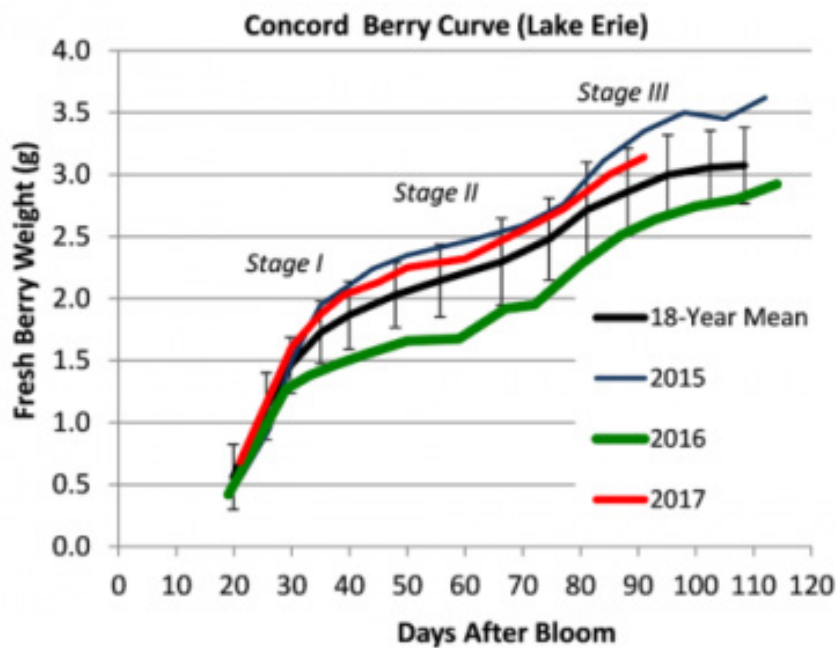


Figure 2. Berry growth curve for Concord grapes, showing the ‘double sigmoid’ curve encompassing three stages of growth (courtesy of Terry Bates)

Cluster thinning is conducted any time from fruit set to veraison. In Phase I (3-4 weeks after bloom) is when the berries are in rapid cell division. We are currently in Phase II, or lag phase (Figure 2), where berry growth pauses, and the primary focus is on seed growth and chemical signaling to prepare the berry for softening and expansion in the next stage. Later season crop thinning has been used largely to achieve greater precision in targeting final yield goals and maintaining vine balance. Many growers will thin clusters at lag phase to meet the desired yields.

So how much should you thin? Well, each vineyard block decision requires experience, knowledge of that vineyard block over time, and maintenance of detailed records. These records should contain information about the previous crop thinning practices if any, pre-thinning cluster counts, yields, fruit compositional analysis, and dormant pruning weights. The starting point for determining crop adjustment is understanding vine balance, the amount of vegetative growth needed to support the fruit hanging on your vine, and allow for a fruitful crop the next season (Figure 1). If this is your first experience with fruit thinning, I suggest that you listen to our podcast, *To Thin or Not To Thin?* We had Dr. Terry Bates as a guest speaker on last week's podcast [Click here for Terry's Podcast](#), please listen to or look for it on our video blog to help guide your research-based decision on whether to thin your crop this year or not.

Here is a list of Resources that you may want to look at to help inform your thinning decision:

Hellman, E.W. and T. Casteel. "Crop Estimation and Thinning" in *Oregon Viticulture*, ed. Edward Hellman. Oregon State University Press, 2003. <http://winegrapes.tamu.edu/grow/tentative%20pdf/thinning.pdf>

Kliwer, M. and N. Dokoozlian. 2005. Leaf Area/Crop Weight Ratios of Grapevines: Influence of Fruit Composition and Wine Quality. *Am. J. of Enol. and Vit.* 56(2): 170-181.

Pool, R. 2001. Estimating and adjusting crop weight in Finger Lakes vineyards. <http://www.fruit.cornell.edu/grape/pool/cropsizes.html>

Preszler, T., T. Schmit and J. Vanden Heuvel. 2010. A model to establish economically sustainable cluster thinning practices. <http://agribusiness.dyson.cornell.edu/docs/pub/trade/RIPE-Econ-Cluster-Rem.pdf>

Preszler, T., T. Schmit and J. Vanden Heuvel. 2010. A model to establish economically sustainable cluster thinning practices. *Am. J. of Enol. and Vit.* 61(1): 140-146.

Sun, Q., G. Sacks, S. Lerch and J. Vanden Heuvel. 2012. Impact of Shoot and Cluster Thinning on Yield, Fruit Composition and Wine Quality in Corot Noir. *Am. J. of Enol. and Vit.* 63(1): 49-56.

Skinkis, Patty. "Crop Thinning: Cluster Thinning or Cluster Removal". <http://www.extension.org/pages/31767/crop-thinning:-cluster-thinning-or-cluster-removal>

NOAA's National Weather Service Forecast by 12 Hour Period for CLEREL

Notes: Weather forecasts are sourced from National Oceanic and Atmospheric Administration's (NOAA) National Weather Service.

[National Weather Service Forecast \(click to link\)](#)

[NOAA's Disclaimer \(click to link\)](#)

UTC Forecast Time: 2021-07-15T07:49:52+00:00

Overnight: Mostly clear, with a low around 64. South wind around 12 mph.

Thursday: A chance of showers and thunderstorms after 3pm. Mostly sunny, with a high near 84. Southwest wind 12 to 17 mph. Chance of precipitation is 30%. New rainfall amounts between a tenth and quarter of an inch possible.

Thursday Night: Showers and thunderstorms likely. Mostly cloudy, with a low around 70. Southwest wind 13 to 17 mph. Chance of precipitation is 60%. New rainfall amounts between a quarter and half of an inch possible.

Friday: Showers and thunderstorms likely. Mostly cloudy, with a high near 77. Northwest wind 9 to 13 mph. Chance of precipitation is 70%. New rainfall amounts between a tenth and quarter of an inch possible.

Friday Night: Showers and thunderstorms likely before 8pm, then showers and thunderstorms. Cloudy, with a low around 66. Southeast wind 6 to 10 mph. Chance of precipitation is 80%. New rainfall amounts between three quarters and one inch possible.

Saturday: Showers and thunderstorms. Mostly cloudy, with a high near 75. Chance of precipitation is 80%. New rainfall amounts between a half and three quarters of an inch possible.

Saturday Night: Showers and thunderstorms likely before 8pm, then a slight chance of showers and thunderstorms. Mostly cloudy, with a low around 65. Chance of precipitation is 70%.

Sunday: A chance of showers and thunderstorms. Mostly sunny, with a high near 77. Chance of precipitation is 30%.

Sunday Night: A chance of rain showers before 2am. Partly cloudy, with a low around 66. Chance of precipitation is 30%.

Monday: A slight chance of rain showers between 8am and 2pm, then a slight chance of showers and thunderstorms. Sunny, with a high near 80.

Historical Growing Degree Days (base 50) for CLEREL

Notes: Current season accumulation is reported as the thick blue line from January 1 through date of this report. Historical season data is reported between January 1 and December 31 of each year. The legend indicates how many GDDs had accumulated by the same date in previous years and the final total for the year on December 31.

Data is sourced from Cornell's Northeast Regional Climate Center (NRCC) high resolution gridded data service.

Figure 3 is the Historical Growing Degree Day (base 50) for CLEREL from January 1, 2021 through July 14, 2021. CLEREL has accumulated 1216 GDDs compared to 1140.4 for the five-year average. We are tracking closely with 2017, which had 1209 on this date.

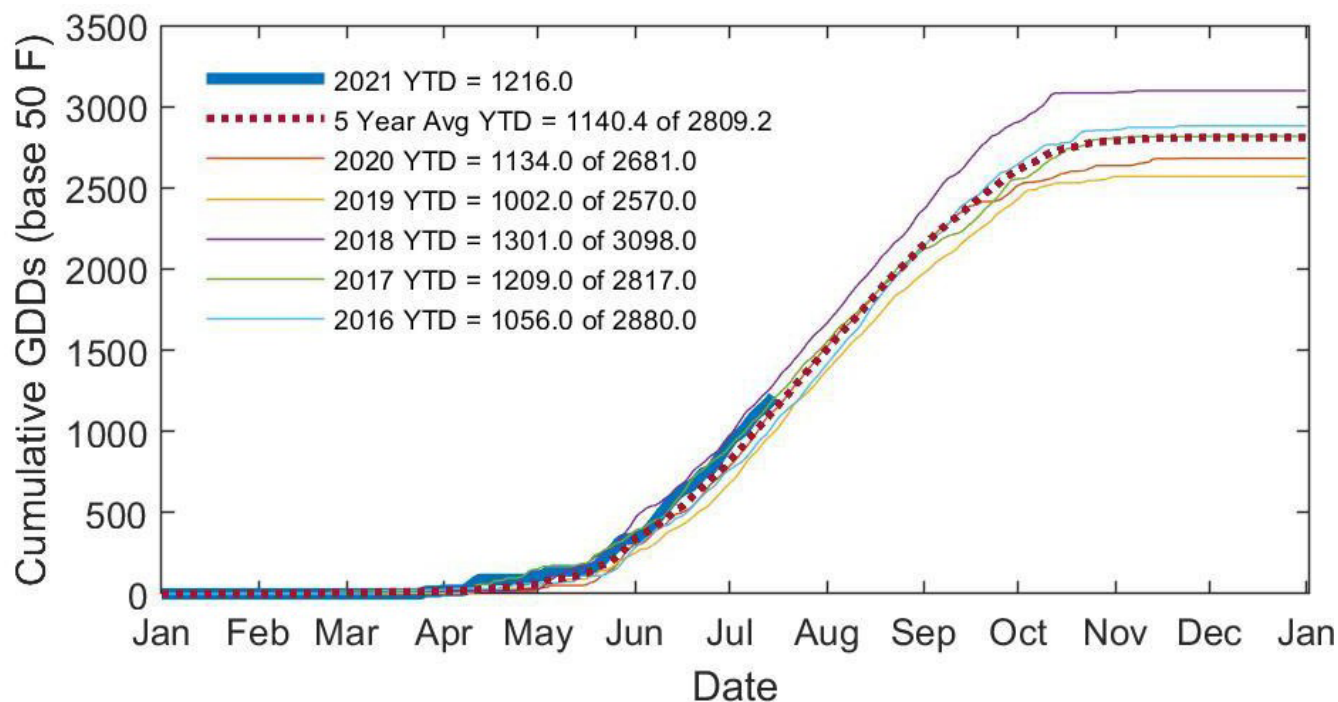


Figure 3. Historical Five-Year Growing Degree Days (base 50) for Cornell Lake Erie Research and Extension Laboratory in Portland, NY



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PA Update

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

In the Vineyard (7 -15- 21) –

Rain, Rain, Rain. Showers and thunderstorms have been the norm since the beginning of July and especially within the last 7-10 days. According to the National Weather Service, more showers and thunderstorms are expected, Thursday night – Saturday night with chances of precipitation from 60-90% during this time. Some of these storms could produce heavy rainfall.

Downy Mildew – The frequent showers/thunderstorms since the beginning of July have dramatically raised the potential for downy mildew (DM) infections throughout the region. (See table, provided by Kim Knappenberger, for precipitation amounts for June and July for NEWA locations around the Lake Erie Region). However, I still did not find any DM this week (7/12) in Concord, Niagara Fredonia or Delaware blocks that were scouted. But Bryan Hed has observed a **dramatic** increase in DM infections in unsprayed Chancellor plots at the Grape Research & Extension Center in North East, PA.

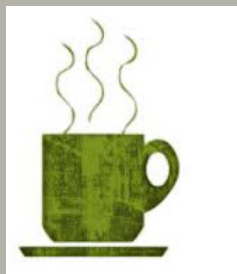
Even with all of this rainfall, I still don't think that DM will become a major problem in Concords, but my concern is for DM susceptible varieties (i.e., Niagara, Catawba, Fredonia, Delaware, Chancellor, *V. vinifera* varieties). So, be sure to scout your vineyard blocks (including Concords) to get an idea of the extent of DM infections and manage accordingly.

In next week's Crop Update I expect to report on finding downy mildew, so stay tuned. **For comprehensive information concerning DM check out Bryan Hed's Crop Update.**

Register for the LERGP
Coffee Pot meetings [here](#).

We have 2 more coffee pot
meetings this summer.

July 21-7:00pm
July 28-10:00am



SAVE THE DATE!!!!

**IN PERSON Meeting....
back together again!**

**Tuesday, August 3, 2021 from
10:00am-1:00pm**

**Spray demo and lunch to
follow.**

**More details in next week's
Crop Update!**

NEWA location	June Precip in inches	July precip in inches (to 7/15)
Ransomville	3.59	1.58
Burt	3.02	2.50
Corwin	1.67	2.11
Brant	2.22	6.31
Versailles	2.09	5.87
Hanover	2.73	6.48
Sheridan	2.75	4.30
Silver Creek	1.43	4.14
Silver Creek Double A	2.92	7.25
Dunkirk Airport	2.40	5.70
Forestville	2.78	3.84
East Fredonia	2.28	2.61
Fredonia	2.95	5.49
Brocton Escarpment	3.05	6.34
Portland Escarpment	2.48	6.40
Portland	1.61	3.60
Portland (LERGP West)	1.42	5.63
East Westfield	OFFLINE	
Westfield	2.41	3.48
Ripley	1.46	4.55
Ripley Escarpment	3.43	4.37
North East State Line	3.49	4.32
North East Sidehill	3.46	3.15
North East Lab	2.86	3.53
Harborcreek Escarpment	3.60	4.84
Lake City	3.03	3.59



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GRAPE TWILIGHT MEETING & ERIE COUNTY HORTICULTURAL SOCIETY'S ANNUAL FREE DINNER

DATE: WEDNESDAY, AUGUST 4, 2021

PLACE: Gravel Pit Park
10300 West Main Road (Route 20), North East, PA 16428

TIME: GRAPE PROGRAM – 5:00 - 6:00 P.M.
FREE DINNER – After the Program

NOTE: Farm Equipment Display by Various Vendors – 3:00 to 7:00 P.M.
Pesticide Recertification Credits available for NY & PA.
NO REGISTRATION REQUIRED (just show up)

GRAPE PROGRAM:

- **MAKING A HABIT OF THE WORKER PROTECTION STANDARD – 5:00 -5:30 P.M.**
JIM HARVEY, PA OFFICE OF RURAL HEALTH, PENN STATE
- **INSECT & DISEASE MANAGEMENT UPDATES – 5:30 to 6:00 P.M.**
Bryan Hed, Lake Erie Regional Grape Research & Extension Center, North East, PA
Andy Muza, Jennifer Russo, Kevin Martin - Lake Erie Regional Grape Extension Team

Sincerely,

Andy Muza
County Extension Educator

7/15/21

The Pennsylvania State University encourages qualified persons with disabilities to participate in its programs and activities. If you anticipate needing any type of accommodation or have questions about the physical access provided, please contact Andy Muza at 814-825-0900, Ext. 1 in advance of your participation or visit.

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PA Update

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

Weather: July rainfall has been plentiful along the PA lakeshore and has ranged from just under 2" to almost 7" over the past two weeks. As of July 14, we have recorded 3.53" of rainfall for the month at our location, and it keeps going up almost on a daily basis. We have accumulated about 287.6 growing degree days (gdds) so far during July, and we now have about 1291 gdds as of April 1. The short term National Weather Service forecast for North East looks wet...again; there's about a 70% chance of rain tonight (July 15), 60% chance Friday, 90% chance Friday night, 80% chance Saturday, decreasing to 30% chance on Sunday. Monday, so far, looks sunny.

Phenology and Diseases: We have recorded about 4" of rain over the past 3 weeks with measurable rainfall on 15 of the last 20 days! Be vigilant about scouting for **downy mildew**...I can't emphasize this enough. We have had 9 infection periods for downy mildew in July, and scouting our unsprayed Chancellor vines, we have seen a dramatic increase in downy mildew cluster infections over the past couple of weeks (Figure 1). I expect more to manifest itself over the next week. And since downy mildew is front and center under these wet conditions, I've borrowed some information from a blog that I posted last year, that I hope will be helpful in managing this disease as it pops up in Lake Erie vineyards. I'm concerned mostly about susceptible wine varieties here, but susceptible natives like Niagara and Catawba may also be very much at risk...

'The pathogen that causes downy mildew is dependent on wet conditions; without a wet plant surface through which spores need to swim to reach infection sites (stomates), no infection takes place. Fortunately, the fruit of most varieties are resistant to direct invasion by this pathogen by about 3-4 weeks after capfall. In other words, a developing berry is only susceptible to direct penetration of the pathogen from about the time the flower cap comes off (at the beginning of bloom) to about 3-4 weeks later (end of June/early July, on average). However, the cluster stems may remain susceptible for a couple weeks or more after fruit are resistant, and for this reason, fruit infection and loss can continue to occur from cluster infections 4 or 5 weeks after capfall. Once we get past the critical sprays for fruit protection, scouting for the distinctive white 'downy' sporulation on the undersides of leaves and on clusters and cluster stems is very important, and yields valuable information with regard to future need to spray. Growers of susceptible varieties do well to keep closely monitoring their vineyards for active sporulation and use that information in combination with the DMCast model on NEWA (<http://www.newa.cornell.edu/>) to determine if and when infection periods have occurred or will occur.'

'Leaves will remain susceptible all season, though they do become less susceptible as they age. For this reason, the limiting or elimination of new shoot growth by veraison, through good nutrient and/or canopy management, can help to reduce the supply of susceptible tissue in the vineyard during ripening, and make post veraison control of this disease more manageable. I have gone into vineyards in late August-early September and observed that downy mildew was largely present on new shoot growth, but not on mature leaves at older nodes. There were at least two reasons for this: i) new shoot growth is more susceptible than older, mature growth, and ii) new shoot growth, unless just sprayed, is unprotected or less protected by previous fungicide applications. Symptoms on mature leaves in late summer may appear different from those on young leaves in early spring.'

'The sight of active, white sporulation on green vine tissues (see Figure 2) means the downy mildew pathogen is capable of spreading quickly under wet conditions, and that sprays for downy mildew should continue, especially for susceptible varieties. Even humid nights that result in heavy

dews by morning, can continue to fuel downy mildew development, generating fresh sporulation that can spread the disease rapidly when plant surfaces are wet. If you let downy mildew get out of control, it can strip vines of their leaves and in the worst cases, effectively end fruit ripening for the year, and shoot ripening for next year's crop. Your grapevines go into winter dormancy in poor condition, and are more vulnerable to damage by severe cold, leading to crown gall and expensive trunk renewal the following season, with little or no crop to pay for it; all that stuff is connected, so you want to keep downy mildew under very tight control, especially on *Vitis vinifera*.

'Chemical control: Your list of chemical control options will start to dwindle as we get within 66 (Mancozeb products, Ridomil MZ), 42 (Ridomil copper), 30 (Ranman, Reason), 21 (Ziram), and finally 14 (Revus, Revus Top, Zampro) days of harvest. There is also the list of strobilurin containing fungicides that control downy, mainly Abound (not in Erie county PA) and Pristine. However, be aware that widespread resistance to strobilurins by the downy mildew pathogen has been documented in many places in the Northeast, and so this class of fungicides may not be among your best options. In the end you'll be left with Captan, copper, and phosphorous acid products (0-day pre-harvest interval), which have their own shortcomings, discussed below.'

'Products like Ridomil (the mefanoxam component), Ranman, Reason, Revus/Revus Top, Phos acid products, and Zampro, are more rainfast than the 'old standard' surface protectants like copper, mancozeb, ziram, and captan, but contain chemistries that are prone to the development of resistance. Therefore, they should not be used to put down an epidemic, which will only speed up the resistance development process. Even phosphorous acid products can be lost to resistance through repeated applications on a diseased vineyard, so keep downy mildew well under control. The resistance prone materials (Ridomil, Ranman, Reason, Revus/Revus Top, Zampro, Phos Acid products) are best used to maintain a clean vineyard, NOT to put down an epidemic. Conversely, the surface protectants would be least risky in terms of the development of resistance and can be an effective means of controlling downy mildew late into the growing season. Just be aware of seasonal limits, so plan ahead as best you can.'

'Here are some precautions to consider with use of the 'old standard' surface protectants:

- Captan is toxic to plants, and for that reason, is formulated to remain on the surface of the plant as a protectant. Tank mix partners, like oils, solvent based insecticides, and emulsifiable concentrates, may enable captan to penetrate into plant tissues which can lead to plant injury. Therefore, oils and some liquid insecticides should not be applied with Captan or within 14 days of a Captan application. Check out this [link from Dan Ward](#): Always read the label carefully.
- There is the concern for plant injury by copper applications, which will be exacerbated by application under slow drying conditions and application to wet canopies (for example, don't make applications to dew covered canopies in the early morning). The addition of lime to the application raises the pH of the spray solution, reduces the solubility of the copper, and reduces the chances for plant injury by copper.
- Consider that copper is poisonous to yeasts and that excessive copper residues at harvest can interfere with fermentation, and wine stability and quality. Unfortunately, it's impossible to predict how high residues will be on fruit at harvest; that's going to depend on the copper formulation (some of the newer coppers utilize lower copper concentrations, but may also be more rainfast), rate of material used, number and timing of applications made, spray coverage, and amount of rainfall from application to harvest. I am not aware of any information that establishes a nice, clean cut-off date or pre-harvest interval for avoiding excessive copper residues at harvest, but I have heard that cutting off copper use about a month before harvest may be sufficient in most cases.

- There is also evidence that late Captan sprays can delay fermentation and have negative effects on wine quality, but the consequences seem less severe and irreversible than those associated with copper use. For more on this, consider this [online article by Annemiek Schilder](#), former fruit pathologist at Michigan State University.

'If you are protecting a non-bearing, young vineyard from downy mildew (you're not selling/harvesting a crop), you can continue to use mancozeb products to control downy mildew past the 66-day pre-harvest interval. You can also consider using mancozeb after harvest to keep canopies clean of downy mildew and 'firing on all cylinders' until that first frost. The longer your vines can continue to produce and store carbohydrates after harvest, the better prepared they'll be to withstand winter cold without damage (and the crown gall that follows).'



Figure 1. Summer cluster symptoms of downy mildew (Chancellor) showing discoloration, mottling, and browning of berries with little or no 'downy' white sporulation.

Black rot: We have racked up about 11 infection periods for black rot since after bloom (since berries have been present). Fortunately, I think the vast majority of vineyards in the lake belt went into the post bloom period relatively free of overwintering inoculum this year. Fruit of natives, like Concord, should be about at full resistance at this point (5 weeks post bloom). If you've kept your native varieties clean to this point, you should be done with black rot. Fruit of *Vitis vinifera* will remain susceptible to this disease until 6-8 weeks after bloom (through the end of July?). Infection periods on the 14th, 21st, and 30th of June, and July 1 and 2, should have produced symptoms by now, but black rot symptoms on fruit from more recent infection periods (July 7, 8, 11, 12, 13, and 14) has not become manifest yet. If your scouting efforts reveal more than a little black rot out there on varieties that are still susceptible, you may still be able to go in with a sterol inhibitor spray NOW and neutralize some of the infections that got started over the rain from July 11-14 (with the exception of triflumizole products).



Figure 2. Late summer leaf symptoms of downy mildew (Niagara) showing 'blocky' lesion development and discoloration on the top side and 'downy' white sporulation on the underside of a grape leaf. The late summer leaf blotches can differ dramatically from the yellow 'oil spot' symptoms that are observed in spring.

Powdery mildew control should be targeting leaves at this point and the decision to continue spraying on native juice varieties will be based on crop size. If you'll be trying to ripen an above average (or way above average) crop, keeping canopies clean and 'firing on all cylinders' is a good insurance policy. The more 'above average' your crop is, the more likely it is that you will need to keep canopies clean for longer in order to ripen the crop.

And lastly: Hail during the early morning of July 2, damaged berries in clusters. As injured/split berries scab over/dry up/die, should we be spraying something in response to this damage to young, green fruit? The short answer to that is probably, NO. However, in the case of wine grapes that produce tight/compact clusters (Vignoles, Riesling, Pinot noir/gris, etc) and that are prone to the development of bunch rots during ripening, **dead cluster material that does not fall away and becomes trapped within clusters, can add to problems with Botrytis** and other bunch rot organisms. If you are faced with this scenario, be mindful of the potential for increased bunch rot problems and increased effort needed to control it as we enter the ripening period in August and September, especially if conditions are wet at that time. If you haven't already made a pre-bunch-closure spray for Botrytis for rot prone varieties, we recommend doing so at this time.

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

General Questions & Links:

<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)

