



Kestrelmet 6000 station with storm moving in.
Kim Knappenberger

CROP UPDATE August 3, 2023

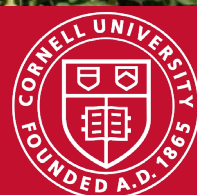


Cornell Cooperative Extension
Lake Erie Regional Grape Program



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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.



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EPA's Office of Pesticide Programs will present its draft Herbicide Strategy for federally listed threatened and endangered (referred to as "listed") species for conventional herbicides in the lower 48 states. This strategy is part of EPA's work to meet its obligations under the Endangered Species Act (ESA) for pesticide actions and furthers the goals outlined in [EPA's ESA Workplan](#). EPA released the [draft Herbicide Strategy Framework](#) along with additional supporting documents for a 60-day public comment period on July 24, 2023. In addition to identifying mitigation measures to reduce over 900 listed species' exposures to the agricultural uses of conventional herbicides, the draft Herbicide Strategy Framework also discusses a proposed decision framework to determine the level of mitigation that would apply for a particular conventional agricultural herbicide, examples of how the proposed herbicide mitigation would apply for a subset of the representative herbicides for which EPA conducted case studies, and EPA's proposed implementation plan. In this webinar, EPA will walk through the draft Herbicide Strategy Framework and take questions from grower groups and other stakeholders.

Submit questions for EPA in advance of the webinar to: sm.opmp.pesticides@usda.gov



Photos from: <https://digitalmedia.fws.gov/>

Feel free to share this invitation within USDA and beyond. For questions, [email](#) the USDA Office of Pest Management Policy (OPMP). To receive notice of OPMP webinars, [sign up for updates](#). Learn about OPMP on the [USDA Website](#).



Join us for a webinar on

Thursday, August 10th

1pm – 2:30pm Eastern

Sign language interpreting services and closed captioning will be provided during the presentation. If additional interpreting services or accommodations are needed to participate in this event, please contact us at: sm.opmp.pesticides@usda.gov.

Viticulture

Jennifer Russo, Viticulture Extension Specialist, LERGP

In The Vineyard

Our Coffee Pot Series has ended for the season, but we are still here to assist you with any questions that you may have.

Dr. Terry Bates, Director of the Cornell Lake Erie Research and Extension Laboratory in Portland, NY, and his team track the Concord berry development on a weekly basis every year at the station. We have processed over 150 Concord and 20 Niagara crop estimation samples in our region and collected berry weights, berries per cluster, and berry diameter for each. There is no way of me knowing management style, inputs, or pruning level to these samples. I am just reporting on the averages from those 170 plus samples (Table 1), but Dr. Bates reported last week that the berry curve and the pre-bloom Growing Degree Day model were both predicting Concord fruit to be 3-5% above average in 2023 (see Figure 1 and 2). We have also included the rainfall data in inches for June and July 2023 for our region's weather stations (Table 2).

Table 1. Lake Erie Grape Region Concord and Niagara Crop Estimation Averages 2023

	Berry wt 30-Days GRAMS	Ave Berry Per Cluster	Ave Diam (mm) 30-Days #	Projected Final Berry Weight (g)
Concord	1.6	32.1	15.8	3.3
Niagara	1.8	42.4	16.1	3.6

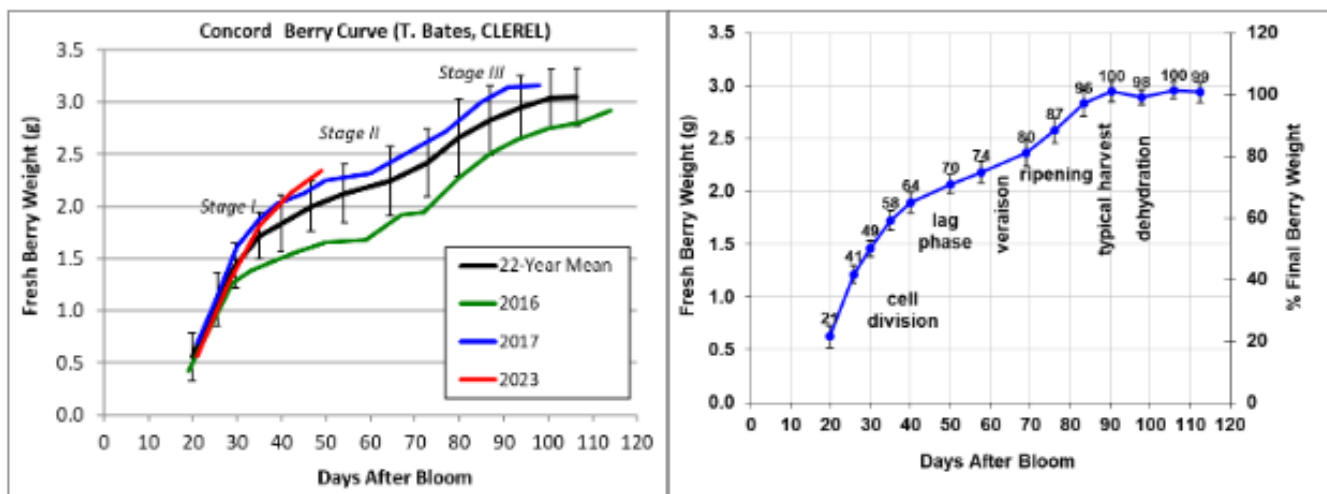
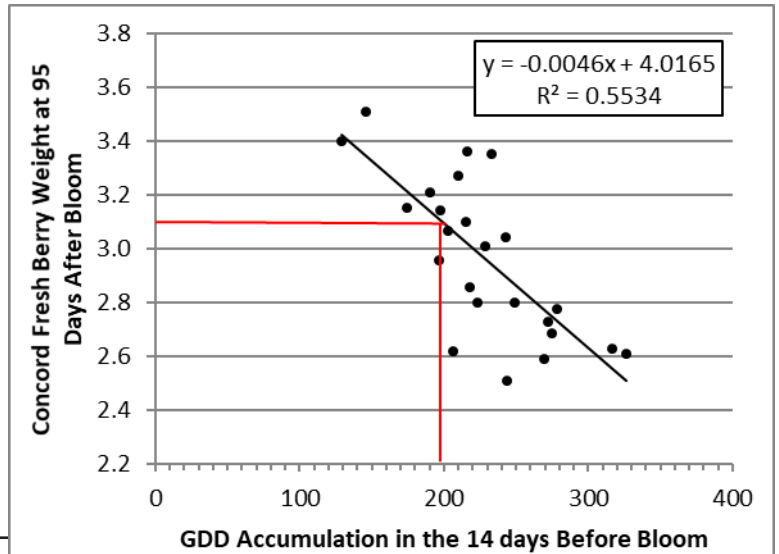


Figure 1. Dr. Bates Concord Berry Curve data through July 31, 2023.

Figure 2. Dr. Bates correlation between Concord berry weights and Growing Degree Days in the 14 days before bloom.



Rainfall (inches) across the region according to NEWA

station	June	July
Ransomville	2.64	8.02
Brant	3.55	8.36
Versailles	1.19	6.06
Hanover	3.17	6.82
Sheridan	2.46	5.97
Forestville	3.75	5.66
Silver Creek (Double A)	3.19	5.71
Silver Creek (Route 5)	3.53	7.05
Dunkirk Airport	4.12	4.86
East Fredonia	3.78	5.05
Fredonia	11"	
Brocton	4.63	5.39
Portland	2.9	0.87
Portland LERGP West	3.37	5.36
East Westfield	2.95	2.74
Westfield	2.74	2.81
Westfield (South)	3.33	3.78
Ripley	3.47	3.62
Ripley Escarpment	2.75	3.07
Ripley State Line	2.6	3.06
NorthEast State Line	2.98	3.22
North East Escarpment	2.78	3.65
North East Side Hill	2.88	3.74
North East Lab	3.28	4.25
Harborcreek	2.95	4.38
Harborcreek Escarpment	2.8	4.36
Lake City	4.49	4.69

Per Dr. Bates, the 2023 Concord fresh berry weight growth curve from the phenology block at the Cornell Lake Erie Research and Extension Laboratory. The first chart shows 2023 compared to the long-term average as well as two extreme years (2016, 2017). The second chart shows the percent of final berry weight based on the days after bloom. Currently, Concord is between 75-80% of final.

Terry explains the effect of Growing Degree Day (GDD) accumulation in the 14 days prior to bloom on final Concord fresh berry weight (taken at 95-100 days after bloom). There is a negative relationship between pre-bloom heat accumulation and final berry weight (i.e. the warmer it is in the two-weeks before bloom, the smaller the final berry weight). For 2023, there was below average GDD accumulation pre-bloom, which would lead to a higher than average berry weight prediction at harvest.

Table 2. Rainfall data in inches for June and July 2023 for our region's weather stations.

Between the Vines and MyEV

Dr. Terry Bates produced a tutorial to help you make some decisions preharvest using precision viticulture techniques. This information can be accessed via our podcast ([Click Here for Podcast](#)) *Between the Vines*, and on the Efficient Vineyard Vit Blog. [Click Here for Tutorial](#) I know there are a few of our growers who have purchased their own NDVI sensors. Here is a great way to utilize that data:

Estimating Concord Yield, Pruning Weight, and Crop Load with NDVI and Field Observations

Aug 1

Written By [Terry Bates](#)

The growing season is flying by. We are three weeks out from Concord veraison and looking at the harvest doorstep three more weeks after that. It is a good time to finish up crop estimations, if you did not do them at 30 days post-bloom, and take some assessments of vine balance to decide when and where you will start harvesting. [In this video](#), Dr. Terry Bates demonstrates how to use canopy NDVI at pre-bloom and pre-veraison with some directed field observations to generate spatial yield, vine size, and crop load maps in Concord vineyards. <https://youtu.be/l4OMji8-pal>



photo 1 NDVI sensors mounted to collect data throughout the vineyard.

Department of Transportation Commercial and Farm Vehicle Awareness



photo 2 Trooper Luft's classroom presentation

photo 3. Trooper Luft quick tire psi check



photo 4 Trooper Luft inspecting engine for DOT roadside inspection

The Chautauqua County Farm Bureau and the Cornell & PSU's Lake Erie Regional Grape Program collaborated to bring a Department of Transportation program for the agricultural community on Wednesday, August 2, 2023, at the Cornell Lake Erie Research and Extension Laboratory in Portland, NY. It was orchestrated by Jim Joy and Jennifer Phillips Russo for growers to learn from New York State Trooper, Matt Luft, on Commercial and Farm Vehicle Awareness prior to the harvest season. This event was well attended with approximately 45 registrants and walk-ins. Polling the attendees, the consensus was that it was a very successful program that was full of information that can be confusing to those trying to decipher the law for regulations and violations. Trooper Luft discussed many things which will be relayed below, but most important he simulated a roadside inspection of an agricultural vehicle that hauls ag commodities. The attendees found it extremely beneficial that they request it occurs every other year. This was the first one that has taken place in many years in our region and laws have changed in the interim. Trooper Luft graciously provided us with his slide deck presentation, and I am summarizing points below. [Click Here](#) for the entire presentation. Trooper Luft provided the following phone number for anyone to call and leave a message requesting information in regard DOT regulations: (585) 344-6247.

Per Trooper Luft's presentation slide summation:

- A Commercial Motor Vehicle is Any single or combination motor vehicle used on a highway, IN COMMERCE, to transport property or passengers AND Has a gross vehicle weight rating (GVWR) or gross combination weight rating, or gross vehicle weight or gross combination weight, of (10,001 pounds) or more, whichever is greater.

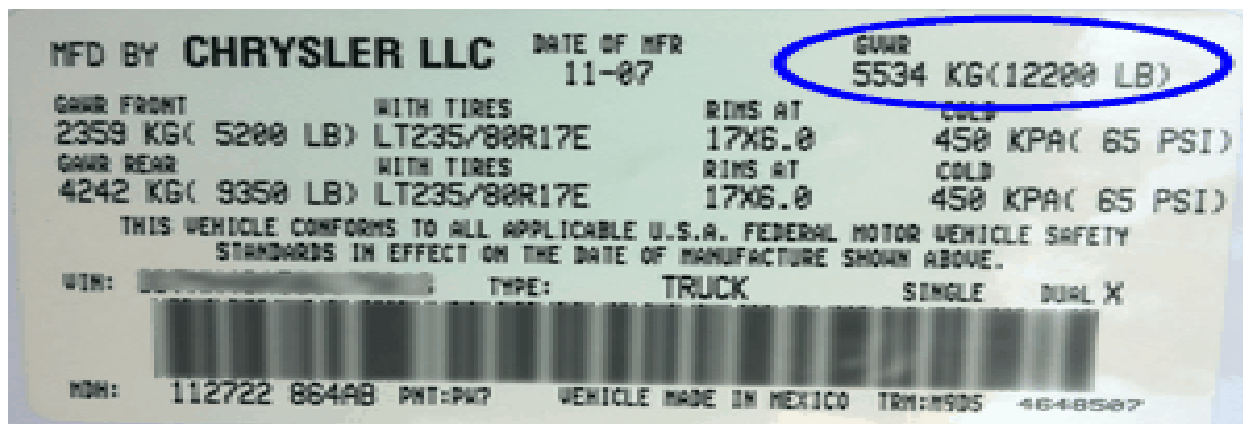


Figure 3 example of a gross vehicle weight rating

- Is designed or used to transport more than 8 passengers (including the driver) for compensation; or
- Is designed or used to transport more than 15 passengers, including the driver, and is not used to transport passengers for compensation;
- Is used in transporting material found by the Secretary of Transportation to be hazardous under 49 U.S.C. 5103 and transported in a quantity requiring placarding under regulations prescribed by the Secretary under 49 CFR, subtitle B, chapter I, subchapter C.



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FMCSA regulations



The DOT inspection process

- There are primarily 3 levels of inspection
- As violations get cited against a “DOT number” it affects a companies score/rating; which ultimately will cause insurance issues, audits, and worse case scenario’s companies will be shut down.
- There is a North American Out of Service guide book that regulates what violations are deemed to place a truck or driver OOS
- Common OOS violations.....

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Search Criteria

Users can search by DOT Number, MC/MX Number or Company Name.

USDOT Number
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Figure 4 Screenshot of SAFER Web site

And if you just can't figure it out, then You can contact NYSDOT 518-457-1046 and they will help you update your mcs-150. For Intra-State Carriers you may call either (518) 457-6512

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- What about air brakes???

CDL class B

- Needed for single vehicle over 26,000 gvwr/actual
- Can pull a trailer up to 10,000 gvwr/actual.
- Must be 21, or 18 Intrastate/no HAZMAT/passengers.

CDL class A

- Needed for combination vehicle with GVWR or actual weight over 26,000 and the towed unit is over 10,000.
- Must be 21 for interstate
- NY just changed 18 and older can get class A with K restriction.

But I heard you don't need a CDL for farm vehicles. ???

- That is correct, BUT..
- The AG/Farm vehicle that would require a CDL must carry a CFV-1 form in each vehicle, **AND** the driver must be 18 and have the **appropriate farm endorsement on his/her license**. F or G=road test
- These vehicles cannot be used in for-hire operations or transport HAZMAT.
- F vehicles can drive 150 mile radius, G can drive in all of NY

There was more very important information that Trooper Luft provided in his two-hour classroom style session, followed by one hour truck inspection after the class. We have posted the entire 93 slide deck that he presented on our website for you to learn more about Restrictions, Endorsements, Drug and Alcohol Clearinghouse, DOT physical/med cards, registering your vehicles and more. [Please Click Here for Trooper Luft's DOT presentation.](#)



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Updates and Information

Kimberly Knappenberger, Viticulture Assistant, LERGP

NEWA

We are excited to say that we have installed a new weather station! Thanks to a grant from the New York Wine and Grape Foundation, we were able to purchase 7 new stations recently to expand and revitalize our weather stations in both the Lake Erie and Finger Lakes Regions.

The first one to be installed is being called East Ripley and is located in the vineyards to the north of Route 20 near Forsyth Road in Ripley. The onboarding process has begun and I hope to see it on the NEWA website by the end of the week (or next week if it gets delayed for some reason). This is a KestrelMet 6000 cellular station that is filling a “hole” in the data in our region. There are approximately 510 grape acres within a half mile radius of this new station.

We have plans to install two more stations in the region but I will give an update on those next week.



Figure 1 New KestrelMet 6000 station at East Ripley



Figure 2 Before

VIP

We are still accepting applications for the Vineyard Improvement Program. If you are considering removing a Concord vineyard in the next year you might want to check this out. Go to lergp.com and click on the big purple Vineyard Improvement Program button.

There is still plenty of funding to help with reimbursements for your removal projects. The removed vineyard needs to be at least 1 acre and the land does need to stay in agriculture – which can be hay, cover crop, field crop, berries, orchard, or even vineyard. If you have any questions please feel free to contact Kim at ksk76@cornell.edu. If you are ready to apply go to <https://lergp.com/vip-application>.



Figure 3 After

PA Update

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

Weather: We accumulated about 650.5 growing degree days and 4.25 inches of rain in July, cooler and wetter than our long-term average for July. By end of July we had accumulated about 1391.9 growing degree days as of April 1. This places us a little behind our long-term average for heat accumulation since April 1. The short-term forecast for North East PA has a slight (20%) chance of precipitation tomorrow (August 4), dry and sunny on Saturday and Sunday, changing to a 60% chance of precipitation Sunday night and 70% chance on Monday. High temperatures over the next several days will hover right around 80F.

Diseases: Regular rain in July (we recorded measurable rainfall on 16 of 31 days in July!) generated numerous infection periods for all the major diseases, particularly downy mildew. As fruit are resistant to powdery and downy mildew and black rot, and Phomopsis should no longer be a concern at this time, **the industry should be focusing on control of powdery and downy mildew on leaves.**

Scout your vineyards to maintain good control of downy mildew; look for it primarily on leaves, especially young leaves close to the ground. Its important that you know what's happening in your vineyard blocks, especially wine blocks susceptible to this disease. Once this disease blows out of control (and it easily could if we continue to receive regular wetting periods in August and control measures are not taken seriously), it can defoliate a vineyard and essentially end the season for that block. If you get into a pinch and downy mildew blows up on your leaves, 2-3 consecutive copper sprays (on varieties that can tolerate copper) can go a long way to bringing things back under control. For wine varieties that don't tolerate copper, captan may be an option for treating an epidemic of downy mildew. It won't eradicate what's already there, but it will help to control future infections and there is relatively little concern about resistance development with captan.

As powdery mildew continues to build, shift your efforts to protecting leaves for as long as you feel necessary to ripen the crops you have developing; the larger the crop beyond your average, the more justification you'll have for continuing to keep leaves clean and firing on all cylinders. Average to small crops require no additional mildew control. I don't have reason to believe that mildew pressure is particularly high this season, but cloudy, humid weather will help it along, rain or shine. Veraison is still 3 weeks off, and for those of you with huge crops, it's important to start the ripening period with a relatively clean, efficient canopy: those first 2-4 weeks after veraison are critical to reaching the finish line.

In the rest of this update I'll talk in more detail about sprays in mid-late season, as we continue our battle with downy and powdery mildew on leaves, and bunch and sour rot on fruit (wine grapes). For this, I'm borrowing information from blogs I wrote a few years ago, so as not to try to reinvent the wheel.

Downy mildew

The pathogen that causes downy mildew is dependent on wet conditions; without a wet plant surface, no infection takes place. Fortunately, the fruit of most varieties are resistant to direct invasion by this pathogen by about 3 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 weeks later. Obviously, we are now well past that point in time. However, the cluster stems may remain susceptible for a couple weeks or more after fruit are resistant, and for this reason, fruit loss can continue to occur from cluster infections 4 or 5 weeks after capfall. Once we get past the critical sprays for fruit protection (*which we always apply, rain or shine!*), scouting for the distinctive white 'downy' sporulation on the undersides of leaves and on cluster stems is very important, and yields valuable information with regard to future need to spray (Figure 1). Growers of susceptible varieties do well to keep closely monitoring their vineyards for active sporulation to determine if and when infection periods have occurred.



Figure 1. Late summer leaf symptoms of downy mildew (Niagara) showing 'blocky' lesion development and discoloration on the top side (above) and 'downy' white sporulation on the underside of a grape leaf (below). The late summer leaf blotches can differ dramatically from the yellow 'oil spot' symptoms that are observed in spring.



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 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 (Figure 1).

The sight of active, white sporulation on green vine tissues 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. In the end you'll be left with Captan (which will also control ripe and bitter rot), 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 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' protectants:

- Some insecticides and oils should not be applied with Captan.
- 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 and reduces the chances for plant injury.
- 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), 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 Dr. Annemiek Schilder, former fruit pathologist at Michigan State University: https://www.canr.msu.edu/news/late_season_fungicide_sprays_in_grapes_and_potential_effects_on_fermentatio

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).

Powdery mildew

In contrast to downy mildew, the fungus that causes powdery mildew is dependent on rainfall only for the initial release of spores in early spring. There is no requirement for plant wetness beyond that, which is why this disease is a problem even in dry climates like California. Once primary spores (ascospores) land on a susceptible grape surface, they germinate and form colonies that grow across the plant surface (Figure 2), sucking resources from the plant and producing secondary spores (called conidia) that are now spread by wind/air currents. The disease spreads rapidly under ideal conditions of high humidity, cloudy skies, and warm (but not hot) conditions. During the mid-late summer period, *every day can be a powdery mildew infection period*. Fortunately, just as for downy mildew, fruit of most grape varieties becomes resistant to powdery mildew after about 3-4 weeks past capfall, although native varieties like Concord may be resistant just 2-3 weeks after capfall. Nevertheless, it's especially important to tightly control the disease on fruit of *V. vinifera* and susceptible hybrids *up to 4 weeks after bloom*, as even tiny amounts of powdery mildew infection on fruit (amounts you can't even see) can leave microscopic breaches in the berry skin, and increase the susceptibility of that fruit to bunch rots later near harvest.



Figure 2. Greyish-white colonies of powdery mildew on the upper surface of grape leaves.



At four weeks post capfall the focus for powdery mildew control shifts to keeping leaves clean, to ensure optimal ripening of fruit and shoots/canes, to ensure optimal cold hardiness, and to more effectively and more easily manage fungicide resistance. There is also another important reason (especially for growers of *Vitis vinifera* varieties), demonstrated by some excellent research conducted by Wayne Wilcox and others at Cornell University, who showed that controlling powdery mildew up to about Labor Day can reduce overwintering inoculum and disease pressure the following spring. Why Labor Day? When powdery mildew infected leaves die by that first hard frost in fall, the mildew on those leaves also dies...UNLESS it has had time to form fully mature, winter resistant structures called chasmothecia. These are the tiny, dark, period sized (.) structures you observe in heavily infected tissues in late summer. If the chasmothecia do not have time to fully mature before the leaf dies (as we would expect from infections that occur *after* Labor Day), they will not be tough enough to survive the dormant period (winter) and will not contribute to the bank of primary inoculum that infection periods draw upon the following spring. Knowing this, a grower can continue their spray program up to Labor Day, to control the 'size' of the powdery mildew problems he/she will potentially face next spring. Once again, this is most important if you are growing *Vitis vinifera* and less important for growers of native varieties like Concord and Niagara.

Chemical control: Fungicides like Quintec, Vivando/Prolivo, Torino, Endura, Luna Experience/Sensation, Miravis Prime, Cevya and other sterol biosynthesis inhibitors (tebuconazole, tetraconazole, difenoconazole products) can be used for additional post bloom applications to control powdery in early/mid-summer in vineyards that have maintained tight control of the disease ('clean' vineyards). Do not rely on strobilurin fungicides for control of powdery mildew. Remember to limit the use of any one FRAC group to 2 applications per season (the FRAC group designation is on the label). However, where disease control has been less than ideal, and especially for late summer applications (August and September), options for powdery mildew control should emphasize materials that are less risky in terms of the development of resistance, like formulations of sulfur on varieties that are not sensitive to it (which could also be tank mixed with the aforementioned synthetics to manage resistance). The more expensive, micronized formulations of sulfur will generally perform better (more effective per pound, more rainfast) than the cheaper, wettable powder formulations, especially for *V. vinifera* (you get what you pay for). Also, according to the **New York and Pennsylvania Pest Management Guidelines for Grapes**, "sulfur activity is strongly influenced by formulation, rate, frequency of application, and weather"; that is, higher rates and shorter spray intervals will provide better control than lower rates and longer spray intervals. Do not apply sulfur within 14-21 days of an oil application. Sulfur residues on fruit at harvest have been correlated with increased hydrogen sulfide and sulfurous off-aroma formation during fermentation, and so growers will need to phase out sulfur applications at some point well before harvest. This is mostly a problem for wines that are fermented on the skins (reds) where most of residues at harvest are found. Work published by Dr. Misha Kwasniewski showed that "sulfur residues are likely of low concern in white wine making, especially when juice is clarified before fermentation. However, residue levels in red fermentations (fermented on skins) can exceed levels associated with increased hydrogen sulfide production when some sulfur sprays are applied within *8 weeks of harvest*" (Kwasniewski et al. 2014). However, in that same study, ceasing sprays no later than 5 weeks before harvest, resulted in sulfur residues that were below a concentration consistently shown, in previous literature, to increase hydrogen sulfide production. Therefore, for reds fermented on the skins, one may need to end sulfur applications a month or two before anticipated harvest date, to avoid increased H₂S production during fermentation. Another strategy can include early-mid summer sulfur applications with micronized formulations (that are longer lasting/more rainfast) and making the later sulfur applications with a wettable powder formulation that is more quickly reduced

by weathering.

Other late season options include coppers, potassium salt sprays like Nutrol, formulations of potassium bicarbonate, and horticultural oils. Keep in mind that the later oil applications are made, the greater the chance they will negatively impact ripening. Therefore, the current recommendation is to discontinue oil sprays as you near veraison. As for coppers, the same concerns that were mentioned in the section on downy mildew, apply here as well. These materials can be a good way to maintain decent control of powdery mildew on leaves, while minimizing the chances for the development of resistance to the riskier materials used earlier in summer.

Botrytis bunch rot control; a recap

Hopefully premium wine grape growers have applied **fruit-zone leaf removal** to open their fruit to better sunlight and aeration and better pesticide penetration. Research has repeatedly shown that there are great benefits of this practice in our wet, humid climate. It is one of the most effective cultural treatments for reducing the susceptibility of the crop to disease of all kinds (especially bunch/sour rots (Figure 3)), and improving coverage, and therefore efficacy, of fruit protection sprays. Though the benefits of leaf removal may generally be reduced the later it is applied after fruit set, it's not too late yet. However, there is a greater danger of sunburn on your fruit the later this leaf removal is applied. For this reason, mid-late summer leaf removal may be best confined to the east or north side of the trellis (depending on row orientation), especially in areas where very hot mid/late summer temperatures are expected. Fruit zone leaf removal can be mechanized and is probably performed most effectively on vines trained to a vertical shoot positioned (VSP) or some other two-dimensional trellis system with a relatively focused and narrow cluster zone.



Fungicide sprays for bunch rot are mostly for Botrytis and there are many products to choose from: Vanguard, Inspire Super, Switch, Rovral/Meteor, Elevate, Endura, Luna Experience/Sensation, Fracture, Miravis Prime, and the strobilurins (Flint, Pristine, Intuity). Use them sparingly (once or twice per season) and always rotate FRAC groups with every application. Also, pay close attention to pre-harvest intervals on each label. A Botrytis specific fungicide at full bloom and pre closure, especially in varieties with very compact clusters, can be extremely important to reduce 'latent' Botrytis infections that continue to accumulate throughout the 'green' berry development period. The next fungicide application for Botrytis is made just before or at veraison, as fruit begin to soften and skins become thinner and more easily penetrated by fungal pathogens like Botrytis. After veraison, fruit are also more likely to become injured by birds, insects, excess moisture/humidity (rain cracking), and overcrowding of berries in tight clusters. Botrytis fungicides can protect intact fruit surfaces and may help to reduce the spread of Botrytis rot on fruit, even after they have become injured.

Finally, a *Botrytis* fungicide application about 2-3 weeks after veraison, especially under wet weather conditions, can reduce further rot development during the last stretch of ripening. However, *Botrytis* fungicides *control Botrytis* and will not provide protection against sour rot organisms that often destroy fruit of overly compact clusters, despite the application of a full *Botrytis* fungicide program. Figure 3. *Botrytis* bunch rot (above photo) and sour bunch rot (below two photos) in Vignoles.

Sour rot

Work conducted by Dr. Megan Hall, a former graduate student of Wayne Wilcox at Cornell University, demonstrated how additional pesticide applications during the latter stages of ripening (beginning around 15 brix) can significantly reduce the development of sour rot. Her work has shown that there is a close connection between fruit flies and sour rot development, and that the presence of the flies is important to the accumulation/generation of acetic acid in rotting fruit. Treatments composed of weekly, tank mix applications of an insecticide (to control the flies) and an antimicrobial (to kill bacteria) have been found to reduce sour rots by 50-80% over unsprayed vines. The best results appear to occur when weekly sprays are initiated just before sour rot symptoms are observed (preventive sprays before about 15 brix).

Good canopy and fertility management is essential to maximizing the effectiveness of your pesticide applications: make sure shoots are tucked and spaced within catch wires and that shoots have not flopped over to block spray penetration into the fruit zone. Also, as stated above, limiting shoot growth after veraison with good fertility management will limit the supply of new green tissue that is hyper susceptible to powdery and downy mildew and will make late season management of these diseases more effective.



PA Update

Megan Luke, Penn State Extension Viticulture and Tree Fruit Educator

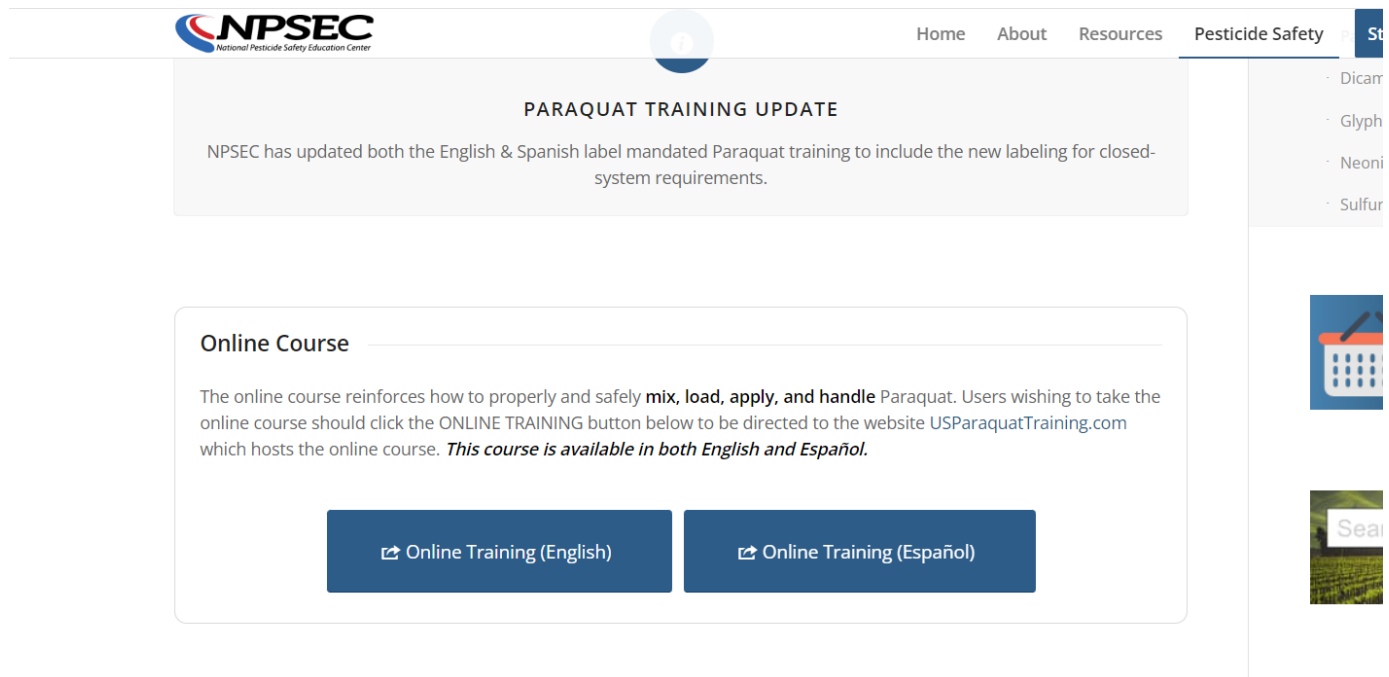
It is important to be scouting several times per week for pest pressure as we approach veraison, the main issues that growers are reporting currently include grape berry moth damage, grape leafhopper, and specific weed issues.

Regarding weed management, this is a timely reminder that if you use or handle paraquat under any name or formulation, you are required to undergo **mandatory** training every three years under EPA regulations.

As per the EPA: All certified applicators using paraquat are now required to complete a paraquat-specific training program approved by the EPA. This training must be successfully completed before using any paraquat product. In addition, all certified applicators who handle paraquat are required to take the course every three years.

The free training is available online here: [Paraquat online training](#)

When you go to the website, click on the online training button pictured below:

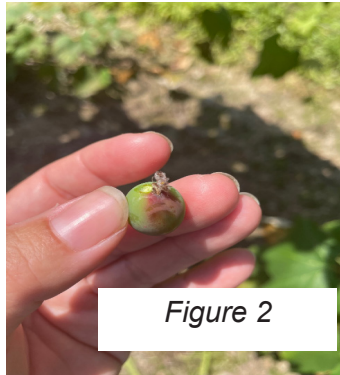
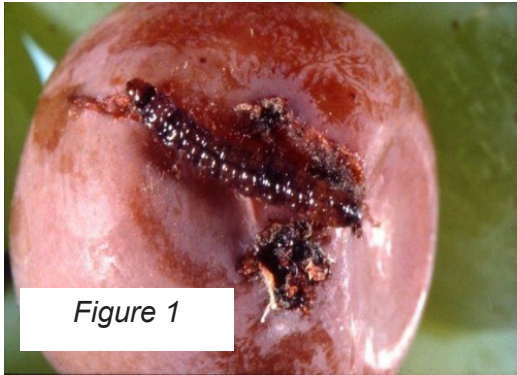


The screenshot shows the NPSEC (National Pesticide Safety Education Center) website. The header includes the NPSEC logo and navigation links: Home, About, Resources, Pesticide Safety, and a partially visible 'St' link. The main content area features a 'PARAQUAT TRAINING UPDATE' section with the text: 'NPSEC has updated both the English & Spanish label mandated Paraquat training to include the new labeling for closed-system requirements.' Below this is an 'Online Course' section with the text: 'The online course reinforces how to properly and safely mix, load, apply, and handle Paraquat. Users wishing to take the online course should click the ONLINE TRAINING button below to be directed to the website USParaquatTraining.com which hosts the online course. *This course is available in both English and Español.*' Two blue buttons are provided: 'Online Training (English)' and 'Online Training (Español)'. On the right side, there is a vertical menu with links for Dicarr, Glyph, Neoni, and Sulfur, and a search bar with a 'Search' button.

Once you click on the link, you will be prompted to create an account and register for the course. Once you do so, you will have access to the recorded course and quiz. The training will take approximately one hour. You must score 100% on the final quiz. Once completed, the certificate is valid for 3 years from date of completion.

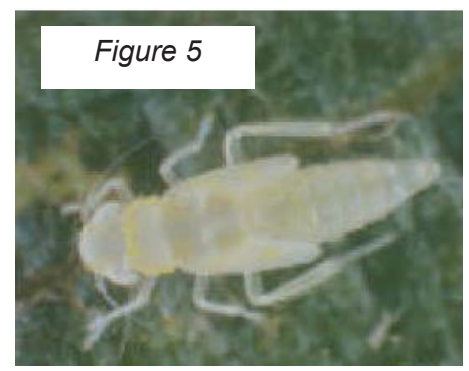
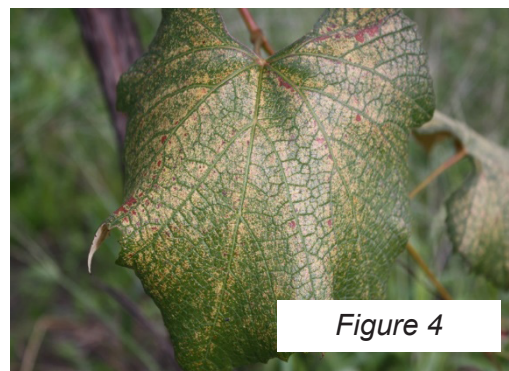
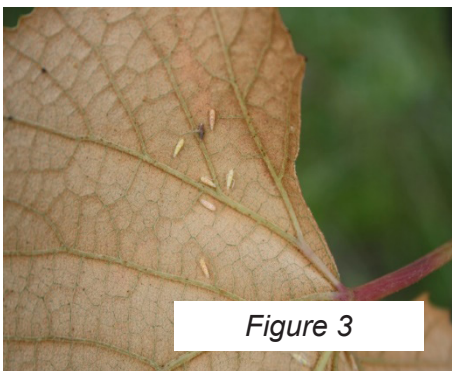
If you prefer in-person training, I have registered as an instructor for this course and will be offering it in New York and Pennsylvania in the coming months. Call or email for more information.

Grape berry moth (GBM): The primary insect pest of concern at this time of year is of course grape berry moth (GBM) (Figure 1). At this time, damage is visible as small holes in berries with a purplish discoloration and sometimes a split in the skin with frass or webbing (Figure 2). In warm years and at high-risk sites, growers need to continue chemical control on a 10-to-14-day interval from mid-August to mid-September. Good coverage of the fruiting zone is essential. Remember when scouting that the goal is to get a handle on potential damage levels and whether you are exceeding economic thresholds. For Concord grapes, if the percent of clusters that show some GBM damage to berries is **greater than 6% at second flight** and **greater than 15% at third flight**, then a treatment is recommended.



Grape Berry Moth Larvae and Damage Photos courtesy of Penn State Extension, Andy Muza & Megan Luke

Grape leaf hopper: Another pest which may become problematic in late July and August is the grape leaf hopper (Figure 3). Generally, scouting is performed immediately post-bloom, mid-July, and late August. If you see stippling (white dots on leaves caused by leafhopper feeding) throughout the vineyard block scouting should be conducted to determine if an insecticide treatment is recommended (Figure 4). Sampling for leafhoppers at this point in the season is focused on the abundance or quantity of first- or second-generation nymphs. Check four different areas in the vineyard (two exterior and two interior). At each area look at five lower (basal) leaves (leaves #3-#7 when counting from base of shoot) per shoot on five different shoots at each location and check for leaf feeding. If no damage or minimal injury is observed, proceed to the next sampling site. If moderate to heavy leaf stippling is observed, then begin counting nymphs on the undersides of leaves. **If you are observing heavy damage, and a threshold of five nymphs/leaf is reached, then an insecticide application is recommended.**



Grape leaf hopper adults, leaf damage, and nymph Photos courtesy of Penn State Extension, Andy Muza

For Pennsylvania growers, the Erie County Conservation District has funds available to growers for implementing projects such as cover cropping and stabilization of access roads through the VinES Program.

Information for these funds is available here: [VinES Program Website](#)

To get your free workbook, contact [Ryan Nageotte](#) at (814) 825-6403

Office schedule (August 7th-August 11th)

M 8am-4:30pm CLEREL Portland, NY

T 9:30am-4:30pm Out of office (available by email or phone)

W 8am-4:30pm LERGREC North East, PA

Th 9:30am-5:30pm Summit Municipal Building, Erie, PA

F 9am-5pm Out of office (available by email or phone)

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