



Pink Buds, April 17, 2023-  
Kim Knappenberger

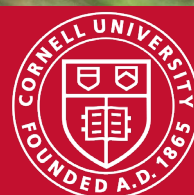
## CROP UPDATE April 20, 2023

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



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# 2023 LERGP Coffee Pot Meeting Schedule

- May 3, 2023 10:00am Double A Vineyards  
10317 Christy Rd. Fredonia NY 14063**
- May 10, 2023 10:00am Niagara Landing Wine Cellars  
4434 Van Dusen Rd. Lockport NY 14094**
- May 17, 2023 10:00am John Schultz & Sons  
9510 Sidehill Rd. North East PA 16428**
- May 24, 2023 10:00am Brian Chess Farm  
10289 West Main Rd. Ripley NY 14775**
- May 31, 2023 10:00am Sprague Farms  
12435 Versailles Rd. Irving NY 14081**
- June 7, 2023 10:00am NO COFFEE POT MEETING**
- June 14, 2023 10:00am Betts' Farm  
7365 East Route 20 Westfield, NY 14787**
- June 21, 2023 10:00am Paul Bencal Farm  
2645 Albright Rd. Ransomville NY 14131**
- June 28, 2023 10:00am Gary Young Farm  
8401 Gulf Rd. North East PA 16428**
- July 5, 2023 10:00am NO COFFEE POT MEETING**
- July 12, 2023 10:00am Zach & Alicia Schneider Farm  
771 Bradley Rd. Silver Creek NY 14136**
- July 19, 2023 10:00am Schultze Winery  
2090 Coomer Rd. Burt NY 14028**
- July 26, 2023 10:00am Westfield Ag & Turf  
7521 Prospect Rd. Westfield NY 14787**

## In this copy:

**How to Develop a Vineyard Pest Management Strategy Using NEWA, other information and opportunities-** Jennifer Phillips Russo- [page 6](#)

**PA Update on Disease and Spray Materials-** Bryan Hed- [page 14](#)

**Spring Readiness, PPE, Spray Equipment -** Megan Luke- [page 19](#)



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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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# Viticulture

Jennifer Russo, Viticulture Extension Specialist, LERGP

## In The Vineyard

The weather certainly has been unseasonable this last week going from 70- and 80-degree Fahrenheit over the weekend to snow and sleet on Tuesday and Wednesday. Grapevine bud development is temperature dependent, and the warmer temperatures have definitely promoted bud swelling. I have had a few phone calls from growers nervous about bud progression and potential injury with the cold temperatures following the beautiful weather. Dr. Jason Londo and I discuss this very thing on the latest *Between the Vines* podcast, S3E7: Are the buds safe? You can listen to our podcasts on your favorite podcast app or watch the videoblog portion here: [Click Here to Watch](#).

At the Cornell Lake Erie Research and Extension Laboratory (CLEREL) in Portland, NY, the research staff tracks grapevine phenology on sentinel count vines every year. The vines are pruned to different bud numbers to capture the variation in management strategies around the belt. At CLEREL in our phenology block, we have pruning treatments of balanced (20+20), 90-node, 120-node, and minimally pruned vines. We have maintained this block for over 12 years at CLEREL with these treatments, and 35 years before that at the Fredonia lab. The point about the phenology block is that we are measuring the same phenology on the same set of vines under the same conditions, year after year, after year. We adhere to a standard set of protocols so we're measuring the same thing every year, and what that really does is allows us to notice trends over 30, 40, 50-year spans of time. We're able to use that data to show you how our bud breaks are getting earlier, and our bloom dates are getting earlier over time.

The research team monitors the vines weekly throughout the growing season starting at bud progression. At CLEREL we use the Modified Shaulis Field Score (MSFS Figure 1.) developed by Nelson Shaulis and modified by Kelly Link, who used to work at CLEREL. The Modified Shaulis Field Score is located on the home page [Click Here for Modified Shaulis Field Score](#). Research reported that as of April 14, 2023, the phenology evaluation on the count vines in the Phenology block we have 70% at or above "first swell", or 2.0, on the Modified Shaulis field score. There was 9% at 3.0 on MSFS, or "first sign of pink". Our official stage on Concord vines is updated to 2.0 "First Swell" (Photo 1.). You can pull up the MSFS on your phone and use it as a reference as you are monitoring your own vines.

Back to the podcast discussion of "Are the buds safe?", per Dr. Londo, if we do not see extreme temperatures below freezing, then our buds should be safe at this stage. At this point in development, the green tissue has solutes in the water that help lower the freeze temperature. They are still tightly wrapped in their bud scales and the cool weather slows their progression. Should you have leaf edges exposed and



Photo 1. Concord Bud at 2.0 First Swell (4/14/23) at Cornell Lake Erie Research and Extension Laboratory in Portland, NY.

## Modified Shaulis Field Score

















	1.0	<b>Dormant Bud</b>	Shoot and Inflorescence Development
	2.0	<b>First Swell</b> brownish wool clearly visible	
	2.5	<b>Intermediate Swell</b> half or more of bud doeskin visible	
	3.0	<b>Full Swell</b> pink on side of bud	
	4.0	<b>Budbreak</b> half or more of leaf edge exposed	
	4.5	<b>Leaf Emergence</b>	
	4.8	<b>Full Leaf Blade Visible</b>	Flowering
	5.1	<b>Flat Leaf Stage</b> one leaf perpendicular to shoot	
	9.05	<b>First Bloom</b> 5% florets open	
	9.50	<b>Bloom</b> 50% florets open	Berry Development
	9.80	<b>80% Bloom</b> majority of caps off	
	10.2	<b>Fruit Set</b> berry abscission fruit >2mm diameter	
	10.7	<b>Pea-sized Berries</b> fruit 7mm diameter	
	10.9	<b>Berry Touch</b>	Ripening
	11.5	<b>Veraison</b> 5% of berries have color	
	12.0	<b>Maturity</b> Fruit ripe for harvest	

Figure 1. The Modified Shaulis Field Score located at [lergp.com](http://lergp.com)

the temperature drops below freezing, then you may experience some damage on those leaf edges but the rest of the bud and its fruiting potential should be fine. It is a different story when there is more green tissue and flat leaves exposed. We discuss it in more detail on the podcast. I encourage you to put us in your pocket as you work in your vineyards.

## How to Develop a Vineyard Pest Management Strategy

With the beginning of the growing season upon us, there are a few things to remember and Megan Luke's, our new PSU Educator, article, is a helpful reminder of necessary tasks that need to be completed. Below are a few tips to help develop a vineyard pest management strategy taken directly from our 2023 NY and PA Grape Guidelines, A Cornell Cooperative Extension Publication (Chapter 2.3 and 2.4):

With all the changes that are occurring these days, there is really no such thing as a traditional spray program anymore. That's why it's so important to keep learning about pest management. This is probably the most important factor in successfully managing vineyard pests. The Efficient Vineyard Project developed the MyEV Tool that is a great option for keeping track of the following steps. If you would like to learn more about how to use the MyEV Tool, please email or call me for an appointment and I can you get started.

1. Examine your vineyard operation closely. Break it down into specific vineyards, or "vineyard blocks."
2. Produce a map of each vineyard (or vineyard block) to record pest outbreaks, nutrient deficiencies, drainage problems, missing vines, and any other abnormalities you find.
3. Develop a record keeping system for each vineyard or vineyard block.
4. Develop a scouting plan for each vineyard block and record results.
5. Monitor and record weather factors and understand basic weather patterns of the area.
6. Keep accurate records of applications or tools used to manage pests.
7. Develop a thorough knowledge of the vineyard pests you are likely to encounter during the

year. This includes basic pest biology, symptoms or damage they cause, whether they are a primary or secondary pest, scouting thresholds, and the best time to apply management practices.

8. Choose a pest management strategy for that vineyard (or vineyard block) that is based on all of the information you've gathered. Use the options that make the most sense for your operation.
9. Continue your pest management education.

This publication can provide you with a great deal of the research-based information necessary to develop a pest management strategy for your vineyard, or to deal with a sporadic pest that pops up during the year. You can purchase the 2023 Pest Management Guidelines for Grapes [Click to Purchase Here](#). I will also be using the guidelines in a timely manner at the Coffee Pot Meetings that start in May.

## **2.4 Using NEWA Resources in a Vineyard Integrated Pest Management (IPM) Strategy**

Historically, management practices for vineyard pests in the Eastern United States were based on the calendar or on a growth stage such as bud break, bloom or Veraison using materials with a broad spectrum of activity. This was a straightforward approach to pest management, and for many years, this type of spray program was very effective. However, as the nation became more conscious of pesticide use, the Food Quality Protect Act (FQPA) was introduced in 1996, and broad-spectrum pesticides were either restricted in their usage, were banned completely, or had grapes removed from their labels. As the years have passed, new fungicides and insecticides have come on the market, but with a trend toward less toxic and narrower spectrum pesticides.

With the narrower spectrum pesticides came the need to understand the life cycle of vineyard pests, how individual pesticides worked, resistance management, varietal susceptibility, and economic thresholds (treatment thresholds). A critical component of this was knowledge of the combination of environmental factors that promote insect and disease development in a vineyard. The research faculty and extension staff at Cornell and Penn State Universities have developed this type of knowledge and the challenge became how best to get the information implemented into grower vineyards.

Weather information is also a key component of any vineyard IPM strategy. In and of itself, weather information can help in spray decisions, but when combined into an information database that includes pest developmental models, weather data is transformed into applications that can assist in determining if there is:

1. A need to spray
2. A need to tighten up, or extend, spray intervals
3. A need to change the materials (active ingredient or mode of action) used
4. A need to add sprays or the opportunity to eliminate them

The best resource available for growers in New York and Pennsylvania to monitor the weather and its effect on grape pests is the Network for Environment and Weather Applications (NEWA). What is NEWA? Available online at [newa.cornell.edu](http://newa.cornell.edu), NEWA provides web-based weather and pest model relevant to vineyards across New York State and Pennsylvania.



Weather, insect and disease models displayed on NEWA provide grape growers and members of the grape industry a wealth of information to assist in making the spray decisions listed above for powdery mildew, black rot, downy mildew, Phomopsis Cane and Leaf Spot and grape berry moth. Each weather station has its own Station Page with links to pest forecasts (Grape diseases, Grapevine downy mildew and Grape berry moth) as well as a wealth of weather information.

This makes NEWA an excellent resource for use in developing, implementing and evaluating a vineyard IPM strategy. Information provided on the NEWA website includes, but is not limited to;

1. Weather records
  - a. Daily summary of weather parameters (i.e., temp, rainfall, leaf wetness, relative humidity)
  - b. Hourly recording of weather parameters
  - c. Historical weather records
2. Pest models and forecasts (grapes)
  - a. Grape berry moth phenology based Degree Day model
  - b. Primary infection events for
    - i. Powdery mildew
    - ii. Black Rot
    - iii. Phomopsis
  - c. Down mildew DMCast model of infection events by grape cultivar
3. Growing Degree Day (GDD) information (base 50°F used for grapes, other base temps available)
4. National Weather Service forecasts

The weather and pest model information is of greatest value the closer it is to a vineyard. In a perfect world, there would be a weather station for every vineyard block to generate the best pest forecast model results specifically for each vineyard block. The best way to get an idea of where these machines are located in reference to a specific vineyard is to scan the location map on the NEWA Home Page or click on Stations Pages in the main menu to access a list of alphabetized station names.

While there are a large number of weather instruments on the NEWA website, they may not all be located in vineyards. However, the information those instruments provide can be used in vineyards that are in close proximity to get a general idea of the pest and weather conditions.

You can access model information for powdery mildew, black rot, Phomopsis, downy mildew and grape berry moth through the Pest Forecasts found on a specific station page or by using the Pest Forecast drop down menu found in the blue ribbon found near the top of each page of the NEWA site and selecting Grape Forecast models. Used on a regular basis, model information for the various pest models can assist in determining whether the spray interval for these diseases should be tightened or extended. The Grape Diseases forecasts operate like a mini-expert systems with disease management options developed by Wayne Wilcox (Department of Plant Pathology and Plant-Microbe Biology, Cornell University) and Juliet Carroll and Tim Weigle (NYS IPM Program). Being able to choose the current phenological stage of a vineyard, or portion of a vineyard, provides customized results for all the different varieties in a vineyard operation.

The phenology-based degree-day model for grape berry moth found on NEWA was developed as a cooperative effort between research entomologists and extension staff at Cornell, Penn

State and Michigan State Universities. This model uses wild grape bloom as a biofix date to start accumulation of degree-days and allows the date of wild grape bloom to be entered for customized results. While the model will provide a default date for wild grape bloom, the ability to enter the actual date wild grape bloom was observed makes the information provided by the model much more valuable.

Using the pest forecast model and weather information found on NEWA a vineyard IPM strategy can be developed that uses resources wisely while managing pest populations to a commercial level. NEWA combines knowledge of the pests' life cycle and how weather conditions affect its development with current and historical weather data to generate infection event and insect development status and predictions or forecasts. Combining the results of models found on NEWA knowledge of pests by individual vineyard blocks, varietal susceptibility, and the materials used for managing the pests provides the basis for implementation a sound vineyard IPM strategy.

**Other resources are available online, including:**

***Network for Environment and Weather Applications***

[newa.cornell.edu](http://newa.cornell.edu)

***2023 New York and Pennsylvania Pest Management Guidelines for Grapes:***

[cropandpestguides.cce.cornell.edu](http://cropandpestguides.cce.cornell.edu)

***New York State grape IPM insect and disease fact sheet database:***

<https://ecommons.cornell.edu/handle/1813/41246/>

[discover?query=%22NYS+IPM+Type:+Fruits+IPM+Fact+Sheet%22&submit=&rpp=10](https://ecommons.cornell.edu/handle/1813/41246/discover?query=%22NYS+IPM+Type:+Fruits+IPM+Fact+Sheet%22&submit=&rpp=10)

***Cornell Cooperative Extension Pesticide Safety Education Program (CCE-PSEP):***

[psep.cce.cornell.edu](http://psep.cce.cornell.edu)

***Penn State Pesticide Education Program:***

[extension.psu.edu/insects-pests-and-diseases/pesticide-applicators](http://extension.psu.edu/insects-pests-and-diseases/pesticide-applicators)

2023 New York and Pennsylvania Pest Management Guidelines for Grapes

A Cornell Cooperative Extension Publication

Authors

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**NY Farm Labor Survey...Only Two Weeks Left!**

Farm employers, share your voice through the [NY Farm Labor in Transition Survey](#). This is vital information to understand how the farm labor situation affects employers! Please take about 20-

30 minutes of your time to include your response now, only two weeks remain! All data will be kept confidential, results will only be reported as group data, and no personally identifiable data will be reported. Respondents will receive a summary of the results. Prepare by assembling the following data from your payroll records:

- The number of full-time, part-time, seasonal, and H-2A positions you employed in 2021 and 2022.
- Total regular hours worked by all of your hired employees in 2021 and 2022.
- Total overtime hours worked by all of your hired employees in 2021 and 2022.
- Number of positions filled by owners and unpaid family members, and hours worked by them, in 2021 and 2022.
- Number of employees who left voluntarily or were fired in 2021 and 2022.

Thanks for doing your part to promote the [NY Farm Labor in Transition Survey](#). This survey gives farm employers the chance to tell their farm labor story. Please ask your farm neighbors, clients, and customers to complete the survey for their farms. Your personal request goes a long way, and here are a few tools to support you:

Download a helpful flyer here: [Farm Labor in Transition Survey Flyer](#).  
Use the QR code to give easy access for cell phones:



Thanks for your support!  
Rich

**Richard Stup, Ph.D.**

Cornell Agricultural Workforce Development

**College of Agriculture and Life Sciences and**

**The Charles H. Dyson School of Applied Economics and Management**

**Cornell University**

## **An Opportunity for Our Wine Makers**

I was asked to share this opportunity with all of you:

Hello Everyone, you are invited to the two day event: Making the \$50 Bottle: Vineyard & Cellar Practices for Benchmark Wines.



This two-day event will feature a roster of well-regarded East Coast winemakers, academics and viticulturists focused on how to implement strategic viticulture and cellar practices to produce benchmark wines; and the economic drivers behind them. Please see below for the program detail and Registration!

May 1-2 in Princeton, NJ

Making the \$50 Bottle: Vineyard & Cellar Practices for Benchmark Wines

### **Agenda for Monday, May 1st:**

- 9:15 - 10:30 am with Mark Chien, Viticulturalist:  
Planting with Intention: Vineyard Site Identification, Evaluation, and Development

- 10:45 - 12:00 pm with Orley Ashenfelter, Professor of Economics, Princeton University: The Economics of the \$50 Bottle of Wine
- 1:30 - 2:30 pm with Josh Grainer, MW, Managing Director and Winemaker, RdV Vineyards: Driving Quality in the Vineyard: From Pruning to Picking
- 3:15 - 4:30 pm with Byron Elmendorf, Head Winemaker, Macari Vineyards: Elevating Elevage with Lees: An Exploration of Cellar Techniques for Developing and Differentiating your Wines

### Agenda for Tuesday, May 2nd:

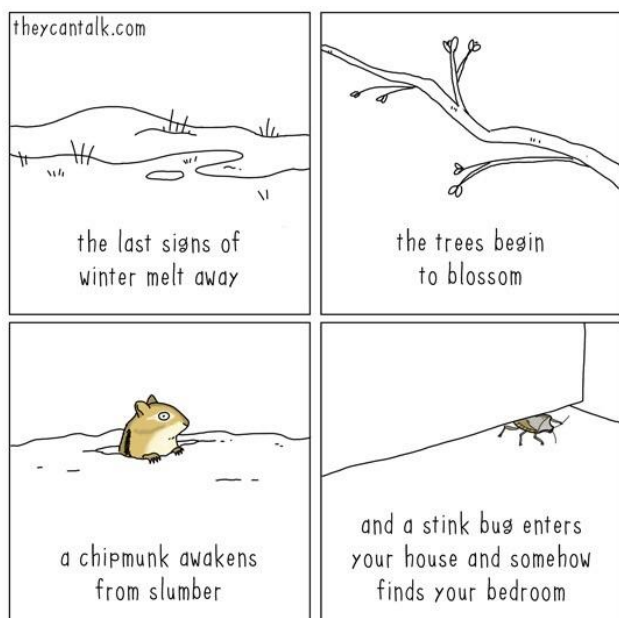
- 10:15 - 12:15 pm with Tom Payette, Winemaking Consultant: Premium Wines with a Plan: A Case Study of 2 Virginia Wineries
- 1:30 - 2:30 pm With Rocky Deterts Jr., East Coast Representative, Tonnellerie Baron: Barrel Selection for Benchmark Wines
- 3:15-4:15 pm with Molly Kelly, Enology Extension Educator, Penn State University: Preserving and Promoting Aromatic Compounds in White and Red Wines

Full event and single day tickets are available:

- \$100 for full 2-day event
- \$60 for a single day

This conference is subsidized by The Winemakers Co-Op, with support from the New Jersey Wine Industry Advisory Council and New Jersey Department of Agriculture.

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## Get Ready!

### There's a New Grant Program in Development for New York's Food Producers.

The New York Farm Viability Institute (NYFVI) is partnering with NYS Grown & Certified to launch a grant program to assist New York food producers, processors, distributors, and other eligible entities in bringing NYS Grown & Certified products to market. We anticipate releasing Request for Proposals (RFPs) later in 2023.

While NYFVI is working to develop the details and management infrastructure for the program, we are encouraging potential applicants to take steps now to make sure they are prepared when the RFPs are released.

Grant applications will be more competitive if the applicant is already enrolled or actively in the process of becoming part of the NYS Grown & Certified program. That is why we are encouraging all potential applicants to take a look NOW at the NYS Grown & Certified program and determine if it is a good fit for their business.

More information about the RFPs, as well as a sign-up form to be notified when it is released, is available at [www.nyfvi.org](http://www.nyfvi.org).



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# PA Update

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

At the North East PA lab by the lake we've accumulated about 88.4 growing degree days (gdds) so far in April, which is above average. According to the forecast, April will end up with *well above* average heat accumulation. Precipitation in April now stands at 2.09 inches, which is a bit low at this point in the month. The mild winter combined with above average heat accumulation in April, spells 'early bud break'. A look at our recent weather shows that after a nearly-week-long string of warm days and nights from April 11-16, many Concord vineyards farthest from the lake surpassed 50% budbreak by the end of that warm streak. Our vineyard and others I observed closer to the lake, edged up to about 40% bud break (Concord) before being shut down by cold weather since April 17. I expect that warmer weather today through Saturday will renew bud expansion and push them over the 50% mark. And with that, we will enter a development stage that is more susceptible to freeze damage. Past Saturday, the forecast is generally looking like more cool weather with lows falling back into the 30s for Sunday, Monday, Tuesday.

**Diseases:** As we enter a new season, I'd like to provide a quick review of some of the powdery mildew materials available for this season. After all, *powdery mildew is the most important grape disease around*. For juice grape growers, we have 3 relatively new materials that I recommend trying this year if you haven't already, especially if your powdery mildew control has been on the disappointing side after long term use of some of the older materials like Vivando and Quintec. These new materials are Endura (actually an old material, but new to juice grape growers), Cevya, and Gatten. Some of the text used in this 'write up' comes straight from our New York and Pennsylvania Pest Management Guidelines for Grapes.

## 1. NEW STUFF COMPETITIVELY PRICED FOR JUICE GRAPE GROWERS

**Gatten – FRAC U13.** This is that 'new' powdery mildew fungicide we've been talking about that has shown to be very effective in Cornell trials. It is unrelated chemically to anything we've used before, so no resistance issues to be concerned with...yet, and powdery mildew is all that it controls. Use it sparingly and with a view to managing resistance (limit to 2 applications per season) and always rotate with other FRAC groups. It should do a "bang up" job against powdery mildew for juice and wine growers alike. If you use it just once this year, I would recommend using it around bloom for fruit protection, probably at immediate post bloom. It has a 12-hour reentry interval and a 14-day pre-harvest interval. 'Restricted use in NY'.

**Cevya – FRAC 3.** Cevya is a relatively new DMI fungicide that is registered for use on all varieties of grapes (since the new label in 2022). In NY and PA trials, the unique chemistry in Cevya's active ingredient has been very effective at controlling powdery mildew and black rot (despite widespread powdery mildew resistance to the FRAC 3 fungicides). Cevya has a 12-hr REI and a 14-day PHI and is competitively priced for use on juice and wine grapes. I believe this one is also 'restricted use in NY'.

**Endura – FRAC 7.** Endura is an older succinate dehydrogenase inhibitor (SDHI) that has been on the market for decades. However, Endura is "new" to juice grape culture because of the relatively cost-prohibitive price...until now. The 4.5 oz rate should provide good to excellent control of powdery mildew at an affordable price. Applications of FRAC 7 materials should be limited to a maximum of two applications per year and should be used only in rotation or in mixtures with unrelated materials. Endura has a 12-hr re-entry interval and a 14-day preharvest interval.

## 2. RELATIVELY NEW MATERIALS FOR POWDERY MILDEW, BUT MAY BE PRICEY

**Aprovia/Aprovia Top - FRAC 7 (Aprovia) and FRAC 7 + 3 (Aprovia Top)**. Aprovia is a relatively new member of the SDHI fungicides, with excellent activity against powdery mildew. Aprovia is also labeled for control of anthracnose, Phomopsis, and black rot. However, it has provided only modest control (suppression) of black rot in our field trials, and there is little local experience or published results of trials with anthracnose and Phomopsis in North America. Therefore, powdery mildew is the only disease against which this fungicide should be used with confidence. It is recommended that use of all Group 7 products be limited to two applications per season. Aprovia has a 12-hr REI and a 21-day PHI. Restricted use in NY.

**Aprovia Top** is a combination product of Aprovia (above) and difenoconazole (a relatively new FRAC 3 material). Difenoconazole should not be applied to Concord grapes and certain other varieties!!....read the label! This product is VERY effective against powdery mildew and also black rot (because of the difenoconazole). *If you're a premium (vinifera) wine grape grower, a tank mix of this product with sulfur around bloom should provide outstanding powdery mildew control.* Restricted use in NY.

**Miravis Prime - FRAC 7 + 12**. This product is a combination of a new SDHI fungicide (FRAC 7) and an older phenylpyrrole active ingredient (FRAC 12), introduced about 25 years ago. In NY and PA trials, Miravis Prime has shown excellent activity against powdery mildew and good to excellent activity against black rot and Botrytis. Miravis Prime is also labeled for control of anthracnose and Phomopsis cane and leaf spot, but there is little to no local experience with control of these other diseases using this product. The activity against powdery mildew and black rot are primarily from the SDHI component (pydiflumetofen). On the other hand, fludioxonil (the FRAC 12 component), also found in another combination product called Switch, is what provides the Botrytis control. Miravis Prime is said to accumulate in the waxy cuticle and “translocate through the leaves”. Miravis Prime has a 12-hr REI and a 14-day PHI. Again, we recommend that use of all Group 7 products be limited to two applications per season. Restricted use in NY.

## 3. OLDER, STANDARD POWDERY MILDEW MATERIALS FOR JUICE GRAPE GROWERS:

Some of these materials may be suffering from resistance development by the powdery mildew fungus, which may explain their perceived reduced effectiveness by growers. However, there are few reports of actual documented resistance to date...I hope to get some clarification on this soon from researchers in Michigan and New York.

**Torino - FRAC U6**. Torino represents a new class of chemistry, with activity only against powdery mildew. It has given good to very good control of this disease when applied at 14-day intervals in multiple NY and PA trials. Because it is unrelated to any other product used on grapes in North America, it can be rotated with all existing products for resistance management purposes. The new label allows for a single application at double the old rate of 3.4 fl oz/A. It is suggested that the higher 6.8 fl oz/A application could be useful to span an extended period when conditions are favorable for powdery mildew development, but unfavorable for maintaining a regular or tighter spray schedule. The higher rate will be quite pricey but will provide longer residual control of powdery mildew. Torino has a 4-hr REI and a 3-day PHI when applying at the 3.4 fl oz/A rate, and a 7-day PHI when using the 6.8 fl oz rate. The label restricts its use to two applications at the 3.4 fl oz rate or one application at the 6.8 fl oz rate. Trial results suggest that it might be used most effectively in rotational programs to manage foliar infections during mid- and late summer. I believe we got first use of this fungicide in 2013 and to my knowledge, there has been no perceived or documented reduction in activity yet of this active ingredient, for powdery mildew control.

**Quintec – FRAC 13**. Quintec was the first fungicide in a relatively new chemical family, the

azanaphthalines (quinolines), and I believe we started using it around 2004 (?), so it's been out there for quite a while. It is unrelated to any other grape fungicide currently registered here and has provided excellent control of powdery mildew in multiple NY trials and commercial vineyards. However, Quintec is at risk for resistance development, so it should not be used more than two times per season, and it should always be used in rotation with other effective powdery mildew fungicides. Quintec does not provide control of any disease other than powdery mildew. It is strictly a protectant fungicide that must be present before the powdery mildew fungus begins the infection process; it does not provide any post-infection or eradication activity. I can think of only one report of documented Quintec resistance, but more reports of perceived reduced activity by growers. I have also seen its activity fade in our research trials here too, but not the extent that Vivando has faded (more on that below). I hope to be able to report more on the resistance issue soon. Quintec has a 12-hr re-entry interval and a 21-day preharvest interval.

**Vivando – FRAC 50.** Vivando has provided excellent results in multiple trials in NY and other states in the past. It is unrelated to any other fungicide product currently on the market, so should be very useful in rotational programs for resistance management purposes. I believe we started using it in 2011 (2012 in NY), and to limit the risk of developing resistance to Vivando, we have recommended no more than two applications per season, rotated with other materials. This was a 'big gun' powdery mildew material when it first arrived for us in 2011, but its performance has been poor over the past few years at our research site. In fact, we've seen little to no control of powdery mildew from it in the past few years, even at the highest rate, in our trials here at the North East lab. I know of no *documented* powdery mildew resistance to Vivando yet, but there is growing evidence of resistance from researchers in other areas as well: hopefully more information will be available on this soon. Vivando has a 12-hr REI and a 14-day PHI.

**Luna experience/sensation – FRAC 7 + 3 (Luna Experience); FRAC 7 + 11 (Luna sensation).** Both of these "Luna" products contain fluopyram, an "SDHI" (Group 7) fungicide and either a sterol inhibitor (tebuconazole; Luna experience) or a strobilurin (trifloxystrobin; Luna sensation). The fluopyram is great for powdery mildew control, and the tebuconazole or trifloxystrobin make these products effective for black rot control...*but only at the higher, more expensive rates.* Just keep in mind that the tebuconazole and trifloxystrobin partners in these products are probably not helping much anymore with powdery mildew control, due to widespread FRAC 3 and 11 resistance. Limit these products to two applications per season. Also keep in mind that trifloxystrobin in Luna sensation (essentially what we know as "Flint") is not for use on Concord grapes.

***Phomopsis:*** This is your annual reminder that our first disease issue during early shoot growth is Phomopsis cane and leaf spot. New shoots are vulnerable to infection just after shoot growth begins, and inflorescences are generally first vulnerable at about 3" of shoot growth. Wetness/rainfall during early shoot growth releases spores of Phomopsis from overwintering wood sources and creates the conditions for development of this disease that can leave scabby black lesions and cankers on the first few nodes/internodes of shoots and, most importantly, on inflorescences. Infections on stem tissue of inflorescences can result in fruit rots during later stages of ripening, months after the infection period took place. Early infections of the cluster stem tissue can progress into berries during ripening and cause fruit to shell before or during harvest. After fruit are formed, they are generally at risk of direct infections until a couple weeks or so after bloom, when inoculum sources normally get 'milked out' for the remainder of the season (no spores...no disease). Heavy infection at the base of the shoots (Figure 1) may result in weakening of the shoot and shoot breakage under windy conditions. Leaf infections are far less serious, appearing as pinhead sized black spots surrounded by a yellow halo (Figure 2), but they do indicate the presence of an overwintering source of the Phomopsis fungus.





*Fig. 1 Lesions at the base of the oldest internodes result in scabby areas that weaken the shoot.*



*Fig. 2 Leaf infections of Phomopsis cane and leaf spot on Concord grape. These are rarely consequential, but they do indicate the presence of overwintering inoculum in the trellis.*



*Fig. 3 Phomopsis fruit rot on ripe Vignoles and Niagara grapes; from infections of the cluster that occurred months earlier.*

Phomopsis management with fungicides should begin at about 2-5" inches of shoot growth, but this is a ball-park figure. In early spring, this stage of development is a swiftly moving target, so monitor your crop daily and watch weather forecasts, paying close attention to the prediction of lengthy wetting periods during this early shoot growth period. ***This early shoot growth spray will, in most years, be the most important spray for Phomopsis.*** Mancozeb products, Captan, and Ziram are the 'go to' materials for Phomopsis control, but they have no "reach back" activity and have to be applied before an infection period, to do their job. You don't have to use full rates of these

'protectants' for that first early shoot spray.

**Bottom Line:** Timing that first mancozeb or captan spray is often a 'crap shoot'; you don't have to use maximum rates, but it's an important part, perhaps the most important part, of a 'standard' spray program for Phomopsis.

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# PA Update

Megan Luke, Penn State Extension Viticulture and Tree Fruit Educator

## PA Update

**As we approach spring and the crucial pre-bloom period in our vineyards, now is an excellent time to prepare our spray equipment, personal protective equipment (PPE), and pesticide applicator paperwork for the coming season.** The importance of performing safety checks of all relevant equipment cannot be overstated. Calibrating sprayers, prepping PPE, and checking for updates in material registrations and labels should be completed as early in the season as possible to save time, energy, and money throughout the growing season. I have compiled a few quick check lists and resources to streamline this process to save time, energy, and money this growing season. Sources for this information include the *2023 NY and PA Pest Management Guidelines for Grapes* and the Penn State worker protection standard (WPS) checklist located at: <https://extension.psu.edu/worker-protection-standard-wps-checklist>.

**To get started:** Make a list of all materials (insecticides, herbicides, acaricides, fungicides) and any adjuvants (spreaders, stickers, penetrants, emulsifiers, wetting agents, adhesives) that you intend to use on your operation.

**Download** labels and material sheets for each material and adjuvant, print several copies for each product. Below are websites for downloading current pesticide labels and SDS.

<https://www.npirs.org/state/>

<https://www.greenbook.net/search>

<https://www.cdms.net/Label-Database>

“The label is the law”: We hear this often, but this is the time when we need to review labels and make sure that our PPE, equipment, and training is up to date! Check for changes in application rates, listed crops, and target insects. Consult the *2023 NY and PA Grape Guidelines* (Chapter 3.2 and 4.2) and Bryan Hed’s update for current guidance on disease and pest resistance management in this region. Be sure to choose materials with various modes of action to reduce the incidence of resistant pest populations.

For updates to New York labels: <https://www.dec.ny.gov/chemical/298.html>

Mode of action (Insecticides): <https://irac-online.org/>

Mode of action (Fungicides): <https://www.frac.info/>

**PPE:** The first aspect of preparation for the spray season is checking your PPE for damage and to determine items due for replacement. With all the supply chain issues in recent years, and the fact that PPE requires specific fit, it is a good idea to determine replacement requirements early in the season so that there is time to order from your preferred sources.

## Safety checks

- Check durable wearables like boots, jackets, safety goggles and gloves for rips, dry rot, cracks, and other damage. Repair or replace as needed.
- Check stock of disposable items like gloves, masks, Tyvek suits and hoods. If you have multiple employees working with or alongside pesticides, be sure to stock a variety of sizes for proper fit.
- Replace filter cartridges in respirators, check straps and seal for cracking, wear, dry rot, and any other damage. Schedule a respirator fit test as needed.
  - New York State respirator fit test sources\*
    - [https://rvpadmin.cce.cornell.edu/uploads/doc\\_648.pdf](https://rvpadmin.cce.cornell.edu/uploads/doc_648.pdf)
    - <https://www.mobilehealth.com/locations/new-york/ny-chautauqua-county/>
    - <https://www.healthworkswny.com/content/pages/respirator-fit-testing>
  - Pennsylvania respirator fit test sources\*
    - <https://extension.psu.edu/2023-respirator-fit-test-program>
    - <https://ohtestingusa.com/occupational-health-testing-girard-pa/>
- Restock first aid kits, emergency stations, and laundry facilities as needed.

*\* Please contact the testing company directly for details about services offered. The LERGP does not recommend one facility over another. Price of fit test may vary.*

**Spray equipment safety:** Perform pre-season maintenance and safety checks of all equipment and continue to do routine checks after spray activities to ensure that materials are applied correctly. Correct application ensures the efficacy of your spray program and protects workers and non-target organisms in your vineyard and surrounding areas, as well as preventing mid-season down time for repairs.

## Safety checks

- Hoses (splits, cracks, connections, chafe)
- Filters (leakage, blocks, damage, missing)
- Controls (circuitry, valves)
- Pump (lubrication, leaks, friction, obstruction)
- Pressure gauge (reading as expected)
- Nozzles (missing, obstruction, leaks, output value)
- Fan (friction, obstruction)
- Oil levels (pump crankshaft, fan drive gearbox)
- Bearings (wheel, PTO shaft, agitator shaft, fan drive shaft)
- Tires (wear, inflation)

**Spray equipment calibration:** Calibrating your spray equipment is the best way to ensure that your equipment is delivering the label indicated quantity of pesticide material to the target area. Many new sprayers have computer driven methods of calibration, while older equipment may require manual adjustments.

## Methods

- Overview of calibration process
  - <https://sprayers101.com/>
  - <https://extension.psu.edu/air-blast-sprayer-calibration-process>
- Nozzle selection
  - <https://www.youtube.com/watch?v=6izHj0GF1rY&pp=ygVTY2FsaWJyYX-Rpb24gb2YgYWlyYmxhc3Qgc3ByYXllcnMgZm9yIG9yY2hhcmRzIH-BhcnQgMSBzZWxlY3RpbmcgYW5kIGNoYW5naW5nlG5venpsZXM%3D>
- Measuring liquid flow
  - <https://www.youtube.com/watch?v=eAfEljwg5HI&pp=ygVKY2FsaWJyYX-Rpb24gb2YgYWlyYmxhc3Qgc3ByYXllcnMgZm9yIG9yY2hhcmRzIH-BhcnQgMiBtZWZdXJpbmcgYXJlZGZsb3c%3D>

**Label updates and safety sheets:** Having current pesticide labels and safety data sheets (SDS) on hand is crucial for applicator safety and compliance with state and federal safety standards. Since changes can occur from one year to the next, it is important to print new labels each year and keep them in an easily accessible location for all employees.

- Download and print all labels and SDS sheets.
- Check safety posters and safety sheets in public areas and update as needed.
- Keep extra copies of labels on hand for affixing to spray tanks and storage containers.
- Print or prepare record keeping forms, check local laws (State and Federal) for required procedures regarding record keeping for your operation.

**Final update:** For the Pennsylvania LERGP members: the *2023 NY-PA Pest Management Guidelines for Grapes* is now available! Please contact me or meet me at the office to receive your copy. Shipping will begin the first week of May for those who cannot make it in.

### Office schedule (April 24<sup>th</sup>-28<sup>th</sup>)

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

T 9am-5pm LERGREC North East, PA

W/Th Erie Co. Cooperative Ext. Summit Municipal Bldg. Erie, PA



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