

Finger Lakes Vineyard Update

Budbreak is Upon Us

Hans Walter-Peterson

Early and some mid-season varieties have reached, or are about to reach, budbreak in the Finger Lakes. At the Teaching Vineyard in Dresden, Don has called official budbreak on the following cultivars so far (table includes budbreak dates from 2018):

Cultivar	2019	2018
	Budbreak	Budbreak
Jupiter	5/2	5/5
Marquis	5/4	5/5
Marquette (OR and grafted)	5/5	5/5
Catawba	5/6	5/7
Chardonnay (clones 76 & 96)	5/8	5/6 (clone 76); 5/8 (clone 96)

We don't have Concord or Niagara in the Teaching Vineyard, but vines on Keuka Lake have reached budbreak as well (photo of Concord taken May 7). Most other varieties are at various stages of budswell, and some warmth and sun today should push them closer to budbreak as well. We are just about on par with the timing of budbreak last year.

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IPM

Powdery Mildew scarring on canes

In general, growers in the Finger Lakes aren't thinking about powdery mildew control this early in the season, but rather on early weed control sprays and the first phomopsis spray of the year. Most growers will hold off on applying sulfur, Stylet Oil or other PM materials until shoots reach about 10-12" of growth. There may be situations, though, where control measures may need to be taken earlier than that if conditions warrant it. If there was a lot of active PM in the latter part of last season, it means there will be more overwintering inoculum present this spring, which leads to higher levels of primary infections which then result in more pressure from secondary infections later in the season when the fruit is vulnerable. In this kind of situation, it would be beneficial to start applying PM materials earlier in the season to reduce the ability of primary infections to establish and being to reproduce.



Scarring on a cane caused by powdery mildew infections last year.

One sign to look for to get an idea of what the potential PM pressure could this season is to examine the fruiting canes or spurs to see if there is significant scarring caused from PM infections last season (see photo). This scarring looks like brownish-red splotches on the one -year old wood. This can be an indication that there are higher amounts of chasmothecia, the overwintering fruiting bodies of powdery mildew, on the vines. The chasmothecia will release ascospores during the spring with 0.1" of rain or more, and those spores will be carried by the wind to infect young tissues. Under situations like this, varieties with greater susceptibility to PM (e.g., pretty much all vinifera varieties and some hybrids) should be treated beginning as early as 3-5" of shoot growth in order to prevent some of the primary infections.

The NEWA website contains a model that predicts when conditions are favorable for primary infections to occur. Under the 'Pest Forecasts' tab of the site, select 'Grape Forecast Models' and then 'Grape Diseases' in the top dropdown box. Using weather data from a particular weather station, you can see which days had conditions that were favorable for primary infection events in that location (see figure below). Based on this information, the amount of overwintering inoculum there could be, and how much green tissue is exposed that could be infected, growers can make decisions about when to begin applications of PM control materials.

Select a disease or insect: Grape Diseases	Map Results More info								
State: New York	G	rape Dise	ease Infe	ction Eve	ents for I)resden ((FLX TD	V)	
Weather station:		Past	Past	Current	Grape Dis	ease 5-Day	y Forecast	Forecas	st Details
Dresden (FLX TDV)		May 6	May 7	May 8	May 9	May 10	May 11	May 12	May 13
Ending Data:	Phomopsis	Combined	Combined	Combined	Combined	Yes	-	-	-
5/8/2019	Powdery Mildew	No	Yes	No	Yes	Yes	-	-	-
Calculate	Black Rot	Combined	Combined	Combined	Combined	Yes	-	-	-
	Phomopsis - calculates when weather conditions may allow spores to infect susceptible tissue. Powdery Mildew - calculates primary infection when weather conditions may allow overwintered, primary spores (ascospores) to infect susceptible tissue; runs from bud break until pre-bloom. Once primary infections have occurred, secondary infections (disease spread) are possible every day. The threat is greatest when temperatures are between 65 to 90 degrees F and is particularly high when conditions are cloudy. Black Rot_calculates when weather conditions may allow spores to infect susceptible tissue.								

NEWA Grape Forecast Models

NEWA announces partnership with Onset Corporation

Dan Olmstead, NEWA Coordinator – NYS IPM Program

The <u>New York State IPM Program</u> at <u>Cornell University</u> is pleased to announce that <u>Onset Corporation</u> has joined the <u>NEWA</u> family and will be partnering to integrate HOBO[®] weather station data used by growers for use with insect pest and plant disease decision support tools at <u>http://newa.cornell.edu</u>.

The HOBO RX3000

Combining <u>HOBO RX3000 weather stations</u> with NEWA's decision support tools will give farmers access to microclimate monitoring data and real-time crop management decision support, allowing for faster, well-informed farm management decisions. Growers simply select the NEWA data feed after logging onto the <u>HOBOlink</u>[®] cloud platform and then contact the <u>NEWA Help Desk</u> to complete the onboarding process to <u>http://newa.cornell.edu</u>.

Learn more about the RX3000 NEWA configuration

Onset HOBO RX3000 Benefits:

- Free NEWA access in member states.
- 5% NEWA discount on weather station equipment purchases.
- NEWA tool and resource compatibility.
- Reliable weather monitoring with low-cost data plans.
- Hobolink[®] alarm notifications via text.
- Hobolink[®] 24/7 data access.
- Wide area farm coverage with <u>HOBOnet</u> add-on mesh network sensors (optional).

Onset is ready to answer your questions about HOBO RX3000 station configurations suitable for use with the NEWA platform. Visit the <u>Onset NEWA partner page</u> to learn more, or contact designated Onset support staff below with your questions regarding equipment and purchases.

Matt Sharp, Strategic Sales Representative Environmental & Agricultural Monitoring Direct: 508-743-3126 Main: 1-800-LOGGERS (564-4377) matt_sharp@onsetcomp.com

Farm-scale monitoring

Jamie Pearce, Onset's VP of Marketing and Corporate Development says, "We're very excited to be integrating our HOBO RX3000 weather station data with NEWA. Not only does it help our agricultural customer base gain actionable insights, but it also delivers the option to leverage our new wireless sensors with the <u>HOBOnet® Field Monitoring System</u>. Now, apple growers to vineyard managers can get a better sense of what's happening throughout their fields."

Note: Dan will be discussing this and other NEWA-related information at this year's Spring IPM meeting. Feel free to bring your questions about this new weather station option to connect to the NEWA network.

eNEWA for Grapes – Back by Popular Demand!

Tim Weigle, NYS IPM Grape Specialist – Lake Erie Regional Grape Program

What is eNEWA you ask? eNEWA is a daily reminder of the current weather and grape disease and insect model information found on NEWA (Network for Environment and Weather Applications) <u>http://</u><u>newa.cornell.edu</u>. This daily email contains current weather and grape pest model information from a station, or stations, near you. The email will contain; 1) high, low and average temperature, rainfall, wind speed and relative humidity 2) the 5-day forecast for these weather parameters, 3) GDD totals (Base 50F), 4) 5-day GDD (Base 50F) forecast and 5) model results for powdery mildew, black rot, Phomopsis and grape berry moth.

eNEWA is a great way to get an idea of pest potentials for your vineyard operation without having to click around the NEWA website every day. eNEWA is not meant to be a replacement for the website, rather it is a quick and easy way to determine if a visit to the website is warranted. For example, if one of the pest models is reporting the potential for an infection event, you can visit the NEWA website to provide information specific to your site. This will increase the accuracy of the output of the disease and grape berry moth models. You will also need to access the NEWA website to use the DMCast model for downy mildew as user input is required.

We worked with Dan Olmstead, NEWA Coordinator, to streamline the sign up process for eNEWA in 2019. By visiting <u>http://blogs.cornell.edu/yourenewa/e-newa/</u> you will have the ability to choose from any station that is currently part of the NEWA network in New York and Pennsylvania. You can choose to receive information from one to five station locations and have the information delivered up to three times a day. Please keep in mind that you will receive a separate email (approximately 3 pages in length) for each station you choose. Once during the growing season and again after harvest, you will be asked to complete a short survey to assist us in improving the eNEWA for grapes email system. If you would like to be a part of this project visit <u>http://blogs.cornell.edu/yourenewa/e-newa/</u>. eNEWA alerts should start shortly after the growing season begins.

Seeking Additional Grower Collaborators

Justine Vanden Heuvel



Fig 1. Arbuscular mycorrhizal fungal (AMF) structures in the fine roots of Vitis vinifera cv. Pinot noir. Samples were collected in November, 5 months after inoculation. A: Arbuscules, HC: Hyphal coils, V: Vesicles, 40x magnified. AMF can improve vine health, nutrition, and water relations.

Grapevines benefit from a symbiotic relationship with arbuscular mycorrhizal fungi (AMF). Together the vine and the AMF form mycorrhizae, which play an important role in vine health, grapevine nutrition, and water relations. A range of products - generally referred to as soil microbial stimulators - are sold with the goal of encouraging the formation of mycorrhizae.

The Vanden Heuvel research program began working with growers in 2018 to trial some of the more promising products on the market, with positive results (Table 1).

Table 1: Vine petiole nutrient analysis of cv. Pinot noir inoculated with different biofertilizers in June 2018. Peti- oles were collected at version					
	Petiole Nutrient Concentration				
Treatment	% Total Nitrogen	% Phosphorous	% Potassium		
Control (no application)	0.68	0.21	1.75		
Big Foot Concentrate	0.72	0.25	2.32		
MycoGrow Soluble	0.76	0.28	2.60		
BioOrganic	0.79	0.30	2.72		
MycoApply All Purpose	0.84	0.37	3.09		

We are seeking more growers to purchase and trial at least one product containing Glomus. If you are interested in purchasing and trialing a product on a small area of your vineyard please email <u>Justine@cornell.edu</u>. We will help you evaluate potential impacts on your vineyard.

This project is funded by the New York Farm Viability Institute.

Interested in trialing under-vine cover crops in your vineyard?

Justine Vanden Heuvel



Under-vine cover crops help reduce soil erosion and nutrient leaching while providing an opportunity to reduce excessive grapevine vigor. We've worked with a range of cover crops that have varying impacts on vine size (Table 1).

Table 1. Summary of impact of under-vine cover crops on vine yield and pruning weight

Little to no impact	Moderate impact	Significant impact
Buckwheat	Tillage Radish	Chicory
Rosette-forming turnip	Alfalfa	Annual Ryegrass
	Fescue	
	Natural vegetation	

Northeast SARE (Sustainable Agriculture Research and Extension) has funded a project to help grape growers trial under-vine cover crops. If you are located in the Finger Lakes region we can provide the seed, help you seed the covers and evaluate their impacts. Please contact Justine Vanden Heuvel (justine@cornell.edu) or Steve Lerch (sdl5@cornell.edu) if you'd like to participate in the project.

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Finger Lakes Grape Program

Upcoming Events

Don't forget to check out the calendar on our website (<u>http://</u><u>flgp.cce.cornell.edu/events.php</u>) for more information about these and other events relevant to the Finger Lakes grape industry.

Spring Grape IPM Meeting

Wednesday, May 15, 2019 4:30 – 6:00 PM (with dinner following) Doyle Vineyard Management 10223 Middle Road, Hammondsport NY

Come one, come all for this year's Spring Grape IPM meeting! Come for the credits and the information, stay for the food! Speakers will cover topics including disease and weed management, the latest on the Spotted Lantern Fly, insecticide use for managing fruit flies and sour rot, and more. And don't forget to stick around afterwards for dinner and some social time with your fellow growers.

This year's program:

4:00 PM	Pesticide Credit Registration
4:30 PM	Update on Disease Management Materials and Practices for Grapes
	Bryan Hed, Penn State University
4:50 PM	Control of Bindweed and Other Perennial Weeds in Vineyards
	Bryan Brown, NYS IPM Program
5:05 PM	Update on NEWA Weather Network
	Dan Olmstead, NYS IPM Program
5:20 PM	Sour Rot and Fruit Fly Management
	Hans Walter-Peterson, Finger Lakes Grape Program
5:40 PM	Update on Spotted Lanternfly Efforts in NY
	Tim Weigle, NYS IPM Program
6:00 PM	Dinner

The meeting is free to those who are enrolled in the FLGP for 2019, and \$15 per person for those who are not (\$25 at the door regardless of enrollment status, which will be limited). In order to have an accurate count for dinner, we need everyone to register for the meeting by Friday, May 10. Please register at https://flgp.cce.cornell.edu/event.php?id=391 or call Brittany at 315-536-5134.

Tailgate Meeting #2

Tuesday, May 28, 2019 4:30 – 6:00 PM James Hicks Farm 5305 Seneca Point Road Canandaigua, NY

Our second Tailgate Meeting of the season will be held at Jim Hicks' vineyard on the west side of Canandaigua Lake. Pesticide credits will be available for each Tailgate Meeting this season. No registration required – just bring a chair and your questions and observations about what's going on in the vineyard.



May 9, 2019

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ASEV-Eastern Section Annual Meeting and Shaulis Symposium on Digital Viticulture

July 16-18, 2019 Hobart & William Smith Colleges, Geneva NY

A special vineyard tour and symposium entitled "Digital Viticulture: New Tools for Precision Management" will be featured as part of the annual American Society for Viticulture and Enology- Eastern Section (ASEV-ES) conference at Hobart and William Smith Colleges in Geneva, NY on July 16 through July 18.

The two-day program and vineyard tour will bring together suppliers, researchers, and growers to explore the tools and concepts of precision viticulture. New technologies, such as inexpensive sensors, digital imaging, geographical information systems, and precision machinery are converging to make precision viticulture possible. This field tour and symposium will focus on tools, concepts, and platforms for putting it all together to manage vineyards.

More information about the conference, field tour and symposium can be found at http://www.asev-es.org.



May 9, 2019





New Tools for Precision Management

Hobart and William Smith Colleges, Geneva, NY July 16-18, 2019

Shaulis Symposium at ASEV-ES focuses on Digital Viticulture.

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Dr. Nelson Shaulis

"Nelson Shaulis and others developed principles of vine physiology that form the basis of modern viticulture over the past 50 years", said Tim Martinson, Senior extension associate with Cornell University. "Yet growers have lacked the tools to apply these principles on a vine by vine basis until now. New precision ag technologies are finally making it possible to vary management within a vineyard to achieve management goals."

The ASEV-ES conference, featuring presentations on enology and viticulture from students and researchers of the Eastern Section, will take place on Tuesday, July 16. The conference includes lunch and Wines of the East reception.

The vineyard tour and demonstrations on Wednesday, July 17 will include variable-rate shoot thinning, mechanical crop estimation, yield monitors, sensors for measuring soil and canopy characteristics, UAV and tractor-mounted imaging systems, and tools for canopy management. The tour includes lunch and reception featuring regional wines.

The Shaulis Symposium on July 18 will focus on applying viticultural principles to address within-vineyard variability. Four sessions will cover the three-step process of implementing precision management: <u>Measure</u>, <u>Model</u>, and <u>Manage</u>. The symposium will include lunch and reception.

- Session 1: Physiology of vine balance and precision viticulture
- Session 2: Metrics for management: Sensors, drones, satellites, and analytical equipment
- Session 3: Models for management: Translating data to practical tools for deciding 'what I need to do and where'.
- Session 4: Examples of applied digital viticulture.

Registration options for each day are available. Conference, Vineyard Tour, and Symposium information is available at <u>www.asev-es.org</u>.



Dr. Nelson Shaulis and others developed principles of vine physiology that form the basis of modern viticulture. Yet growers have lacked the tools to apply these principles on a vine-by-vine basis to manage variable vineyards.

New technologies such as inexpensive sensors, digital imaging, geographical information systems, and precision machinery are converging to make precision viticulture possible. This field tour and symposium will focus on tools, concepts, and platforms for putting it all together for managing vineyards.



July 17 Field Day and Vineyard Tour: Demonstrations of sensors, mapping technology, and variable-rate GISready equipment for vineyard management. Tour includes lunch and wine reception featuring regional wines.

- Morning: Clearview Vineyards, Branchport, NY. Focus on spatial crop load measurement, yield monitors, tractormounted NDVI sensors, mechanical yield estimation, brix mapping, GPS-enabled tractors
- Afternoon: Anthony Road Vineyards, Seneca Lake, NY. Focus on vinifera: Drones, Imaging systems including drones and cluster imaging systems, novel sensors, tools for canopy management.

July 18 Nelson J. Shaulis Symposium: The symposium will focus on applying viticultural principles to address within-vineyard variability using the three-step process: MEASURE, MODEL, and MANAGE. Symposium includes lunch and reception

- Session 1: Physiology of vine balance and precision viticulture
- Session 2: Metrics for management: Sensors, drones, satellites, and analytical equipment
- Session 3: Models for management: Distilling a flood of data to practical tools to guide management decisions
- Session 4: Examples of "Digital Viticulture" from around the world.

Conference, Tour, and Symposium information at:

www.asev-es.org

2019 GDD & Precipitation

FLX Teaching & Demonstration Vineyard – Dresden, NY						
Date	Hi Temp (F)	Lo Temp (F)	Rain (inches)	Daily GDDs	Total GDDs	
5/1/2019	65.9	42.0	0.22	4.0	65.7	
5/2/2019	58.5	43.6	0.08	1.1	66.8	
5/3/2019	65.0	46.4	0.07	5.7	72.5	
5/4/2019	54.1	46.2	0.01	0.2	72.6	
5/5/2019	56.6	45.7	0.13	1.2	73.8	
5/6/2019	73.2	48.0	0.05	10.6	84.4	
5/7/2019	60.3	45.7	0.18	3.0	87.4	
Weekly Total			0.74"	25.6		
Season Total			3.12"	87.4		

GDDs as of May 7, 2018:	107.5
Rainfall as of May 7, 2018:	2.32"



Seasonal Comparisons (at Geneva) as of May 7

Growing Degree Day

	2019 GDD ¹	Long-term Avg GDD ²	Cumulative days ahead (+)/behind (-) ³
April	48.1	64.1	-5
May	25.5	255.5	-6
June		480.9	
July		642.1	
August		592.7	
September		357.6	
October		110.1	
TOTAL	73.6	2503.0	

¹ Accumulated GDDs for each month.

² The long-term average (1973-2017) GDD accumulation as of that date in the month.

³ Numbers at the end of each month represent where this year's GDD accumulation stands relative to the long-term average. The most recent number represents the current status.

2019 GDD & Precipitation (continued from page 9)

Precipitation

	2019 Rain ⁴	Long-term Avg Rain ⁵	Monthly deviation from avg ⁶
April	2.22"	2.85"	-0.63
May	0.98"	3.13"	
June		3.60"	
July		3.44"	
August		3.21"	
September		3.57"	
October		3.39"	
TOTAL	3.20"	23.16"	

⁴ Monthly rainfall totals up to current date

⁵ Long-term average rainfall for the month (total)

⁶ Monthly deviation from average (calculated at the end of the month)

Additional Information

Become a fan of the Finger Lakes Grape Program on Facebook, or follow us on Twitter (@cceflgp) as well as YouTube. Also check out our website at http://flgp.cce.cornell.edu.

Got some grapes to sell? Looking to buy some equipment or bulk wine? List your ad on the <u>NY</u> <u>Grape & Wine Classifieds website today!</u>

Finger Lakes Grape Program Advisory Committee

Eric Amberg- Grafted Grapevine Nursery Bill Dalrymple- Dalrymple Farm Matt Doyle- Doyle Vineyard Management Eileen Farnan- Barrington Cellars Chris Gerling- Cornell University Extension Mel Goldman- Keuka Lake Vineyards Luke Haggerty- Constellation Brands Tina Hazlitt- Sawmill Creek Vineyards Cameron Hosmer- Hosmer Winery

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Cornell Cooperative Extension Finger Lakes Grape Program

Hans Walter-Peterson—Team Leader Donald Caldwell—Viticulture Technician The Finger Lakes Grape Program is a Cornell Cooperative Extension partnership between Cornell University and the Cornell Cooperative Extension Associations in

Ontario, Seneca, Schuyler, Steuben, Wayne and Yates Counties.

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