

July 27th, 2022

Finger Lakes Vineyard Update

In the Vineyard

Finally, some rain fell across most of the Finger Lakes region this weekend, but as with a lot of other rain events this year, its effects were pretty variable depending on where you look. Amounts ranged from about half an inch at our Teaching & Demonstration Vineyard near Dresden to 1½ inches over at South Bristol.

Location	Rain in past 7 days	Total rain since July 1
Geneva	1.00"	1.93"
Dresden	0.57"	2.22"
Branchport	0.70"	2.46"
Lodi	0.89"	1.59"
Romulus	0.75"	1.52"
South Bristol	1.52"	2.60"
Williamson	0.68"	2.05"

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For the most part, mature vineyards on reasonably deep soils were not showing much in the way of serious water stress symptoms. Where symptoms were starting to appear were in young vineyards (relatively small rooting system), or vineyards on soils with lower water holding capacity, either due to shallow depth or higher sand or gravel content. In those cases, vines were starting to shed older tendrils and starting to “shy away” from direct sunlight exposure in order to reduce heat stress. In these kinds of situations, the stomates on the leaves will also close in an effort to conserve water, which reduces the rate of photosynthesis in the vine. Over time, these reactions to water stress can have more significant impacts to the vines, like reducing the amount of photosynthates that are distributed to the fruit, shoots, and permanent structure of the vine.

The amount of water that is removed from the soil over a period of time, whether by simple evaporation or from use by plants, is called *evapotranspiration* (ET). The factors that influence ET include climate measures like temperature, relative humidity, solar radiation and windspeed, as well as what kind of plant you are concerned with. A common measurement for ET is based on how much water is lost from a well-watered (i.e., no water stress) grass lawn. This is called the *reference evapotranspiration*, or ET_0 . The amount of water used by a green lawn is obviously different from how much water would be used by a different plant, like a corn stalk or a grapevine. To estimate how much water a different kind of plant would use, we need a *crop coefficient* (k_c) to combine with ET_0 . The crop coefficient essentially represents a percentage of the reference ET that is used by the plant. So if the crop coefficient for a grapevine is 0.5, that means the water loss from that field with that planted crop (called ET_c , for the ET of the crop) is about 50% of the water loss from the reference green lawn.

In the Vineyard (continued from pg. 1)

In mathematical terms:

$$ET_o \times k_c = ET_c$$



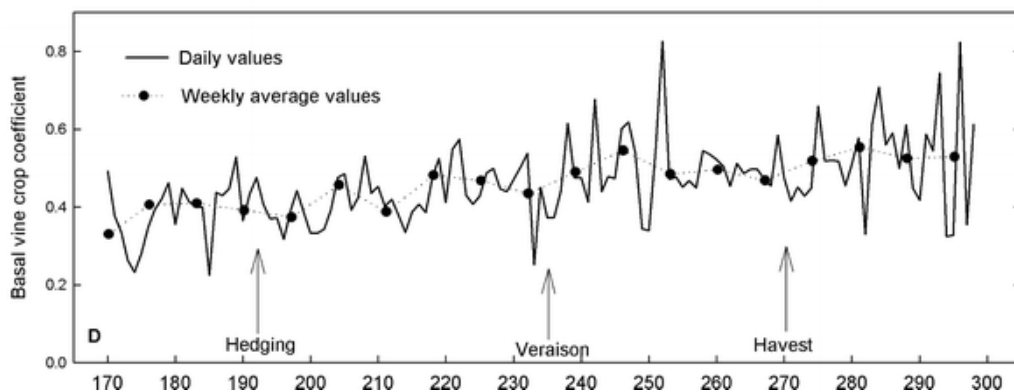
Mark Battany, viticulture advisor in San Luis Obispo County in California, measures grapevine shadow with a solar panel to estimate crop coefficients during the season.

There has been a lot of research on developing crop coefficients for grapevines, most of which has been done out west where water use and irrigation are major concerns in vineyards. However, in 2009, Diego Intrigliolo and Alan Lakso published data taken from a (young) Riesling vineyard in Geneva, NY which estimated a crop coefficient of about 0.49 over the length of the season. The exact value of k_c over the growing season changes from day to day depending on conditions in the field and how much canopy has developed. In the figure below, you can see how the calculated value of k_c changes over the season from bloom until harvest. But for a rough idea of how much water is being lost in a vineyard setting, the 0.49 value seems a reasonable place to start.

So what's all this long-winded stuff trying to get at? Using data from our weather station at the Teaching Vineyard in Dresden, the ET_o value (the amount of water lost from the soil under an unstressed grass lawn) since July 1 is about 4.9". Looking at the table above, we have received about 2.2" of rainfall at Dresden over that time. If we assume that the k_c value for grapevines over that time is about 0.49, we estimate that the vineyard has lost about 2.4" due to evaporation and transpiration by the vines. In other words, the amount of rainfall we've had in July so far almost equals our estimate of water loss from our vineyard over that time.

The balance between the amount of water that is lost from the soil and that which is supplied by rainfall or irrigation, is just part of the overall picture of how much water stress grapevines are experiencing at any given time. Other aspects like soil depth, soil texture, water holding capacity, rootstock, and other factors will also play a role. There are also new technologies that are being deployed in vineyards and other ag systems that can better estimate water use than the method outlined here, including a sap flow sensor that Alan Lakso helped to develop that measures water use directly in the vine.

As our rainfall patterns get more erratic due to climate change, it will likely become more important for us to have a better handle on water use in our vineyards, especially if more growers begin to install irrigation systems to supplement rainfall during times with sparse rainfall. The use of data like evapotranspiration and crop coefficients can help us begin to get a better understanding of that.



Source: Intrigliolo, D.S., Lakso, A.N. & Piccioni, R.M. Grapevine cv. 'Riesling' water use in the northeastern United States. *Irrig Sci* 27, 253–262 (2009). <https://doi.org/10.1007/s00271-008-0140-1>

IPM



Grape Berry Moth model results – July 27, 2022

Finger Lakes vineyards in warmer locations like Dresden and Lodi should be starting to scout their blocks for GBM activity over the next several days to determine if an insecticide application is warranted. Activity will start to pick up in cooler locations shortly and scouting should start when those locations reach about 1470 GDDs on the [GBM model on NEWA](#). According to the GDD forecast in the model, that should be somewhere around August 1 in areas like Branchport and Romulus, and a few days later in South Bristol and Williamson.

Applications should be targeted around 1620 GDDs if one is warranted. Once the model reaches 1620 GDDs for a site, contact materials like Sevin, Danitol, Leverage 360 are the better option to use up until the model reaches 1700 GDDs.

Status of GBM model at selected Finger Lakes NEWA locations (7/27/22)

Location	Biofix Date	GDDs	GBM Status & Management
Dresden	5/25/22	1501	*
Geneva	5/30/22	1319	*
South Bristol	5/31/22	1264	*
Romulus	5/28/22	1372	*
Branchport	5/29/22	1329	*
Lodi	5/26/22	1467	*
Williamson	6/1/22	1224	*

	Pest Status	Pest Management
*	Second generation larvae are protected within berries and completing their development.	The most effective time for treatment of second-generation grape berry moth is over. Prepare to scout all vineyard blocks for grape berry moth damage when DD accumulation reaches 1470-1620 DD. During scouting, determine if the number of damaged clusters from previous generation exceeds the treatment threshold of 15%. If above threshold, control measures should be applied starting at 1620 DD.

Renowned Cornell University Grape Pathologist Dr. Wayne Wilcox Receives ASEV's Highest Honor

At its annual meeting last month, Wayne Wilcox was given the Merit Award by the American Society of Enology & Viticulture. I meant to include this announcement in an earlier edition of the Vineyard Update before the meeting but forgot to do so. I know the entire industry in the Finger Lakes and beyond is incredibly grateful for the work that Wayne has done to help improve our ability to manage diseases in the vineyard, and I'm sure everyone would agree that the award is well-deserved. - HWP



After an impressive career spanning nearly 35 years, **Dr. Wayne Wilcox** will be awarded of the American Society for Enology and Viticulture's (ASEV) highest honor, the [ASEV Merit Award](#). Dr. Wilcox dedicated his career to researching and understanding the various factors of fruit diseases and finding ways to manage those disease through practical control programs. He will be presenting the Merit Award presentation, "*Molds, Mildews, and Rots: Bread and Butter to a Grape Pathologist*" at the [73rd ASEV National Conference](#), on June 22, in San Diego, Calif.

Always interested in fruit production, Dr. Wilcox began his research focus on the biology and management of fruit crop diseases in graduate school at the University of California at Davis. There, he received his B.S. in Plant Science as well as his M.S. and Ph.D. degrees in Plant Pathology. He joined the Department of Plant Pathology at Cornell University's New York State Agricultural Experiment Station in 1984, working with tree fruit and berry crop growers. In 1994, he assumed the role leading Cornell University's grape pathology program where he remained until his retirement in 2018.

"For me, one of my favorite things throughout my career was getting to interpret and share new findings with those who could benefit from them," said Dr. Wilcox, who often extended knowledge through oral presentations, fact sheets, newsletters, and trade publication articles. "Growers have so many challenges to face, so it's very rewarding when science and research can make them more manageable. I feel honored to be recognized with this award and look forward to my participation in the conference."

Dr. Wilcox has authored and co-authored over 100 research publications in refereed journals, including three awarded Best Viticulture Paper of the Year from the [American Journal of Enology and Viticulture](#) and the Australian Journal of Grape and Wine Research. He was also the senior editor of the 2nd Edition of the Compendium of Grapevine Diseases, Pests, and Disorders (2015), for which he authored or co-authored nine individual segments.

The ASEV Merit Award, presented since 1955, is designed to celebrate the accomplishments of an individual in the field of enology or viticulture. The yearly award acknowledges achievement or excellence in any field directly or indirectly related to enology or viticulture, including education, technology, research, management and public relations.

Entomologists seek safer pest management tech for NYS

Sarah Thompson, Cornell AgriTech

Specialty crop entomologists from Cornell AgriTech and the New York State Integrated Pest Management Program (NYSIPM) will use a three-year, \$450,000 grant from the New York State Department of Agriculture and Markets to evaluate alternatives for controlling insect pests that threaten the state's \$1.4 billion specialty crop industry.

The scientists will explore alternatives to neonicotinoids and chlorpyrifos, which have been shown to harm the environment – as well as pollinators and other beneficial insects – by mounting evidence, including a 2020 analysis of neonicotinoid use in New York by Cornell's Dyce Lab for Honeybee Studies.

"Cornell is at the forefront of critical IPM research, long working to innovate options for our farmers in managing damaging pests and safeguarding their crops," said Richard A. Ball, state agriculture commissioner. "The department is proud to support this project that will build on the research underway for our field crops and identify additional solutions to protect our specialty crops and increase economic viability while also protecting the environment."

After a statewide ban in 2021, the Environmental Protection Agency banned chlorpyrifos earlier this year. Now New York lawmakers are considering actions restricting the use of neonicotinoids, commonly referred to as neonics.

"We have invested a lot of time highlighting the risks and benefits of these chemicals, and now it's time to help farmers assess alternative pest management solutions and provide better digital tools to improve IPM practices," said Alejandro Calixto, NYSIPM director and co-director of the grant. "We're in a place right now where there are big gaps in information."

To close those gaps as quickly as possible for policymakers and growers, NYSIPM joined forces on an existing specialty crop grant with co-directors Brian Nault, professor of entomology, and Kyle Wickings, Cornell's turfgrass entomologist, to study alternatives that are easy to use, cost effective and pose minor risks to farmers and environment. Another research team at the College of Agriculture and Life Sciences is working simultaneously to find alternatives for field crops such as corn, soybeans and wheat.

From western New York to Long Island, Cornell's specialty crop team will test all currently available options for farmers – biological, cultural, physical and chemical – while evaluating the interactions between different tools. Those interactions are critical, Nault said, because farmers will have to use multiple tools to get the equivalent effectiveness of neonics or chlorpyrifos insecticides. And growers can't wait five years or more for private industry to develop and gain approval for new insecticides.

"In some crops, we aren't going to have a one-to-one replacement," Nault said. "That means growers will need to rely more on other nonchemical approaches but could require another insecticide or two."

Later this month, Nault expects to have preliminary findings from trials of a promising new class of insecticides to control soil-borne pests in vegetables. He'll also soon start trials of an RNA-interfering pesticide targeting the Colorado potato beetle.

Right now, turfgrass managers at golf courses and athletic fields can use [a free online tool developed by CALS](#) to identify and scout for white grubs. And by the end of the year, Calixto said farmers will be able to run real-time crop risk forecasts for the seedcorn maggot in New York's fruit, vegetable and field crops using [NEWA](#), an online decision support system combining weather and biological data.

"As we seek greater farm sustainability, it's important to equip New York growers with the best combination of pest management tools and techniques," said state Assemblymember Donna Lupardo. "Investing in this research can lead to more reliable and cost-effective options for growers, helping to design approaches that benefit our environment, our agricultural industry and the citizens of our state."



Brian Nault treats potatoes for an experiment to identify alternative insecticides to neonics for potato pest management.

Upcoming Events

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



FLGP Virtual Tailgate Meeting

Tuesday, August 9 *4:30 – 6:00 PM*

Via Zoom

Our final virtual Tailgate Meeting of 2022 will be held on Tuesday, August 9. As always, the agenda for these meetings is very loose, so please come with your questions, observations, opinions about what's going on in the vineyard.

Participants will need to register before attending their first virtual meeting in order to receive the Zoom link. Registration for the online Tailgate Meetings is only required once – the link you receive when you register will work for all four online meetings this year.

Online Tailgate Meeting Registration: <https://bit.ly/3M2peJp>

The virtual and in-person Tailgate Meetings have been approved for 1.25 pesticide recertification credits. We will also need to receive an image or photocopy of your pesticide license before the first meeting that you attend. These images/copies can be sent to Brittany Griffin at bg393@cornell.edu. More information will be included in your confirmation email.

FLGP In-Person Tailgate Meeting

Tuesday, August 23 *4:30 – 6:00 PM*

Doyle Vineyard Management Dresden Farm

1255 Ridge Road, Penn Yan NY

Our final in-person Tailgate Meeting for 2022 will be held on Tuesday, August 23 at Doyle Vineyard Management's vineyard near Dresden. The agenda for these meetings is very loose, so please come with your questions, observations, opinions about what's going on in the vineyard. The DEC has approved the meeting for 1.25 pesticide recertification credits (Categories 1a, 10, 22).

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Cornell AgriTech 140th Anniversary Open House: From research to your plate

Saturday, August 13 10:00 am – 3:00 pm Cornell AgriTech campus

630 W North Street, Geneva NY

Event link: <https://cals.cornell.edu/cornell-agritech-140th-anniversary-open-house>

Learn how science happening on the Cornell AgriTech campus impacts New York food and agriculture. Faculty, students, and staff will showcase their scientific research, give tours of our facilities, research fields and greenhouses and demonstrate how important (and fun) science really is. Below is a sampling of some activities and displays that will be offered (subject to change).

- Look through a high-powered microscope at New York crop diseases.
- Discover how various food and craft beverage companies produce some of your favorite products deliciously and safely through our expertise and innovation.
- Find out how we develop new apple, grape and vegetable varieties and visit some of our world-renowned germplasm repositories.
- Peruse the many weeds growing in our area and get some tips and tricks on how to manage them.
- Meet some "friendly insects".
- Watch us operate drones and robots used to analyze crop health.

The open house is open to all audiences and all are encouraged to visit our campus for a fun-filled educational day. Parking is available at Jordan Hall at 630 North St. Geneva, NY. No registration required.

2022 GDD & Precipitation

FLX Teaching & Demonstration Vineyard – Dresden, NY					
Date	Hi Temp (F)	Lo Temp (F)	Rain (inches)	Daily GDDs	Total GDDs
7/20/22	92.8	75.0	0.00	33.9	1443.6
7/21/22	87.6	74.7	0.03	31.2	1474.7
7/22/22	86.4	66.9	0.00	26.7	1501.4
7/23/22	92.7	64.9	0.00	28.8	1530.2
7/24/22	90.7	69.4	0.17	30.1	1560.2
7/25/22	81.7	63.0	0.37	22.4	1582.6
7/26/22	77.9	59.4	0.00	18.7	1601.2
Weekly Total			0.57"	191.6	
Season Total			10.72"	1601.2	

GDDs as of July 26, 2021: 1571.2

Rainfall as of July 26, 2021: 12.59"



Seasonal Comparisons (at Geneva)

	2022 GDD ¹	Long-term Avg GDD ²	Cumulative days ahead (+)/behind (-) ³
April	58.3	62.9	-2
May	337.8	254.6	+7
June	506.9	484.1	+6
July	571.1	645.5	+7
August		595.7	
September		359.9	
October		112.8	
TOTAL	1474.0	2515.5	

¹ Accumulated GDDs for each month.

² The long-term average (1973-2021) GDD accumulation for that 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.

2022 GDD & Precipitation

Precipitation

	2022 Rain ⁴	Long-term Avg Rain ⁵	Monthly deviation from avg ⁶
April	2.00"	2.83"	-0.82"
May	1.66"	3.09"	-1.43"
June	5.18"	3.52"	+1.66"
July	1.93"	3.46"	
August		3.22"	
September		3.46"	
October		3.47"	
TOTAL	10.77"	23.05"	

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 [NY Grape & Wine Classifieds website](#) today!

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

Mike Collizi- E & J Gallo

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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 partnership between Cornell University and the Cornell Cooperative Extension Associations in Ontario, Seneca, Schuyler, Steuben, Wayne and Yates Counties.

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