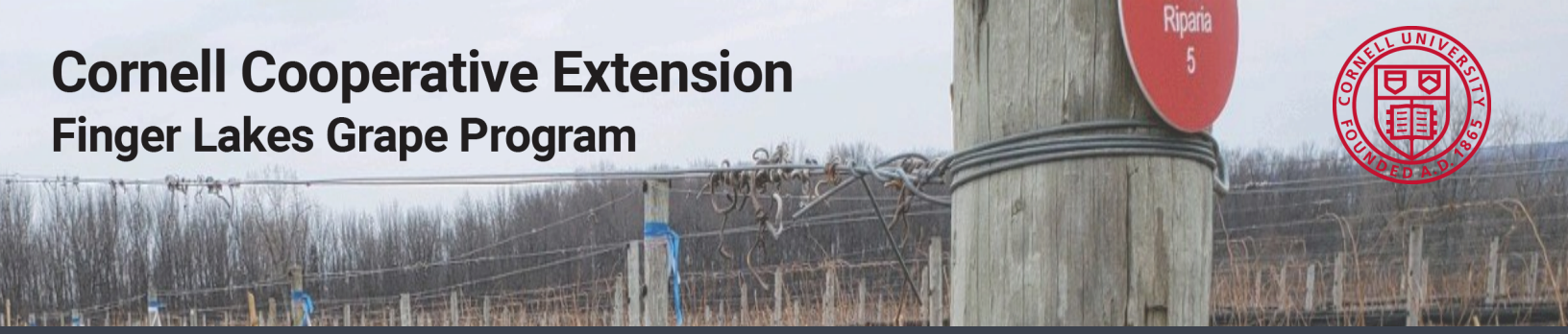

Cornell Cooperative Extension
Finger Lakes Grape Program

May 4th, 2022

Finger Lakes Vineyard Update

In This Issue:

In the Vineyard

The cool weather has slowed our progress toward budbreak this week, but even with the slowdown, we're about on par with recent seasons for "normal(?)" timing of budbreak. The chart below shows budbreak dates for most of the cultivars at the Teaching & Demonstration Vineyard over the past 4 years. As you probably remember, budbreak was about a week earlier than normal last year. On the other hand, most varieties at the TDV were a few days later than usual in 2020. At this point, I would guess that budbreak will look more like 2018 or 2019 than the two more recent years.

	2018		2019		2020		2021	
	Date	GDD	Date	GDD	Date	GDD	Date	GDD
Riesling	5/10	149	5/14	103	5/17	69	5/5	113
Chardonnay	5/6	107	5/8	87	5/15	57	4/30	79
Cabernet Franc	5/9	133	5/10	103	5/17	69	5/2	88
Lemberger	5/7	108	5/12	103	5/17	69	5/3	96
Grüner Veltliner	5/8	115	5/10	103	5/17	69	5/5	113
Marquis	5/5	95	5/4	73	5/14	40	4/28	79
Jupiter	5/5	95	5/2	67	5/5	38	4/24	62
Regent			5/14	103	5/16	63	5/4	111
Cayuga White	5/12	149	5/14	103	5/19	90	5/4	111
Vidal	5/12	149	5/17	125	5/19	90		
NY81.0315.17	5/9	133	5/12	103	5/16	63	5/5	113
Marquette	5/5	95	5/5	74	5/7	38	4/28	79

Dates and GDD (April 1 base 50°F) of budbreak at TDV in Dresden.

The most consistent thing I take away from this data right now (remember, it's only 4 years) is that there is a *general* progression of what varieties break before and after others in most years, as many growers know intrinsically. Jupiter and Marquette, and sometimes Marquis, are the first vines to hit budbreak in our location, usually followed very closely by Chardonnay. Cayuga White and Vidal tend to break bud close to each other, although Vidal always seems to be completely dormant until the last minute and then busts out when it's finally time. While they aren't big differences, budbreak for NY81 appears to happen a little closer to its Riesling parent than to Cayuga White, but again, this is a very small data set, and it isn't feasible to make any real conclusions from it at this point.

IPM

This week, I wanted to make sure that everyone could read a couple of items recently written by colleagues of mine.

Katie Gold's *Grape Disease Control Update for 2022* newsletter is available now. You can find it on her lab's website at https://blogs.cornell.edu/goldlab/lab-news/annual-grape-disease-control-update-spring-2022/. The article discusses news and updates to fungicides labeled in NY since 2021, (re)introduce the major grapevine diseases in New York and relevant recent research findings, discuss cultural practices that can reduce disease inoculum in vineyards, and outline the basics of a strong management program at different growth stages.

Those of you who have paid for hard copies of the Vineyard Update newsletter should be receiving one from your local Extension office in the next several days as well.

The second article (below) is from Bryan Hed, grape pathologist at the Lake Erie Regional Grape Research and Extension Center in North East, PA, addressing how growers who sell grapes to E & J Gallo this year can adapt their fungicide programs to comply with the recently announced restrictions from the winery. Frankly, it has some good information for all growers to read about, not just those who sell to Gallo, so I encourage everyone to read it.

Fungicide Options for E & J Gallo Growers

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

This article was originally published in the LERGP Crop Update newsletter last week, and is reproduced here with permission from Bryan.

A couple of days ago, I received a copy of a notification handed out to grape growers that sell grapes to E & J Gallo. That notification listed pesticides that are prohibited or restricted from application to grapes being sold to them. Assuming this is going into effect this year, I would like to discuss what remaining options such wine growers have for disease control. While powdery mildew programs will be largely unaffected by the restrictions, downy mildew control in the post-bloom period will be much more of a challenge.

What are the restrictions?

Gatten – This is that 'new' powdery mildew fungicide we've been talking about that has shown to be very effective in Cornell trials. The restriction calls for ending use by 90 days pre-harvest. This pretty much limits you to no later than the immediate pre-bloom/first post bloom spray (maybe the 2nd post bloom for late varieties?) for fruit protection. Since we have plenty of other effective options for powdery mildew following that period (Quintec, Vivando, Endura, Luna, Aprovia, Cevya, difenoconazole, tetraconazole, flutriafol, and tebuconazole products, etc.), this restriction should be an easy one to live by.

IPM

Mancozeb and Ziram – These 'old standards' are restricted to pre-bloom applications only and this restriction will present a challenge to growers for a number of reasons. The first is that these active ingredients are multisite inhibitors that control several diseases that can be serious issues on wine grapes long after trace bloom, namely, black rot, downy mildew, Phomopsis, anthracnose, ripe rot, bitter rot, etc. These fungicides are also very useful for the management of resistance to other, 'at risk' single site, downy mildew fungicides used in the post bloom period.

Coupled with the complete loss of Captan, this leaves only copper/lime for resistance management against downy mildew, after trace bloom. It also leaves only the strobilurins for control of Phomopsis after bloom.

The additional loss of single site inhibitor/rotational partners like mandipropamid (Revus, Revus Top), zoxamide (Gavel), ametoctradin (Zampro), and fenamidone (Reason) will make downy mildew control very challenging on susceptible varieties especially in wet years and could contribute to the early demise of the few 'at risk' active ingredients left to Gallo growers for downy mildew control after bloom begins (phos acids, Ridomil/copper, and Ranman).

So what do Gallo winegrape growers have left with these new restrictions?

Downy mildew can be a threat as soon as the pathogen becomes active in the spring, about 2-3 weeks before bloom. Under the new Gallo restrictions, mancozeb or ziram can still be used for pre bloom control of black rot, downy mildew, and Phomopsis. However, in wet years, the majority of our downy mildew sprays may end up being applied during the post bloom period because the threat from this disease can linger until leaf fall after harvest if conditions remain wet. For Phomopsis, the research at Cornell has shown that pre-bloom mancozeb sprays are the most important for reducing the impact of this disease on crop loss in most years, especially that early application at 2-6" shoots. This should be followed by applications 10-14 days later and again just before bloom. Nothing new here.

Once bloom begins, your options are:

Downy mildew: Copper/lime, phos acids, Ridomil/copper, and Ranman

Black rot: Sterol inhibitors (tebuconazole, tetraconazole, difenoconazole, mefentrifluconazol, flutriafol) and strobilurins (azoxystrobin (not in Erie county PA), trifloxystrobin, pyraclostrobin, kresoxym methyl)

Phomopsis: Strobilurins; however there is little data on this.

The first post bloom spray for fruit protection on wine grapes (which is also the most critical spray of the season!) should consist of the best of what is available to you for all diseases.

For downy mildew, I would recommend either Ridomil/copper or Ranman at this time (more rainfast than copper/lime and will provide longer residual control than phos acid materials). Do not tank mix Ridomil/copper or copper/lime with phos acid.

For black rot and Phomopsis: a strobilurin is about the only thing left to you for Phomopsis, and this fungicide class will also control black rot.

For powdery mildew, your best choices are Gatten, Luna (sensation or experience), Endura, Apro- via/Aprovia Top.

Here are some examples of potential programs at this time.

A combination of Ranman (or Ridomil/copper) and Luna Sensation (a combination of fluopyram (a FRAC 7, very effective on powdery mildew) and trifloxystrobin (for black rot and Phomopsis)) may provide control of all 4 diseases. However, it should be noted that trifloxystrobin in Luna sensation can burn green tissue on Concord grape vines and should not be used on that variety.

IPM

Ranman (or Ridomil/copper) added to Quadris Top (azoxystrobin (black rot/Phomopsis) + difenoconazole (black rot and powdery mildew) would also provide control of all 4 diseases, but the difenoconazole might not provide enough powdery mildew control on varieties that are very susceptible to that disease (all the vinifera and many of the hybrids). Also remember to consider using the higher rates of these combination materials around bloom, in order to maximize disease control at this critical time. Keep in mind that azoxystrobin (in Quadris Top) cannot be used in Erie County PA, and that difenoconazole cannot be used on Concord grape and a few wine varieties (read the label).

Ranman (or Ridomil/copper) plus a strobilurin (for black rot/Phomopsis) plus a powdery mildew material like Gatten, Luna (experience or sensation), Endura, Aprovia/Aprovia Top…being careful to rotate FRAC groups from what you used for powdery in the immediate pre-bloom. Also, the same restrictions for difenoconazole (in Aprovia Top) apply: no application to Concord grapes and a few wine varieties (read the label).

The addition of sulfur to sulfur-tolerant wine varieties, is recommended at this time for additional powdery mildew control/resistance management. Therefore, programs 1 and 2 would require the tank mixing of 3 different products. Program 3 would require mixing 4 different products.

The second post bloom spray, again, for fruit protection.

For downy mildew control, you could rotate to Ridomil/copper or a phos acid material. If you used Ridomil/copper in the first post bloom spray, rotate to Ranman or phos acid. Again, do not attempt to tank mix Ridomil/copper or copper/lime with phos acid fungicides, or you could risk burning vine tissues! Copper/lime can be rotated in later with these other materials, primarily for downy mildew leaf protection.

At this time, Phomopsis becomes less of a threat in most years, and one may be able to rely on sterol inhibitors for black rot control instead of strobilurins. Some sterol inhibitors list Phomopsis as one of the diseases they control, but I have not seen hardly any data to base that on. Wine varieties that are cane pruned and trained vertically, are going to be less at risk of Phomopsis (less old wood at or above the trellis wire). Vines that have received leaf removal in the fruit zone will fare better as well, being less susceptible to all of the diseases.

Powdery mildew control at the second post bloom timing is less critical that at the first post bloom spray but is still extremely important to maintaining clean fruit on wine varieties. The use of sterol inhibitors like Cevya or difenoconazole products (like Aprovia Top, Inspire Super) which are excellent against black rot, may also provide enough powdery mildew control (coupled with sulfur again) to be adequate at this time, especially for less susceptible hybrids. The exception is Aprovia Top, which can be relied upon for excellent control of that disease at any time.

Remember to always rotate FRAC groups, which can get very messy with the use of these combination materials. Keep in mind the 42-day and 30-day preharvest intervals for Ridomil/copper and Ranman, respectively. You'll also want to do your best to honor that 'single use only per season' for Ridomil to delay resistance to that material.

For late season copper use, remember that copper residues on fruit, if high enough, can be lethal to yeasts, messing up your fermentation for wine making. Therefore, you may want to terminate copper sprays several weeks before harvest to avoid that complication and rely on phos acids for downy control closer to harvest, if downy mildew remains a threat late into the season. Then, for downy mildew resistance management, you can switch back to copper/lime after harvest, if conditions still warrant control measures in order to ensure canes get ripe.

These are a few possibilities for the first and second post bloom sprays under the new restrictions issued by Gallo. The resurrection of strobilurins in the first post bloom spray here may seem ironic since we've been preaching not to use them, due to the widespread documented resistance issues with downy and powdery mildew. But strobilurins are about the only thing we can rely somewhat on for post bloom Phomopsis control in the absence of any of the old standards, and they still provide good to excellent black rot control. And there are several products that are combinations of strobilurins with other FRAC groups. Assuming these restrictions go into effect for Gallo growers this season, we'll continue this discussion in the weeks ahead.

New York State's Ambitious Plans to Address Climate Change:

The Climate Leadership and Community Protection Act and the Draft Scoping Plan – Open for Public Comment Now

Kitty O'Neil, Northern Country Regional Ag Team

Zach Spangler and Jenna Walczak, Ag Climate Resiliency Specialists - Harvest New York

New York State's Climate Leadership and Community Protection Act (CLCPA or Climate Act) was passed in 2019 and lays out a plan to progress NYS communities and businesses toward a carbon-neutral economy, with meaningful milestones along the way. Climate change presents real problems for our communities, lands, infrastructure and economy. We expect our steadily increasing release of greenhouse gasses (GHGs) – such as carbon dioxide, methane, and nitrous oxide – into the atmosphere to cause severe weather patterns such as intense storms, droughts, flooding events, and more frequent and intense heat waves. This will result in catastrophes like power grid outages, wastewater and contaminant spills, and all the downstream, long-term impacts of these disruptions and damages to our communities and systems. For NYS farms, climate change increases the likelihood of weather delays during planting and harvest seasons as well as heat stress for crops and animals. To begin to solve this problem, we need to rapidly reduce our release of GHGs. The CLCPA addresses this need head-on with a systematic approach.

Goals of the CLCPA include an 40% reduction in GHG emissions by 2030, and an 85% reduction by 2050, compared with 1990 emissions levels. To identify and enable action toward this end, the Act tasked a Climate Action Council with conducting a complete GHG inventory and with drafting a 'Scoping Plan' to outline a framework for how NYS will equitably reduce GHG emissions. The GHG inventory has been completed and summarizes all GHG emitted by human activity in NYS from 1990 to 2019 for four sectors – Energy, Industrial processes, Agriculture /Land Use, and Waste. A quick read of the inventory report reveals lots of complex decisions that were needed about how to value and assign these emissions and how to draw boundaries around the different sectors. Descriptions of how this was decided and calculated, however, are also detailed. Some GHG improvements have already begun. The inventory document reports that peak emissions in NYS occurred in 2005 and we've already reduced GHG emissions by 17% since then. Our primary GHGs of concern are CO_2 and methane and the sectors most responsible for our GHG emissions are the Energy, Waste and Agriculture sectors. The strategies outlined in the Scoping Plan reflect the relative scale of these various contributions by all sectors in its priorities.

The Energy sector includes all emissions associated with the generation and use of energy, including for electricity generation, transportation, and on-site fuel use in buildings for heat or manufacturing. The Energy sector encompassed the largest portion of emissions every year included in the inventory and therefore a big part of the GHG reduction strategy in the Scoping Plan is focused on this sector, aimed at achieving 100% reduction in emissions from electricity generation by 2040. Implementation of some of these strategies is already visible around us, in the form of wind and solar power generation installations, a shift toward more efficient equipment and systems and more electric-powered buildings and transportation. The Scoping Plan outlines a strategy to generate more renewable energy, retire fossil fuel-powered electricity generation and improve our distribution infrastructure.

Emissions resulting from the Waste sector are largely methane and CO2, generated by the decomposition and combustion of human-generated waste materials. Sources of GHG from this sector are landfills, waste incineration facilities, recycling operations, wastewater systems and anaerobic digesters. The largest contribution to GHG emissions from waste management is the uncaptured methane emitted from landfills. Composting and natural organic matter decomposition are not included in this inventory.

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The Scoping Plan defines the Agriculture sector as production of livestock, crops, dairy, timber and wood products and its emission sources include equipment, animals, cropland, forest fires, decomposition of dead trees and development of ag and forest land. This sector also provides carbon sequestration benefits, with its ability to remove atmospheric CO_2 and store it in trees, plants and soil. The strategies outlined in the Scoping Plan for the Ag sector are focused on both sides of this equation – mainly reducing methane and nitrous oxide emissions and sequestering more carbon. The Scoping Plan outlines the use of the Agricultural Environmental Management (AEM) program to provide assistance and planning for the Ag sector. Many Ag sector strategies are focused on forest management, but there are also emphases on precision feed management, manure management, nutrient management, soil health and a payment-for-ecosystem-services program. Livestock emit the dominant share of agricultural GHG as methane and nitrous oxide. Methane emissions from manure storages are targeted for investment in the form of cover-and-flare systems, anaerobic digesters, composting systems and other methods that collect, capture and destroy methane or prevent its production. The statewide Climate Resilient Farming grant program has already provided $12 million in funding for some of these efforts through local county Soil and Water Conservation District (SWCD) offices with another $8 million available this year. Methane emitted from normal ruminant digestion, or enteric fermentation, is also addressed in the Scoping Plan. Though this GHG represents the largest share of agricultural emissions, methane production per unit of meat or milk has decreased from 1990 levels due to improved feed efficiencies. Further reductions in animal methane emissions are needed however, and may be achieved with more research, testing and use of feed additives. Some of these ideas are already in progress.

The other portion of Ag sector emissions is nitrous oxide, mostly emitted from nitrogen fertilizer losses to the atmosphere. Reducing this loss is already desirable and prioritized on almost all farms especially in this year of record high fertilizer prices, but it will also be a target of added urgency as part of GHG mitigation efforts. Soils also release CO_2 as organic matter is decomposed via natural processes. This release can be reduced, however, with elimination of tillage, and soil can even serve as a net sink of carbon with improved health practices, which also offers other resilience advantages to the farm.

Expansions of capacity and technology, training and cost-shares appear throughout this Draft Scoping Plan, in addition to the bits described here, as they apply to each sector. The Scoping Plan is 340 pages in length and includes detailed presentations of strategies, rationales and feedback plans for the six sectors of the economy included in the CLCPA – buildings, electricity, industry, ag and forest lands, and waste. Links are listed below to the Draft Scoping Plan, the GHG Inventory Report, the CLCPA website and other materials.

One crucial component of the CLCPA initiative is the public comment and input period, which is currently open through June 10, 2022. Eight in-person and 2 virtual public hearings are scheduled to collect feedback on the Draft Scoping Plan. Most of the in-person hearing have already taken place, but two virtual hearings are scheduled for this Saturday, May 7, and Wednesday, May 11. Preregistration for these events is encouraged. Written comments are also invited, and they may be submitted via an online form here. The Scoping Plan is expected to be finalized and published in January 2023.

The progress and protection intended by the CLCPA and its specific strategies will offer both challenges and opportunities to NY farms and communities. Some transitions and changes may be simple while others may be more lengthy and difficult. Each component of the plan offers potential for innovation and collaboration across sectors, with benefits to farms, the environment, and our communities. Extension can provide technical support on many of the management practices and systems that will be needed, with our local SWCD offices providing much of the administration.

Cornell Cooperative Extension recently added two Climate Resilience Specialists to our statewide system – Jenna Walczak ((518) 791-1888 and JW2254@cornell.edu) and Zach Spangler ((518) 935-8062 and ZHS3@cornell.edu). Both are housed in the Hudson Valley and are developing statewide programs to advance resilience in our agricultural production systems across NYS. Watch for their contributions to this important topic.

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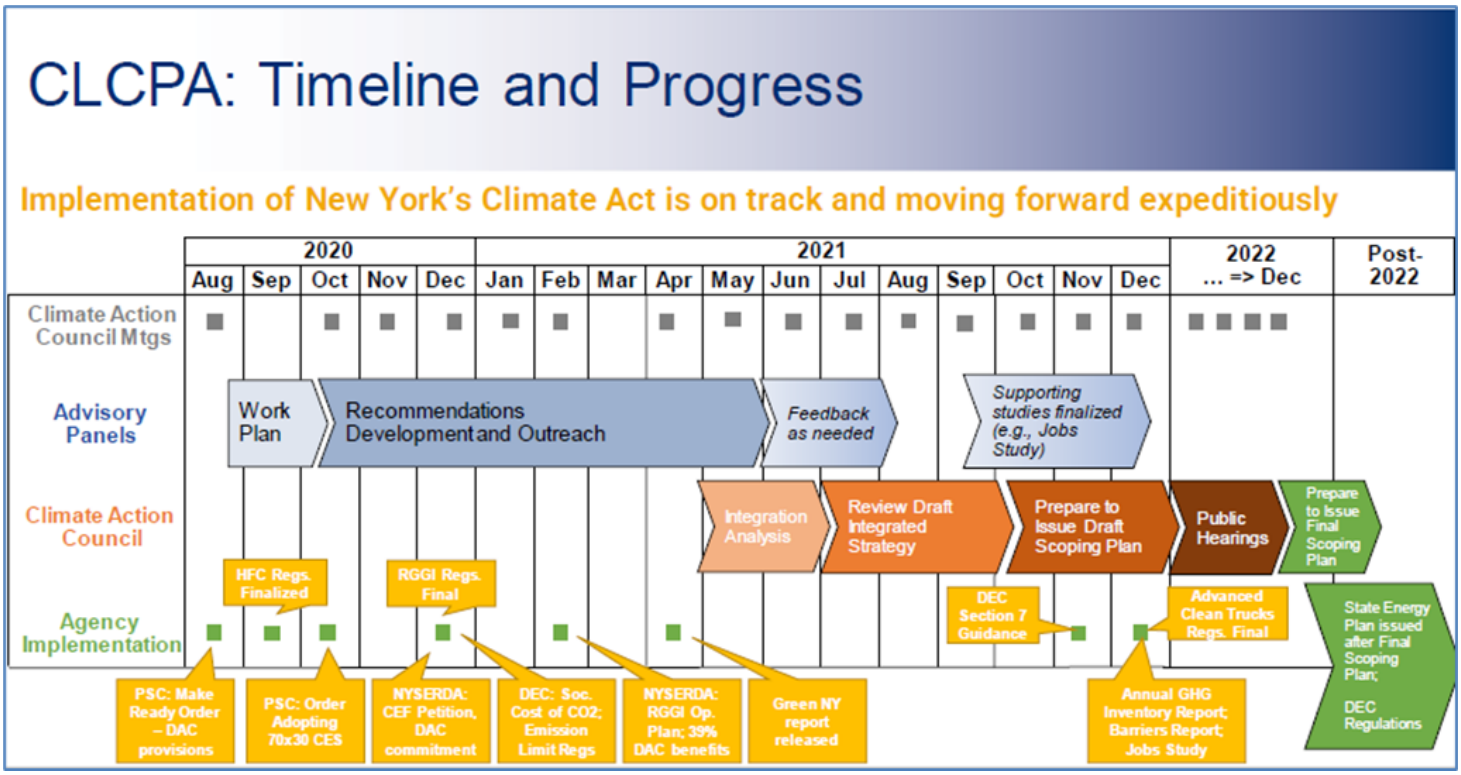

Additional Resources:

1. NYS Climate Leadership and Community Protection Act (CLCPA) website https://climate.ny.gov/
2. NYS Greenhouse Gas Inventory Report website https://www.dec.ny.gov/energy/99223.html and report summary https://www.dec.ny.gov/docs/administration_pdf/ghgsumrpt21.pdf
3. NYS Climate Action Council Draft Scoping Plan https://climate.ny.gov/Our-Climate-Act/Draft-Scoping-Plan
4. NYS Economic Impacts of Investing in Climate Mitigation in New York Forests and Agriculture https://climate.ny.gov/-/media/Files/Publications/Energy-Analysis/Economic-Impacts-of-NYS-Climate-Mitigation-Strategies.pdf

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 In-Person Tailgate Meeting

Tuesday, May 17 4:30 – 6:00 PM

Vine Country Farms

8531 County Route 74, Prattsburg, NY 14873

Our first in-person Tailgate Meeting for 2022 will be held on Tuesday, May 17 at Roy and Gordon Taft's farm (Vine Country Farms) in Pulteney. 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 0.75 pesticide recertification credits (Categories 1a, 10, 22).

Respirator Fit Testing Clinics

Thursday, May 12 Ontario County

Friday, May 13 Yates County

NYCAMH will be offering respirator fit testing clinics across the state this year. For more information, contact NYCAMH at 800-343-7527 or fittest@bassett.org.

FLGP Virtual Tailgate Meeting

Tuesday, June 14 4:30 – 6:00 PM

Via Zoom

Our next virtual Tailgate Meeting of 2022 will be held on Tuesday, June 14. 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 0.75 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.

2022 GDD & Precipitation

FLX Teaching & Demonstration Vineyard – Dresden, NY					
Date	**Hi Temp (F)**	**Lo Temp (F)**	**Rain (inches)**	**Daily GDDs**	**Total GDDs**
4/27/2022	44.4	33.4	0.02	0.0	67.2
4/28/2022	48.2	33.3	0.00	0.0	67.2
4/29/2022	53.1	33.6	0.00	0.0	67.2
4/30/2022	57.0	32.9	0.00	0.0	67.2
5/1/2022	71.6	35.4	0.01	3.5	70.7
5/2/2022	59.4	50.7	0.05	5.1	75.7
5/3/2022	66.6	47.8	0.00	7.2	82.9
Weekly Total			**0.08”**	**15.8**	
Season Total			**2.07”**	**82.9**	

GDDs as of May 3, 2021: 95.9

Rainfall as of May3, 2021: 2.83”

Seasonal Comparisons (at Geneva)

	2022 GDD [1]	Long-term Avg GDD [2]	Cumulative days ahead (+)/behind (-) [3]
April	58.3	62.9	-2
May	10.6	254.6	-2
June		484.1	
July		645.5	
August		595.7	
September		359.9	
October		112.8	
TOTAL	68.9	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.

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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	0.02	3.09”	
June		3.52”	
July		3.46”	
August		3.22”	
September		3.46”	
October		3.47”	
TOTAL	2.02”	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!

Cornell Cooperative Extension
Finger Lakes Grape Program

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.

Hans Walter-Peterson—Team Leader
Donald Caldwell—Viticulture Technician

flgp.cce.cornell.edu

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