Cornell Cooperative Extension Finger Lakes Grape Program



June 27, 2024

Finger Lakes Vineyard Update

In the Vineyard





Fruit set is mostly completed by now, and it seems that it has gone well overall. Set can be significantly influenced by both temperature and sunlight conditions, particularly cool and cloudy conditions, which tend to inhibit good fruit set. For example, the cool spell that we experienced a few weeks ago (June 7-12) may have reduced fruit set in blocks that were blooming during that period. At our Tailgate meeting on Tuesday afternoon, more growers than not said that cluster numbers were normal or above normal in most varieties as well. After two years of lower crops due to winter or spring frost damage, this feels like a nice change.

in this issue:	
In the Vineyard	pg. 1
IPM	<u>pg. 2</u>
Buffering & Conditioning Adjuvants	<u>pg. 3</u>
SLF Quick Insecticide Guide Update	pg. 6
Ag Workforce Prog. Virtual Office	<u>pg. 7</u>
Events	<u>pg. 8</u>
GDDs	<u>pg. 9</u>

This topic led to some further discussion at the Tailgate meeting about crop estimation during the season. There are several components that figure in to the final yield (in tons/acre) from a vineyard:

Yield = Vines/acre x clusters/vine x berries/cluster x berry weight

With the exception of vines/acre, each of the other components can vary significantly from year to year due to management decisions, weather impacts and more. Ideally, we would estimate each of these factors every year and track them during the season to determine the final yield of a block. Collecting all of that data can be tedious and time consuming and hard to do when the rest of the to-do list is already long.

To reduce the time commitment and data collection needs, one option would be to get an average number of clusters per vine, and then collect average cluster weight data at harvest. Counting clusters can be done anytime during the season, but is much easier before bloom when there are fewer leaves to cover them. Collecting cluster weights essentially combines the final two factors – berries per cluster and berry weight – into a single measure that is easy to collect and record. Combining these two factors into one can increase the error in the calculations potentially, but it still can provide a useful estimate compared to "eyeballing it." Adjustments to the estimate can then be made during the season based on fruit set and berry size during the season.

In the first few years, this method will likely be less accurate because of having minimal data, but will get more useful over multiple seasons as more cluster weight data gets factored in. It would also be helpful to keep notes in unusually high or low crop years about what might have caused a large deviation in the estimate so those can be taken into account in future years.

June 27, 2024

Berry resistance to disease infection

Although we are "post bloom" at this point in the season, the berries are still highly susceptible to new disease infections so it is important to remain vigilant for signs of infections in the fruit zone. Berries will gradually develop resistance to powdery mildew, downy mildew and black rot at different times for each disease (see below) and depending on the genetic background of different varieties (berries of native and hybrid varieties will generally develop resistance before vinifera berries).

Black Rot:	Resistant by 5-8 weeks after bloom (natives & hybrids earlier, vinifera later)
Downy mildew:	Resistant at 4-5 weeks after bloom
Powdery mildew:	Resistant at bunch closure, or ¼" berry size in Concords

Downy mildew infections remain at low levels at this point in the season based on field observations and grower reports. Despite the hot and muggy weather last week, there were only a few points when the critical threshold of 95% humidity at night, when new infections germinate and produce spore bodies, was reached. This was mostly on June 20 and 22, so any infections that occurred on those dates should be visible by now. Remember also that downy mildew prefers slightly cooler temperatures (mid 50s – mid 80s), so last week's heat also helped to keep them from developing too rapidly.

Grape Berry Moth (GBM)

The GBM model is predicting that the next generation of eggs will start to be laid over the next several days in warmer locations. At the Teaching Vineyard near Dresden, we are at 805 GDDs, just short of the 810 GDD threshold for action, if needed as determined by scouting between 750-810 GDDs. The suggested threshold for the need for an insecticide spray is about 6% of clusters showing signs of damage. In varieties that are more susceptible to bunch rots (e.g., Pinot noir, Pinot gris, Riesling, Sauvignon blanc), growers may want to consider spraying for GBM at a lower damage threshold.

NEWA Station	GBM Model GDD (as of 6/26)
Dresden	805 ^b
Branchport	683 ^a
Dundee	765 ^b
Hammondsport (Doyle)	674 ^a
Lodi	776 ^b
Williamson	615 ^a

^a Start of flight of first-generation grape berry moth adults is expected at this time.	Prepare to scout low and intermediate risk vineyards for grape berry moth damage when DD accumulation after wild grape bloom reaches 750-800 DD. During scouting, determine if damage from first generation larvae exceeds the treatment threshold of 6% damaged clusters. If above threshold, control measures should be applied at 810 DD.
^b Females are active and egg-laying is at its peak.	Control measures should be timed to coincide with 810 DD in high- risk vineyards. For materials that must be ingested, e.g. Intrepid, Altacor, it is important to get materials on as close to 810 DD as possible. For low and intermediate risk vineyards, scout between 750-800 DD for damage and apply control measures, timed to coincide with 810 DD, if more than 6% damaged clusters are

June 27, 2024

Everything you need to know about buffering and conditioning adjuvants

Christophe Duplais, Cornell AgriTech Email: c.duplais@cornell.edu

There are many adjuvants available that are suggested to be combined with pesticides, but not enough information about their role and efficacy. This article focuses on adjuvants that control water pH and water hardness to make sure pesticides perform at their best. The bottom line is the quality of the spray water is just as important as the pesticide itself.

Spray water quality is very important in pesticide applications. Remember that spray water quality concerns pH, hardness, and alkalinity, and is different from the microbial concerns we test for in water quality for food safety. This article deals with water quality only in terms of its impact on pesticide efficacy.

General information of water pH and hardness

• pH measures the acidity of water, from acidic to alkaline

0 < pH < 6	pH = 7	7 < pH < 14
Acid	Neutral	Alkaline

 Hardness measures the concentration of dissolved minerals (calcium and magnesium) in water in grains per gallon (gpg) or in part per million (ppm), equivalent to mg/L. These minerals come from calcium carbonate and magnesium carbonate.

0-3 gpg	3.5-7 gpg	7-25 gpg
0-60 ppm	60-120 ppm	120-425 ppm
Soft to slightly hard	Moderately hard	Hard to very hard

- The alkalinity test measures the carbonate part in calcium carbonate and magnesium carbonate, while the hardness test measures the mineral part (calcium and magnesium).
- Measuring water pH and hardness is more informative than alkalinity alone
- Water pH and hardness vary depending on the time of year and location in NY state.
- Hard water neutralizes acids, preventing pH from dropping (becoming acidic).

Water pH and hardness impact pesticide efficacy

- Water pH affects the stability of most pesticides.
- Pesticides work best within a specific pH range between 4 (acid) and 7 (neutral).
- When water is alkaline (pH > 8), pesticide active ingredients are less stable and may degrade.
- Dissolved minerals (calcium, magnesium) can bind to active ingredients, reducing their efficacy and causing precipitation (clogging spray nozzles).

How buffering and conditioning adjuvants work?

Buffering adjuvants are used to adjust and stabilize the pH of the spray solution to the optimal pH range of 4 to 7 (see below for examples). <u>Go to Top</u>

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Water softening with conditioning agents removes calcium and magnesium by binding strongly to the minerals, preventing them from binding to the active ingredients (see below for examples).

Best practices for using buffering and conditioning adjuvants

(1) Test your water regularly

This should be carried out regularly, at least every month during the growing season, or before every spray if possible.

pH Testing:

- Use test strips to measure the pH of spray water. pH strips with a multiple color indicator and a different pH range, or pH paper rolls, which are available online (Amazon) (see photo). In general, pH strips are more accurate than paper rolls.
- If you are in doubt about the results because the reading is between 7 and 8, add a buffering adjuvant to ensure that your pH is below 7.

Hardness Testing:

- Test strips for water hardness are also widely available and easy to use. If your water is > 7.5 gpg or 120 ppm, the water tank should be treated with a water softener.

(2) Choose the right buffering and conditioning adjuvants

Carefully read and follow the instructions on the adjuvant labels. It is essential to use the right quantity to obtain the desired adjustments.

(3) Order of Mixing: Always add the buffering and conditioning adjuvants to your tank water first, before adding the pesticides. This ensures that the water is buffered and conditioned before the active ingredients are added to the tank.

Examples of buffering adjuvants.

There are many products available for only buffering the pH of water, or with multiple functions.

Products for pH buffering only:

- Buffer P.S. (Helena)
- Buffer Xtra Strength (Helena)

Buffering adjuvants with multiple functions:

- Li 700 (Loveland Products) is a pH buffering and a spreader/penetrant and drift control agent.
- Indicate 5[®] (Brandt) contains a pH indicator, turning the spray tank water pink when pH value of 4.5-5.5 is reached. It is also a spreader/penetrant.

June 27, 2024

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Examples of conditioning adjuvants

There are very few conditioning adjuvants available. It is best to choose a product containing citric acid (acid in lemon juice), a good mineral binder whose acidity also lowers the pH. EDTA is an excellent water softener, but it is a persistent substance in the environment that reduces the bioavaibility of metals (iron, copper, etc.) essential to soil health and its use should be limited.

Products for buffering and conditioning:

- pH Adjust (Brandt)
- Crimson[®] NG (Winfield United)

Products with multiple functions:

- Weather Gard[™] Complete (Loveland Products) is a deposition aid, drift control agent, penetrant (spreader), antifoam, and water buffering and conditioning agents

- FS AMS MAX DR TM (Insight FS) is water conditioner/AMS, drift reduction, surfactant.

Note: Ammonium sulfate (AMS) is a common fertilizer. It is a mineral acid that lowers the pH of spray water. It also dissolves calcium carbonate. Ammonium sulfate can be considered as a buffering and conditioning agent.

Examples of OMRI listed adjuvants for both buffering and conditioning

- pH Down (SafeGro Laboratories)
- MixWell Acidifier (JH Biotech)
- CitriSan (Organisan Products)
- Constant BUpHER Acidifier (Brandt)



Photo 1. Examples of different pH strips and hardness strips. pH ranges from 0-14 and 4.5-10, hardness range 0-425 ppm. Price is about \$10 for 100-150 strips.



Photo 2. Easy, inexpensive testing of water pH and hardness using strips. Example of readings from sink water at Cornell AgriTech. The pH is between 7 and 7.5 with multicolor strips and between 6 and 7 with paper roll. Multicolored pH strips are more accurate than pH rolls. Water hardness is 7 gpg (120 ppm). Conclusion: this water needs to be treated by buffering and conditioning adjuvants. June 2024 – Insecticides for Control of Spotted Lanternfly (a fulgorid invasive insect) in New York Grapes – Quick Guide Compiled by Greg Loeb, Juliet Carroll, Hans Walter-Peterson, and Dan Gilrein, Cornell University.

Read the pesticide label and 2(ee) recommendation or 24(c) special local need label for directions, details, and additional restrictions. Visit NYSPAD <u>www.dec.ny.gov/nyspad/products</u> to search for primary label and 2(ee) or 24(c) information. Must have 2(ee) or 24(c) in possession when applying the material.

				GRA	GRAPES				
Product (registration type)	Al ¹	Use Restrictions	EPA Reg No.	IRAC Group ²	Rate/A	REI ³	PHI ⁴	Probable efficacy on nymphs	Probable efficacy on adults
Actara (2(ee))	thiamethoxam	NYS, LI	100-938	4A	3.5 oz	12 hr	5 d	Excellent	Excellent
[@] Drexel Carbaryl 4L (2(ee))	carbaryl	NR	19713-49	1A	2 qts	2 days; 6 days if girdling or cane turning	p 7	Excellent	Good
#Imidan 70WP (2(ee))	phosmet	SAN	10163-169	1B	1.333 lb to 2.125 lb	14 days, see label. No U-pick allowed	≤ 1.333 lb/A = 7 d > 1.333 lb/A = 14 d	Excellent	Poor
[@] Brigade WSB (2(ee))	bifenthrin	£	279-3108	ЗА	8 - 16 oz	12 hr	p 0£	Excellent	Excellent
[@] Brigade WSB (researcher 2(ee))	bifenthrin	ц	279-3108	ЗА	10 oz	12 hr	30 d	Excellent	Excellent
* Brigade 2EC (2(ee))	bifenthrin	£	279-3313	3A	6.4 fl oz	12 hr	9 O E	Excellent	Excellent
Brigade 2EC (24(c))	bifenthrin	£	279-3313	3A	6.4 fl oz	12 hr	postharvest	Not relevant	Excellent
* Hero (2(ee))	zeta-cypermethrin & bifenthrin	£	279-3315	3A	5 - 10.3 fl oz	12 hr	9 O E	Excellent	Excellent
^{#@} Mustang MAXX (2(ee))	zeta-cypermethrin	£	279-3426	3A	4 fl oz	12 hr	1 d	Excellent	Good
* Sniper Helios (2(ee))	bifenthrin	£	34704-858	3A	3.2 - 6.4 fl oz	12 hr	9 OE	Excellent	Excellent
[@] Danitol 2.4 EC (2(ee))	fenpropathrin	Ч	59639-35	ЗА	16 - 21.33 fl oz	24 hr	21 d	Excellent	Excellent
° Pyronyl Crop Spray	Pyrethrin+PPO	NYS	89459-26	ЗА	12 fl oz	12 hr	0	Good	Good

Use Restrictions: NY = Restricted-use by the DEC, requires applicator certification; F = Federal restricted-use, requires applicator, LI = no use on Long Island.

Rotate between IRAC groups to prevent resistance. *Rating based on different product with same AI. #Assumed excellent at high rate per acre. [@]Tested on peach only.

° Contact only, thorough coverage. No residual efficacy. ^Approved for organic use in NY. ^p May be phytotoxic, follow label restrictions.

 $^1 \mbox{Active Ingredient.}$ $^2 \mbox{Mode of Action, IRAC group code.}$ (UN = undesignated) ³ Restricted Entry Interval (hr = hours).

⁴ Pre-Harvest Interval (d = days).

				GRAPES	PES				
Product (registration type)	۹۱	Use Restrictions	EPA Reg No.	IRAC Group ²	Rate/A	REI ³	PHI ⁴	Probable efficacy on nymphs	Probable efficacy on adults
^{cp} Pest-Kote	Pyrethrin	NR	92035-1- 97839	<mark>3A</mark>	12 fl oz	12 hr	Until spray has dried	Good	Good
* Swagger (2(ee))	bifenthrin & imidacloprid	£	34704-1045	3A, <mark>4A</mark>	7.6 - 12.8 fl oz	12 hr	30 d	Good to Excellent	Good to Excellent
^c ^ Botanigard Maxx	<i>Beauveria bassiana</i> (strain GHA) + pyrethrins	NR	82074-5	UN, <mark>3A</mark>	8 - 32 fl oz	12 hr	Until spray has dried	Good	Good
^{cA} Aza-Direct (2(ee))	azadirachtin	NR	71908-1- 10163	UN	1.0 – 3.5 pints	4 hr	0 d	Good	Good
^{c.Ap} M-Pede (2(ee))	potassium salts of fatty acids (insecticidal soap)	NR	10163-324	N	1-2 gals (1-2% v/v solution)	12 hr	рq	Good	Good
دم BoteGHA ES	<i>Beauveria bassiana</i> (strain GHA)	NR	82074-1	UN	0.25-1 qt	4 hr	Up to day of harvest	Good	Good
^c ^ Botanigard ES	<i>Beauveria bassiana</i> (strain GHA)	NR	82074-1	NN	0.25-2 qt	4 hr	Up to day of harvest	Good	Good
^{cA} Bioceres WP	Beauveria bassiana (strain ANT-03)	NR	89600-2	N	1-2 lb	4 hr	Up to day of harvest	Good	Good

Use Restrictions: NR = None; NYS = Restricted-use by the DEC, requires applicator certification; F = Federal restricted-use, requires applicator certification; LI = no use on Long Island.

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Finger Lakes Vineyard Update

Finger Lakes Grape Program

Introducing Ag Workforce Central: Virtual Office Hour

Cornell Agricultural Workforce Development is proud to introduce "Ag Workforce Central: Virtual Office Hour," a dynamic webinar series aimed at providing essential support and guidance to farm employers, employees, and related organizations throughout New York State. Join us for our first webinar on July 10, when we will delve into the new farm labor overtime tax credit and related pay issues. Guest speakers will include:

- Richard Stup, Cornell Ag Workforce Development Program
- Tim Pezzolesi NYS Department of Agriculture
- Guest speakers invited from the NYS Department of Taxation and Finance and NYS Department of Labor (TBA).

Ag Workforce Central is a new initiative designed for both farm employers and employees, providing crucial insights, guidance, and support to navigate the ever-evolving landscape of agricultural labor. Support for this new initiative is provided by New York state government in alignment with Governor Hochul's 2024 State of the State address, which emphasized the crucial role of the agricultural workforce and the dramatic impact of regulatory changes and labor market issues., Cornell Agricultural Workforce Development is committed to serving as a vital resource hub for all participants in the agricultural workforce: employers, employees, and related organizations.

Event Details for Ag Workforce Central: Virtual Office Hour

When: July 10, 2024 (additional dates to be announced) Time: 12:00 – 1:00 PM EST Topic: Applying for the New York Farm Labor Overtime Tax Credit Where: Online platform – Zoom Webinar (registration details below) Why: Equipping farm personnel and agricultural professionals with essential tools and knowledge for success

Ag Workforce Central: Virtual Office Hour offers participants the opportunity to access expert insights, practical strategies, and interactive discussions on topics such as regulatory compliance, leadership development, and fostering a culture of engagement within farm businesses.

Key Features:

- Expert Guidance: Benefit from the wisdom and expertise of industry leaders and specialists in agricultural workforce management.
- Live Q&A: Engage directly with presenters during interactive Q&A sessions, ensuring your specific questions and concerns are addressed.
- Actionable Strategies: Walk away with actionable tips and strategies to enhance workforce dynamics and productivity on your farm.

Registration Information:

Advance registration is required to secure your spot for July's Ag Workforce Central: Virtual Office Hour. Interested participants can sign up at https://cornell.zoom.us/webinar/register/WN PvLrol6SQPmS3fPPPqaTfw.

Upon registration, participants will have the opportunity to submit questions, ensuring our sessions address our audience's specific needs and concerns.

About Cornell Agricultural Workforce Development:

Cornell Agricultural Workforce Development is a leading initiative dedicated to empowering farmers and agribusiness professionals with the knowledge and tools they need to succeed. Through innovative programs and initiatives, we strive to enhance workforce dynamics and productivity, fostering a culture of learning and growth within New York's agricultural sector. Learn more at agworkforce.cals.cornell.edu.





June 27, 2024

Finger Lakes Vineyard Update

Finger Lakes Grape Program

Upcoming Events

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

Tailgate Meeting

Monday, July 8, 2024 4:30 – 6:00 PM Simmons Vineyard, 3243 Fingar Road, Bluff Point NY

Our next Tailgate Meeting will be on Monday, July 8 at Simmons Vineyards located in Bluff Point, NY. These meetings are a time for growers and the FLGP staff to discuss what's going on in the vineyards, ask questions, and learn from each other. There is no set agenda for the most part, so bring questions, observations, thoughts, etc. and let's talk about them. Each meeting has been approved for 1.5 pesticide recertification credits by DEC.

Here is the remaining schedule for Tailgate Meetings this year:

- July 23, 2024 Knapp Vineyard, 2770 Ernsberger Road, Romulus, NY
- August 13, 2024 Randall Standish Vineyards, 5506 NY-21, Canandaigua, NY
- August 20, 2024 Miles Wine Cellars, 168 Randall Crossing Rd, Himrod, NY

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June 27, 2024

2024 GDD & Precipitation

FLX	Teaching &	Demonstratio	on Vineyard –	Dresden, NY	
Date	Hi Temp (F)	Lo Temp (F)	Rain (inches)	Daily GDDs	Total GDDs
6/19/24	92.8	72.9	0.00	32.9	843.7
6/20/24	89.1	70.9	0.05	30.0	873.7
6/21/24	83.8	68.9	0.02	26.4	900.0
6/22/24	86.5	70.7	0.06	28.6	928.6
6/23/24	83.5	71.4	0.06	27.5	956.1
6/24/24	78.4	60.8	0.01	19.6	975.7
6/25/24	82.6	59.7	0.00	21.2	996.8
Weekly Total			0.20"	186.0	
Season Total			10.59"	996.8	

GDDs as of June 25, 2023: 784.5

Rainfall as of June 25, 2023: 10.31"



<u>Seasonal Comparisons (at Geneva)</u>

Growing Degree Days

	2024_GDD	Long-term Avg GDD ²	Cumulative days
		Ang ODD	ahead (+)/behind (-) ³
April	69.9	64.2	+1
May	393.5	255.5	+11
June	501.6	484.3	+13
July		647.2	
August		596.8	
September		361.1	
October		113.9	
TOTAL	965.0	2522.9	

¹ Accumulated GDDs for each month.

² The long-term average (1973-2023) 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.

Finger Lakes Vineyard Update

Finger Lakes Grape Program

Precipitation

	2024 Rain ⁴	Long-term Avg Rain ⁵	Monthly deviation from avg ⁶
April	4.73"	2.86"	+1.87"
Мау	2.75"	3.04"	-0.29"
June	2.47"	3.58"	
July		3.48"	
August		3.19"	
September		3.43"	
October		3.39"	
TOTAL	9.95"	22.97"	

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 <u>http://flgp.cce.cornell.edu</u>.

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

Finger Lakes Grape Program Advisory Committee

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Cornell Cooperative Extension Finger Lakes Grape Program

Hans Walter-Peterson—Team Leader Donald Caldwell—Viticulture Technician Ellen Coyne—Project Field 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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