August 21st, 2019

Finger Lakes Vineyard Update

In the Vineyard

Hans Walter-Peterson

In This Issue:

More varieties are finally starting to turn color and berries starting to soften as we enter the ripening period of the season. Cultivars at our Teaching Vineyard are still hitting veraison about a week or more later than last season. Keep in mind that the dry conditions during much of the period between bloom and veraison last year may have pushed ripening to start a little earlier, but in the end it does not change the fact that veraison is late this year, and therefore we're losing out on a few late summer days that we would normally have to ripen fruit.

Cultivar	2018 veraison date	2019 veraison date
Marquette	7/24	8/6
Cayuga White	8/1	8/9
Chardonnay	8/9	8/16
Cabernet Franc	8/18	*8/25?*
Riesling	8/18	*8/25?*

At yesterday's Tailgate Meeting, we discussed the impacts of fruit thinning at this point in the season. The overall results of research done on this question indicate that the impacts of fruit thinning on ripening decrease as veraison approaches. The practice of a "green drop", where the clusters that are lagging in ripening are removed near then end of veraison, does not result in the remaining clusters becoming more ripe (i.e., higher brix, better color) than they would without dropping the fruit. It merely removes the clusters that would have been less ripe at harvest. Removing these less ripe clusters could have an impact on the overall sugar and acidity numbers for a particular vineyard or block at harvest, but the effect may be fairly minimal. Impacts on other aspects of vine health such as winter hardiness will be minimal as well.

Impacts of Soil Microbial Stimulators

Justine Vanden Heuvel, professor of viticulture at Cornell, joined us at the Tailgate meeting yesterday to talk about a couple of her ongoing projects, including one examining the impacts of several different products containing varying combinations of arbuscular mycorrhizal fungi (AMF). These fungi, which are native to many soils to varying extents, create symbiotic relationships with plant roots. These fungi extend hyphae into the soil and help in the uptake of water and nutrients, while receiving nutrition from the plant. There are a number of these products on the market, and Justine is running a couple of trials to determine if they have any impact on grapevines.

One of the trials (funded by the NY Farm Viability Institute) is being conducted in Finger Lakes vineyards,

In the Vineyard (continued from pg. 1)

Hans Walter-Peterson

where one of these products is being applied to the soil of one set of vines, and comparing some parameters such as nutrient status with untreated vines and the number of roots colonized by AMF. The initial results of this trial from some of the sites indicate that these products do increase the amount of colonization by AMG and the levels of nutrients like N, P and K. A summary of the results so far was handed out at the meeting yesterday, and is included in this week's Update.

A second trial on AMF (funded by the PA Wine Marketing & Research Board) that is being conducted on potted vines in a greenhouse showed similar initial results of improved colonization of roots when these products are used. More details about this trial, including the names and a description of the products tested, can be found at https://psuwineandgrapes.wordpress.com/2019/08/19/testing-soil-microbial-stimulators-for-enhancing-vine-health/.

Clusters of Concord (left) and Concord Clone 30 (right) at the Cornell Lake Erie Research & Extension Laboratory in Portland NY. Concord Clone 30 was imported to the United States from Brazil, where it was identified as an early ripening clone of Concord. A planting of Clone 30 has been established at CLEREL and evaluations of it in comparison to 'standard' Concord vines will begin next year.

Photo: Terry Bates, Cornell University

Thanks to our Tailgate Hosts!

Yesterday's Tailgate Meeting was the final one for the 2019 season, and so I wanted to take the opportunity to recognize the growers who hosted meetings this year:

- Three Brothers Wineries and Estates
- Jim Hicks
- Sawmill Creek Vineyards/Hector Wine Company
- Bob Morse
- Fred & Pam Bassette
- Dr. Konstantin Frank's Vinifera Wine Cellars
- Mark and Rick Bernard
- Hermann J. Wiemer Vineyard

If you would like to host a Tailgate Meeting next year, let us know and we'll put you on the list of potential sites when we start scheduling meetings next spring.

Enhancing vine heath with soil microbial stimulators in vineyards

Justine Vanden Heuvel, Cornell University.

Introduction: Grapevines benefit from a symbiotic relationship with arbuscular mycorrhizal fungi (AMF). Our goal was to test these products to determine whether they increased the formation of AMF.

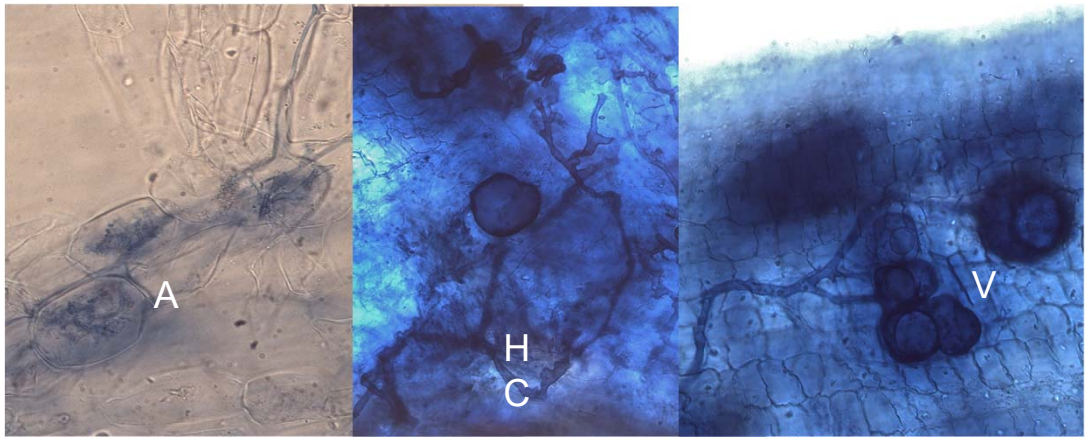

Fig 1. Arbuscualr mycorrhizal fungal structures in the fine roots of Vitis vinifera cv. Pinot noir. Samples were collected in November, 5 months after inoculation. A: Arbuscules, HC: Hyphal coils, V: Vesicles, 40x magnified.

Table 2. Vine petiole nutrient analysis of cv. Pinot noir inoculated with different biofertilizers during June 2018. Petioles were collected at veraison.

Treatment	% Total N	% P	% K
Control	0.68	0.21	1.75
Big Foot Concentrate	0.72	0.25	2.35
MycoGrow Soluble	0.76	0.28	2.60
BioOrganic	0.79	0.30	2.72
MycoApply All purpose	0.84	0.37	3.09
p-value	0.0001	0.0003	0.0087

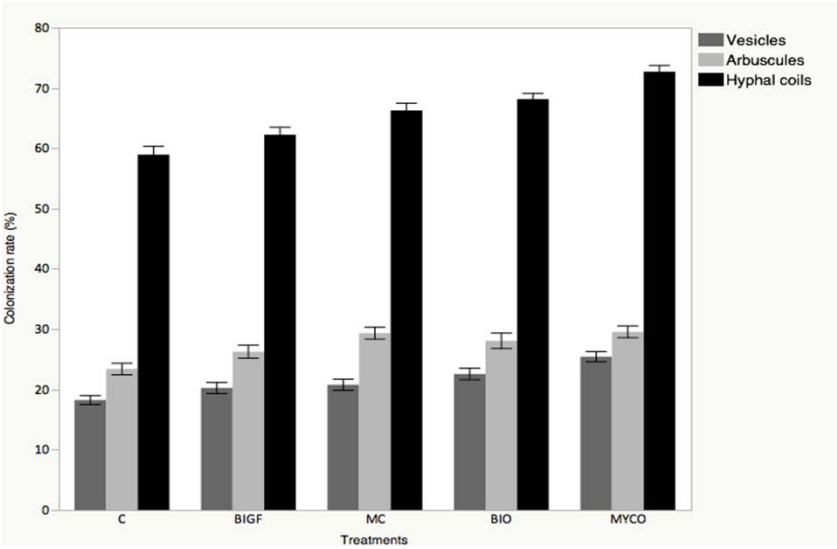

Fig.1. Percentage of fine roots colonized by Arbuscular mycorrhizal fungal structures (vesicles, arbuscules and hyphal coils) in cv. Pinot noir inoculated with different treatments (biofertilizers) in June 2018. BIGF: Big Foot Concentrate, BIO: BioOrganic, C: Control, MC: MycoGrow Soluble and MYCO: MycoApply all purpose.

Summary: all products increased AMF formation and increased petiole nutrient concentration.

Contact Justine@Cornell.edu for more information

NY farm viability INSTITUTE

IPM

With the arrival of veraison in many of the earlier varieties, much of the focus in disease management for the rest of the season will be on downy mildew on the foliage and botrytis/sour rot in the clusters. When conditions are right (e.g., wet conditions, fruit injury due to weather or pressure from tight clusters), botrytis infections can begin to show up before veraison. We have seen a little bit of this appearing on a few Riesling vines at the Teaching Vineyard already this year.

Trials done by Wayne Wilcox have shown that sprays at veraison and 10-14 days following can significantly reduce the incidence and severity of botrytis infections at harvest. The table below categorizes each of the materials included in this year's IPM Grape Guidelines for botrytis control based on their resistance group. Materials in the same resistance group can be considered the same type of chemical for the purpose of determining a good chemical rotation for botrytis.

FRAC	FRAC	FRAC	FRAC	FRAC	FRAC	FRAC
Meteor	Endura	Inspire Super	Flint	Elevate	Ph-D	Double Nickel
Rovral	Pristine	Vangard	Luna Sensation		Tavano	
	Luna Experience	Scala			Oso	
	Luna Sensation	Switch				

Fracture: FRAC BM01
Botector: No FRAC Group

Managing Fruit Flies for Sour Rot in 2019

Greg Loeb and Hans Walter-Peterson

As many wine growers are aware, 2018 was a bad year for sour rot. A number of factors probably contributed to this but one factor that was clearly involved at one vineyard site in the Finger Lakes was failure of insecticides (particularly Mustang Maxx) to control Drosophila fruit flies. As we have reported previously, fruit flies (also called vinegar flies) significantly contribute to sour rot through mechanisms we do not fully understand. Nevertheless, insecticides targeting them prior to harvest (after about 15 Brix), coupled with biocides such as Oxidate targeting contributing microbes, have been shown to reduce the incidence and severity of sour rot. Several species of fruit flies probably contribute to the problem. Our research has actually indicated that *Drosophila melanogaster* (the common fruit fly of genetics fame often found in kitchens in the summer) is more commonly found in grapes than the invasive spotted wing drosophila, *Drosophila suzukii*, though both species likely contribute to our sour rot problems. Wine growers have increasingly been applying insecticides near harvest as part of their sour rot management program, primarily relying on the pyrethroid insecticide, Mustang Maxx. Recently, working with our Cornell colleague Dr. Jeffrey Scott, we have shown that a local population of *D. melanogaster* has developed resistance to Mustang Maxx, as well as Assail, a neonicotinoid, and malathion, an organophosphate. The population is still susceptible to spinosyn (Delegate or Entrust). We have not detected evidence of insecticide resistance for spotted wing drosophila in New York, however. We do not know how wide spread this *D. melanogaster* resistance issue is but we should have a better idea after this field season. In the meantime, we want to emphasize the need to rotate among several different classes of insecticides in order to slow the development of resistance. Mustang Maxx has several attributes that make it a logical choice for many growers including good efficacy against fruit flies and importantly, a short days to harvest (DTH) restriction of 1 day. Despite these advantages, **it is essential, as part of a resistance management program, to rotate to other classes of insecticides.**

Here we want to review the chemical control options available for controlling Drosophila fruit flies to aid in developing your sour rot control program. Below is a table of the products currently labeled for use against either Drosophila fruit flies or specifically for spotted wing drosophila, including materials added through 2ee label exemptions. We provide the product name, chemical name, insecticide class (IRAC number), days to harvest restrictions and other notes. We do not recommend initiating your chemical control program until grapes reach about 15 Brix. Prior to this, it's not likely that many fruit flies will be present in your vineyard. We caution you to be conservative with sprays. For example, some cultivars with loose clusters such as Cab Franc and Lemberger, are not particularly susceptible to sour rot. Cultivars with tight clusters, such as Riesling and Vignoles, are more prone to sour rot issues. Also, be aware of other factors contributing to sour rot risk. For example, if the weather leading up to harvest is conducive to sour rot development (e.g. wet and warm conditions) be more diligent with your sprays, but if conditions are not conducive to sour rot, consider reducing sprays at least for cultivars that are not especially susceptible. Another important factor is minimizing berry damage from birds and direct insect pests such as grape berry moth as much as possible.

Managing Fruit Flies for Sour Rot in 2019 (continued from pg.4)

Greg Loeb and Hans Walter-Peterson

Some additional comments about insecticides. For insecticides listed in the table below that are allowed through 2ee exemption, make sure to have the exemption in your possession. You can download these from the NYS DEC PIMS web site (http://www.dec.ny.gov/nyspad/products). Note that some insecticide labels list Drosophila species or fruit flies generally. Others only list spotted wing drosophila. In the later situation, legally you must be targeting spotted wing drosophila. We have limited information on how frequently insecticides and biocides should be applied. Our initial studies started sprays at about 15 Brix and continued on a weekly basis until near harvest. We suspect we can reduce the number of sprays without loss of efficacy but we don't have enough data yet to make specific recommendations. Unless you believe you had a control failure the previous year associated with application of Mustang Maxx, it should be ok to use in your rotation. We suggest using at least three different classes of insecticides (different modes of action, e.g. different IRAC classes) in a season, taking into consideration efficacy, days to harvest restrictions and other restrictions such as total amount of active ingredient (A.I.) allowed and insecticides applied in your vineyard targeting other pests. For example, Delegate (a spinosyn) is considered a very good material against spotted wing drosophila but it has a 7 DTH restriction. There are also limitations to the total amount of A.I. allowed in a season and you also must rotate to a new class after two successive sprays.

Finally, please let us know if you have observed what appears to be a control failure for an insecticide application targeting fruit flies. An indication of a control failure would be observing numerous healthy-looking adult fruit flies in the vineyard block immediately or shortly after an insecticide application. Some adults might be expected with continual emergence, but populations should be noticeably lower.

Table 1. List of insecticides for use against Drosophila fruit flies (vinegar flies) labeled in New York including trade and common names, IRAC (Insecticide Resistance Action Committee) chemical class based on mode of action, days to harvest restriction and other information. Also see the NY and PA grape guidelines for additional information.

Product name	EPA Number	IRAC Code	2(ee) required?[a]	Rate	REI (hrs)	PHI (days)	Reapplication interval (days)[b]	Max applications per season	Maximum product applied per season	Comments
Assail 30SG	8033-36-70506	4A	Yes	4.5-5.3 oz/acre	12	3	14	2	10.6 oz	2ee required for SWD. Good but not great efficacy. Do not use an adjuvant.
Danitol 2.4 EC	59639-35	3A	No	11-21 fl oz/acre	24	21	7	2	42 fl oz	'Vinegar flies' and SWD listed on the label.
Delegate WG	62719-541	5	No	3-5 oz/acre	4	7	4	5	19.5 oz	SWD is listed on recent label. Older labels may not include SWD. No more than 2 consecutive applications of Group 5 materials.
Entrust SC	62719-621	5	Yes	4-8 fl oz/acre	4	7	5	5	23 fl oz	2ee required for SWD. OMRI listed. No more than 2 consecutive applications of Group 5 materials.
Grandevo WDG	84059-27	NA	No	2-3 lbs/acre	4	0	NA	NA	NA	Based on entopathogenic bacteria. Labeled for fruit flies. Organic. Modest efficacy but potential rotation option with Entrust SC for organic growers.
Malathion 5EC	19713-217	1B	No	3 pints/acre	24	3	14	2	6 pints	Drosophila included on the label. Use max rate.
Malathion 57%	67760-40-53883	1B	No	3 pints/acre	24	3	14	2	6 pints	Drosophila included on the label. Use max rate.
Malathion 8 Aquamul	34704-474	1B	No	1.88 pints/acre	24	3	14	2	3.76 pints	Drosophila included on the label. Use max rate.
Mustang Maxx	279-3426	3A	No	4.0 fl oz/acre	12	1	7	6	24 fl oz	'Vinegar flies' and SWD listed on the label.

[a] If yes, a copy of the 2(ee) approval must be in possession when the material is applied.

[b] Minimum number of days before reapplication of the material.

2019 GDD & Precipitation

FLX Teaching & Demonstration Vineyard – Dresden, NY					
8/14/2019	78.2	62.8	0.00	20.5	1793.5
8/15/2019	77.8	59.7	0.10	18.8	1812.3
8/16/2019	82.9	63.7	0.70	23.3	1835.6
8/17/2019	78.6	64.2	0.22	21.4	1857.0
8/18/2019	83.2	63.0	0.00	23.1	1880.1
8/19/2019	83.3	66.5	0.00	24.9	1905.0
8/20/2019	87.6	62.7	0.00	25.2	1930.1
Weekly Total			**1.02”**	**157.1**	
Season Total			**14.88”**	**1930.1**	

GDDs as of August 20, 2018: 2168.5

Rainfall as of August 20, 2018: 15.62”

Seasonal Comparisons (at Geneva)

Growing Degree Day

	2019 GDD [1]	Long-term Avg GDD [2]	Cumulative days ahead (+)/behind (-) [3]
April	48.1	64.1	-5
May	204.1	255.5	-5
June	449.1	480.9	-5
July	712.8	642.1	-1
August	401.9	592.7	-1
September		357.6	
October		110.1	
TOTAL	1815.9	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 5)

Precipitation

	2019 Rain [4]	Long-term Avg Rain [5]	Monthly deviation from avg [6]
April	2.22”	2.85”	-0.63”
May	4.42”	3.13”	+1.29”
June	3.61”	3.60”	+0.01”
July	2.20”	3.44”	-1.24”
August	3.67”	3.21”	
September		3.57”	
October		3.39”	
TOTAL	16.12”	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)

NY Crop Insurance Fact Sheet

Grape SCO for FLGP Counties 2018

What is SCO and how does it work?

The Supplemental Coverage Option (SCO) is an additional crop insurance option that provides coverage for a portion of the underlying crop insurance policy deductible. It follows the coverage of the underlying policy. For an underlying Yield Protection policy, the SCO covers yield loss.

Loss payments are made when there is a loss in yield for the designated SCO area. It is NOT based on the individual policyholder's yield performance.

What is the cost and coverage?

SCO increases the level of coverage to 86% of a producer's APH Yield. The SCO endorsement results in an additional premium and administrative fee.

The amount of protection and cost is based on the underlying policy coverage:

- Lower underlying coverage, higher SCO protection and cost
- Higher underlying coverage, lower SCO protection and cost
- There is no coverage overlap between underlying and SCO coverage
- Covers all planted acreage of the crop.

When is an indemnity paid?

The indemnity is based on area yield loss for yield protection plans. The producer should keep basis risk, or the relationship between a farm and area-level yields, in mind when considering an SCO endorsement for a crop insurance policy. Indemnity payments begin if area yield is less than 86% of the expected SCO yield (area loss more than 14%).

The actual amount of the SCO indemnity payment is based on the individual underlying policy. The maximum value of the indemnity payment is:

(86% - Individual Underlying Policy Coverage Level) X Expected Crop Value

where the Expected Crop Value is:

(APH yield X price election)

SCO for FLGP-county producers

New York state grape producers have the option of purchasing the SCO endorsement for an Actual Production History (APH) policy. Like the underlying APH Grape policy, the SCO will also be guaranteeing yield, based on the yield of a larger area. There are varying established prices for grapes covered by SCO, which depend on the variety and SCO area.

FLGP-county Grape SCO Areas

The counties that make up an SCO area can vary greatly across the areas. For example, if county A's SCO area consists of counties A and B, it is does not necessarily mean that county B's SCO area also consists of counties A and B. It is also possible for a county's SCO area to consist of all counties where the crop of interest is insured within the state. **RMA's explanation for SCO area selection is based on data availability. If yield data are not sufficient for a county, other counties are added to the SCO group to achieve a sufficient yield database.**

For more NY crop insurance information, visit: www.agriskmanagement.cornell.edu

NY Crop Insurance Fact Sheet

FLGP Grape SCO 2018 (reverse)

The SCO Grape Areas for each FLGP county:

SCO Area	Included Counties
Ontario	Ontario, Seneca, Steuben, Wayne, Yates
Schuyler	Schuyler, Seneca, Steuben, Yates
Seneca	Ontario, Schuyler, Seneca, Wayne, Yates
Steuben	Ontario, Schuyler, Steuben, Yates
Wayne	Ontario, Schuyler, Seneca, Steuben, Wayne, Yates
Yates	Ontario, Schuyler, Seneca, Steuben, Yates

FLGP-county Grape SCO Expected and Actual Yields (tons/acre)

The SCO endorsement has been available since 2016. The expected and final area yields are shown in the table below as tons/acre:

		Ontario	Schuyler	Seneca
2016	**Exp.**	6.30	6.10	6.20
	Final	**5.70**	**5.50**	**5.50**
2017	**Exp.**	6.29	6.14	5.74
	Final	7.54	7.35	7.24
2018	**Exp.**	6.15	5.75	5.77
	Final	**6.09**	5.91	**5.76**
2019	**Exp.**	6.15	5.95	5.99
	Final	-	-	-

		Steuben	Wayne	Yates
2016	**Exp.**	6.40	6.10	6.30
	Final	**5.60**	**5.50**	**5.50**
2017	**Exp.**	5.84	6.12	6.29
	Final	7.53	7.33	7.33
2018	**Exp.**	5.87	5.74	5.73
	Final	6.06	5.86	5.86
2019	**Exp.**	6.07	5.93	5.93
	Final	-	-	-

We see a few instances of final yields falling below expected. However, even in the case of the largest SCO yield shortfall in a FLGP county — Yates county in 2016 — the actual yield equal to ~87% expected yield was still above the 86% indemnity trigger.

How are the SCO yields calculated?

Final area yields are calculated as the acre-weighted average yield reported by producers who are participating in APH, YP, RP, and RPHPE, as applicable for the crop (only APH for NY grapes). In general, final area yields are calculated based on all yield data received up to a date within 1-2 weeks of May 1st (listed in the AIB SCO Price and Yields tab).

Expected area yields are calculated as a trend yield based on historical data available to RMA.

Reported yields for **all varieties** of grapes are used to determine the area yields.

In all the FLGP SCO areas, the native vs. hybrid acreage reported to RMA is split approximately 50-50. Steuben Co. is a notable exception where Natives make up >55% of reported acreage. (Calculated from RMA—Summary of Business data)

For More Information...

Yields for all SCO areas are published at:

http://cli.re/g3xnQp

A crop insurance agent can provide you with detailed information regarding a policy for your farm. Find a crop insurance agents using the RMA agent locator at:

http://cli.re/gzPVWy

For more NY crop insurance information, visit: www.agriskmanagement.cornell.edu

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

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.

flgp.cce.cornell.edu

YouTube

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