Cornell Cooperative Extension
Finger Lakes Grape Program

July 28th, 2021

Finger Lakes Vineyard Update

In the Vineyard

In This Issue:

It's nice to be back in a weather pattern that isn't either rainy or tropically humid for a little while. After a front moved through the area yesterday, it looks like it will be cooler and drier for the next week or so, which will be helpful for getting caught up on field work that got delayed by the rains earlier this month.

Sunburn on berries. Photo: http://omaf.gov.on.ca/IPM

One of the tasks that has been happening a little later than normal in many vineyards this year has been leaf pulling. The practice has benefits for both fruit quality and disease management, especially in *vinifera* varieties. While it's still probably better overall to do it later rather than never, pulling leaves later and exposing clusters when sunlight and temperatures are more intense like they have been the past couple of weeks has led to sunburn damage in some blocks. If leaf pulling gets done later in the season – say after pea-sized berries or so – it may be beneficial to not remove all of the leaves in the fruit zone, but rather to leave some so that a portion of the fruit zone is shaded, especially on the west or south side of the canopy. This can still allow for spray penetration to the clusters, but also allow for adequate sunlight to reach the fruit.

Veraison

We are starting to see color change in Regent and Marquette, two of our earliest varieties to hit this stage of development. A little less than half of the berries in Marquette had started to change color, while Regent was lagging a bit behind that. One of our seedless varieties, Jupiter, tends to begin to change color soon after these two, which it is just starting to do. So I guess it's time to add 'install bird netting' to the list of vineyard tasks to get ready for in the near future.

Regent (left) and Marquette (right) at the Teaching & Demonstration Vineyard. Photos from Ellen Coyne.

IPM

Late last week, I was contacted by a couple of growers who were seeing berries starting to discolor and shrivel in some parts of their vineyards. By Monday, a few more had contacted me with the same problem. The discoloration appeared relatively quickly, and where berries had started to shrivel, the pedicel (the stem connecting the berry to the stem) was dying off as well.

Discolored and shriveling Merlot berries (left); discolored berries with pedicels beginning to brown (right).

This was seen in several *vinifera* cultivars, including Merlot, Riesling, and Grüner Veltliner, in different locations around the Finger Lakes. There were no visible signs of sporulation on the berries or the rachis like you would see with black rot or downy mildew, so this didn't seem like a disease issue…at first.

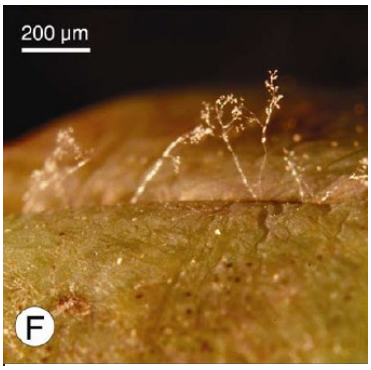
After a little more digging and consulting with colleagues, we realized that this is the result of downy mildew infections *inside* the berries. We all know (or should know) that downy mildew needs a means of entry into the tissues in order to start infecting a plant. This is usually through stomates, the microscopic pores that are found on the undersides of leaves and also on the stem and berry tissue as well. When we see the white fluffy spores of DM on a young cluster, the organism was able to enter the berries through the stomates on the berry or pedicel, and then the structures that carry the spores (sporangiophores) emerge back out through other stomates.

Stomata on berries eventually close and convert to structures called lenticels. These structures are visible on berries of some cultivars, like Riesling.

On grape berries and pedicels, the stomates eventually close up and become *lenticels,* some of which are visible as small brown dots on certain varieties, like Riesling. If the timing is just right, the infection

IPM (continued from pg. 2)

can get established in the berry through stomates that have not closed yet, but then do so before sporulation would begin. In this case, the sporangiophore (the structure that carries the spores) is unable to exit the berry or pedicel, and therefore there is no sporulation that is visible. Instead, the infection causes the berry or stem to discolor and shrivel over time, leading to some amount of crop loss. If the berry skin is cut or split open, the spores can emerge from that injury and then spread as they normally would (Kennelly et al, 2005).

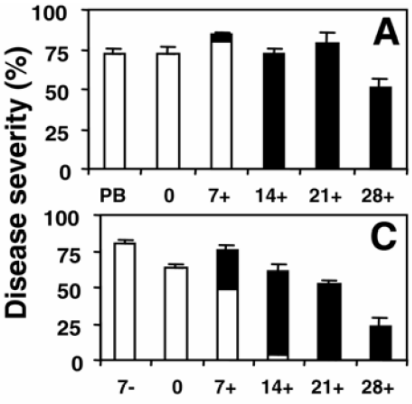


Once stomata close on the berries, sporangiophores are unable to emerge from inside the berry, unless the skin is split open.
Photo from Kennelly et al., 2005.

Incidentally, this is the primary reason as to why the berries become immune to new DM infections a few weeks after bloom – once the stomates close, there are no open pores through which the DM can penetrate into the tissue.

So how did this happen? Like most explanations of grapevine diseases, it's likely a combination of things. First and foremost, the weather has been highly conducive to downy mildew infections, as we have discussed all of July. Secondly, there was likely an issue with spray penetration getting into every place where DM could penetrate the stem or berry. This could be due to a leaf preventing spray from reaching a portion of a cluster, or just the higher number of berries of cluster making it harder to get fungicide protection everywhere. And third, just blind chance that the spores happened to land on tissue where there were still open stomates for them to penetrate.

The timing of the infection also played a role, at least as far as how the disease manifested itself. As I said, earlier infections of berries will result in DM spores emerging from young clusters because they have an escape route - the stomates. But as we get further from bloom, the symptoms of DM infection turn from the white sporulation that we're used to seeing to this discoloration that we saw here this week. This goes back to the idea that, at some point, the organism is able to get inside the berry or pedicel, but by the time it is ready to sporulate, those potential exit routes are closed and the berries turn color and shrivel instead.



Severity of DM infections when Chardonnay (A) and Riesling (C) clusters are inoculated at different times relative to bloom (horizontal axis). When infections occur later in the susceptible stage, berries will more likely discolor (black bars) than support sporulation (white bars). From Kennelly et al., 2005.

The final piece then is what growers should do about it. While it's certainly disconcerting to see berries discoloring and shriveling up, the disease is in essence "contained" within them and will unlikely spread to other stems and berries. Again, the reason that there is no sporulation any longer is that the stomates are closed up, so it stands to reason that there should be little to no further development of this symptom of the disease. Could infected berries become a source of inoculum for the canopy if they split open somehow? I guess it's not impossible, as the picture above shows, but I suspect that in the grand scheme of things, they would be a relatively small source relative to what could come from the canopy. My suggestion to the growers that contacted me about this was to not plan on doing anything extra because of this, but rather just keep an eye on these areas to see if anything further develops, and most importantly to keep up with their DM management program this season.

Go to Top

IPM (continued from pg. 3)

Reference:

Kennelly, M., Gadoury, D., Wilcox, W., Margarey, P., Seem, R. 2005. Seasonal Development of Ontogenic Resistance to Downy Mildew in Grape Berries and Rachises. Phytopathology 95: 1445-1452.

Berries shriveling from internal DM infections. Differential timing of stomatal closure means infections inside the berries are unable to sporulate and cause discoloration instead, while stomates still open on the pedicel allow for sporulation to still occur. Photo: Tim Martinson

Labor Research! What's Happening in Your Farm?

Richard Stup, Cornell Agricultural Workforce Development Program

An important research project is gearing up in the next few weeks to understand what is happening with New York farm labor during this time of great change in markets, regulations and technology. It's an opportunity for the voices of actual farm employers and employees to be heard through research! Strong participation from farm employers and employees is important!

Farm employers who operate fruit, vegetable, and greenhouse/nursery operations should watch their U.S. mail for a pre-notification letter in the coming weeks, followed a few days later by a survey packet. This survey packet will contain an employer survey plus six copies of an employee survey (3 in English, 3 in Spanish). We are asking farm employers to complete the employer survey to give us hard numbers about your farm's labor situation and the changes from 2019 to today. Employers will distribute the employee surveys to members of their team to complete and share current employee perspectives about the farm and employee management. All surveys will remain anonymous and only group data with no identifying information will ever be reported.

The dairy part of this research will start a few weeks after the fruit, vegetable, and greenhouse portion.

Labor Research! What's Happening in Your Farm?

Richard Stup, Cornell Agricultural Workforce Development Program

Objectives of this research are to:

- Identify what human resource management practices are most effective at achieving high performance and labor efficiency.
- Describe New York farm employee hours, compensation, quality of work life and satisfaction with working conditions and relations.
- Describe how labor markets and regulations are affecting labor usage, enterprise selection, and business plans for New York farms.
- Identify what labor-saving technologies farms are adopting and how they best fit in an overall human resource management strategy.

How to participate:

Watch your mail for the letter and survey packet, then follow the enclosed instructions to participate by mail, or use the online survey option. If you don't get a mailing in the next few weeks, and you a operate a New York farm with hired employees, then reach out to Julie Berry (jrb7@cornell.edu) to request a survey packet. Include your name, farm name, mailing address, phone, and email.

Project leadership:

This project, "New York Farm Labor in Transition," is led by Richard Stup (res396@cornell.edu) of Cornell's College of Agriculture and Life Sciences (CALS), in collaboration with colleagues from the Dyson School of Applied Economics and Management, and the School of Industrial and Labor Relations (ILR).

Support for this research is provided by:

- Unites States Department of Agriculture, Agricultural Marketing Service
- New York State Department of Agriculture and Markets
- Farm Credit East
- Northeast Dairy Producers Association
- Dairy Farmers of America
- Upstate Niagara Cooperative

Thank you for taking time to participate in this research!

Upcoming

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, August 3 *4:30 – 6:00 PM*

Kashong Glen Vineyards

1107 Earls Hill Road

Penn Yan, NY

Our next in-person Tailgate Meeting will be held on Tuesday, August 3. These meetings are primarily intended for those who are not able to or prefer not to participate in our virtual Tailgate meetings, but are open to anybody. 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).

There is no limit on the number of people who can attend these outdoor meetings, and therefore we are not requiring any pre-registration for them. Those who are fully vaccinated for COVID-19 are not required to wear masks or remain 6' apart during the meeting. Those who are not vaccinated will need to wear a mask and keep physically distant from others.

Upcoming Events (continued from page 5)

EnoCert Classes for 2021

Registration closes on July 31!

The EnoCert program is offered by Cornell's Enology Extension Laboratory. It is intended for current winery employees who would like to expand their practical knowledge of winery operations, or for motivated amateurs. All courses will be offered in one or two-day mix and match modules. Our goal is to provide a recognizable standard of training for participants who earn EnoCertification.

For more information, visit https://grapesandwine.cals.cornell.edu/extension/enocert/ or email Cortni Stahl at ckm53@cornell.edu.

ENOCERT 202 Certification Course: Tasting Room Sales Strategies

NEW Online format! Synchronous sessions approx. 8:30 am – 12:00 pm

August 2, 2021

Overview: Most consumers' first contact with the New York wine industry is in a tasting room, so understanding their interests, motivations, and educational needs is key to promoting the industry as a whole and increasing individual sales. In this course, participants will learn how to engage guests to create a fun and profitable tasting room experience.

ENOCERT 101 Certification Course: Basic Viticulture & Enology (Formerly New Grower/New Winery Workshop)

NEW Online format! Synchronous sessions approx. 8:30 am – 12:00 pm

August 3-4, 2021

Overview: This course will cover the basics of grape growing from the ground up. Through live interactive lectures, participants will understand how vineyard site, climate, and trellising systems impact grape production and quality. Participants will also expand their understanding of production steps for specific wine types. Upon completing this course, attendees will learn how different wine types (white, red, rosé, sparkling) are produced, and the key decisions that need to be made to influence wine style.

Save the date for your next fit test!

Finger Lakes

Location: CCE Ontario County
480 N. Main Street
Canandaigua, NY 14424

All Attendees must wear a mask or face-covering

Thursday Sept. 23rd

Friday Sept. 24th

Scheduling appointments:

Monday, August 2nd - September 20th, 2021

The **New York Center for Agricultural Medicine and Health (NYCAMH) and HealthWorks** is pleased to provide respirator fit testing clinics in your region in 2021.

During the clinics NYCAMH will provide **medical evaluations**; **respirator fit tests**; and **WPS compliant trainings** on how to properly inspect, put on, take off, fit, seal check, use, clean, maintain, and store respirators.

Clinic appointments are **one hour long**, and groups of **4 workers** can be seen at a time. Medical evaluations, fit tests, and trainings are available in both **English and Spanish**.

If you are unable to attend the clinic in your area you may schedule an appointment at another clinic location.

Bassett Healthcare Network
New York Center for Agricultural Medicine and Health

Bassett Healthcare Network
HealthWorks

Save the date for your next fit test!

To schedule an appointment please call the NYCAMH office during the **date range listed above** and ask to speak with farm respirator clinic scheduler.

We can be reached at **607-547-7014 #7** or Email: **fittest@bassett.org**
Monday-Friday, 8:00 AM-4:30 PM

When calling to schedule an appointment please have the following information available:

- *Total number of people attending from your farm*
- *Name of each person being scheduled*
- *Language spoken by each attendee*
- *Make and model of each respirator to be tested*

A respirator fit test ensures that a particular make, model, and size of respirator fits the wearer's face and will meet the wearer's needs. A fit test is specific to the make, model, and size of respirator.

If a worker wears more than one style of respirator, including filtering facepieces, they must be fit tested for each one. Please keep in mind while determining who will come to the clinic that a clean-shaven face is a necessity for masks to be effective and for fit testing to be possible.

It is important to us that your workers be protected from any respiratory hazards. It is important to us that you be protected from potential OSHA or DEC fines. If you have any questions, please call us.

2021 GDD & Precipitation

FLX Teaching & Demonstration Vineyard – Dresden, NY					
Date	**Hi Temp (F)**	**Lo Temp (F)**	**Rain (inches)**	**Daily GDDs**	**Total GDDs**
7/21/21	73.2	62.8	0.00	18.0	1461.1
7/22/21	75.6	59.5	0.00	17.6	1478.6
7/23/21	78.4	59.9	0.00	19.2	1497.8
7/24/21	80.8	57.7	0.00	19.3	1517.0
7/25/21	86.0	70.5	0.03	28.3	1545.3
7/26/21	86.9	64.9	0.00	25.9	1571.2
7/27/21	87.1	62.6	0.51	24.9	1596.0
Weekly Total			**0.54”**	**178.2**	
Season Total			**13.10”**	**1596.0**	

GDDs as of July 27, 2020: 1574.3

Rainfall as of July 27, 2020: 10.09”

Seasonal Comparisons (at Geneva)

Growing Degree Days

	2021 GDD [1]	Long-term Avg GDD [2]	Cumulative days ahead (+)/behind (-) [3]
April	72.0	62.7	+2
May	256.6	254.6	+1
June	608.9	481.5	+7
July	544.3	646.4	+6
August		593.2	
September		358.7	
October		109.9	
TOTAL	1481.7	2507.1	

[1] Accumulated GDDs for each month.

[2] The long-term average (1973-2019) 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

Precipitation

	2021 Rain [4]	Long-term Avg Rain [5]	Monthly deviation from avg [6]
April	2.34”	2.83”	-0.49”
May	1.86”	3.12”	-1.26”
June	2.23”	3.55”	-1.32”
July	4.91”	3.43”	
August		3.20”	
September		3.49”	
October		3.40”	
TOTAL	11.34”	23.02”	

[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

"Cornell Cooperative Extension is an equal opportunity, affirmative action educator and employer"