Finger Lakes Vineyard Update

In the Vineyard

Hans Walter Peterson

Yep – it's still dry out there. Rainfall for the first three months of the growing season (April – June) was about 65% below our long-term average, and this June was the driest one ever going back to 1973 (based on our records from Geneva) with only 0.65" of rain all month. Given all of that, however, most of the mature vineyards that we have visited over the past week are not showing significant signs of water stress. Tendrils are still green and extending past the shoot tips and leaves have not started to yellow or avoid direct sun exposure by altering their leaf orientation (see photo). Even the second year vines in our Teaching Vineyard are still looking fairly healthy, but if we don't get some rain pretty soon, we're going to have to fire up the irrigation system.

Water-stressed vine with leaf angles altered to reduce the amount of direct sunlight on leaf surface.

In a couple of blocks with shallow soils, however, we are starting to see some of these water stress symptoms kick in (see photos below). Gillian gave a quick summary of these symptoms in last week's Vineyard Update, so I won't repeat them here but suffice it to say that vines with limited root systems, whether because of restrictions in the soil (bedrock, hardpan, etc.) or the age of the vine and the health of the root system itself, will show signs of water stress first.

Tendrils and shoot tip death in response to water stress.

Reduced shoot growth, along with yellowing and necrotic leaves, on water-stressed vine.

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Another symptom of water stress is increased leaf temperature, due to the inability of the leaves to cool themselves as easily because they are not pulling as much water through their tissues and out the stomates. Growers can use a simple test based on this fact to also get an idea if their vines are water stressed.

GETTING A "FEEL" FOR WATER STRESS

Step 1: Do the test at mid-day or in the afternoon of a sunny, calm day. Take a few large leaves and lay them in the sun. Feel them every few minutes for 15-20 minutes to get a feel for how hot they can get.

Step 2: Feel shaded leaves on the canopy exterior as a reference (they should be near the air temperature).

Step 3: Now feel larger, sun-exposed leaves on the canopy exterior between your thumb and fingers. Exposed leaves will be a little warmer even without any stress, but will be significantly warmer if the vine is water stressed.

Adapted from: Lakso, A. "Getting A 'Feel' for Water Stress". Finger Lakes Vineyard Notes, July 2002.

The best strategy to deal with water stress, short of applying water through irrigation, is to reduce the competition for what water remains in the soil profile and/or what eventually does fall in the form of rain. Two of the more effective practices to do this would be eliminating weeds or cover crops under the trellis and applying mulch in row middles. Discing alternate row middles can also reduce competition for water in that part of the vineyard as well, but remember that the majority of roots tend to be under the trellis where there has been less competition with other ground covers, rather than further out in the row middles.

IPM

Hans Walter-Peterson

On the disease front, there obviously isn't much to report on at this point. Diseases that require free water, as in black rot, downy mildew and phomopsis, are not appearing to any great extent in vineyards this year…so far. Early botrytis development in new clusters is also very likely to be limited this year at this point thanks to the lack of rain, and which hopefully will mean fewer cluster infections later in the season if/when the rains return.

Most vineyards are past bloom by this point and finishing up (or well past) fruit set. In the weeks following bloom and set, the new berries gradually develop resistance to new fungal infections. The timing of when they become fully resistant is a bit different for each disease and is also dependent on the cultivar.

- Powdery mildew: Berries are highly susceptible until 2-3 weeks after set. Concord berries are resistant when they reach about 0.25" in diameter, while *vinifera* and more sensitive hybrid cultivars can still have infections up until around bunch closure.

- Downy mildew: Resistance begins to develop about 4 weeks after bloom starts, and berries become increasingly resistant over the next few weeks. Fruit are no longer susceptible by about mid-summer.

- Black Rot: Fruit is highly susceptible for the first 2-3 weeks after capfall (i.e., right about now for later blooming varieties). Resistance begins to develop by this time, and fruit is highly resistant by about 5-8 weeks after bloom, depending on the cultivar.

In general, the berries of native varieties like Concord and Niagara will develop resistance sooner than more susceptible varieties, including *vinifera* and some of the hybrids.

Remember that *none of this applies to the leaves and rachis tissue, which remain susceptible to infection throughout the growing season,* and which are often the sources of primary infections in the following season.

Grape Berry Moth

According to the GBM model on the NEWA site, warmer areas in the Finger Lakes, including our vineyard site in Dresden, are approaching or just over the 810 GDD threshold to begin applications for grape berry moth if at least 6% of clusters show damage from GBM larvae. Cooler portions of the region are still at the stage where scouting should be done to determine if there is enough damage to warrant spraying at this point in the season.

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IPM (continued from page 3)

Hans Walter-Peterson

For materials that require the larvae to ingest the material – in New York, the only labeled materials that fit this category right now are Altacor and Belt (Intrepid is another one, but is not labeled for use in NY) – the application should be done as close to 810 GDDs as possible. For other materials, including pyrethroids, organophosphates and carbamates, applications should be targeted closer to 900 GDDs to be most effective.

NEWA Station	GDDs from GBM Model (as of July 6)
Dresden	834
Branchport	677
Lodi (Standing Stone)	842
Romulus (Buttonwood Grove)	753
Williamson (Bear Swamp)	584

Sample of GBM model results from Finger Lakes NEWA stations.

NEWA Grape Forecast Models

Select a disease or insect: Grape Berry Moth

State: New York

Weather station: Dresden (FLGP/FLCC)

Date of Interest: 7/6/2016

Calculate

Map | Results | More info

Grape Berry Moth Results for Dresden (FLGP/FLCC)

Wild Grape Bloom: 5/30/2016

Wild Grape Bloom date above is estimated based on degree day accumulations or user input. Enter the actual date for blocks of interest and the model will calculate the results more accurately.

Accumulated degree days (base 47.14°F) wild grape bloom through 7/6/2016: 817 (0 days missing)

Daily Degree Days for Dresden (FLGP/FLCC)

Base Temp	Past	Past	Current	5-Day Forecast			Forecast Details	
	Jul 4	Jul 5	Jul 6	Jul 7	Jul 8	Jul 9	Jul 10	Jul 11
47.14F - GBM	26	30	32	32	32	27	23	24
Accumulation	772	802	834	866	898	925	949	973

NA - not available

Download Time: 7/6/2016 12:00

Pest Status	Pest Management
Egg-laying continues.	For materials that are contact insecticides, e.g. pyrethroids and carbamates, apply between 811 and 900 DD.

Disclaimer: ***These are theoretical predictions and forecasts.*** *The theoretical models predicting pest development or disease risk use the weather data collected (or forecasted) from the weather station location. These results should not be substituted for actual observations of plant growth stage, pest presence, and disease occurrence determined through scouting or insect pheromone traps.*

Japanese Beetles have also started to emerge in a few places as well. Recall that mature vines can usually withstand a fair amount of feeding damage (~15-20% of leaf area) from Japanese beetles before seeing any impact to the fruit. Young vines with smaller amounts of leaf area can have most of their leaves consumed pretty quickly, however, especially inside grow tubes, so focus initial scouting in those areas if you have them.

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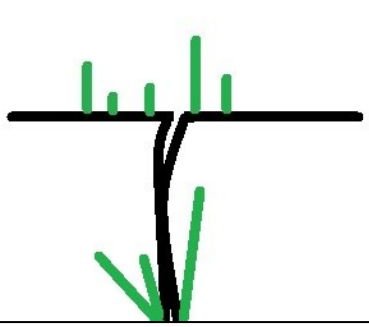
July 5th Tailgate Recap

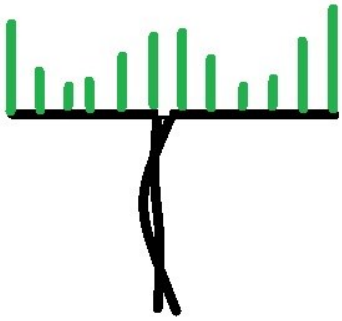
Gillian Trimber

Yesterday's tailgate meeting was held in the lovely, air conditioned tasting room at Young Sommer Winery in Williamson, NY. It was fantastic to see so many Wayne County growers in attendance, and we really appreciated the willingness of everyone to ask questions and volunteer suggestions; the cooperation between the grape growers in that area is phenomenal. From sharing weather data to noting pest sightings, there was plenty of active discussion beyond the notes Hans and I brought to share—which is of course the point of the Tailgate Meetings!

Questions on thinning fruit led to a discussion of how to deal with weak vines, and what various symptoms indicate. We chatted about how winter injury (particularly trunk damage) can sometimes take a few years to show up, and how removing fruit on shorter, weaker shoots can help to ensure that there are possible buds on that shoot for next year. A profusion of suckers on a vine can indicate winter damage, as can having only a handful of shoots near the head of the vine while the ends of canes are weak or dead. In contrast, a pattern of long shoots at the ends of the canes and closer to the trunk, with weaker canes in the middle, is more likely the effect of typical apical dominance. Regardless of why the vine is looking weak, removing clusters on short shoots around this time of year, but leaving shoots and leaves, is a good strategy for ensuring the struggling vine's resources go into the shoot tips for better growth and a healthier vine the following year. It's also important to remember that in the first few years of growth new plantings should have the clusters removed in order to encourage resources being devoted to the roots and canopy.



Pattern of shoot growth typically caused by winter damage or other issues.



Pattern of shoot growth typically caused by apical dominance.

Drought conditions in our region are on most growers' minds right now, and we strolled out into the vineyard to talk about what drought stress symptoms look like first hand. Fortunately for them but unfortunately for our demonstration, the vines at Young Sommer are looking great, with long tendrils and cool leaves. However, we were able to show the group the insect monitoring traps we've placed in Young Sommer's vineyard as part of the Cooperative Agricultural Pest Survey (CAPS) project. We'll be distributing those on more farms across the Finger Lakes this week and next.

On the pest and disease management side of things, Hans reminded everyone once again that despite the dry weather, now is not the time to stretch spray intervals beyond 14 days, as the clusters are still at their most susceptible stage. The berries typically develop greater resistance to downy mildew infection by pea-sized berry, powdery mildew resistance four to five weeks after bloom, and black rot resistance seven to eight

July 5th Tailgate Recap (continued from page 4)

Gillian Trimber

weeks after bloom. The canopy, however, remains susceptible to new infections as it continues to put on new growth. As Wayne County is a little cooler than other parts of our region, berries have recently set and growers are applying their critical post-bloom sprays to protect the fruit.

Checking for drought stress in vines at yesterdays Tailgate Meeting

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.

Tailgate Meeting #7

Tuesday, July 19 4:30 – 6:00 PM
Keuka Spring Vineyards
243 Route 54
Penn Yan, NY 14527

Hard to believe we're already halfway through our Tailgate Meeting schedule! Our SeventhTailgate Meeting of the year will be held at Keuka Spring Winery, in Penn Yan on Tuesday, July 19.

These meetings are held every other week at various grape farms around the Finger Lakes, and are intended to be informal, small-group meetings where FLGP staff and growers can ask questions and discuss issues about vineyard management, IPM strategies or other topics appropriate for that point in the growing season.

Dates and locations for the rest of this year's Tailgate Meetings can be found under the 'Events' section of our website.

Tailgate Meeting #8
Tuesday, August 8th 4:30-6:00PM
Doyle Vineyard Management
10223 Middle Road
Hammondsport, NY 14840

Cornell Fruit Field Day 2016

July 20, 2016
NYS Agricultural Experiment Station
Fruit and Vegetable Research Farm South
1097 County Road 4 (1 mile west of Pre-emption Rd) (click here for a map)
Geneva, NY

We invite all interested persons to attend Cornell's Fruit Field Day to learn about the fruit research under way at Cornell University. Attendees will be able to select from tours of berries, hops, grapes, and tree fruits.

Admission fee is $50/person ($40 for additional attendees from the same farm or business). Pre-registration is required, but walk-in registration may be available for a $10 surcharge on the day of the event. To register or for more information, visit http://app.certain.com/profile/web/index.cfm?PKwebID=0x831574809f&varPage=home or call Gemma Osborn at (315) 787-2248.

2016 Growing Degree Days and Rainfall

FLX Teaching & Demonstration Vineyard – Dresden, NY					
Date	**Hi Temp (F)**	**Lo Temp (F)**	**Rain (inches)**	**Daily GDDs**	**Total GDDs**
6/29/16	75.4	61.2	0.00	18.3	866.2
6/30/16	86.2	55.1	0.00	20.7	886.9
7/1/16	80.0	60.0	0.00	20.0	906.9
7/2/16	76.8	55.9	0.00	16.4	923.2
7/3/16	80.0	58.2	0.00	19.1	942.3
7/4/16	87.2	58.3	0.00	22.8	965.1
7/5/16	86.6	67.1	0.00	26.9	991.9
Weekly Total			**0.00”**	**144.0**	
Season Total			**4.61”**	**991.9**	

GDDs as of June 21, 2015: 1091.5

Rainfall as of June 21, 2015: 13.89”

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Seasonal Comparisons (at Geneva)

Growing Degree Days

	2016 GDD [1]	Long-term Avg GDD [2]	Cumulative days ahead (+)/behind (-) [3]
April	36.1	65.2	-9
May	270.1	252.3	0
June	489.1	480.6	0
July	92.6	639.8	0
August		588.2	
September		351.0	
October		105.2	
TOTAL	887.8	2481.8	

1 Accumulated GDD's for the Month

2 The long-term average (1973-2014) 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

	2016 Rain [4]	Long-term Avg Rain [5]	Monthly deviation from avg [6]
April	1.17"	2.89"	-1.72"
May	1.66"	3.11"	-1.45"
June	0.65"	3.68"	-3.03"
July	0.00"	3.42"	
August		3.15"	
September		3.64	
October		3.22	
TOTAL	3.48"	23.12"	

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!

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