Cornell Cooperative Extension
Finger Lakes Grape Program

July 12, 2018

Finger Lakes Vineyard Update

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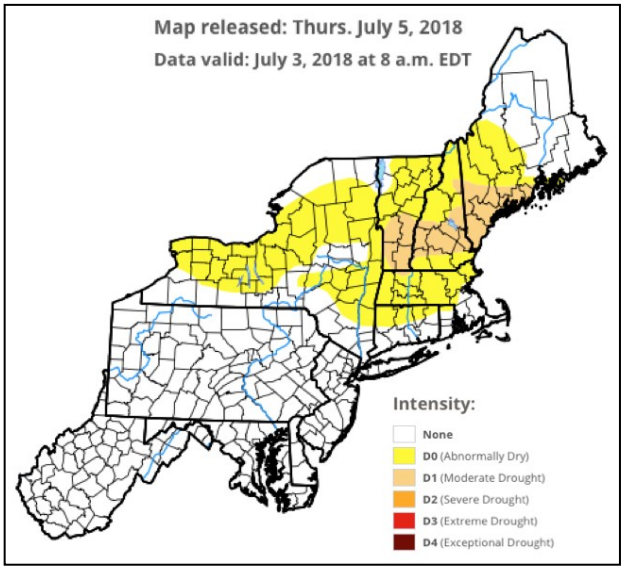
In the Vineyard

Hans Walter-Peterson

The predominantly dry weather pattern that we've been in for much of this year continues. The US Drought Monitor, which can be found on the website for the Northeast Regional Climate Center (NRCC) – http://www.nrcc.cornell.edu/ - shows that most of the Finger Lakes is currently classified as 'Abnormally Dry' at this point. This has been beneficial from the standpoint of disease management, but may also present a bit of concern with regard to water stress if the situation continues, depending of course on individual site characteristics. It has not been quite as dry as the epic 2016 season, and vines are not currently exhibiting any outward signs of water stress. One of the potential impacts of a dry summer is a reduction in berry size. We saw this in 2016 when vines were under fairly significant water stress in many vineyards that summer. We also saw the opposite effect last year, when we ended up with larger berry size thanks to plenty of rain during the middle of the season.



Crop Estimation

The conditions of any given growing season can obviously impact not only the quality of the fruit at harvest, but also the final yield. Last year's high yields were the result of several factors coming together at once, including higher berry weight (more rain), normal to higher number of berries per cluster (good fruit set), and higher numbers of clusters per vine (minimal winter injury and high bud fruitfulness from conditions in 2016). These kinds of variables need to be taken into account when trying to come up with crop estimates.

Coming up with accurate crop estimates consistently is still one of the most challenging aspects of vineyard management in much of the world. The importance of it, and how difficult it can be to do well, was demonstrated last year when many vineyards in the Finger Lakes ended up carrying significantly heavier crops than growers were anticipating.

The final yield in a vineyard is the result of several components:

- Number of vines per acre
- Number of clusters per vine
- Number of berries per cluster, and
- The weight of the berries

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To get a good crop estimate, we need to be able to quantify all of these components as they each contribute to the overall weight of the crop. One method that some growers use is to count the number of clusters on a certain set of vines, get an average of clusters per vine, multiply by the number of vines per acre and then by an average cluster weight at harvest. Using average cluster weights at harvest certainly takes into account each of the components listed above, but if any of them are not 'average' in a given year, that will throw off the estimate. For example, if fruit set is poor that will mean the final cluster weight will likely be lower than average at harvest because there will be fewer berries on the clusters. So while this method can certainly get you in the ballpark, and is better than not doing any estimate at all, there is still a lot of room for error because it does not take into account the final two yield components of berries/cluster and the weight of the berries.

A better alternative would be to collect samples after fruit set (so the berries per cluster component is established) at a point in time when we can make an educated estimate of what the final berry weight will be. We know, for example, that Concord berries are 50% of their final weight at 30 days after bloom, so if you picked all of the clusters from a vine at that point and weighed them, you would multiply that weight by 2 to estimate what the final yield would have been from that vine. This method has been adapted in the Concord industry to be used in commercial vineyards using a harvester (check out the video by Terry Bates and the Lake Erie team on crop estimation in Concord vineyards).
So what about varieties other than Concord? I know of a couple of growers who will target a similar timing for sampling – 1200 growing degree days (which often falls somewhere in the neighborhood of 30 days after bloom, depending on year and variety) – and collect cluster samples from multiple vines in a block, weigh them and then do the math, assuming that the berries are around 50% of their final weight. There is still ample room for error using this method, but it can offer some more precision than just using cluster numbers per vine.

Another important aspect of estimation is how well the samples that are collected actually represent the variation in the vineyard. This is a whole other topic for another day, but it is just as important – if not moreso - as the data collection itself in coming up with good crop estimates.

Further reading:

"Predicting Harvest Yield in Juice and Wine Grape Vineyards", by Paolo Sabbatini, Imed Dami and Stan Howell. Michigan State Extension Bulletin 3186, November 2012. http://msue.anr.msu.edu/uploads/resources/pdfs/Predicting_Harvest_Yield_in_Juice_and_Wine_Grape_Vineyards_(E3186).pdf

Sultana (a.k.a. Thompson Seedless) grapes grown on a wooden pergola at the seminary where I stayed during my visit to Egypt this year. Most of the fruit was harvested by the time I arrived, but a few clusters were still hanging.

IPM

Hans Walter-Peterson

Disease management is a bit less of a challenge under these kinds of conditions, but we are still seeing instances of downy and powdery mildew infections in certain locations and varieties. Powdery mildew does not require rain or standing water to continue to reproduce and develop new infections – warm, humid conditions like we have been having over the past couple of weeks are favorable for further development of the disease. Downy mildew, on the other hand, produces its spores at night when humidity is very high (95%) and are then spread by wind to other tissue. The DM spores will cause new infections on that tissue if there is water present (this is why we want weather stations to monitor leaf wetness).

We are also at the point where the berries are developing 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.

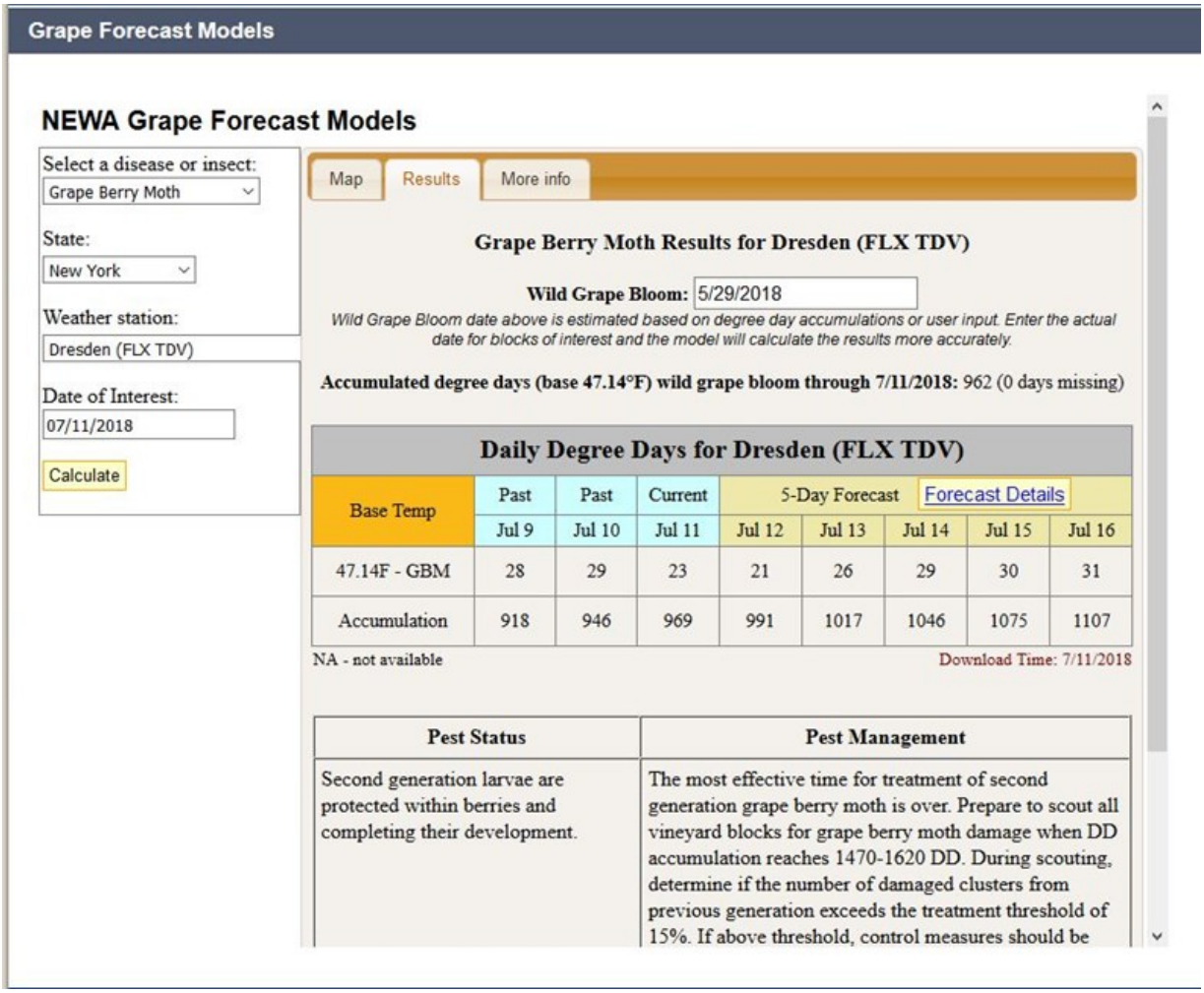
Remember that *none of this applies to the leaves and rachis tissue, which remain susceptible to infection throughout the growing season,* and which are often the sources of primary infections in the following season.

Grape Berry Moth

According to the GBM model on the NEWA site (http://newa.cornell.edu/index.php?page=grapediseases), most locations in the Finger Lakes are past the point where an insecticide application would be effective against the pest. Growers in Wayne County where degree day accumulation is slower are still within the window for treatment is scouting indicated the need for an application. The next window to begin scouting for damage from GBM will be at approximately 1470 degree days after the biofix date, which generally arrives sometime in early to mid-August.

IPM (continued from page 3)

NEWA Station	GDDs from GBM Model (as of July 11)
Dresden	969
Branchport	900
Lodi (Standing Stone)	1004
Romulus (Buttonwood Grove)	946
Williamson (Bear Swamp)	814



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 #6
Tuesday, July 24, 2018 *4:30 – 6:00 PM*
Smith Brothers Farm
9404 Ridge Rd., North Rose NY 14516

Our sixth Tailgate Meeting of the season will be held at Smith Brothers Farm in North Rose, Wayne County. Pesticide credits have been approved for each Tailgate Meeting this season. No registration required – just bring a chair and your questions and observations about what's going on in the vineyard.

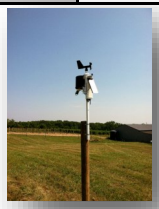
Respirator Fit Testing
July 16-17, 2018
Fulkerson Winery
5576 Route 14, Dundee NY
Anybody who still needs to have their respirator fit test completed can take advantage of this opportunity to do so at Fulkerson Winery. **Do not call the winery to make your appointment. Call NYCAMH at (607) 547-6023.**

2018 GDD & Precipitation

FLX Teaching & Demonstration Vineyard – Dresden, NY					
Date	**Hi Temp (F)**	**Lo Temp (F)**	**Rain (inches)**	**Daily GDDs**	**Total GDDs**
7/4/2018	90.4	63.5	0.00	27.0	1075.7
7/5/2018	88.4	70.4	0.00	29.4	1105.1
7/6/2018	77.1	60.1	0.17	18.6	1123.7
7/7/2018	78.5	51.6	0.00	15.1	1138.8
7/8/2018	85.9	57.3	0.00	21.6	1160.4
7/9/2018	88.9	62.1	0.00	25.5	1185.9
7/10/2018	87.4	64.0	0.00	25.7	1211.6
Weekly Total			**0.17”**	**162.8**	
Season Total			**7.58”**	**1211.6**	

GDDs as of July 10, 2017: 1166.7

Rainfall as of July 10, 2017: 13.29”



Seasonal Comparisons (at Geneva) as of July 10

Growing Degree Day

	2018 GDD [1]	Long-term Avg GDD [2]	Cumulative days ahead (+)/behind (-)
April	8.2	65.4	
May	416.3	251.9	
June	472.3	481.1	
July	249.4	199.7	
August			
September			
October			
TOTAL	1146.2	998.1	+3

[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.

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2018 GDD & Precipitation (continued from page 10)

Precipitation

	2018 Rain [4]	Long-term Avg Rain [5]	Monthly deviation from avg [6]
April	1.92”	2.87”	-0.93”
May	3.15”	3.13”	+0.02”
June	2.50”	3.62”	-1.12”
July	0.52”	3.45”	
August		3.14”	
September		3.57”	
October		3.37”	
TOTAL	8.09”	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)

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 supported, in part, by six county Cornell Cooperative Extensions Associations: Ontario, Seneca, Schuyler, Steuben, Wayne and Yates.

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