Veraison to Harvest

Statewide Vineyard Crop Development Update #3

September 16, 2016

Cornell University Cooperative Extension

Edited by Tim Martinson and Chris Gerling

Around New York...

Statewide *(Tim Martinson)*

Continuing warm weather last week accelerated the ripening process – and put maturity of many varieties ahead of last year at this time *(see fruit maturity table, pp. 6-10)*. The largest gains were in the 'Cold Hardy' varieties (Marquette, Frontenac, La Crescent). Soluble solids averaged 1.4 °Brix and were 1.0 °Brix ahead of last year. Titratable acidity dropped by 2.1 g/l – and was 1.6 g/l lower than last year at this time. Many will be harvested over the next week. Natives (Concord, Catawba, Niagara) and *vinifera* both gained an average of 1 °Brix in soluble solids and a large 1.8-2.0 g/l drop in titratable acidity (TA). They are 0.5-0.9 °Brix ahead of last year at this time. Hybrids (a mixed bag) showed smaller gains (+0.7 °Brix; -1.7 g/L), and have soluble solids levels comparable to last year, but with lower TA (-1.6 g/l on average) than 2015.

The upshot: Soluble solids are on a par with last year (or slightly ahead), but acids are dropping faster than last year – a probable consequence of the very warm August (including higher-than-average night time temperatures).

Late-season fruit rots seem to be a minor to nonexistent issue (which could change rapidly when the rain comes). In a Vignoles block this morning, although there were plenty of yellow jackets – and some bird pecks, to date there is no visible *botrytis* or sour rot. This bodes well for fruit quality as the harvest season shifts into high gear.

Featured this week is Cain Hickey's article *(pp. 4-5)* on their variable-rate shoot and cluster thinning project in Concrd grapes at the Cornell Lake Erie Research and Extension Laboratory (CLEREL). Cain is a postdoc with Terry Bates).

Long Island (*Alice Wise*)

Continued sunny, dry weather on Long Island has made for excellent ripening weather. Growers are patiently waiting for the signal to bring in fruit. Harvest of sparkling varieties has been underway for the past few weeks. The first grapes for table wine are coming in with varieties such as Sauvignon Blanc and Pinot Noir. Brix and acids are both moderate and fruit is flavorful. Interestingly, GDD accumulation is almost identical to that in 2015. Yet harvest in 2015 was earlier. Perhaps we were lulled into thinking that hot summers always mean early harvests. In contemplating the season's weather, both summers were very dry. As for temperature, one of the biggest differences was early in the growing season. It was cool for an extended period in May and early June in 2016. This means that heat accumulation was higher in July and August. The next few weeks should see a big spike in harvest of white varieties.

Merlot at Long Island Horticultural Research Center. *Alice Wise is using the technique of Pallisage, a canopy management practice where shoot tips are 'tucked' or wrapped around the top wire, as compared to shoot-tipping or 'hedging' (left), a standard VSP canopy management practice. The technique is being investigated by Dr. Justine Vanden Heuvel's research program.*

Photo by Alice Wise

Finger Lakes (*Hans Walter-Peterson*)

As of September 13, growing degree day (GDD) accumulation in the Finger Lakes reached the long-term average for the season of 2482 GDD units (April 1 – October 31). A big part of this reason was the fact that the region had the highest GDD accumulation in August this year since we started collecting this data in 1973. The accumulation of 743 GDDs this year was 26% higher than the long-term average of 588 for the month. While this is pretty early to hit this particular "milestone", it's not the earliest ever. In both 2010 and 2012, we reached the long-term average for heat accumulation about 1 week earlier than this year.

The Finger Lakes still sits in the heart of the area in New York that is classified as being under 'extreme drought' according to the U.S. Drought Monitor *(**see figure p. 10**)*. As of this week, Geneva has received just over 7" of rain since

April 1, which is about 60% below average for this time of year. Given the significant difference in precipitation between last year and this year, it's interesting to see how similar most of the basic chemistry numbers (Brix, pH and TA) are between the two years. As has been mentioned before, the lack of rain has been beneficial from the standpoint of low disease pressure, which has helped many growers reduce the number of sprays they had to apply this year, and has kept fruit clean up through this point. Still, some rain would be helpful in most cases.

The number of trucks carrying grape bins on the roads has jumped over the past week as wineries started bringing in some more of the earlier varieties from Finger Lakes vineyards. Constellation has been bringing in Catawba grapes early this year as source of acidity, which is quite a change considering some vineyards were dumping this variety on the ground in the recent past. Cayuga White has also been making its way to press pads this week as well. Tonnage for both of these varieties seems to be good based on a few reports we heard from growers this week. Grüner Veltliner, Marquette and our seedless table grapes (Jupiter and Marquis) were all harvested from our Teaching Vineyard last week. Given the results from this week's samples, I expect that Chardonnay will start to get picked over the next few days, if it hasn't started already.

Lake Erie (*Luke Haggerty)*

The Lake Erie region received between one and a half to three inches of rain over the past week. In response to the rain, there was a jump in berry size. However, there was very little change in sugar accumulation. In fact, sugars have slowed down so much that local processors have decided to push back harvest a week and or take in fewer grapes next week.

This week at CLEREL, we harvested our Vignoles, Delaware and one of our Niagara blocks. The warm and dry weather helped keep disease pressure down to a minimum and all of the harvested fruit was very clean. As expected, this year's yields were up compared to the winter damaged vines from last year.

Other parts of the region harvested Aurore, Elvira, Vignoles, Delaware and a few other hybrids. The harvest focus has now turned to the anticipated bulk juice grapes. The Niagara harvest started this past week filling the region's roadways with tractors, bin trailers, and harvesters. The anticipated Concord harvest is expected to begin early next week for growers bringing their grapes to National Grape's North East Location and Grower's Co-op. National Grape's Westfield location is expected to start taking in Concords on September 25th.

Hudson Valley and Champlain (*Jim O'Connell and Anna Wallis)*

Champlain. The hot weather this growing season has advanced maturity very quickly in the Champlain Valley. Degree day accumulations are much higher (over 100 DD higher) this year than the 30-year norm; heat accumulation is also higher this year than last year at time. As of Sept 13, the DD accumulation at Willsboro for 2016=2262.1, 2015=2249.5, 30 year avg=2145.0.

A very warm week following Labor Day accelerated berry ripening. Early white varieties (Leon Millot, La Crescent, Edelweiss) are ready for harvest with Brix >22 in many vineyards. Other varieties are right behind. At the Willsboro Farm this week La Crescent and Marquette were harvested. Cool weather this week will likely slow things down a bit. Fortunately, the rest

of this week we are finally supposed to getting some fall-like weather and things should slow down a bit. Nighttime temperatures will be in the 50s and highs below 70.

Weather has also continued to be very dry, meaning disease pressure has been low. Bird pressure is still being reported by many growers, now including wild turkeys. Yellow jackets and wasps are abundant in any place where there has been berry damage; they are attracted to the opened berries but not the primary cause of fruit damage.

Hudson Valley. Weather is on the minds of Hudson Valley growers this week. It's not just the rain predicted for Sunday and Monday that has many growers stepping up their harvest schedule, it's also the heat. Early in the season, the growers were happy to get a stretch of hot dry weather. The dryness helped to minimize disease pressure, while the heat pushed the grapes along. Now, however, the growers would like to "turn off" the heat and "turn on" some cooler weather. Many growers are finding high brix in their grapes, but the seeds are still immature. Speaking with a local grower recently, his DeChaunac, which is normally a mid-season grape is ready to harvest based on brix levels.

While on the topic of harvest, growers are steadily moving through their vineyards picking grapes. Near the Hudson Valley Research Lab in Highland NY, Pinot Noir and Marquette are scheduled to be picked by the end of the week, while Leon Millot was harvested this past Wednesday. Foch, La Crescent, and Leon Millot were harvested at the HVRL on Tuesday. Moving about 30-40 minutes north of the HVRL, growers harvested Marquette, Marechal Foch, and Baco Noir at the beginning of the week.

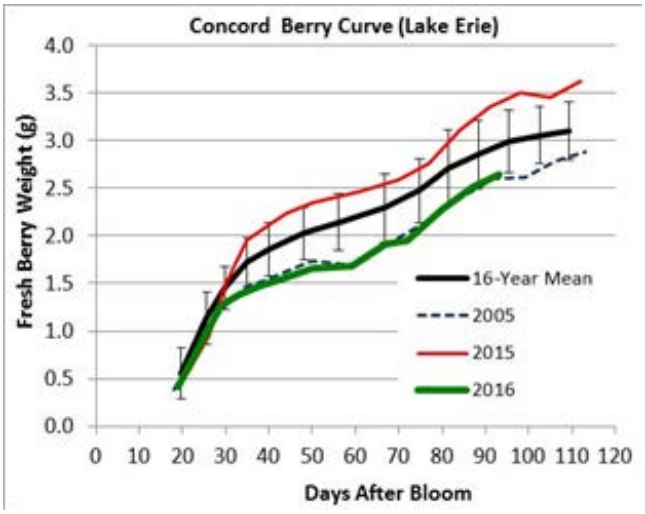
Across the region, those growing Seyval blanc are slated to begin harvest next week. Riesling and Cabernet Franc still have at least a couple of weeks before they are ready.

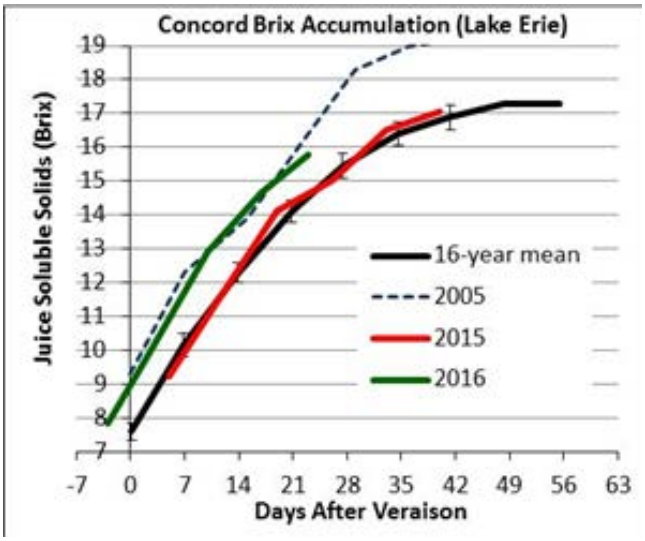
2016 Lake Erie Concord Update:
Terry Bates

September 16, 2016. Concord fresh berry weight and juice soluble solids continue to reflect the curves generated in 2005. Smaller than average berries and higher than average sugar concentrations are leading to an earlier harvest start with Concord harvest to begin next week.

Top: *Concord Berry Curve, with 2016 (green) 2015 (red) and 16-year average fresh berry weight.*

Bottom: *Juice Soluble Solids (Brix) accumulation curve.*





Precision Vineyard Management Project Seeks to Improve Concord Production Efficiency and Profitability.

Cain Hickey and Terry Bates

Note: The USDA Specialty Crops Research Initiative has funded The Efficient Vineyard Project, a nationwide project led by Terry Bates. Dr. Cain Hickey is a post-doctoral research associate hired to work on this new project, which seeks to apply precision agriculture techniques to manage vineyard variability to improve yields and quality.

The *Efficient Vineyard Project*. The Concord marketplace has not changed much in the last couple decades – profits are attenuated by stable crop prices as input costs continue to increase. The *Efficient Vineyard Project* seeks to increase profitability by way of reducing input costs, and improve ripening and crop production uniformity across vineyards.

The focus of the *Efficient Vineyard Project* is to develop and evaluate geospatially referenced management technologies to improve vineyard management efficiency, focusing on variation throughout vineyards. The project started by adapting off-the-shelf technologies, originally used in row crop production systems, to measure and map variations in vineyard canopy; these sensors are called normalized difference vegetative index (NDVI) sensors—and low NDVI equates to lower canopy size (see Fig. 1a). These measurements are then coupled with maps of soil electrical conductivity/magnetic susceptibility (See Fig. 1b). Together, these maps provide researchers and growers information on how vine growth patterns changed within a vineyard, and if this variation in vine growth was due to inherent factors (such as changes in soil type) as opposed to management factors (i.e. differential pruning).

In the very simplest sense, these maps could direct growers to "problem areas" of the vineyard (see red areas in Fig. 1a), perhaps to focus management in these areas for tasks such as vine renewal or more intensive nutrient or pruning management. Larger problem areas mean less actual production acreage, which means less income for the grower. The sooner the grower acts to manage these areas, the sooner they will see an increase in net returns.

Variable rates of crop and shoot thinning. The focus of the project has switched from canopy and soil sensing, to a more proactive approach of implementing

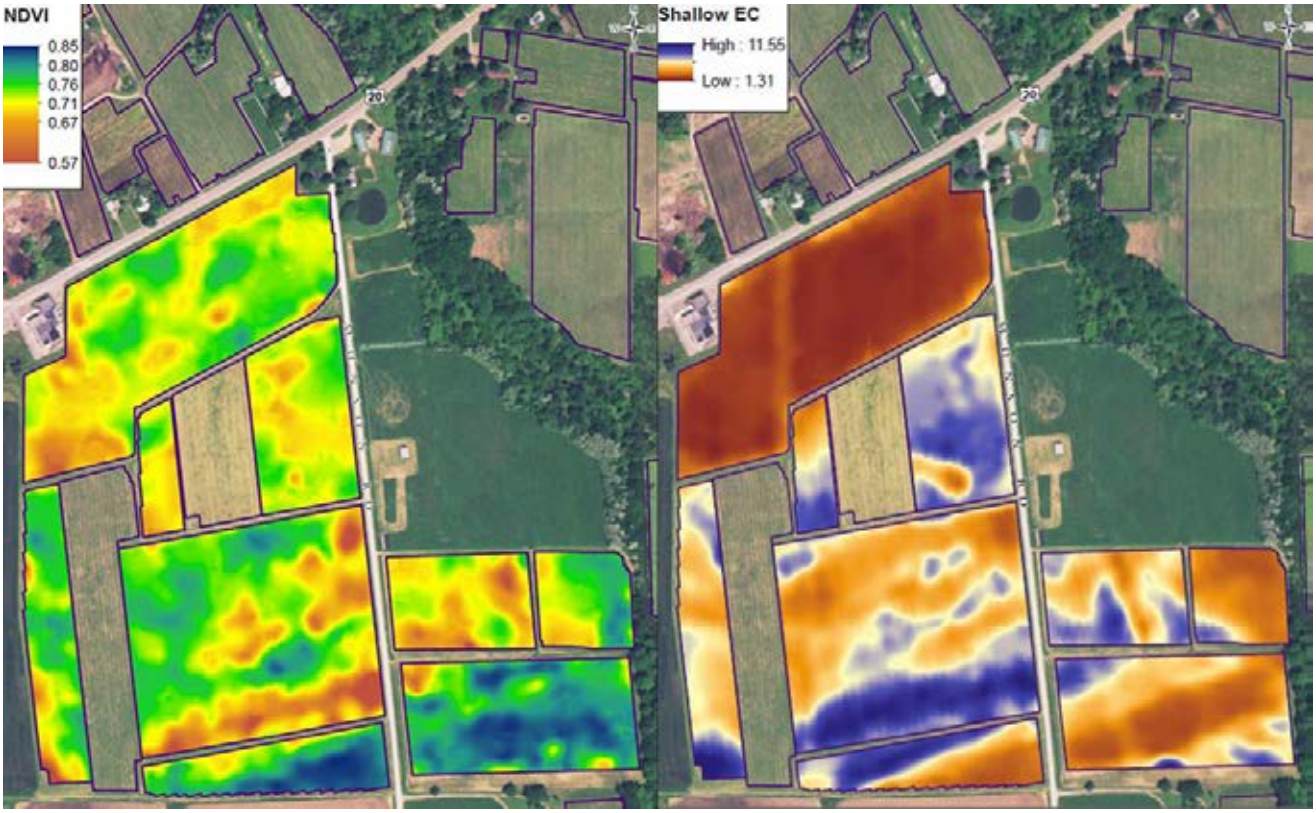


Figure 1. NDVI map (a, left) and shallow soil EC map of a Concord vineyard in the Lake Erie region (b, right).

Figure 2. *At left: An NDVI-derived management zone classification map highlights high (green) medium (purple) and low (red) vine size regions of a Concord vineyard in the Lake Erie region. Black bars indicate where fruit maturity sampling takes place. Right: Cain Hickey, CLEREL post-doctoral research associate, sampling berries (b, right).*

Photo by LERGP

variable rate management strategies to manage against inherent vineyard variation. Small pilot projects were started this summer to test the efficacy of GPS-driven variable rate crop load management via mechanical crop and shoot thinning. An NDVI map was used to make management classification zones based on vine size (see Fig. 2a for an example of three NDVI-based vine-size management classification zones).

In short, computer programs were used to geospatially change the rate at which crop and shoots were mechanically thinned throughout the management classification zones. Without any manual adjustment by the operator, relatively more crop or shoots were thinned as the tractor was driven into small-vine-regions, and vice-versa for large-vine regions. Our goal is to improve ripening uniformity and increase vine capacity by reducing crop load in parts of the vineyard with small vines. These vineyards have been monitored for differences in canopy development, and will continue to be evaluated for fruit maturation rate and dormant season cane pruning weight.

Fruit maturity sampling this fall. Recently, the Cornell Lake Erie Research Extension Laboratory (CLEREL) research team has been out taking weekly fruit maturity samples from vineyards that have been scanned with NDVI-canopy and soil sensors throughout the growing season. The eventual goal is to evaluate if and why fruit maturation rate (and, eventually, crop yield and pruning weight) is different between sensor-derived management zones (See Fig. 2a).

For now, we are interested in characterizing fruit maturity. Juice soluble solids samples taken in several vineyards within a 50-mile stretch of the Lake Erie Concord region ranged from 11.0 to 17.9 °Brix last week. The wide 6.9 °Brix range was likely a function of several factors, broadly encompassed by differences in vineyard site and management practices. However, our project is interested in characterizing and managing the variation within a vineyard.

Variable crop maturity within vineyards. Using the management zone classification map in Fig. 2 as an example, soluble solids concentration ranged 11.0 to 14.7 °Brix across the vineyard, and the mean value was 12.3 in the purple zone, 12.7 in the green zone, and 13.2 in the red zone. Berry weight ranged 1.27 to 2.85 grams, and the mean value was 2.2 in the purple zone, 2.5 in the green zone, and 1.5 in the red zone. Thus, the small-canopy vines in the red zone also have smaller berries, which may be partially responsible for the relatively greater juice soluble solids concentration in this compared to the two other zones. The red zone is likely under some soil water or nutrient stress, potentially due to physical limitation of root growth.

Since this vineyard is still in "diagnostic phase", the take home for now is that vine size, berry weight, and fruit maturity are different across NDVI and soil sensor-defined zones; crop yield and pruning weight will likely also be different. This means sensors are effective at characterizing vineyard variation. The next step is to work with the grower and develop a variable rate management plan to to either improve capacity and yield, and/or rate and uniformity of fruit maturation. Plans will begin to take shape over fall and winter, and be put into action by spring.

Fruit Composition Report - 9/12/2016

Samples reported here were collected on Monday, September 12. Where appropriate, sample data from 2015, averaged over all sites is included. Tables from 2014 are archived at http://grapesandwine.cals.cornell.edu/newsletters/veraison-harvest. Next samples will be collected on **Monday, September 19**.

Cabernet Franc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	E. Seneca	1.19	20.3	3.19	7.7	49
Finger Lakes	9/12/2016	W. Seneca	1.25	18.9	3.10	8.0	17
Finger Lakes	9/12/2016	Cayuga	1.26	18.9	3.20	7.3	78
Finger Lakes	9/12/2016	Dresden	1.27	19.9	3.25	5.8	74
Finger Lakes	9/12/2016	Wayne County	1.22	18.3	3.06	9.9	131
Finger Lakes	9/12/2016	Geneva	1.50	20.6	3.24	6.9	51
Finger Lakes	9/12/2016	Lansing	1.26	18.6	3.28	7.0	65
Hudson Valley	9/12/2016	HVRL Highland	1.39	18.5	3.49	7.1	230
Long Island	9/12/2016	LI-05	1.97	18.2	3.42	7.3	173
Long Island	9/12/2016	LI-09	1.82	15.9	3.48	8.2	221
Average	**9/12/2016**		**1.41**	**18.8**	**3.27**	**7.5**	**109**
Prev. Sample	*9/6/2016*		*1.21*	*17.4*	*3.06*	*10.1*	
'15 Average	*9/14/2015*		*1.45*	*18.3*	*3.22*	*8.0*	*53*

Catawba

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Cayuga	HARVEST				0
Finger Lakes		Keuka	1.98	15.1	2.87	12.3	56
Average	**9/12/2016**		**1.98**	**15.1**	**2.87**	**12.3**	**56**
Prev Sample	*9/6/2016*		*1.75*	*14.5*	*2.73*	*14.7*	
'15 Sample	*9/14/2015*	*Keuka*	*2.83*	*14.3*	*2.92*	*10.7*	*100*

Cayuga White

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Keuka	2.76	16.1	3.08	9.0	145
Finger Lakes	9/12/2016	Cayuga	HARVEST				0
Finger Lakes	9/12/2016	Dresden	2.16	17.8	3.19	6.3	176
Finger Lakes	9/12/2016	Ithaca	2.67	15.2	3.04	10.3	186
Average	**9/12/2016**		**2.53**	**16.4**	**3.10**	**8.5**	**127**
Prev Sample	*9/6/2016*		*2.23*	*16.1*	*3.04*	*9.7*	
'15 Average	*9/14/2015*		*3.02*	*18.7*	*3.25*	*8.5*	*175*

Chardonnay

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Cayuga	1.14	21.5	3.29	6.3	112
Finger Lakes	9/12/2016	W. Seneca	1.07	21.0	3.35	5.4	62
Finger Lakes	9/12/2016	Dresden	1.42	22.9	3.40	5.2	136
Finger Lakes	9/12/2016	Lansing	1.34	21.6	3.42	5.7	163
Long Island	9/12/2016	LI-03	1.94	19.0	3.44	7.7	231
Average	**9/12/2016**		**1.38**	**21.2**	**3.38**	**6.1**	**141**
Prev. Sample	*9/6/2016*		*1.25*	*20.5*	*3.20*	*7.5*	
'15 Average	*9/14/2015*		*1.64*	*19.2*	*3.21*	*8.4*	*85*

Concord

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Keuka	2.42	14.4	3.28	5.6	86
Finger Lakes	9/12/2016	W. Canandaigua	2.72	15.1	3.25	5.5	102
Lake Erie	9/12/2016	Portland	2.96	15.7	3.24	8.9	167
Lake Erie	9/12/2016	Fredonia	2.79	14.4	3.16	9.1	111
Average	**9/12/2016**		**2.72**	**14.9**	**3.23**	**7.3**	**117**
Prev Sample	*9/6/2016*		*2.69*	*14.2*	*3.11*	*8.5*	
'15 Sample	*9/14/2015*		*3.68*	*14.0*	*3.14*	*10.5*	*197*

Corot Noir

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Dresden	1.75	16.3	3.37	5.8	100
Prev Sample	*9/6/2016*	*Dresden*	*1.62*	*15.2*	*3.22*	*7.8*	
'15 Sample	*9/14/2015*	*Dresden*	*2.35*	*16.9*	*3.22*	*7.5*	*113*

Frontenac

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Champlain Valley	9/12/2016	Willsboro	1.54	21.4	2.94	17.3	290
Champlain Valley	9/12/2016	Morrisonville	1.45	21.8	3.01	16.7	165
Thousand Islands	9/12/2016	Clayton-Rake/LR	1.03	20.6	3.12	16.8	438
Thousand Islands	9/12/2016	Clayton-No Can Mgt	1.06	21.8	3.16	16.6	538
Thousand Islands	9/12/2016	Clayton/Canfield	0.81	17.5	3.15	16.3	317
Thousand Islands	9/12/2016	Clayton-VSP	1.08	21.9	3.18	16.7	505
Thousand Islands	9/12/2016	Clayton-UMB	1.10	22.4	3.18	17.0	431
Thousand Islands	9/12/2016	Clayton-TWC	1.14	24.1	3.19	16.5	512
Average	**9/12/2016**		**1.15**	**21.4**	**3.12**	**16.7**	**400**
Prev Sample	*9/6/2016*		*1.14*	*20.3*	*3.05*	*18.4*	
'15 Average	*9/14/2015*		*1.18*	*20.2*	*3.03*	*16.9*	

Frontenac Gris

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Champlain Valley	9/12/2016	Willsboro	1.42	21.5	3.00	16.0	276
Prev Sample	*9/6/2016*	*Willsboro*	*1.16*	*20.2*	*2.99*	*18.3*	
'15 Average	*9/14/2015*		*1.07*	*22.5*	*3.03*	*15.1*	

Gruner Veltliner

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes			HARVEST				
Final Sample	*9/6/2016*	*Dresden*	*1.37*	*19.6*	*3.23*	*6.0*	
'15 Final Sample	*9/8/2015*	*Dresden*	*1.76*	*19.2*	*3.23*	*5.7*	

La Crescent

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Champlain Valley	9/12/2016	Morrisonville	1.50	20.2	3.03	13.9	214
Finger Lakes	9/12/2016	Geneva	1.08	24.8	3.16	10.0	66
Thousand Islands	9/12/2016	Clayton	HARVEST				
Champlain Valley	9/12/2016	Willsboro	1.27	22.6	2.96	14.2	64
Finger Lakes	9/12/2016	Trumansburg	1.21	22.5	3.11	13.7	200
Average	**9/12/2016**		**1.26**	**22.5**	**3.07**	**13.0**	**136**
Prev. Sample	*9/6/2016*		*1.39*	*21.0*	*3.03*	*15.7*	
'15 Average	*9/14/2015*		*1.30*	*21.4*	*3.07*	*16.3*	

Lemberger

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Keuka	1.58	21.8	3.06	8.5	61
Finger Lakes	9/12/2016	Dresden	2.14	20.8	3.21	7.5	187
Average	**9/12/2016**		**1.86**	**21.3**	**3.14**	**8.0**	**124**
Prev. Average	*9/6/2016*		*1.85*	*20.5*	*3.04*	*8.8*	
'15 Sample	*9/14/2015*		*1.78*	*20.4*	*3.13*	*8.6*	*81*

Leon Millot

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Champlain Valley	9/12/2016	Morrisonville	1.45	16.8	3.16	11.7	110
Prev Sample	*9/6/2016*	*Morrisonville*	*1.28*	*16.5*	*3.13*	*18.4*	

Malbec

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Long Island	9/12/2016	LI-06	2.26	17.6	3.48	8.0	238
Prev Sample	*8/29/2016*	*LI-06*	*1.97*	*13.8*	*3.23*	*14.3*	
'15 Sample	*9/14/2015*	*LI-06*	*2.55*	*19.4*	*3.45*	*6.8*	*114*

Marquette

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Champlain Valley	9/12/2016	Willsboro	1.22	22.9	2.93	14.2	176
Champlain Valley	9/12/2016	Morrisonville	1.71	23.9	2.92	12.6	358
Finger Lakes	9/12/2016	Trumansburg	1.20	23.4	3.02	12.6	253
Finger Lakes	9/12/2016	Dresden 3309	1.03	25.0	3.29	9.4	240
Finger Lakes	9/12/2016	Dresden Own	0.96	23.6	3.32	8.6	231
Finger Lakes	9/12/2016	Ithaca	1.06	24.5	3.11	14.5	310
Lake Erie	9/12/2016	Fredonia	1.47	22.1	3.06	11.3	221
Thousand Islands	9/12/2016	Clayton-Rake/LR	1.03	24.8	3.13	12.6	318
Thousand Islands	9/12/2016	Clayton-No Can Mgt	1.04	24.4	3.13	12.8	346
Thousand Islands	9/12/2016	Clayton	1.07	23.6	3.17	11.8	323
Average	**9/12/2016**		**1.18**	**23.8**	**3.11**	**12.0**	**278**
Prev. Average	*9/6/2016*		*1.15*	*22.2*	*3.14*	*13.9*	
'15 Sample	*9/14/2015*		*1.35*	*21.3*	*3.06*	*13.7*	

Merlot

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Hudson Valley	9/12/2016	HVRL Highland	1.10	18.7	3.36	6.0	105
Long Island	9/12/2016	LI-04	2.13	18.7	3.59	6.0	191
Long Island	9/12/2016	LI-10	1.59	19.2	3.61	6.0	199
Average	**9/12/2016**		**1.61**	**18.9**	**3.52**	**6.0**	**165**
Prev Sample	*8.29/2016*		*1.57*	*16.4*	*3.39*	*7.9*	*137*
'15 Average	*9/14/2015*		*1.72*	*19.8*	*3.56*	*5.8*	*85*

Niagara

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Lake Erie	9/12/2016	Portland	3.38	16.3	3.18	5.2	77
Prev Sample	*9/6/2016*	*Portland*	*3.67*	*14.7*	*3.13*	*7.0*	
'15 Sample	*9/14/2015*		*4.07*	*15.2*	*3.18*	*8.3*	*114*

Noiret

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Wayne County	1.69	18.3	3.15	9.0	217
Hudson Valley	9/12/2016	HVRL Highland	1.78	18.4	3.43	9.2	284
Average	**9/12/2016**		**1.74**	**18.4**	**3.29**	**9.1**	**251**
Prev Sample	*9/6/2016*		*1.78*	*17.4*	*3.14*	*10.9*	
'15 Sample	*9/14/2015*		*1.73*	*17.7*	*3.13*	*10.1*	*156*

Pinot Noir

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	W. Cayuga	1.32	20.3	3.26	6.8	78
Finger Lakes	9/12/2016	W. Cayuga	1.14	19.2	3.36	5.7	140
Average	**9/12/2016**		**1.23**	**19.8**	**3.31**	**6.2**	**109**
Prev Sample	*9/6/2016*		*1.24*	*17.9*	*3.16*	*8.5*	
'15 Sample	*9/14/2015*	*E. Seneca*	*1.38*	*19.8*	*3.30*	*7.6*	*90*

Riesling

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	W. Seneca	1.00	18.4	2.96	10.6	111
Finger Lakes	9/12/2016	E. Seneca	1.42	17.4	3.03	11.8	208
Finger Lakes	9/12/2016	CL 90 Cayuga	1.35	18.3	2.99	10.3	70
Finger Lakes	9/12/2016	Keuka	1.07	18.4	2.94	11.1	54
Finger Lakes	9/12/2016	W. Seneca	1.13	17.7	2.89	11.8	94
Finger Lakes	9/12/2016	W. Canandaigua	1.22	17.2	2.86	13.0	99
Finger Lakes	9/12/2016	Dresden	1.22	18.7	2.99	9.0	154
Finger Lakes	9/12/2016	E. Seneca cl90	1.06	19.4	2.94	9.3	19
Finger Lakes	9/12/2016	E. Seneca cl239	1.03	19.9	3.01	8.6	35
Finger Lakes	9/12/2016	E. Seneca cl198	1.20	19.1	3.04	8.4	55
Finger Lakes	9/12/2016	Wayne County	1.41	17.8	2.97	12.6	144
Finger Lakes	9/12/2016	Geneva	1.63	18.5	3.10	10.5	110
Finger Lakes	9/12/2016	Lansing	1.24	18.5	3.12	8.5	125
Finger Lakes	9/12/2016	E Seneca	1.24	18.9	2.96	10.3	80
Hudson Valley	9/12/2016	HVRL Highland	1.33	16.4	3.23	10.2	295
Lake Erie	9/12/2016	Portland	1.70	18.5	3.12	8.4	127
Long Island	9/12/2016	LI-01	1.42	18.2	3.31	8.5	172
Average	**9/12/2016**		**1.27**	**18.3**	**3.03**	**10.2**	**115**
Prev Sample	*9/6/2016*		*1.21*	*17.4*	*2.89*	*13.0*	
'15 Sample	*9/14/2015*		*1.52*	*17.3*	*3.01*	*10.5*	*80*

Sauvignon Blanc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Long Island	9/12/2016	LI-02	1.35	19.8	3.44	9.0	244
Prev Sample	*8/29/2016*	*LI-02*	*1.04*	*14.5*	*3.31*	*12.9*	
'15 Sample	*9/14/2015*	*LI-02*	*1.43*	*20.0*	*3.29*	*6.7*	*65*

Seyval Blanc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2016	W. Cayuga	HARVEST				
Lake Erie	9/12/2016	Portland	1.69	18.8	3.14	8.6	157
Average	***9/12/2016***		**1.69**	**18.8**	**3.14**	**8.6**	**157**
Prev Sample	*9/6/2016*		*1.47*	*18.5*	*3.08*	*10.1*	
'15 Final Sample	*8/31/2015*		*1.63*	*14.9*	*2.98*	*12.1*	

St Croix

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Geneva	1.56	19.4	3.50	5.2	188
Prev Sample	*9/6/2016*	*Geneva*	*1.49*	*18.8*	*3.43*	*6.6*	
'15 Final Sample	*9/8/2015*	*Geneva*	*2.03*	*18.9*	*3.23*	*9.3*	

Traminette

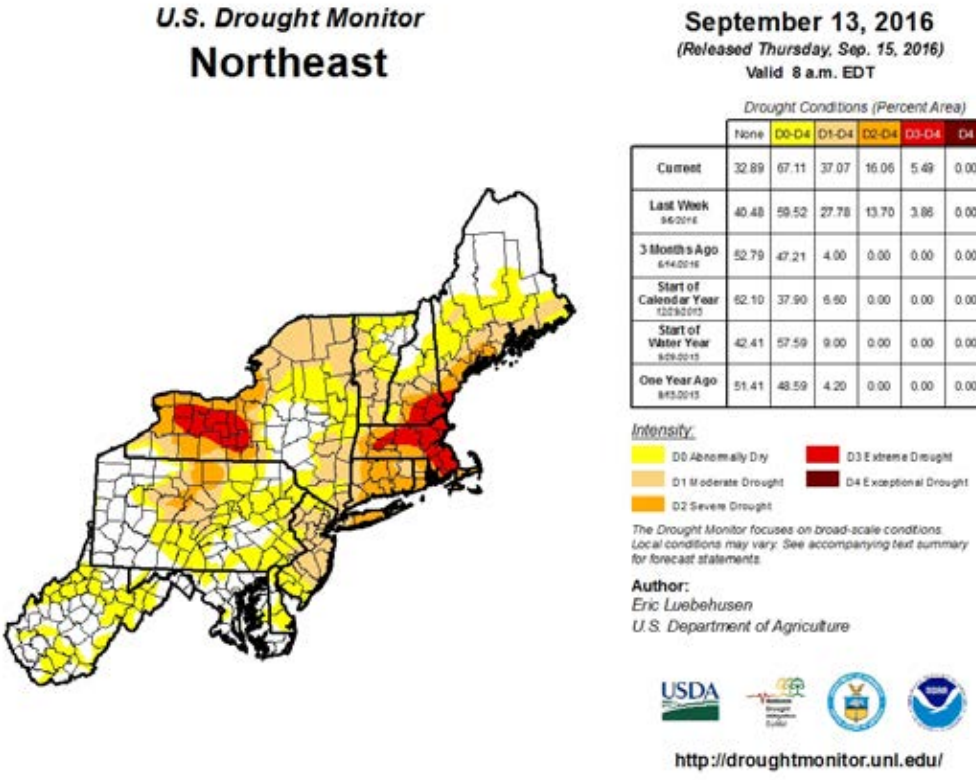
Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Keuka	1.65	18.8	2.93	11.1	145
Hudson Valley	9/12/2016	HVRL Highland	1.65	16.2	3.30	8.8	279
Average	**9/12/2016**		**1.65**	**17.5**	**3.12**	**9.9**	**212**
Prev Sample	*9/6/2016*		*1.71*	*18.0*	*3.01*	*11.8*	
'15 Sample	*9/14/2015*		*2.09*	*18.9*	*3.14*	*10.4*	*206*

Vidal Blanc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	Dresden	1.49	16.8	3.12	7.9	103
Prev Sample	*9/6/2016*	*Dresden*	*1.35*	*16.2*	*2.98*	*10.8*	
'15 Sample	*9/14/2015*	*Dresden*	*2.07*	*18.2*	*3.09*	*9.3*	*80*

Vignoles

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/12/2016	VSP Keuka	1.33	21.8	3.05	15.2	288
Finger Lakes	9/12/2016	W. Seneca	1.16	22.2	3.11	11.7	196
Average	**9/12/2016**		**1.25**	**22.0**	**3.08**	**13.4**	**242**
Prev Sample	*9/6/2016*		*1.38*	*20.7*	*2.93*	*13.9*	
'15 Sample	*9/14/2015*		*1.73*	*19.5*	*3.06*	*16.0*	*214*



The View from Glenora Farms to Sawmill Creek Vineyards

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