

VERAISON TO HARVEST

Statewide Vineyard Crop Development Update #7



Cornell University
Cooperative Extension

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Edited by Tim Martinson and Chris Gerling

Around New York...

Statewide (Tim Martinson).

With over half of the 60 blocks we have been sampling statewide harvested (see *Fruit Maturation Report*, p. 5-7), the 2011 season is nearing the end. Most white varieties have been harvested, with late-season reds soon to follow. While the numbers vary, in general soluble solids at harvest are about 1-3° brix lower than 2010, while acidity (TA) is about on a par with last year. It's a low brix, moderate acid year for wine grapes. Meanwhile, with Concord harvest continuing, brix levels are in the 16-17° range, and NY yield estimates (of which Concord is the main component) are estimated to be up 7% from last year's 176,000, to 188,000 tons.

Why lower brix and moderate acids? The answer must lie in part – as always – in the weather. It was a warm season, but with post-veraison weather dominated by overcast skies and heavy rainfall. Looking at growing degree-days (GDD) for the season and post-veraison (after Aug 15) over the last 3 years (Table 1), note that GDD this year tracked last-year's heat accumulations closely – a little lower as of August 15, and a little higher by Oct 14. In 2009 (higher acids, low brix), in contrast, GDD were 500 below 2010 and 2011 (both at August 15 and Oct 14).

Table 1. Growing degree-days at Geneva on August 15 and October 15 in 2009, 2010, and 2011.

Year	GDD Aug 15	GDD Oct 14	GDD Veraison to Harvest
2009	1500	2268	768
2010	2096	2796	700
2011	2004	2822	818

Interestingly, 2010's GDD from veraison to harvest were lower by 100 than this year's. I would speculate that the difference in sugar and acid composition in 2010 and 2011 may have been driven by differences in what makes sugars accumulate (sunlight and photosynthesis) and what makes acid levels drop (respiration). Berries metabolize acid – and that process is more dependent upon temperature than photosynthesis. Warm days and nights would increase the rate at which this process occurs. Sugar accumulation, in contrast, is driven by leaf activity, which is dependent upon sunlight. Overcast skies (pretty much a constant condition in the



Visit to Long Island. Top: (Left to right) Penn State extension viticulturist Mark Chien, Bedell vineyard manager Dave Thompson, and Rutgers viticulturist Gary Pavlis examine a Merlot vineyard. Bottom: Petit Verdot, a component of Bordeaux blends, is produced by several growers on Long Island. Rains, ample moisture, and possibly hurricane Irene have prompted some late-season regrowth (light green foliage) in some vineyards.

Photos by Tim Martinson

FL this September) would tend to limit photosynthesis (OK- ample water also might dilute what's there as well).

What does this mean for wines? My opinion is that we'll see lower alcohol levels (simple arithmetic), but in otherwise mature grapes with good maturity levels and lack of unripe flavors that we sometimes get in cool, wet years like 2009.

Finally, there have been no frosts so far - and leaves are still functional. That bodes well for winter acclimation.

Long Island (*Alice Wise and Libby Tarleton*).

The weather cooperated the first half of the week, allowing vineyard managers to start pulling off a few reds ahead of the rains. This included blocks of Merlot, Cabernet Franc and Syrah. It wasn't so much that fruit was on shaky ground but rather a decision based on the fact that physiological maturity was just about there. Growers had to ask themselves if leaving certain blocks out through the next week would offer any benefits. It is hard to characterize fruit this year but in general Brix are moderate, acids are relatively low and pH's are moderate to high. That said, there are plenty of exceptions depending on variety, crop level, condition of the fruit, diligence in the vineyard and so on. In our research vineyard, the best tasting of the reds has been Merlot, hands down, followed by Cabernet Franc. Cabernet Sauvignon of course takes a bit longer to come around and Lemberger we find to be a little green until right before harvest. It will be interesting to see if we can harvest any Lemberger or CS as the local wildlife seem to like reds quite a lot. The more we pick, the higher the pressure on anything still hanging. Having a small, exposed, relatively isolated (from other vineyards) block has its advantages and disadvantages.

Finger Lakes (*Hans Walter-Peterson*)

We are now starting to enter the home stretch of the 2011 growing season. The last of the Riesling vineyards will probably be picked in the next few days, especially given the return of some cool, wet days for the rest of this week. Red hybrids Corot noir and Noiret have been picked over the past several days, and late season reds like Merlot and Cabernet Franc are being harvested as well. We'll be seeing a lot more of them start to come off the vines over the next week or so, as growers try to balance the desire to squeeze every last bit out of the season but wanting to pick clean fruit as well. A few wineries have finished picking as of this week, and I suspect that more will be wrapping things up in the next several days as well.

Yields are up in a couple of ways this season. As has been mentioned before, we were anticipating that crop yields would generally be higher than normal this year across varieties, and this has borne itself out in many circumstances. It has not been unusual to hear about native and bulk hybrid varieties yielding 10 tons/acre or more, while still having adequate sugar levels to meet processor and winery

standards - really good news for many of these growers this year. *Vinifera* yields have also been higher this year as well. But in addition to crop yields being higher, the grapes are yielding more gallons of juice per ton of grapes than usual, giving credence to the notion that the grapes are full of water/juice this year.

Lake Erie (*Jodi Creasap Gee*).

The Concord harvest continues with growers scrambling to pick fruit before it drops to the ground. One grower reported losing almost 1.5 tons to shelling before getting his vineyard picked, but he was just grateful to get it in. Berry weights have increased a little, which is likely due to the rain, and berries continue to split, which is definitely due to the rain. By all reports from around the belt, harvest should be finishing up by the end of October, beginning of November. Concord, Noiret, Corot Noir, and Riesling were all harvested this week, leaving only Cabernet Franc to be harvested next week from the Lake Erie Region.

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CORRECTED LAKE ERIE BERRY WEIGHTS

Jodi Creasap Gee

Lake Erie fruit samples reported in *Veraison to Harvest* were also sampled for our hybrid berry growth curve project (see article in [Veraison to Harvest #4](#)). Calculated berry weights in *Veraison to Harvest* were based on a different berry count than what the samples actually contained, and thus over-estimated actual berry weight. Below are the corrected berry weights (and brix, diameter) from vineyards sampled for both the berry curve project and *Veraison to Harvest*.

Date	Variety	Location	Days After Bloom	Berry Weight (g)	Berry Diam. (mm)	°Brix 2011
9/29/2011	Concord	Portland	110	3.0	10.0	17.8
	Riesling	Fredonia	104	1.9	14.2	16.6
	Traminette	Fredonia	104	1.9	13.0	22.1
	Corot Noir	Ripley	104	2.2	14.1	16.5
	Noiret	Ripley	104	1.7	12.7	19.6
	Vidal blanc	Forestville	103	2.1	14.9	16.6
10/6/2011	Concord	Portland	117	2.8	16.2	17.5
	Riesling	Fredonia	111	1.7	14.0	16.9
	Traminette	Fredonia	111	2.1	14.6	22.5
	Corot Noir	Ripley	111	2.3	15.1	16.6
	Noiret	Ripley	111	1.7	14.2	19.8
	Vidal blanc	Forestville	110	2.1	15.6	15.1
10/13/2011	Concord	Portland	124	3.16	17.2	18.5
	Riesling	Fredonia	118	1.70	12.6	17.5
	Corot Noir	Ripley	118	2.35	15.4	17.6
	Noiret	Ripley	118	1.86	14.4	20.6

SPRAY RESIDUE: HOW LATE IS TOO LATE?

Chris Gerling, Hans Walter-Peterson, and Misha Kwasniewski

I don't think I need to say again that the late season has been climatically difficult. Keeping disease at bay has required equal (and large) amounts of skill and luck. Winemakers are justifiably skittish when they see grapes with significant amounts of rot, but they can also get nervous when they hear that yet another spray is going on so close to harvest. What is a conscientious grower to do? Recently we have begun a couple of projects to try and see how late-season sprays affect—or do not affect—the final product.

Every material has a pre-harvest interval (PHI) dictating the time before harvest in which it is safe to spray. This PHI has been determined to protect the safety of those who are handling, harvesting, or consuming the fruit. The problem is that we sometimes neglect to consider the smaller, microbial workers who will help carry out fermentation—or maybe we don't. We need more data. On our first podcast (oh- that reminds me, we have a podcast: <http://blogs.cornell.edu/presspad>), Wayne Wilcox discussed how the PHIs are determined, and also noted that they tend to be much longer in Europe (by weeks in some cases). His hypothesis is that the difference has to do with fermentations rather than a different human health standard.

Fungicides, as it is not too hard to imagine upon hearing the name, are designed to inhibit or kill fungi. The target organisms are vineyard pests like powdery mildew or *botrytis*, but there is another member of the kingdom Fungi who we are less eager to inhibit- yeast. Yeast are everywhere, and everywhere includes on grapes out in the field. The yeast in the vineyard will not necessarily be missed in the winery, however, since new inoculum will be added there, and even winemakers who rely on spontaneous fermentation are most likely using yeast populations that inhabit the cellar as opposed to the vineyard. The concern is residual anti-fungal activity in the fermenter.

Sulfur is a good candidate for winemaker concern because its role in off-aromas is well-known, if not completely understood. There is an entire category of what are called “sulfur-like off aromas” that strike fear into the noses of wine-smellers. Combining these concerns with sulfur's persistence (it is not particularly water-soluble) on leaves and clusters—a feature which helps

its efficacy in the vineyard—and we can start to imagine why there might be a problem. Last year we wrote about a new, simple test for sulfur in *Veraison to Harvest* #7: (<http://grapesandwine.cals.cornell.edu/cals/grape-sandwine/veraison-to-harvest/upload/Veraison-to-Harvest-2010-7.pdf>). The article talked about a method for sulfur residue analysis that was in development stages at the time. This year the method is ready for broader industry trials. Contact Gavin Sacks at gls9@cornell.edu for more details.

The other trial is fairly straightforward. We have some white grapes and some red grapes that we have sprayed with three different “modern” fungicides at the PHI for each and then harvested as soon as allowable. We will look for residues in the juice before and after settling and then in the wine. We will keep track of fermentation durations and any other signs of stress.

The red grapes will let us see the effect of skin contact throughout fermentation and also any potential impact on the bacteria that carry out malolactic fermentation. We also plan some controlled sensory evaluations to see if there are any detectable changes in aromatics. We have gotten feedback from industry and researchers about when and how to apply the spray material, but we decided to stick to the most rigorous scenario that could actually happen legally in a commercial situation.

While late season sprays are a fairly regular necessity in the East, the past few years have seen a marked increase in rot-inducing conditions on the other side of the Rockies. Places that have not necessarily even needed to *start* spraying previously are now also dealing with the question of when to stop. As a result, we may not be the only group setting up trials like this in the coming years. The data should be coming soon, and we hope we'll get some useful guidance for those who must find lesser evils. Global weather seems to be growing more unpredictable as time passes, and, for better or worse, lots of people in lots of parts of the world are starting to see what it's like to be a farmer in New York.



Graduate student Misha Kwasniewski using test kit to analyze sulfur residues in wine.

FRUIT MATURATION REPORT - 10/14/2011

Samples reported here were collected on **Monday & Tuesday, October 10-11**. Please note: Previous sample averages reflect **only** samples from the limited set we sampled last week. Where appropriate, sample data from 2010, averaged over all sites is included. Tables from 2010 are archived at <http://grapesandwine.cals.cornell.edu/cals/grapesandwine/veraison-to-harvest/2010.cfm>.

We are again reporting berry weight, brix, titratable acidity and pH, and yeast assimilable nitrogen (YAN), as part of a joint project with Anna Katharine Mansfield and Lailiang Cheng. Graduate student Mark Nisbet is running the YAN assays as part of his Ph D project, and other students from the Enology lab are running samples. - TEM

Cabernet Franc

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	W Seneca	1.28	21.7	3.25	6.7	26
Finger Lakes	10/10/2011	W Cayuga	1.52	21.2	3.46	5.0	45
Hudson Valley	10/10/2011	HV Lab	1.59	18.0	3.62	6.5	184
Lake Erie	10/11/2011	Portland	1.48	19.9	3.26	9.4	152
Average	10/11/2011		1.47	20.2	3.40	6.9	102
Prev Sample	10/4/2011		1.74	19.4	3.37	7.1	103
'10 Average	10/11/2010		1.54	22.3	3.39	6.7	75

Catawba

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	W Cayuga	2.52	18.7	3.10	10.4	111
Prev Sample	10/3/2011	W Cayuga	2.60	18.2	3.02	10.3	92
'10 Sample	10/4/2010	W Cayuga	2.35	19.1	3.32	8.5	162

Cayuga White

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/20/2011	W Keuka	HARVEST				
Finger Lakes	9/20/2011	W Cayuga	HARVEST				
Final Sample	9/20/2011		2.55	16.5	3.12	8.3	168
'10 Sample	8/30/10	Final sample	2.91	15.4	3.3	12.1	201

Chardonnay

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	W Seneca	HARVEST				
Finger Lakes	10/3/2011	W Cayuga	HARVEST				
Hudson Valley	10/10/2011	HV Lab	1.48	18.2	3.68	7.2	352
Hudson Valley	10/10/2011	Hudson Valley	1.61	21.1	3.58	6.2	281
Long Island	10/10/2011	N Fork South	HARVEST				
Average	10/11/2011		1.54	19.7	3.63	6.7	316
Prev Sample	10/3/2011		1.65	19.3	3.56	6.7	206
'10 Average	9/13/2010	Final sample	1.42	21.6	3.59	6.8	246

Chenin blanc

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Long Island	9/28/2011	North Fork North	HARVEST				
Final Sample	9/28/2011	North Fork North	2.20	15.2	3.20	10.0	93

Concord

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	W Keuka	2.87	17.3	3.31	8.2	234
Lake Erie	10/10/2011	Portland	3.16	18.8	3.37	8.2	275
Average	10/11/2011		3.02	18.1	3.34	8.2	254
Prev Sample	10/3/2011		3.41	17.4	3.34	7.9	199
'10 Sample	9/27/2010	Final sample	3.22	17.1	3.61	6.6	157

Lemberger

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	E Keuka	1.62	22.7	3.25	5.9	37
Finger Lakes	10/10/2011	W Seneca	HARVEST				
Average	10/10/2011	No Average Calc.					
Previous Sample	10/3/2011		1.63	20.8	3.27	5.7	79
'10 Sample	9/27/2010	Final Sample	2.30	21.8	3.35	7.6	70

Malbec

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Long Island	10/10/2011	N Fork North	1.84	19.4	3.82	8.2	279
Prev Sample	10/3/2011	North Fork South	2.18	18.7	3.89	7.2	278

Merlot

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Hudson Valley	10/10/2011	HV Lab	1.62	17.2	3.69	5.8	252
Long Island	10/10/2011	North Fork North	1.89	19.3	3.84	5.4	160
Average	10/10/2011		1.75	18.3	3.77	5.6	206
Prev Sample	10/3/2011		1.72	17.2	3.81	6.0	190
'10 Sample	10/4/2010	(no 10/10/2010 sample)	1.76	20.8	3.85	5.0	128

Niagara

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Lake Erie			HARVEST				
Final Sample	9/20/2011	Portland	4.40	16.0	3.21	7.9	172

Noiret

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Hudson Valley	10/10/2011	HV Lab	1.64	18.2	3.53	7.5	312
Hudson Valley	10/10/2011	W.HV	HARVEST				
Lake Erie	10/10/2011	Ripley	1.86	20.4	3.22	8.0	205
Average	10/11/2011		1.75	19.3	3.38	7.8	259
Prev Sample	10/3/2011		1.97	18.0	3.37	7.7	202
'10 Average	10/4/2010	(no 10/10/2010 sample)	1.85	19.6	3.6	6.1	111

Pinot Noir

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/3/2011	E Seneca	HARVEST				
Hudson Valley	10/3/2011	HV Lab	HARVEST				
Hudson Valley	10/10/2011	Hudson Valley	1.53	21.3	3.81	8.0	408
Average		No average calculated (One vineyard only)					
Prev Sample	10/3/2011		1.43	20.0	3.85	9.5	356
Prev Sample	9/27/2011		1.72	18.7	3.68	7.6	311
'10 Average	9/20/2010	Final Sample	1.44	23.6	3.95	7.0	266

Riesling

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	E Seneca	1.45	18.2	3.03	8.3	34
Finger Lakes	10/10/2011	E Seneca	HARVEST				
Finger Lakes	10/10/2011	W Seneca - LR/ST	1.45	19.2	3.08	7.4	51
Finger Lakes	10/10/2011	W Seneca - NLR/NST	1.31	20.1	3.16	7.7	27
Finger Lakes	10/10/2011	E Seneca-shoot thin	HARVEST				
Finger Lakes	10/10/2011	E Seneca - no thin	HARVEST				
Finger Lakes	10/10/2011	W Cayuga	HARVEST				
Hudson Valley	10/10/2011	HV Lab	1.67	14.6	3.40	7.2	179
Lake Erie	10/10/2011	Fredonia	1.70	16.1	3.17	9.4	250
Long Island	10/10/2011	Long Island					
Average	10/11/2011	(some blocks harvested)	1.52	17.6	3.17	8.0	108
Prev Sample	10/3/2011		1.69	17.7	3.09	8.4	78
'10 Average	10/4/2010	Final sample	1.57	18.6	3.29	8.3	98

Sauvignon Blanc

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Long Island			HARVEST				
Final Sample	9/20/2011	North Fork North	1.64	18.7	3.44	7.1	170
'10 Sample	9/08/2010	Final Sample	1.84	19.8	3.64	8.0	242

Seyval Blanc

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/13/2011	W Cayuga	HARVEST				
Hudson Valley	9/26/2011	Hudson Valley Lab	HARVEST				
Hudson Valley	9/13/2011	W HV	HARVEST				
Average							
Prev Sample	9/20/2011	(only 1 block)	1.76	18.4	3.29	7.2	136
'10 Average	8/30/2010	Final Sample	1.64	18.3	3.46	9.3	170

Traminette

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/10/2011	W Keuka	HARVEST				
Finger Lakes	10/10/2011	W Seneca	HARVEST				
Hudson Valley	10/10/2011	HV Lab	1.65	16.8	3.41	7.3	120
Hudson Valley	10/10/2011	W HV	HARVEST				
Finger Lakes	10/10/2011	W Keuka	HARVEST				
Average		No Ave. calculated					
Prev. HV Lab	10/3/2011		1.83	17.0	3.42	7.3	151
Final Average	10/3/2011		1.87	19.4	3.15	8.2	115
'10 Average	10/4/2010		1.68	20.5	3.31	8.3	137

Vignoles

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/20/2011	W Keuka-VSP, Shoot thin	HARVEST				
Finger Lakes	9/20/2011	W keuka-VSP, No Thin	HARVEST				
Finger Lakes	9/20/2011	W keuka-high wire ST	HARVEST				
Finger Lakes	9/20/2011	W keuka-high wire NST	HARVEST				
Final Sample	9/20/2011		1.42	22.4	3.09	11.7	149
'10 Average	9/20/2010		1.65	23.2	2.19	13.3	231

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Hudson Valley (Steven McKay & Steve Hoying).

Wet, cool weather has continued to prevail in the Hudson Valley for the past week. Drier weather with warmer days is predicted for the weekend. It is hoped that brix readings may rise without having added problems with additional rot developing. Most vineyards were hard pressed to see even a degree rise in brix this week. Quality of foliage is not as good as in past years, and vines seem to be a bit slower in hardening off this year. The first frosts are predicted for Thursday in the early hours.

Sour rot damage has been extensive in the Hudson Valley this season and coupled with split berries and the insects that follow, clusters in many sites seem to “melt” off the vine as they ripen. Whitestone Vineyard is hoping to harvest Noiret next week, and the last variety they have hanging is Cabernet Franc. At the Hudson Valley Lab, Sauvignon Blanc and Traminette are in line to be picked next.



Merlot (top) and Chardonnay from Long Island.

Photo by Tim Martinson



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