Veraison to Harvest

Statewide Vineyard Crop Development Update #2

Cornell University Cooperative Extension

September 9, 2011

Edited by Tim Martinson and Chris Gerling

Around New York...

Statewide *(Tim Martinson).*

Vineyards across NY continued to be pelted with excess rainfall in the Hudson Valley and Finger Lakes (2 to 4 inches last week), with lesser amounts on Long Island and western parts of the state. While fruit development numbers (pp. 5-7) are in general advanced compared to long-term averages, they are behind last year's extremely early pace of ripening – and different cultivars are responding differently. Numbers on early to midseason varieties (Seyval, Cayuga White, Chardonnay) are closer to last year's values, while late season cultivars (Merlot, Noiret, Pinot noir, and Riesling) are showing higher TAs (1-3 g/l higher) and lower brix (2-3 degrees) than in 2010. Last year our average at this time for Riesling was an uncharacteristic (and almost harvestable) 9.9 g/l titratable acidity, and 18.0 brix. Wet growing conditions have spawned significant berry splitting, botrytis, and some sour rot in susceptible varieties.

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

Sparkling wine varieties will start in the next few days. Growers are relieved to begin harvest after a long, hot, challenging season. In the research vineyard, young vines with light crops are just about ready including Auxerrois, Gruner Veltliner and Albariño. Tasting Auxerrois fruit yesterday, the acid has completely dropped out. The birds like it too. Birds have become persistent and have targeted sections of the vineyard with riper fruit. Nets discourage birds but do not prevent losses.

Some cluster rot is evident, likely from the combination of the tropical storm followed by 3 days of rain this past week. In the research vineyard, Chardonnay and Gewurz surprisingly have relatively low levels, Sauvignon Blanc has a bit of both Botrytis and sour rot while Pinot Noir and Pinot Gris seem to be suffering the most. The combination of advanced ripeness, thin skins and tight clusters render these varieties more vulnerable when conditions are favorable. The predicted warm sunny dry weather will help out a lot

Finger Lakes (*Hans Walter-Peterson*)

The region will be drying out over the next several days after the remnants of Tropical Storm Lee dumped anywhere from 2-4" of rain on us. Lighter rainfall totals were focused in the northern and western portions of the Finger Lakes (e.g., Geneva and Branchport), with more rain falling the further south you went.

Marquette harvested Aug 28 from the research vineyard at the Long Island Horticultural Research and Extension Center, Riverhead, NY, two days before Hurricane Irene, 21.4 Brix, 15 g/l TA (high acids are apparently typical) and 3.15 pH. While another 7-10 days would have been nice, this fruit was beginning to break down and would not have done well through a storm.

Photo by Alice Wise

The major challenge that such heavy rains brings at this time of year is berries starting to split because of high water uptake. Growers need to be watchful for new infections of Botrytis and sour rot coming into fruit that has been looking very healthy up until now. Hopefully, some judicious Botrytis sprays will keep things that way.

But harvest pushes on anyway. Most of the focus remains on earlier native and hybrid varieties like Baco, Diamond, Niagara and some early Concords as well. Some vinifera blocks for sparkling wine will probably be picked in the next few days as well. While harvest is not as advanced as last year was, most varieties are being picked about a week or more earlier than usual.

Lake Erie (*Jodi Creasap Gee).*

A few rain showers made their way through the Lake Erie Region this week, and aside from a few coastal flood warnings, most vineyards are in good shape. Berry splitting was common in our samples this week, likely due to the wet weather during collections. I have seen a few vineyards with downy mildew on the leaves; however, most clusters are intact and relatively clean so far, aside

from a few with powdery mildew. Hybrids continue to be harvested daily, and the larger processors have announced dates for opening plants for Niagara first, followed by Concord. The favorable weather during the first two weeks after veraíson helped with sugar accumulation, and, provided the next several days stay drier than is currently forecasted, Brix accumulation across the region should not be much of a problem in the next couple of weeks. The Niagara County grape region has been much drier than the rest of the region, accumulating no rain in July and only a few inches in August and September. Some growers report a few signs of drought stress, but overall, the crop appears to be in fairly good shape and average size.

In non-grape news, the hops at CLEREL were harvested on Friday, September 9.

Hudson Valley (*Steven McKay & Steve Hoying*).

Excessive water continues to be the big problem in the Hudson Valley. The second tropical storm dumped additional water which kept some farmland and buildings flooded. The flooding problems have been worse in Ulster, Dutchess, and Orange Counties than in Columbia County. At the Hudson Valley lab, Merlot and Foch have been harvested and Seyval is ready. Whitecliff Vineyards reported harvesting Cayuga White in fairly good condition with about 3-4% rot losses.

Heavy rainfall and saturated soils has lead to berry splitting in some vineyards

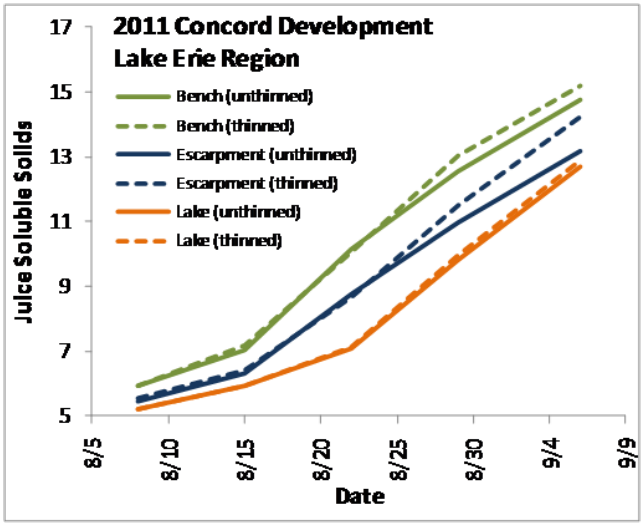
Photo by Hans Walter-Peterson

Vignoles has a more extensive *botrytis* problem. Seyval is being picked since it is ripe, and like Traminette, it lacks flavor due to all the water. Chardonnay and Pinot Noir will be harvested soon for making sparkling wine. Growers feel that if it dries out, some of the later varieties may still be able to develop flavor. Currently flavor development has been a disappointment.

Lake Erie Concord Ripening Profile

Terry Bates
Cornell Lake Erie Research and Extension Laboratory

Nine Concord vineyard sites were selected across the NY-PA Lake Erie Production Region with three sites along the Lake Erie shoreline (Lake Zone – Rt. 5), three along the Route 20 gravel bench (Bench Zone), and three along the escarpment with elevations above 900 feet (Escarpment Zone). Three crop loads were established at each site either through fruit thinning or pruning and weekly fruit samples are collected at each site and crop level. On September 6th, juice soluble solids ranged from 12.5 oBrix in Lake Zone vineyards to 15.2 oBrix in Bench Zone vineyards. As we get later into the ripening season, we are also starting to measure the effect of crop level on juice soluble solids accumulation. The dashed lines with higher oBrix represent vines with lower crop size (and we will know exact yield levels at harvest).



Early YAN Measurements to Plan Nutrient Additions

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Winemakers – particularly at small wineries – often lack the resources and equipment to measure Yeast Assimilable Nitrogen (YAN) at harvest to plan nutrient additions. Sending samples taken at harvest to a service lab and waiting for results during the busy crush season can be equally inconvenient. Results from our first year of a three-year YAN project suggest that YAN at harvest can be predicted by samples collected two to three weeks before harvest – allowing winemakers to plan ahead based on early sample analysis results.

Importance of YAN. Nitrogen is a major macro-nutrient required by yeast for a successful fermentation. It is basically impossible to predict or estimate the amount of nitrogen in juice or must from standard fruit maturity indices (brix, pH, TA). A measurement of amino acids (minus those the yeast can't use) plus ammonia adds up to the yeast assimilable nitrogen (YAN) figure, from which plans can be made to supplement nitrogen (through additions of DAP or complex yeast nutrients such as Fermaid). A complete discussion of FAQs about YAN appeared in Veraison to Harvest 2010 #6.

Results from 2010. Last year we began a study in Riesling grapes to see if yeast assimilable nitrogen (YAN) could be predicted two weeks prior to harvest. Our early results were promising. Using data collected from 77 sites around New York State, we saw a strong correlation between YAN at harvest and the pre-harvest values. In 2010, we found that YAN in Riesling generally decreased during the two weeks prior to harvest (**Figure 1**).

This information can be helpful information for wine makers for two reasons:

1. The average Harvest YAN for Riesling grapes was 91 mg/L – well below the recommended minimum concentration of 140 mg/L. These results suggest a need for supplementation in most samples. (See *Project Focus: Improving management options forYAN in the vineyard and winery* in last year's *Veraison to Harvest #6.*

2. A sample taken two weeks before harvest can provide a pretty good estimate of final YAN. These estimates can be used to develop a plan for YAN supplementation.

Example: If a sample taken 2 weeks prior to harvest has a YAN of 100 mg/L, the harvest concentration will likely be about 89 mg/L. With this information a winemaker could develop a supplementation plan and know she would need to make additions in the 50-100 mg/L range. Keep in mind that this was the first year of a 3 year study and we are continuing to sample YAN in Riesling this year.

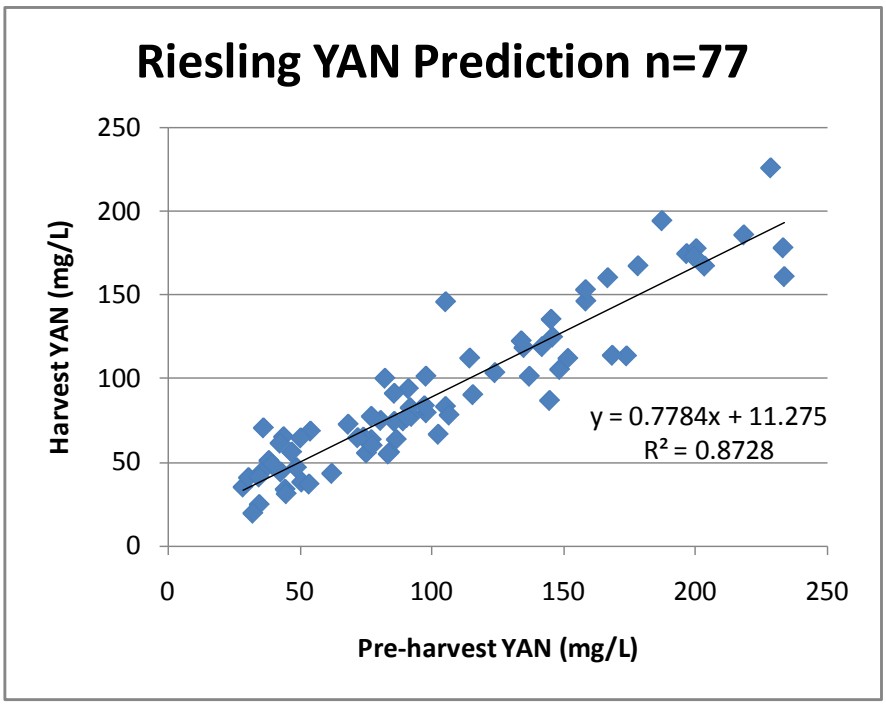

Figure 1. *Relationship betweenpre-harvest YAN, measured 2 wk before harvest in 2010, and YAN at Harvest in samples taken from 77 Riesling blocks.*

Does this work in other varieties? Because we monitored YAN throughout the season last year we have YAN prediction data from smaller data sets on other varieties. The accompanying graphs (Figures 2-5) are all based on data collected from the *Veraison to Harvest* newsletter in 2010. Remembering that these trends are based on only one year of data and a very small number of samples, the graphs show that changes in YAN are very different among different grape varieties. In Cabernet Franc, for example, our data showed a decrease in YAN in the two weeks prior to harvest. Chardonnay, however, actually increased in some samples. In all varieties we saw a lot of variation in YAN values at harvest so if you make prophylactic additions it can be difficult to judge how much to add without taking a measurement.

If you don't have the equipment to measure YAN in the winery there are at least a couple of option for external testing.

YAN Analytical Services

The NYS Wine Analysis Lab provides YAN analysis, for more information and sample submission:

http://grapesandwine.cals.cornell.edu/outreach/nys-analytical-lab.cfm

Another option is Dairy One in Ithaca. Information about their services can be found at:

http://www.dairyone.com/default.htm

Funding for this project was provided by the USDA Federal Formula Funds Grants program

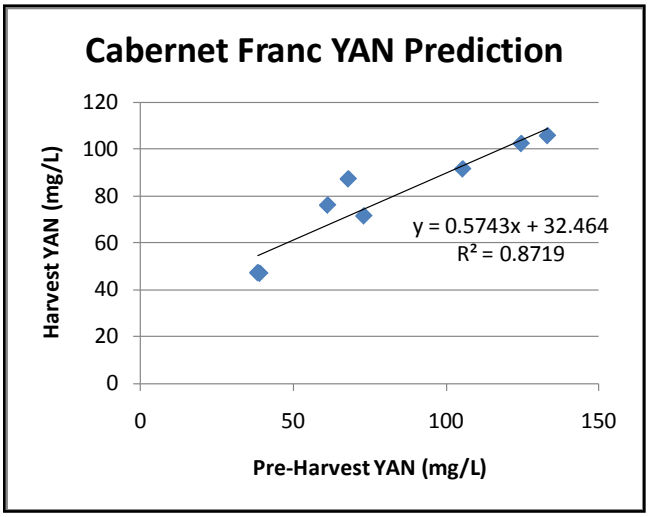

Figure 2 *Pre-harvest and harvest YAN measurements from 7 Cabernet Franc vineyards in 2010.*

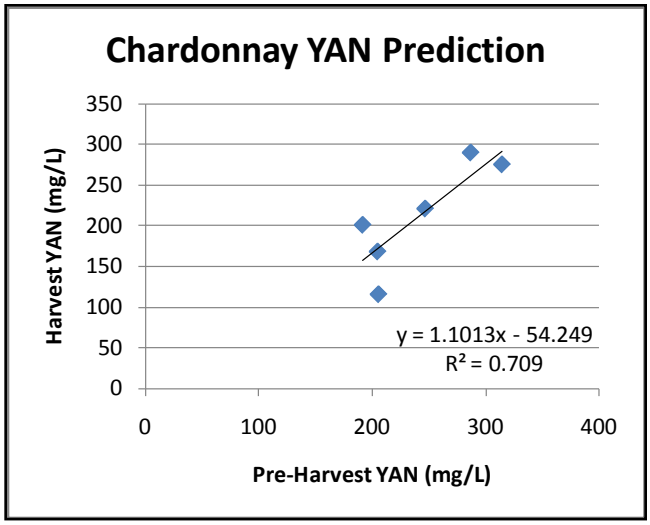

Figure 3 *Pre-harvest and harvest YAN measurements from 6 Chardonnay vineyards in 2010.*

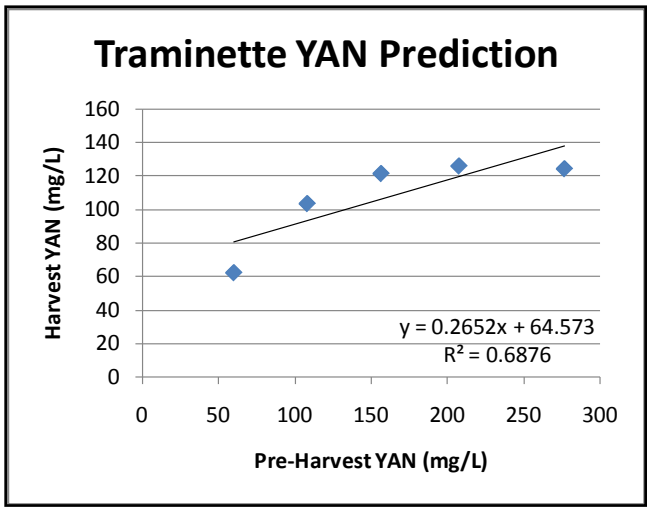

Figure 4 *Pre-harvest and harvest YAN measurements from 5 Traminette vineyards in 2010.*

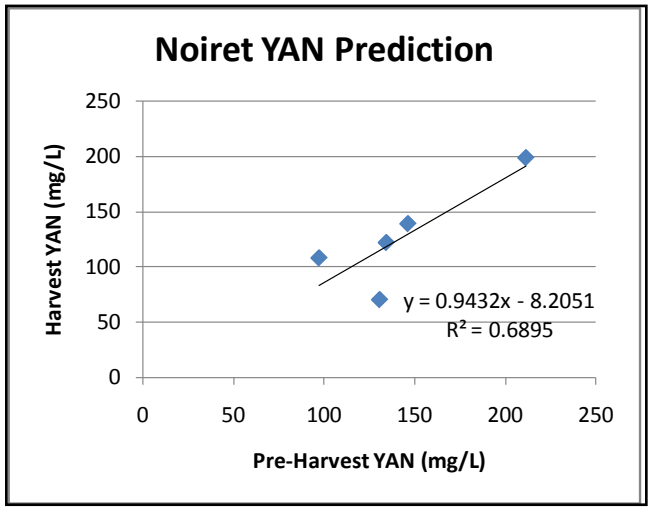

Figure 5. *Pre-harvest and harvest YAN measurements from 5 Noiret vineyards in 2010.*

Fruit Maturation Report - 9/9/2011

Samples reported here were collected on **Tuesday and Wednesday September 6 and 7.** This week we have samples from all four regions (Finger Lakes, Lake Erie, Long Island, Hudson Valley. 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 Nisbit is running the YAN assays as part of his Ph D project, and other students from the Enology lab are running samples (details in later issue) . - TEM

Cabernet Franc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
FL	9/6/2011	W Seneca	1.43	16.8	2.94	10.4	24
FL	9/6/2011	W Cayuga	1.52	15.4	3.12	8.0	59
HV	9/6/2011	HV Lab	1.55	14.5	3.36	9.0	173
LE	9/6/2011	Portland	1.72	13.5	2.91	15.6	169
	9/6/2011	*Average*	*1.55*	*15.1*	*3.08*	*10.8*	*106*
Prev Sample	*8/29/2011*		*1.35*	*13.2*	*2.79*	*17.8*	*98.7*
'10 Average	*9/08/10*		*1.45*	*17.0*	*3.41*	*10.2*	*80*

Catawba

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
FL	9/6/2011	W Cayuga	2.48	14.2	2.76	17.3	82
Prev Sample	8/29/2011	W Cayuga	2.52	12.6	2.58	27.8	116.3
'10 Sample	9/6/2010	W Cayuga	2.27	15.0	3.17	14.5	165

Cayuga White

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2011	W Keuka	2.73	15.0	2.97	10.9	158
Finger Lakes	9/6/2011	W Cayuga	2.26	15.9	3.13	7.6	243
	9/6/2011	*Average*	*2.50*	*15.5*	*3.05*	*9.3*	*201*
Previous Sample	*8/30/2011*		*2.22*	*14.3*	*2.87*	*12.2*	*151.9*
'10 Sample	*8/30/10*		*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	9/6/2011	W Seneca	1.56	18.3	3.14	8.4	67
Finger Lakes	9/6/2011	W Cayuga	1.41	17.8	3.18	8.0	156
Hudson Valley	9/6/2011	HV Lab	1.42	15.7	3.49	9.2	365
Hudson Valley	9/6/2011	Hudson Valley	1.59	15.9	3.29	8.5	322
Long Island	9/6/2011	North Fork S	1.83	15.4	3.32	10.0	267
Average	*9/6/2011*		*1.56*	*16.6*	*3.28*	*8.8*	*235*
Prev Sample	*8/29/2011*		*1.35*	*16.2*	*3.01*	*9.7*	*98.7*
'10 Average	*9/07/2010*		*1.45*	*20.4*	*3.63*	*7.3*	*227*

Chenin blanc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Long Island	9/6/2011	North Fork N	1.92	13.0	3.10	12.8	119
Prev Sample	-	-	-	-	-	-	-

Concord

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2011	W Keuka	2.45	13.0	3.06	11.1	208
Lake Erie	9/6/2011	Portland	3.25	13.5	3.06	11.2	258
Average	*9/6/2011*		*2.85*	*13.3*	*3.06*	*11.1*	*233*
Prev Sample	*8/30/2011*		*2.99*	*12.1*	*2.85*	*17.0*	*222*
'10 Sample	*9/7//2010*		*3.01*	*14.6*	*3.38*	*8.5*	*109*

Lemberger

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2011	E Keuka	1.41	20.5	3.00	8.2	113
Finger Lakes		W Seneca	1.59	19.1	3.23	6.6	212
Average	*9/6/2011*		*1.50*	*19.8*	*3.12*	*7.4*	*162*
Prev. Sample	*8/29/2011*		*1.35*	*18.6*	*2.93*	*9.8*	*98.7*
'10 Sample	*9/7/2010*	*W Seneca*	*2.01*	*20.5*	*3.36*	*8.6*	*46*

Malbec

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Long Island	9/6/2011	North Fork S	2.11	14.7	3.29	11.4	269
Prev Sample	-	-	-	-	-	-	-

Merlot

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Hudson V	9/6/2011	HV Lab	1.55	14.0	3.51	9.6	209
Long Island	9/6/2011	North Fork S	1.84	16.2	3.49	7.0	180
Average			1.69	15.1	3.50	8.3	195
Prev Sample	*8/30/2011*		-	-	-	-	-
'10 Sample	*9/7//2010*		*1.66*	*19.9*	*4.05*	*4.9*	*162*

Niagara

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Lake Erie	9/6/2011	Portland	3.89	14.2	3.06	8.8	144
Prev Sample	8/30/2011	Portland	3.61	12.7	2.88	12.1	150.3

Noiret

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Hudson Valley	9/6/2011	HV Lab	1.62	15.7	3.50	10.0	195
Hudson Valley	9/6/2011	W HV	1.59	16.6	3.08	14.2	126
Lake Erie		Ripley	1.68	17.3	3.11	10.5	248
Average	9/6/2011		1.63	16.5	3.23	11.6	189
Prev Sample	8/30/2011	Ripley	1.63	15.9	2.86	12.6	215
'10 Average	9/7/2010		1.67	18.3	3.41	8.8	133

Pinot Noir

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2011	E Seneca	1.36	18.5	3.41	6.9	173
Hudson Valley	9/6/2011	HV Lab	1.87	15.5	3.38	11.8	283
Hudson Valley	9/6/2011	Hudson Valley	1.31	15.8	3.34	10.8	270
		Average	1.51	16.6	3.38	9.8	242
Prev Sample	*8/29/2011*	*E Seneca*	*1.11*	*15.4*	*2.98*	*10.2*	*56.4*
'10 Average	*9/7/2010*		*1.25*	*22.7*	*3.79*	*6.8*	*218*

Riesling

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2011	E Seneca	1.33	15.2	2.90	12.1	35
Finger Lakes	9/6/2011	E Seneca	1.29	16.1	2.87	10.4	87
Finger Lakes	9/6/2011	W Seneca - LR/ST	1.37	16.1	2.88	11.4	55
Finger Lakes	9/6/2011	W Seneca - NLR/NST	1.19	16.4	2.89	11.2	48
Finger Lakes	9/6/2011	E Seneca-shoot thin	1.30	16.7	2.89	11.1	55
Finger Lakes	9/6/2011	E Seneca - no thin	1.28	15.1	2.90	11.2	59
Finger Lakes	9/6/2011	W Cayuga	1.41	16.0	2.91	12.0	140
Hudson Valley	9/6/2011	HV Lab	1.48	14.7	3.30	10.1	245
Lake Erie	9/6/2011	Fredonia	1.65	13.2	2.96	13.1	263
Long Island		North Fork N	1.51	15.6	3.16	9.6	131
Average	*9/6/2011*		*1.38*	*15.5*	*2.97*	*11.2*	*112*
Prev Sample	8/30/2011		1.19	13.9	2.76	16.8	89.9
'10 Average	*9/7//2010*		*1.33*	*18.0*	*3.29*	*9.9*	*96*

Sauvignon Blanc

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Long Island	9/6/2011	North Fork N	1.58	17.1	3.30	8.9	167
Prev Sample	-	-	-	-	-	-	-
'10 Sample	9/7/2010		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	8/29/2011	W Cayuga	Harvested				
Hudson Valley	9/6/2011	HV Lab	1.85	16.9	3.31	8.6	128
Hudson Valley	9/6/2011	W HV	1.92	15.1	3.19	10.5	125
Average			*1.89*	*16.0*	*3.25*	*9.6*	*127*
Prev Sample	*8/29/2011*	*W Cayuga*	*1.56*	*15.7*	*2.97*	*10.0*	*96.1*
'10 Average	*8/30/2010*		*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	9/6/2011	W Keuka	1.42	15.7	2.79	11.8	37
Finger Lakes	9/6/2011	W Seneca	1.70	16.2	3.03	13.0	97
Hudson Valley	9/6/2011	HV Lab	1.71	15.8	3.30	7.6	126
Hudson Valley	9/6/2011	W HV	1.68	17.4	3.10	10.9	14
Lake Erie	9/6/2011	Fredonia	2.11	18.6	2.94	11.2	87
Average	*9/6/2011*		*1.75*	*16.6*	*3.07*	*10.7*	*81*
Prev Sample	8/30/2011		1.51	13.6	2.68	18.4	148.1
'10 Average `	*9/7/2010*		*1.68*	*18.7*	*3.32*	*11.2*	*158*

Vignoles

Region	Harvest Date	Description	Ber. Wt. g.	% Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/6/2011	W Keuka-VSP, Shoot thin	1.37	20.6	3.08	10.7	197
Finger Lakes	9/6/2011	W keuka-VSP, No Thin	1.25	19.0	3.03	10.3	163
Finger Lakes	9/6/2011	W keuka-high wire ST	1.31	20.3	3.10	11.0	187
Finger Lakes	9/6/2011	W keuka-high wire NST	1.44	19.7	3.03	12.0	186
Average			*1.34*	*19.9*	*3.06*	*11.0*	*183*
Prev Sample	*8/29/2011*		*1.32*	*18.0*	*2.92*	*14.5*	*162*
'10 Average	*9/7/2010*		*1.53*	*20.6*	*3.22*	*15.5*	*288*

USDA Plant Germplasm Unit Holds Field Day September 9

The New York State Agricultural Experiment Station in Geneva is host to two USDA Agricultural Research Service units. The Plant Germplasm Research Unit (PGRU) curates germplasm collections in Apples, cool-climate grapes, and other fruits and vegetables. The Grape Genetics Research Unit is home to five geneticists that explore the relationship between grapevine genetics and traits such as cold-hardiness and disease resistance.

Left photograph: The Cold-Hardy Grape Germplasm Collection at Geneva is home to over 1800 accessions, most grown in the field at Geneva. ARS employee Bill Srmak harvested the clusters shown in the photo, illustrating the diversity of forms, colors and developmental stages (from flowers to ripe fruit) represented in the collection.

Right photograph: Plant pathologist Lance Cadle-Davidson explores the genetic variation in disease resistance in grapevine. Shown is a planting of progeny of a cross between a grapevine whose clusters (unlike almost all other grapevines) do not develop resistance to powdery mildew as they mature (most grapes resist berry infections after they become 'pea sized') and a resistant parent. By testing these progeny, they hope to identify which genes are responsible for so-called 'ontogenic' (developmental) resistance to powdery mildew present in most grapevines.

Uncork New York! www.newyorkwines.org

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Veraison to Harvest is a joint publication of:

Cornell Enology Extension Program

Statewide Viticulture Extension Program

Long Island Grape Program - Suffolk CCE

Finger Lakes Grape Program

Lake Erie Regional Grape Program

Hudson Valley Regional Fruit Program