

VERAISON TO HARVEST

Statewide Vineyard Crop Development Update #7

October 19, 2007



Cornell University
Cooperative Extension

Around New York...

STATEWIDE - TIM MARTINSON

This week marked the big push for wrapping up Concord and Catawba statewide, as well as Riesling in the Finger Lakes. Cabernet Franc, Merlot, and Cab Sauvignon are what's left. Harvest of these varieties on Long Island generally lags behind that of the Finger Lakes, not necessarily because fruit ripens faster in the Finger Lakes, but in part because Long Island typically has later frosts, and winemakers like to wait for greater tannin maturity, which tends to continue to develop even after the other numbers (Brix, TA, and pH) level off.

Our samples this week have dwindled to Cabernet Franc, Merlot, and Cabernet Sauvignon as blocks of other varieties have been harvested. Numbers from the Cabernet Franc blocks (See Fruit Maturation report on p. 5) are virtually identical to last week's results. Long Island Merlot and Riesling samples were shipped on time, but arrived only late Wednesday, and were analyzed on Thursday. Chalk this one up to a delivery error by FedEx. As a result, many of the samples had started fermenting while in transit, and had alcohol content ranging from 0.3 - 0.7%. A few showed high lactic acid (numbers not shown in table), indicating malolactic fermentation had started. Cabernet Sauvignon from Fredonia blocks had slightly lower TAs - but still around 10 g/liter (1 g/100ml).

Again, acids and sugars are within harvestable range, and prospects for frost are somewhat up in the air in the 10-day forecast. Most FL fruit should be in by the end of next week. Next week's samples are likely to be the last run (with possible exception of Long Island).

This week's newsletter includes a compendium of winemaking notes from past communications by Thomas Henick-Kling.

FINGER LAKES-HANS WALTER PETERSON

The 2007 harvest season in the Finger Lakes is making the turn into the home stretch now. Harvest of Concord and Catawba grapes is winding down in the region, with



This was the week for White Riesling harvest in the Finger Lakes. Backlit portion of cluster shows internal berry structure in a vineyard on the West side of Seneca Lake. Fruit quality is excellent, with low incidence of Botrytis and other fruit rots.

the major processor in the area, Centerra Wine Company, scheduled to finish up this week. Some final loads of these varieties will be making their way to National Grape and area wineries over the next several days. The vast majority of the Riesling crop has been brought in by this point as well, with winemakers and growers reporting good fruit chemistry and low levels of botrytis and other rots. Most of the region's Lemberger crop came off over the past week, along with Merlot, leaving mainly Cabernet Sauvignon and Cabernet Franc still hanging in the vineyards at this point. Growers I have spoken with anticipate that most of these will be picked within the next week or so.

Canopies that are still in good condition will benefit from warm temperatures that we have had the past couple of days. The forecast for the next 10 days is not predicting any temperatures near freezing, so there is the potential for some post-harvest activity to help vines better acclimate for the winter. Vineyards that lost leaves early due to late downy mildew infections or significant drought stress are probably facing higher potential bud loss this winter, so growers will need to keep this in mind as they prepare for pruning work.

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LONG ISLAND - ALICE WISE

Merlot harvest on Long Island started this week with high sugars , 22-24 Brix and low to moderate acids, 5-6 g/l. Many blocks of Merlot, Cab Franc and Cab Sauvignon will continue to hang into late October/ early November. In tasting Cab Sauv fruit this week, sugars are high, acids are moderate and tannins are still a little dry on the palate. In the research vineyard, there has been some stem necrosis, slight in Merlot, a little more in Cab Sauv. This occurs every few years and defies explanation as to where and why it occurs. We're seeing minor but very clean *Botrytis* on the occasional berry in reds, not even enough to worry about dropping fruit thanks to the unprecedented dry weather. Across the industry, yields in whites were good, higher than expected in many blocks. The yield in reds has tended to be a little more predictable since they are thinned a little harder and generally have smaller berries than whites.

Canopy condition varies from farm to farm. The majority of vineyards are in great shape going into the last month of harvest. There is some drought stress on dry sites, some downy mildew at the tops of canopies, actually manifested more as necrosis since DM is not too active in dry weather. At the research vineyard, late season powdery has been a virtual no-show. We usually see a little by now. More than the usual bronzing can be found throughout the industry due to persistent populations of European red mite. Active ERM populations in mid-October are rare but given the weather, not surprising. It is impossible to predict if this means mite problems for 08 as egg mortality is affected by many different factors.

LAKE ERIE AND NIAGARA ESCARPMENT- TIM WEIGLE

No news is good news is perhaps the best way to describe the past week. Favorable weather conditions keep Concord harvest across the regions moving smoothly with only a limited number of vineyards failing to make minimum sugar standards of their processor. These grapes typically have found a home with other processors across in the region or across New York State. Average Concord berry size has remain constant over the past week as have Brix accumulations as most canopies are at the end of their useful life for the season. Area processors are looking to wrap up harvest sometime next week. Earlier concerns about Multicolored Asian Ladybeetle have not panned out as we have found only limited numbers of these beneficial insects who become pests when they inhabit harvested fruit and make it to the processor. Wine grapes have been harvested with the exception of late season reds like Cabernet Sauvignon and varieties that are left hanging for the production of ice wine.

HUDSON VALLEY - STEVE MCKAY, STEVE HOYING AND JOHN HUDELSON

The Hudson Valley has experienced moist, warm weather this week, but it is expected to turn cooler with more rain in the coming week. All but late reds and a couple of late whites such as Vidal Blanc and Vignoles have been harvested. Growers are looking forward to harvesting Cabernet Franc and Cabernet Sauvignon in the coming week, but the rain and cool weather may push harvest back some. Growers still are commenting on the high yields. For example, Whitecliff vineyards was surprised at the high yield achieved with Merlot this week.

Centerra Vineyards, overlooking the southwest side of Keuka Lake.



ENOLOGY NOTES

Tim Martinson and Ben Gavitt

Adapted from Thomas Henick-Kling E-mail notes from previous years

Here are a few reminders for winemakers gleaned from previous communications by Thomas Henick-Kling in past years. The main topic is yeast nutrient additions, but there are also tips on avoiding stuck fermentation, and dealing with Botrytis-infected fruit. Botrytis incidence is generally low, but some susceptible varieties (e.g. Riesling) are coming in with higher levels of Botrytis. Tannin additions (note from last year) may not be that applicable to this year's very ripe reds, but it may be useful for some lighter-bodied reds such as hybrids. If you have questions, feel free to contact Ben Gavitt at bkg1@cornell.edu or 315-787-2263.

Feed your yeast:

What is YAN. Historically, and particularly in dry years, musts from NY have had low nitrogen content. This is measured as yeast assimilable nitrogen (YAN, sometimes referred to as 'yeast available nitrogen'). YAN is primary amino nitrogen (basically free amino acids, not proteins and peptides) plus free ammonia. There should be about 400 mg/L of yeast available nitrogen (YAN) in the grape must. In some past dry years, YAN in many musts has ranged from 100-200 mg/L. YAN is often measured through an enzymatic assay - which can be expensive and time consuming (samples incubated for several hours). For this reason, measuring YAN is often beyond the scope of the typical small winery laboratory.

Nutrient additions to Must. Although samples haven't been run this year (2007), it's a safe assumption that YAN, particularly in drought-stressed vineyards, will be low. Adding DAP and another more complex nutrient supplement will insure that the yeast fermentation will go to completion and to avoid physiological stress which can cause the yeast to produce off-flavors such as reduced sulfur and fatty acid esters.

Yeast nutrient additions: We recommend that you use a combination of DAP (diammonium hydrogen phosphate, 0.5 to 1 g/L or 4 to 8 lbs per 1000 gal) and a complex nutrient mix such as Fermaid or Yeast Superfood or GoFerm. Remember that GoFerm is added to the yeast during rehydration. The other nutrients are added to the grape must. It is a good idea to stagger the additions, add about 1/3 of the total to the grape must and the other 2/3 after 2 to 3 days of fermentation (during the first 1/3 of fermentation).

-THK, Sept 29, 2004

How to correct nutrient deficiencies

Yeast nutrient additions:

* Diammonium hydrogen phosphate, 1 g/L provides approximately 260 mg/L ammonia.

* Proprietary nutrient blends (some containing DAP), also contain vitamins, nucleic acids, and trace elements.

* Yeast extract contains amino acids, fatty acids, nucleic acids, vitamins, and minerals.

Timing. Yeast nutrients are best added to the must, at the time of yeast inoculation and during the first 3rd of fermentation. It is best to split the addition into two, most of the DAP added to the juice and the remaining part of DAP and Fermaid (or other mix) after about 3 days of fermentation (within the first 3rd of fermentation). Oxygen is also an important nutrient for yeasts. It is advisable to aerate the must before inoculation and perhaps again once or twice during the first 3rd of fermentation. Especially when you notice some fermentation off-odors in the first half of fermentation, aerate and or add nutrients.

-THK, October 6, 2004

Other topics - 2006.

Tannins and Wine Texture. *[Note- with optimum ripening conditions for reds, this notice from 2006 might not apply to many reds this year, but the point of the message is that it might be worthwhile to try tannin additions in some red wines. - TEM]*

Some of the red grapes did not reach good tannin

maturity this year. The tannins were either not mature or only present in low amounts. This necessitates shorter macerations. To balance to flavors and texture of these wines it helps to try some tannin additions. There are many different products available. It is best to do a bench trial or in barrel lots. We have tried several tannins and some gave marked improvements in texture and aroma of a wine, some did not. Addition of tannins also helps protect the wine against laccase (oxidative enzyme produced by *Botrytis* mold). **It is worth taking the time to do some tannin trials!**

Stuck Fermentation. Monitor the progress of the fermentations to detect sluggish or stuck fermentations early. Make sure you keep fermentation temperatures warm - for whites not below 60F (15C) and for reds not below 68F (20C) and up to 95F (35C). The warm fermentation temperatures will help ensure dominance of *Saccharomyces* yeast. This is important because many musts, due to bunch rot infection, come with high numbers of potential spoilage yeast (*Kloeckera*). It is important that the winemaker creates conditions that favor the growth and dominance of *Saccharomyces* (this includes careful rehydration, use of large starter culture additions, and supplementation with yeast nutrients).

Fermentation Off-odors. The bunch rot infected fruit and some fungicide residues can also lead formation of reduced sulfur off-odors by the yeast. It is important to adjust nutrients at the beginning of the fermentation and to check the fermentations regularly. When reduced sulfur off-odors are noticed in the first 1/2 of the alcoholic fermentation, add a small amount of yeast nutrients (DAP or Fermaid, 0.2 and 0.1 g/L respectively). This addition can be repeated if necessary. **To remove the reduced sulfur odors during fermentation with the help of active yeast** is more successful and better for the wine than aggressive racking and copper treatments later.

-THK October 6, 2006

Dealing with Botrytis-infected Fruit. It might happen that you have to accept grapes with 5% or more *Botrytis cinerea* infection. *Botrytis* infection can add very desirable flavors to Riesling, Gewürztraminer, Pinot Gris, Vidal, Vignoles and even Chardonnay. Of course *Botrytis* infection must be avoided in red grapes. *Botrytis*-infected red grapes must be sorted out or heat treated to deactivate the damaging oxidase enzyme called 'laccase'.

When you work with *Botrytis* infected must you should be aware that the *Botrytis* mold basically likes the same amino acids and vitamins that your wine yeast *Saccharomyces cerevisiae* likes and needs. *Botrytis*-infected musts are partially or strongly depleted of free amino acids and vitamins (particularly thiamin). Therefore it is advisable to add a complex yeast nutrient that contains thiamin and some other vitamins. You should add the amount of DAP that you would add in any case and give, in addition, a complex nutrient such as Fermaid K or Yeast Superfood. This will help protect you against fermentation problems. The presence of yeast cell walls and yeast cell membranes also adds protection for the yeast against toxin produced by the plant pathogens.

Always strongly clarify *Botrytis*-infected musts. Add to the must 50 to 100 mg/L of SO₂ to inhibit spoilage microorganisms and oxidative enzymes. Bentonite fining of must also removes some of these potentially damaging enzymes (because they are proteins). Add yeast nutrients and a large yeast inoculum.

-THK September 29, 2000

FRUIT MATURATION REPORT

Samples reported were collected on **Monday, October 15** The next samples will be collected on **Monday, Oct 22**. Where appropriate, sample data from 2006, averaged over all sites (mostly Finger Lakes), is included. Fruit maturation data from 2006 is posted at: October 9: <http://www.nysaes.cornell.edu/fst/faculty/henick/pdf/Ripening%20Progress%2006R7.pdf>

Cabernet Franc

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Finger Lakes	10/15/07	7-FL-CF	Cayuga Lake W	1.71	21.5	3.30	8.7	4.9	3.1	0.20
Finger Lakes	10/15/07	8-FL-CF	Seneca Lake E	1.59	21.2	3.28	8.3	4.8	2.6	0.10
Finger Lakes	10/15/07	9-FL-CF	Cayuga Lake W	1.71	21.1	3.22	8.0	4.7	2.2	0.20
Finger Lakes	10/15/07	10-FL-CF	Seneca Lake W	1.56	21.3	3.18	8.2	4.2	2.5	0.10
Finger Lakes	HVST	11-FL-CF	Seneca Lake W							
Finger Lakes	10/15/07	12-FL-CF	Seneca Lake W	1.03	20.3	3.40	7.7	5.0	2.6	0.10
Hudson Valley	10/15/07	HV-CF-2	E of Hudson River	1.79	20.8	3.32	8.2	4.4	3.0	0.13
Hudson Valley	10/15/07	HV-CF-3	W of Hudson River	1.20	21.7	3.32	7.9	4.7	2.8	0.10
Lake Erie	10/15/07	LE-CF-9	Fredonia Vin Lab		22.9	3.35	7.6	4.3	2.5	0.21
Long Island	10/15/07	LI-CF-4	Aquebogue LI	1.83	20.0	3.57	6.0	3.8	1.6**	0.20
Long Island	10/15/07	LI-CF-7	Aquebogue LI	1.78	22.0	3.27	7.9	4.4	1.9**	0.20
Average	10/15/07			1.58	21.3	3.32	7.9	4.5	2.7	0.15
10/8 Average				1.53	21.3	3.36	7.9	4.4	2.6	0.18
10/1 Average	10/01/07			1.47	20.3	3.22	8.5	4.7	2.8	0.13
9/24 Average	09/24/07			1.49	19.4	3.21	9.2	5.0	3.3	0.11
9/17 Average	09/17/07			1.48	17.7	3.10	10.1	5.1	3.8	0.08
9/10 Average	9/10/07			1.38	16.8	3.07	11.3	5.8	4.4	0.04
8/27 Average	8/27/07			1.11	11.7	2.73	23.6	8.6	11.4	0.1
'06 Average	10/16/06	FL	Finger Lakes	1.63	21.5	3.20	10.8	4.0	5.3	0.23

** Samples had started malolactic fermentation. Not included in average.

Merlot

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Hudson Valley	HVST		E of Hudson River							
Long Island**	10/15/2007	LI-M-1	Cutchogue LI	1.59	21.0	3.55	6.1	4.4	1.4	0.30
Long Island**	10/15/2007	LI-M-2	Cutchogue LI	1.77	20.7	3.31	7.1	4.2	1.5	0.30
Long Island**	10/15/2007	LI-M-5	Aquebogue LI	1.94	20.9	3.21	7.1	4.1	1.5	0.30
Long Island**	10/15/2007	LI-M-8	LIHRC Riverhead	na	21.5	3.36	7.4	4.8	1.8	0.30
Average	10/15/07			1.77	21.0	3.36	6.9	4.4	1.6	0.30
10/1 Average	10/1/07			1.70	21.9	3.52	7.5	4.4	2.9	0.20
9/24 Average	09/24/07			1.74	20.9	3.37	8.4	4.6	3.2	0.17
9/17 Average	09/17/07			1.71	20.0	3.33	8.6	4.7	3.6	0.12
9/10 Average	09/10/07			1.68	19.3	3.27	9.5	4.9	4.0	0.10
8/27 Average	8/27/07			1.55	14.2	2.89	16.3	6.7	7.6	0.06

** Samples had started malolactic fermentation.

Lemberger

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Finger Lakes	HVST	FL-13-LEM	Seneca Lake W							
Finger Lakes	HVST	FL-14-Lem	Seneca Lake W							
Average***	10/08/07			1.99	20.4	3.12	9.3	5.4	2.7	0.11
10/1 Average	10/01/07			1.83	21.4	3.06	9.6	5.8	2.5	0.18
9/24 Average	9/24/07			1.72	20.5	3.03	10.2	6.1	2.8	0.19
9/17 Average	9/17/07			1.80	19.2	2.94	10.6	6.1	3.1	0.12
9/10 Average	09/10/07			1.67	18.2	2.95	11.1	6.4	3.2	0.13
8/27 Average	8/27/07			1.50	14.9	2.79	16.8	7.8	6.7	0.12
06 Average	10/01/07			2.40	20.0	3.16	10.2	4.3	3.7	0.14

***Note that this is not a true average, as only one block was harvested.

Riesling

Region	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Finger Lakes	HVST	FL1-CL239	Cayuga Lake W							
Finger Lakes	HVST	FL2-CL-90	Cayuga Lake W							
Finger Lakes	HVST	FL5-CL-239	Seneca Lake E							
Finger Lakes	HVST	FL6-CL-90	Seneca Lake E							
Finger Lakes	HVST	FL3-CL-90	Seneca Lake E							
Finger Lakes	HVST	FL4-CL239	Seneca Lake E							
Hudson Valley	HVST	HV-R-4	E of Hudson River							
Lake Erie	10/08/07	High pH	Fredonia Vin Lab							
Lake Erie	10/08/07	Low pH	Fredonia Vin Lab							
Long Island	10/08/07	LI-R-3	Aquebogue LI							
Long Island*	10/08/07	LI-R-6	Aquebogue LI	1.74	14.6*	2.91	10.5	6.6	2.2	0.1
Average 10/15				Average Not Calculated						
10/8 Average	10/08/07			1.50	17.9	3.08	10.0	6.1	2.6	0.07
10/1 Average	10/01/07			1.32	18.8	2.99	10.3	6.1	2.8	0.09
9/24 Average	09/24/07			1.42	18.6	3.00	11.3	6.4	3.4	0.07
9/17 Average	09/17/07			1.36	17.5	2.94	12.3	6.6	4.2	0.03
9/10 Average	9/10/07			1.37	16.7	2.93	13.1	7.0	4.7	0.02
8/27 Average	8/27/07			1.14	12.4	2.73	23.4	9.3	11.0	0.07
06 Average	10/16/06		Finger Lakes	1.80	18.83	3.00	13.09	5.53	5.47	0.19
06 Average	10/09/06		Finger Lakes	1.77	18.6	2.97	13.2	5.6	5.2	0.19

* Sample had begun fermenting. Brix not representative of fruit.

Chardonnay

Region	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Hudson Valley	HVST	HV-C-2	E of Hudson River							
Hudson Valley	HVST	HV-C-3	W of Hudson River							
Long Island	HVST	HVST	LIHRC Riverhead							
9/24 Average	09/24/07			1.59	21.3	3.25	9.8	4.6	4.2	0.12

9/17 Average	9/17/07			1.56	20.3	3.18	10.5	5.0	4.8	0.10
9/10 Average	09/10/07			1.59	19.8	3.18	10.7	5.0	4.9	0.08
8/27 Average	08/27/07			1.35	14.8	2.94	15.4	6.3	7.3	0.07

Cabernet Sauvignon

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Lake Erie	10/15/07	High pH	Fredonia Vin Lab		21.0	3.20	10.6	5.6	4.2	0.10
Lake Erie	10/15/07	Low pH	Fredonia Vin Lab		21.0	3.17	10.2	5.1	4.0	0.10
Average	10/15/07			no data	21.0	3.19	10.4	5.4	4.1	0.10
Average	10/08/07			no data	20.9	3.23	10.8	5.7	4.3	0.12
10/1 Average	10/01/07			no data	20.5	3.12	11.5	6.0	4.7	0.10
9/24 Average	09/24/07			no data	20.5	3.1	12.1	5.9	4.5	0.14
9/17 Average	09/17/07			1.28	19.4	3.04	13.4	6.5	6.0	0.02
9/10 Average	09/10/07			1.26	18.6	3.03	14.1	6.8	6.1	0.02
8/27 Average	08/27/07			1.07	15.6	2.75	22.0	8.6	10.5	0.02

Noiret

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Finger Lakes	HVST	LR/SH	Keuka Lake W							
Finger Lakes	HVST	NO LR/No SH	Keuka Lake W							
Hudson Valley	10/15/07	HV-N-3	W of Hudson River	1.70	20.2	3.19	8.2	4.4	2.8	0.03
Lake Erie	HVST	LE-N-High-3	Fredonia Vin Lab							
Lake Erie	HVST	LE-N-Low-4	Fredonia Vin Lab							
10/8 HudVal	10/08/07	HV-N-3	W of Hudson River	1.64	20.7	3.31	7.9	4.2	2.4	0.1
10/1 Average	10/01/07			1.82	18.9	3.22	9.6	5.2	3.7	0.03
9/24 Average	09/24/07			1.81	18.5	3.14	10.1	5.3	3.6	0.06
9/17 Average	9/17/07			1.62	18.0	3.06	11.0	5.7	4.3	0.03
9/10 Average	09/10/07			1.64	17.5	3.08	11.5	5.9	4.7	0.02
8/27 Average	08/27/07			1.44	14.6	2.87	17.9	7.6	8.1	0.01

Traminette

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Finger Lakes	HVST	Exposed	Keuka Lake W							
Finger Lakes	HVST	Shaded	Keuka Lake W							
Hudson Valley	HVST	HV-T-1	W of Hudson River							
Lake Erie	HVST	High pH	Fredonia Vin Lab							
Lake Erie	HVST	Low pH	Fredonia Vin Lab							
No Average										
10/01 Average	10/01/07			1.68	22.0	3.02	9.9	5.2	3.1	0.22
9/24 Average	09/24/07			1.64	21.0	2.98	9.9	5.1	2.6	0.20
9/17 Average	9/17/07			1.55	18.8	2.90	11.4	5.6	3.9	0.12
9/10 Average	09/10/07			1.67	17.6	2.90	12.1	6.0	4.3	0.11
8/27 Average	08/27/07			1.34	11.5	2.67	23.8	8.9	11.2	0.15

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Photo: White Springs Vineyards, Geneva



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Lake Erie Regional Grape Program

Hudson Valley Regional Fruit Program

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Marechal Foch

Location	Collection	Sample ID	Location	Berry Wt g	% Brix	pH	g/L TA	g/L Tartaric Acid	g/L Malic Acid	g/L Acetic Acid
Harvested following 9/17 Sample Date.										
Average	9/17/07			0.98	23.3	3.25	10.8	5.1	4.3	0.09
9/10 Ave	09/10/07			0.99	22.8	3.27	10.9	5.2	4.3	0.11
8/27 Ave				0.94	18.2	3.04	14.0	5.8	6.3	0.09



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