

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 many blocks harvested, we are down to about 25 fruit samples from our original 80 or so. With riesling harvest in progress, most of what is left are late red varieties - Cabernet franc being a prime example: The numbers haven't moved, but of course, there are other considerations - tannin maturity, flavors, absence of 'vegetal' aromas that play into harvest decisions. After a rainy week, sunshine and warmer temperatures through Tuesday or Wednesday should help. YAN continues to be variable, but low in many of the vineyards we monitor. In this issue Chris Gerling reports on the 'sulfur residue' project (p2-3) and we feature Justine Vanden Heuvel and Gavin Sacks' project on shoot thinning and leaf removal timing and severity (p3 and 7).

Long Island (Alice Wise and Libby Tarleton).

White varieties were harvested this year weeks earlier than normal, and as much as a month earlier than 2009. GDD in Riverhead were 3583 on October 5. While temperatures are now more in the normal range, we may see a new GDD record for 2010. As white fermentations move along - a few very early ones are even finished - growers are excited about rich ripe flavors and prominent floral and fruity aromas. With lots of good fruit from less common varieties such as Viognier, Gewürztraminer and Tocai Friulano, this will be an opportunity for winemakers to experiment with technique and blending.

A few Merlot blocks designated for rosé have been picked, as has a few early ripening blocks on dry sites, but the bulk of the red wine crop endured the intermittent rain this week. Rain no longer causes a panic, rather it forces vineyard managers and winemakers to be more vigilant. If Botrytis is a concern, they may consider options such as thinning of fruit in the field. Sorting at harvest is common practice already. When will reds such as Merlot be picked? According to the Long Island Merlot Alliance website (www.long-islandmerlot.com), Merlot has a wide range of harvest dates in the industry but the bulk of the fruit typically reaches the winery in late October. It will be interesting to see if the heat of summer advanced ripening so that harvest is early. Alternatively, if the cooler fall temperatures slowed things down sufficiently, fruit may come in right on time. Merlot fruit is typically harvested with brown seeds, very soft skins and berries that easily detach from the rachis. Some winemakers shake the trellis to determine if the berries readily detach. It is almost as if there needs to be a certain fragility to the fruit. Low acids and high Brix are not the ultimate benchmarks; rather, growers wait for mature tannins as well as intense flavors that tend to fully develop late in the ripening process.



Vignoles juice lots from different canopy and shoot thinning treatments. We harvested this fruit two weeks ago (See Veraison to Harvest Issue 5 for pictures of clusters that went into these wine lots.). The color difference relates to the incidence of Botrytis fruit rot in the different blocks-the more shaded 'high wire' block having more botrytis than the 'VSP' block. Note that a lot of this stuff will settle out during fermentation and be racked off with the lees. It will be interesting to taste the wines coming out of this demonstration block.

Photo by Chris Gerling

Lake Erie (Tim Weigle).

What a difference a day makes. Just when it seemed like the region would be forever stuck in a never ending low pressure that brought rainfall and cooler temperatures for 7 of the last 9 days, a high pressure system has moved in promising sunny skies and warmer temperatures through at least next Monday. The recent rainfall in the region was significant enough to force growers on heavier grounds to decrease the number of bins on the trailer from three to two in an effort to avoid being stuck as well as to limit the amount of damage being done to the vineyard floor.

The Noiret has been harvested at the Fredonia Vineyard Lab as the crew made quick work of it on Thursday morning, leaving only the Cabernet Sauvignon to be picked. Despite the recent rainfall the late season reds appear to be hanging in there with a minimum of berry splitting. Growers will be using the next few dry sunny days to reassess grape maturity and will be working with winemakers to develop a plan to get the late season varieties off the vine and into the vats. There seems to be an abundance of Noiret in the belt as it is being reported that finding a home for this variety is difficult. Concord harvest continues across the belt with vineyards starting to show signs of shelling and leaves shutting down. Although we are still experiencing an early year the vines seem to know that

they have ripened the crop and are ready to be done. In a recent conversation with a grower it was interesting when he commented that they were almost done picking their 200 acres by the time they were getting started last year. What a difference a year makes.

Finger Lakes (Hans Walter-Peterson).

Heavy rains at the end of last week dumped over 3" in parts of the Finger Lakes, followed by several more days of cool, cloudy and damp weather. Fortunately, the cooler temperatures appear to have kept significant new bunch rot infections at bay for the most part, although there are some places where infections are increasing. Growers and winemakers may want to consider doing some selective picking (if hand-harvesting) or sorting at the crush pad to remove heavily infected clusters in some cases.

Riesling continues to be focus of harvest for many wineries and growers. Winemakers seem pleased at this point with the acidity levels in the fruit they are bringing in, despite the very warm season which has led to lower than usual acid readings in most varieties. Other whites were coming as well, including Vidal, Vignoles, and some later Gewurtztraminer lots. More red varieties are being harvested now as well, including the Lemberger and Noiret plots that we have been collecting our weekly samples from, along with a couple of very ripe Pinot Noir loads. It wouldn't be surprising to hear of some Cabernet Franc starting to be picked over the next week, although it sounds like most will choose to continue to let the Cabernet varieties hang as long as the condition of the fruit remains clean. Flavors in these grapes have been very good, showing very little bell pepper flavors at this point, but are also somewhat diluted right now due to the rains last week. Some dry weather over the next several days should help to alleviate that.

Hudson Valley (Steven McKay & Steve Hoying).

Rain has been with us through Thursday afternoon, but a dryer weekend with no rain until Tuesday is predicted. Mild temperatures in the high 60's and low 70's are predicted for the coming week. Most varieties have been harvested, but Cabernet Franc is still hanging with hopes of increased sugar. There is a good chance that it will be harvested next week in most locations. At the writing of this report, Whitecliff Vineyard is harvesting Vignoles, and will harvest Riesling tomorrow. Frontenac in Dutchess County is slated for 10 days from now. All areas report that Botrytis pressure has picked up with the rain, but to this point, cooler temperatures have helped to keep it in check. Millbrook Vineyards reports that grapes they have picked this week have had great flavor and maturity.



Vessels and test apparatus used to determine elemental sulfur from spray applications in fermenting wines and juice. One goal of the project is to find out how long before harvest sulfur applications need to be stopped to avoid impacts during fermentation.

Photo by Chris Gerling

PROJECT FOCUS:

MEASURING FIELD-APPLIED SULFUR RESIDUES IN JUICE AND WINE

Chris Gerling and Gavin Sacks

Sulfur, the fungicide. We know that sulfur is useful. In the words of Wayne Wilcox, "Sulfur is the original fungicide. It is credited with saving the European grape industry, where powdery mildew (PM) caused widespread destruction of a host plant (*Vitis vinifera*) that had never encountered this exotic pathogen before. To this day, it remains the most widely used fungicide worldwide against the most common disease of grapes (PM), for three main reasons: (1) It works; (2) It's relatively economical; and (3) Even after 160 years of intensive use, the PM fungus has not developed resistance to it, nor is it likely to." Alternative materials are more expensive, not approved for organic production, and vulnerable to the development of resistance by the fungus. So what's the catch?

Sulfur and wine defects. The catch (isn't there always a catch?) is that yeast in fermenting wine convert sulfur into hydrogen sulfide (H₂S), a compound that smells like rotten eggs and is the bane of winemakers everywhere. From work performed by several groups over the last 50 years, including Terry Acree's group, we know that added sulfur can and does contribute to meaningful, and potentially horrible, increases in H₂S production. H₂S appears in wines during fermentation and storage for many reasons, not all of them clearly understood, and as a result winemakers do whatever they can to eliminate any definite causes. Sulfur in vineyards is an obvious target, so these days sulfur applications are stopped anywhere from two weeks after berry set to two weeks before harvest. How do we know who is being too cautious and who isn't being cautious enough?

Misha Kwasniewski, currently a graduate student working with Gavin Sacks and Wayne Wilcox, is developing a rapid, safe, and inexpensive assay to measure sulfur residues on grapes.

Simple juice/wine test for elemental sulfur. Gavin and Misha have developed a simple test for elemental sulfur from fungicide applications in wine – which is surprisingly difficult, given all of the sulfur-containing compounds naturally present in wine. They point out that sulfur is not particularly soluble, and may settle out with traditional analytical methods (but not just rinsing off from rain and/or hoses).

How late can sulfur be applied without affecting wine? The assay will be able to give useful information to both vineyards and wineries. The \$64,000 question has already been discussed: how long can sulfur be safely used to control powdery mildew without leaving too much residue on harvested fruit? Timing will depend on lots of factors- weather, spray formulations, etc.-but these things can now be checked. There's more that we can learn, however. A winery can determine what processing techniques might help to reduce sulfur concentrations prior to fermentation. Sulfur is not particularly soluble, and may settle out with traditional methods (but not just rinsing off from rain and/or hoses). Tests run before and after can identify the best cellar operation for limiting sulfur, be it whole cluster pressing, extended settling, fining, flotation, etc.

Two versus six weeks preharvest. Early work- and before anyone gets too far ahead of themselves, go back and look at the first word again- showed no detectable amount of sulfur found on grapes where sulfur application had ceased at six weeks before harvest. Whole cluster-pressed chardonnay where sulfur was applied two weeks prior to harvest did still have a meaningful amount of sulfur, however. Keep in mind that there are a lot of factors at work here, so the answer to when to stop sulfur is not as easy as extrapolating from the above. The work is continuing this year, and we hope that more people will be able to check more variables as the assay is made available. Eventually, it may be part of a sampling program just like brix, TA and pH.

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PROJECT FOCUS: HARVESTING RIESLING AT WHITE SPRINGS *Tim Martinson*



Five guys picking grapes.

Photo by Tim Martinson

This Wednesday and Thursday Justine Vanden Heuvel's crew harvested the 'Shoot thinning and leaf removal' experiment at White Springs vineyards, just two miles south of the NYS Agricultural Experiment Station in Geneva.

With 14 treatments 4 replicates, and two panels (7 vines vines / panel), this experiment involves 392 vines. It tests the impact of: 1) shoot thinning (to approximately 4-5 shoots/ft of canopy) or no shoot thinning; 2) timing of leaf removal (early at 'fruit set'; late about 1 month later) and 3) fruit zone leaf removal severity (none, 50%, or 80%) on fruit composition.

Shoot thinning reduces both shoot density and the crop, while leaf removal changes light exposure to the clusters. Thinning ideally should remove some of the small clusters from weak shoots (see below).



Short Riesling shoot carrying three clusters.

Photo by Tim Martinson

Continued on page 7.

FRUIT MATURATION REPORT - 10/4/2010

Samples reported here were collected on **Monday, October 4, 2010**. Where appropriate, sample data from 2009, averaged over all sites is included. Tables from 2009 are archived at www.cals.cornell.edu/cals/grapesandwine/veraison-to-harvest/2009.cfm

Cabernet Franc

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/4/2010	W Seneca	1.28	22.6	3.34	8.3	37
	10/4/2010	E Seneca	1.41	22.2	3.37	6.9	41
	10/4/2010	W Cayuga	1.61	22.5	3.51	6.7	100
	10/4/2010	E Seneca	1.63	22.0	3.69	5.8	63
	10/4/2010	W Cayuga	1.70	22.0	3.58	7.0	20
Hudson Valley	10/4/2010	HV Lab	1.46	22.4	3.94	4.3	106
Lake Erie	10/4/2010	Fredonia	1.53	22.8	3.61	4.7	61
Long Island	10/5/2010	N Fork	1.85	20.0	3.80	5.3	78
<i>Average</i>			<i>1.56</i>	<i>22.1</i>	<i>3.61</i>	<i>6.1</i>	<i>63</i>
<i>Prev Sample</i>			<i>1.49</i>	<i>21.8</i>	<i>3.60</i>	<i>6.6</i>	<i>79</i>
<i>'09 Average</i>			<i>1.49</i>	<i>18.9</i>	<i>3.29</i>	<i>11.7</i>	

Cabernet Sauvignon

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Lake Erie	10/4/2010	Fredonia	1.42	20.9	3.46	6.2	89
<i>Prev Sample</i>							52

Catawba

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/4/2010	W Cayuga	2.27	19.5	3.32	9.3	153
<i>Prev Sample</i>							253
<i>'09 Sample</i>			<i>2.71</i>	<i>16.1</i>	<i>3.29</i>	<i>5.1</i>	

Cayuga White

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	Harvested	W Keuka	Harvested	-	-	-	-
-	Harvested	W Cayuga	Harvested	-	-	-	-
<i>Final Sample</i>			<i>2.91</i>	<i>15.4</i>	<i>3.30</i>	<i>12.1</i>	<i>201</i>
<i>'09 Final Sample</i>			<i>3.23</i>	<i>13.9</i>	<i>3.10</i>	<i>12.1</i>	<i>9/08</i>

Chardonnay

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/27/2010	W Seneca - Shoot Thin	Harvest				0
	9/27/2010	W Seneca - No Thin	Harvest				0
	9/27/2010	W Cayuga	Harvest				0
Hudson Valley	10/4/2010	HV Lab	1.38	23.1	3.76	5.92	166.7
Long Island	9/27/2010	N Fork	Harvest				0
	9/27/2010	N Fork	Harvest				0
<i>Final Sample</i>			<i>1.42</i>	<i>21.6</i>	<i>3.59</i>	<i>6.8</i>	<i>246</i>
<i>'09 Average</i>			<i>1.65</i>	<i>18.7</i>	<i>3.26</i>	<i>10.4</i>	

Concord

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes			Harvest				
<i>Final Sample</i>							157
<i>'09 Sample</i>			<i>3.86</i>	<i>14.2</i>	<i>3.34</i>	<i>5.6</i>	

Corot Noir

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/4/2010	W Cayuga	2.53	17.2	3.67	5.5	189
<i>Prev Sample</i>	<i>9/27/2010</i>	<i>W Cayuga</i>	<i>2.63</i>	<i>17.5</i>	<i>3.60</i>	<i>7.0</i>	<i>152</i>
<i>Average</i>	<i>10/05/2009</i>		<i>2.24</i>	<i>16.6</i>	<i>3.34</i>	<i>9.0</i>	

Delaware

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Lake Erie	10/4/2010	Portland Lab	1.49	24.8	3.68	5.8	185
<i>Prev Sample</i>	<i>9/27/2010</i>	<i>Portland Lab</i>	<i>1.46</i>	<i>23.1</i>	<i>3.63</i>	<i>6.0</i>	<i>161</i>

Lemberger

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes			Harvested				
<i>Final Sample</i>	<i>9/27/2010</i>	<i>W Seneca</i>	<i>2.30</i>	<i>21.8</i>	<i>3.35</i>	<i>7.6</i>	<i>70</i>

Leon Millot

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/7/2010	W Keuka - Shoot Thin	Harvest				
	9/7/2010	W Keuka - No Thin	Harvest				
<i>Final Sample</i>	<i>9/7/2010</i>	<i>Harvested 9/10</i>	<i>0.76</i>	<i>27.9</i>	<i>3.40</i>	<i>12.4</i>	<i>116</i>
<i>Final '09 Ave.</i>	<i>9/21/09</i>	<i>Final sample</i>	<i>0.9</i>	<i>22.3</i>	<i>3.12</i>	<i>15.4</i>	

Merlot

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Hudson Valley	10/4/2010	HV Lab	1.42	20.6	3.94	4.3	116
Long Island	10/5/2010	N Fork	1.92	22.0	3.82	4.8	105
	10/5/2010	N Fork	1.93	19.9	3.79	5.8	164
<i>Average</i>	<i>10/4/2010</i>		<i>1.76</i>	<i>20.8</i>	<i>3.85</i>	<i>5.0</i>	<i>128</i>
<i>Prev Sample</i>	<i>9/27/2010</i>		<i>1.41</i>	<i>21.2</i>	<i>3.93</i>	<i>4.8</i>	<i>123</i>
<i>'09 Average</i>	<i>10/5/2009</i>		<i>1.86</i>	<i>18.5</i>	<i>3.57</i>	<i>9.2</i>	

Noiret

Region	Harvest Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/4/2010	W Seneca	2.32	16.2	3.41	7.7	73
	10/4/2010	W Seneca	Harvested				
Hudson Valley	10/4/2010	HV Lab	1.61	20.7	3.72	5.3	199
	10/4/2010	W HV	Harvested				
Lake Erie	10/4/2010	Fredonia	1.70	20.7	3.42	6.6	122
<i>Average</i>	<i>10/4/2010</i>		<i>1.85</i>	<i>19.6</i>	<i>3.60</i>	<i>6.1</i>	<i>11</i>
<i>Prev Sample</i>	<i>9/27/2010</i>		<i>1.79</i>	<i>19.5</i>	<i>3.50</i>	<i>7.2</i>	<i>121</i>
<i>'09 Average</i>	<i>10/5/2009</i>		<i>1.95</i>	<i>16.6</i>	<i>3.29</i>	<i>10.2</i>	

Pinot Noir

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/20/2010	W Seneca					0
Hudson Valley	10/4/2010	HV Lab	Harvested				
	9/20/2010	Hudson Valley					0
<i>Final Sample</i>	<i>9/20/2010</i>		<i>1.44</i>	<i>23.6</i>	<i>3.95</i>	<i>7.0</i>	<i>266</i>
<i>'09 Average</i>	<i>9/28/09</i>		<i>1.62</i>	<i>19.5</i>	<i>3.27</i>	<i>10.0</i>	

Riesling

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/4/2010	W Seneca - leaf rem, shoot thin	1.45	20.1	3.15	8.5	41
	10/4/2010	W Seneca - no leaf rem, no thin	1.45	20.9	3.19	8.9	44
	10/4/2010	E Seneca	Harvested				
	10/4/2010	E Seneca-shoot thin	Harvested				
	10/4/2010	E Seneca - no thin	Harvested				
	10/4/2010	W Cayuga	1.53	17.1	3.25	8.4	149
	10/4/2010	W Cayuga	1.81	18.2	3.33	9.7	146
Hudson Valley	10/4/2010	HV Lab	1.61	16.9	3.54	5.9	109
Lake Erie	9/27/2010	Fredonia	Harvested				
Long Island	9/27/2010	N Fork Riverhead	Harvested				
<i>Average</i>	<i>10/4/2010</i>		<i>1.57</i>	<i>18.6</i>	<i>3.29</i>	<i>8.3</i>	<i>98</i>
<i>Prev Sample</i>	<i>9/27/2010</i>		<i>1.54</i>	<i>19.1</i>	<i>3.31</i>	<i>8.5</i>	<i>84</i>
<i>'09 Average</i>	<i>10/05/2010</i>		<i>1.68</i>	<i>17.3</i>	<i>3.13</i>	<i>14.7</i>	

Sauvignon Blanc

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Long Island	9/13/2010	N Fork Riverhead	Harvest				
<i>Final Sample</i>	<i>9/7/2010</i>	<i>N Fork Riverhead</i>	<i>1.84</i>	<i>19.8</i>	<i>3.64</i>	<i>8.0</i>	<i>242</i>
<i>'09 Sample</i>	<i>9/28/09</i>		<i>1.86</i>	<i>18.9</i>	<i>3.17</i>	<i>12.8</i>	

Seyval Blanc

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/27/2010	W Cayuga - cluster, shoot thin	harvest				0
	9/27/2010	W Cayuga - no cluster, no thin	harvest				0
Hudson Valley	10/4/2010	HV Lab	1.38	19.6	3.67	7.0	175
	9/27/2010	W HV	Harvest				0
<i>Average</i>	<i>No Average</i>						
<i>Prev Sample</i>	<i>9/20/2010</i>		<i>1.17</i>	<i>18.1</i>	<i>3.35</i>	<i>8.2</i>	<i>166</i>
<i>'09 Average</i>	<i>9/28/09</i>	<i>Harvested</i>	<i>1.91</i>	<i>18.7</i>	<i>3.26</i>	<i>7.3</i>	

Traminette

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	10/4/2010	W Keuka - Shoot Thin	1.71	20.3	2.96	10.5	126
	10/4/2010	W Keuka - No Thin	1.86	20.2	3.06	10.2	124
Hudson Valley	10/4/2010	HV Lab	1.76	22.0	3.56	5.4	121
	10/4/2010	W HV	Harvest				0
Lake Erie	10/4/2010	Fredonia	Harvest				
<i>Average</i>	<i>10/4/2010</i>		<i>1.68</i>	<i>20.5</i>	<i>3.31</i>	<i>8.3</i>	<i>137</i>
<i>Prev Sample</i>	<i>9/27/2010</i>		<i>1.74</i>	<i>21.8</i>	<i>3.28</i>	<i>8.5</i>	<i>99</i>
<i>'09 Average</i>	<i>10/05/2009</i>		<i>1.93</i>	<i>16.6</i>	<i>3.15</i>	<i>12.7</i>	<i>`</i>

Vidal blanc

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes			Harvested				
<i>Final Sample</i>	<i>9/27/2010</i>	<i>E Seneca</i>	<i>1.61</i>	<i>21.7</i>	<i>3.45</i>	<i>8.6</i>	<i>108</i>

Vignoles

Region	Sample Date	Description	Ber. Wt. g.	° Brix	pH	TA g/L	YAN (ppm)
Finger Lakes	9/20/2010	W Keuka-VSP, Shoot thin	Harvest				
	9/20/2010	W keuka-VSP, No Thin	Harvest				
	9/20/2010	W keuka-high cordon, shoot thin	Harvest				
	9/20/2010	W keuka-high cordon, no thin	Harvest				
<i>Final Sample</i>	<i>9/20/2010</i>		<i>1.65</i>	<i>23.2</i>	<i>3.19</i>	<i>13.3</i>	<i>231</i>
<i>'09 Average</i>	<i>10/05/2010</i>		<i>1.63</i>	<i>18.2</i>	<i>3.17</i>	<i>15.0</i>	

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The most 'extreme' treatments (80% leaf removal early and shoot thinning vs. no leaf removal or shoot thinning) are shown below. Note the difference in cluster exposure.



Fruiting zones: Top: Early leaf removal (80%) and shoot thinning. Bottom: No leaf removal, no shoot thinning.

Photo by Tim Martinson

Spray deposition. Andrew Landers and Wayne Wilcox also ran a 'spray deposition' trial, where they linked the amount of spray deposition on the fruit to the level of cluster exposure. This had an unexpected side effect: The yellow dye (food grade) used in the trial turned grape harvesters' hands yellow (see below).



Yellow dye from spray trial stained picker's hands.

Photo by Tim Martinson

Cluster numbers. We count clusters as we harvest them. Informally, the number of clusters per seven-vine panel ranged from about 150 to 300 - influenced by shoot thinning treatments. That works out to about 20 to 40 clusters per vine.



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Cooperative Extension

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Statewide Viticulture Extension Program

Long Island Grape Program

Finger Lakes Grape Program

Lake Erie Regional Grape Program

Hudson Valley Regional Fruit Program

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We pick fruit into plastic grocery bags inside 5 gallon pails. This is what 100 clusters looks like.

Fruit samples will be analyzed in Gavin Sack's laboratory, and research wines made from selected treatments.

Thanks to Derek Wilber and the crew at White Springs. The fruit in this high density (3 ft x 8 ft vine spacing) looks beautiful - a testament to the precision vineyard management at White Springs.

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