



Crop Update for September 4, 2014



The harvest season is upon us.

The season of meetings and events has come to a close and the focus has shifted to preparing for the harvest.

Events will be posted as they arise in the coming months.

Enjoy the last few weeks of summer!

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Cornell University

Business Management

Kevin Martin Penn State University, LERGP, Business Management Educator

Efficient Harvest

Operating efficiently throughout harvest requires balance. Circumstances of "balance" differ, depending on the operation and yields. A few principals guide the approach most growers take, but when those issues are in conflict, balance becomes challenging. Remaining flexible and changing your operation based on yields allows for the economical harvest of lower yielding vineyards. It also allows one to remain competitive when custom harvesting by the acre.

Equipment

In many years the goal of the operator is to keep the harvester in motion, to maximize the number of acres that can be harvested with a single machine. Success allows for the justification of additional acreage, decreased labor costs and a narrower harvest window.

While some costs are entirely reasonable, at times keeping a harvester in motion can get very expensive. Equipment innovation, preventative maintenance, and equipment replacement all differ across operations. Equipment innovations, such as de-MOG units, bulk hauling, and modern harvesters have added additional capacity while reducing labor costs. The size of your operation dictates exactly how important innovation is. Of course, for many, additional capacity provides very little value. While for others, without this kind of innovation, less acreage or more harvesters would be required. A MOG makes sense when harvesting between 120 and 150 acres. Bulk hauling would be in the same vicinity, except that most processors are not equipped to take bulk deliveries. A MOG's payback period would be much shorter, as it replaces labor costs. Bulk hauling payback is based on replacing capital expenses (boxes) as well as reduced labor cost. Newer harvesters can harvest more tons per hour. We've seen widespread adoption above 200 acres. The payback period on this would be the longest. However, since it is an exchange for one capital investment to another it is easier to plan than bulk hauling.



Labor

In harvest operations the use of labor varies greatly. Harvest operations can efficiently complete 50 tons per day with as few as three people. Most operations harvesting 100 - 125 tons per day use at least four individuals at a time. Others use as many as eight. This is where the amount and type of equipment are balanced by downtime and labor size. One advantage of a smaller workforce is that downtime is considerably less expensive.

Remaining flexible is particularly important. Small crop sizes allow for considerably more downtime. The efficiency of loading and hauling is far less important and justifies far less labor when there are simply fewer loads to be hauled. A typical grower might haul as many as 125 loads in a year. 20 minutes of tying down and an additional 30 minutes of delay in loading translates to an additional 3.5 hours per day. In a poor year, that same harvester may only haul 32 loads. The same inefficiencies in loading and tying down account for only 1.2 hours per day over a shorter season.

While the mindset of the custom harvester is to harvest as many tons as quickly as possible, some accommodation for small crops should be made. Reducing the labor costs balanced with some reasonable delay makes a lot of sense. Gross savings should be as high as \$200 per day, per employee. Fewer employees will cause harvest to stop more frequently. Reasonable delays in loading and tying down should cost less than \$50. This reduces acreage cost by nearly \$10. When charging by the acre most growers are on the cusp of breaking even. This change in harvest style should push the more efficient growers right to the line of breaking even.

Cultural Practices

Sampling

We saw a big jump in sugars this past week. Sampling data for the 9-site study collected by Kelly Link and our CLEREL staff shows a 3°brix jump from last week's sample. The samples this week show most sites are in double digits (table included). To follow veraison to harvest for other grape cultivars see weekly updates at http://grapesandwine.cals.cornell.edu/newsletters/veraison-harvest

Berry sampling is vital to tracking and plotting the traits of berry maturity. Early estimations across the region predicted croploads from 5-15 tons/acre. With a large fluctuation of crop-load between blocks this year it is important to sample, and you should start sampling now if you haven't already. Different soil types, elevation, and micro-climates can have an effect on the chemical composition and the rate in which grape berries mature. Having well-represented samples from your vineyards will help make sure there are no big surprises at harvest.

Lake Erie Region Average				
'Concord' Soluble Solid (BRIX)				
Location	BRIX			
E. Rt5	9.6			
E. Rt 20	11.5			
E. Escarpment	10.4			
C. Rt 5	9.7			
C. Rt 20	11.8			
C. Escarpment	11.8			
W. Rt 5	11.3			
W. Rt 20	10.2			
W. Escarpment	9.9			
Samples taken on 9/2/14				

Veraison is a good time to start weekly samplings with more frequent sampling the closer you get to harvest. How many berries should you pick? The number of berries is directly related to the accuracy of your total sample set. For example, 2 samples of 100 berries each should get you within 1.0 $^{\circ}$ Brix, and 5 samples of 100 berries will increase your accuracy to 0.5 $^{\circ}$ Brix.

Having an elevation, soil, and or NDVI map of your vineyard block will help guide you in collecting samples from the many aspects of your vineyard. When collecting samples remember your eyes tend to zero in on the biggest and ripest berries. To avoid this, pick with your hands not your eyes. It's best to keep looking down the row and simply reach in the canopy and let chance select the cluster and berry you sample. If single berry samples seem tedious whole cluster samples can be used (20 clusters per sample). Regardless of the way you decide to sample, stay consistent and make sure your samples are random. Finally, it is good practice to keep records of where (row, panel, and block) you sample and the measurements that followed. Every year is different, and with good records you will better understand the variation within and between your vineyards and the effect that year had on the grape maturity process.

Weather Data

Lake Erie Grape Region NEWA Weather Data							
Location	Date	High (F)	Low (F)	Precip.Past 7 days (in)	Precip. SEPT.Total	Total Apr GDD	
North East Lab, PA	9/3/14	79	62	1.9	1.18	2088	
Harborcreek, PA	9/3/14	78	62	2.44	0.96	2134	
North East Escarpment	9/3/14	78	62	2.8	1.01	2070	
Ripley	9/3/14	78	62	2.42	1.34	2140	
Portland Route 5	9/3/14	77	61	1.64	0.87	2101	
Portland CLEREL	9/3/14	78	62	1.48	1.03	2080	
Portland Escarpment	9/3/14	76	63	1.84	0.98	2076	
Dunkirk	9/3/14	77	61	0.84	0.46	2005	
Silver Creek	9/3/14	77	61	0.92	0.58	2020	
Sheridan	9/3/14	78	62	NA	NA	NA	
Versailles	9/3/14	78	61	NA	NA	1964	
Appleton	9/3/14	80	59	0.13	0.13	1797	
Somerset	9/3/14	80	60	0.25	0.25	1970	
Appleton South	9/3/14	84	58	0.25	0.19	1891	

Note: NA=Sensor Malfunction



GBM Model on NEWA

As you can see by the table below, we are well past the 1620 DD total that signals the timing of insecticide applications against the third generation of grape berry moth in high risk vineyards and vineyards where scouting indicated damage above the 15% damaged cluster threshold. Andy mentioned in last week's Crop Update (August 28) that he was still finding a significant number of eggs in high to severe risk sites. This egg-laying is the tail end of the third generation, not the start of a fourth. At this point in the season, if you have scouted your vineyards and found them to have not needed an insecticide application at 1620 DD you should be in good shape. Since we are still seeing egg-laying it is a certainty that we will continue to see the level of grape berry moth damage increase as we move toward harvest. If you found excessive damage during the last scouting and are looking at putting on another insecticide to bracketing this generation, make sure you keep both the days to harvest interval, and maximum seasonal usage of the various insecticides in mind. Be sure to check your labels as the maximum use is for the

		DD Total on		
	Wild grape	September 4,		
NEWA Location	bloom date*	2014		
Versailles	June 5	1881		
Dunkirk Airport	June 8	1927		
Silver Creek	June 9	1915		
Portland Escarp.	June 4	1950		
Portland	June 7	1950		
Portland Route 5	June 7	2009		
North East	June 3	1958		
Escarp				
Harborcreek	June 3	2045		
North East Lab	June 5	1984		
Ransomville	June 9	1786		
South Appleton	June 9	1766		
* Estimated date provided by NEWA website				

active ingredient of the insecticide, not the insecticide itself. For example, Brigade, Sniper, Fanfare and Bifenture all have bifenthrin as their active ingredient. So the maximum seasonal use for them as a group would be 6.4 fluid ounces. Contact your processor to find out when they plan to start harvest so you can plan accordingly.

I have been hearing more reports of leafhoppers in vineyard blocks where insecticides have not been applied, or were applied for only earlier season pests. At this point in time the only problem grape leafhoppers pose is to the happiness

of your picking crew. Grape leafhopper has only been shown to be a problem in very dry years where the vines are struggling to ripen a heavy crop.

Insecticide	Days to Harvest Interval	Maximum use per season
Leverage 360	3 days	6.4 fl oz
Mustang Max	1 day	24 fl oz
Baythroid	3 days	12.8 fl oz
Tourismo	7 days	37 fl oz
Danitol	21 days	42.6 fl oz
Brigade (Bifenthrin)	30 days	6.4 fl oz
Sniper (Bifenthrin)	30 days	6.4 fl oz
Fanfare (Bifenthrin)	30 days	6.4 fl oz
Bifenture (Bifenthrin)	30 days	6.4 fl oz
Brigader	30 days	12.8 fl oz

From Erie County PA.

Andy Muza, Extension Educator, Erie County, PA Cooperative Extension



Andy is on vacation. We will hear from him when he returns.

Bryan Hed, Research Support Technologist in Plant Pathology Penn State University

<u>Weather:</u> We recorded 3.1" of rainfall in August, slightly below our 20 year average of about 3.3" for August. Our growing degree day total (gdd) from April 1 through August 31 is 2020.5, about 108 gdds behind average by end of August. Concord veraison at our site was recorded on August 24, about 67 days after 50 % bloom.

Disease: Our 10 day recess from rain (8/21-30; the longest dry spell of the season!) ended on August 31, and with more rain on September 2, we accumulated another 1.9" over the past four days...sheesh! The result: more downy mildew infection periods. If you scout your vineyard and find healthy white sporulation of the downy mildew pathogen on the undersides of leaves, this is a sign that the disease cycles have resumed and the disease can spread to more leaves of susceptible varieties. If you feel you need to control it with a fungicide, pay close attention to pre-harvest intervals, especially for early varieties like Niagara (materials like Ridomil may no longer be an option). There is plenty of time left in this season for this disease to strip wine grape canopies of their leaves and leave you with a boatload of over-wintering inoculum to jump start new disease cycles next spring. Once canopies are functionally compromised by this disease, ripening of the crop and of canes effectively ends. Don't allow your wine grapes to head into winter with anything but maximum cold hardiness, as this winter may be another harsh one. There are lots of options for downy mildew control. Captan and copper are strictly protectants and are less rain-fast than the others, but they can be used with little or no concern for the development of resistance. If you plan to use copper, avoid applying it to sensitive varieties or to wet, dewy leaves first thing in the morning, as you may increase your chances of injury to leaves: the last thing you need is to damage your leaves trying to protect them. The phos acids are likely to be the more cost effective choices for susceptible juice varieties like Niagara and Catawba, but try to limit yourself to 2-3 applications per season. The other materials (Ranman, Reason, Presidio, Revus, Zampro) carry a higher risk of resistance, but are quite effective at keeping a <u>clean vineyard</u> clean. Keep in mind that Ranman and Reason carry a 30 day pre-harvest interval.

LERGP Website Links of Interest:

Table for: Insecticides for use in NY and PA: http://lergp.cce.cornell.edu/submission.php?id=69&crumb=ipm|ipm

Crop Estimation and Thinning Table: http://nygpadmin.cce.cornell.edu/pdf/submission/pdf65_pdf.pdf

Appellation Cornell Newsletter Index: http://grapesandwine.cals.cornell.edu/cals/grapesandwine/appellation-cornell/

Veraison to Harvest newsletters: http://grapesandwine.cals.cornell.edu/cals/grapesandwine/veraison-to-harvest/index.cfm

Go to http://lergp.cce.cornell.edu/ for a detailed calendar of events. Please remember to RSVP for those events that require one!



Lake Erie Regional Grape Program Team Members:

Andy Muza, (ajm4@psu.edu)Extension Educator, Erie County, PA Cooperative Extension, 814.825.0900
Tim Weigle,(thw4@cornell.edu) Grape IPM Extension Associate, NYSIPM, 716.792.2800 ext. 203
Kevin Martin, (kmm52@psu.edu) Business Management Educator, 716. 792.2800 ext. 205
Luke Haggerty, (llh85@cornell.edu) Grape Cultural Practices, 716.792.2800 ext. 204

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> THE LAKE ERIE REGIONAL GRAPE PROGRAM at CLEREL 6592 West Main Road Portland, NY 14769 716-792-2800



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