

FINGER LAKES

Vineyard Notes



Cornell University
Cooperative Extension

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August 2013

To Spray or Not To Spray Before Harvest?

Hans Walter-Peterson, *Finger Lakes Grape Program*
Chris Gerling, *Extension Enologist*

Managing disease development is one of the most important aspects of growing grapes in areas like the Finger Lakes, where rainfall can be more than plentiful most years. In some years, like 2012, the task is relatively easy.

But then there are seasons like 2013, when disease inoculum gets established early in the year, and can then cause all sorts of problems between veraison and harvest. While there are canopy management practices that can help to reduce disease development, like leaf pulling and shoot thinning, there is only one way to really control late-season disease development and that's by applying



Heavier than normal rain around bloom resulted in early infections of Botrytis on flower parts. This could be the source of inoculum for further infections as we approach harvest.

fungicides near harvest.

Winemakers are often concerned about the use of certain spray materials close to harvest, and while there is legitimate concern about sulfur use close to harvest causing bad aromas in wines, we don't have good information about how, or if, other fungicides, like those used for downy mildew and botrytis, can impact what happens in the winery.

Much like insecticides, fungicides can have a fairly broad range of target organisms that they control (like Revus Top or Pristine, for example), or they can focus very specifically on a certain disease (e.g., Vanguard for botrytis). Based on this, we can reasonably hypothesize that there would be a better chance for something like Pristine residue to impact yeast used in fermentation than something very targeted like Vanguard. But again, we don't have good data to confirm this or not. Some previous work has been done to show that captan is toxic to the yeast used in winemaking ¹, but not as much has been done to examine what happens when some of these materials are brought to the winery from the vineyard.

¹ Conner, A.J. 1983. The Comparative Toxicity of Vineyard Pesticides to Wine Yeasts. *Am. J. Enol. Vitic.*, 34(4), 278-279.

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.

Last year, we looked at two different fungicides that have very short PHI intervals and that are often used close to harvest time - captan (0 day PHI, 72 hr re-entry interval) used for downy mildew and (some) sour rot control, and Vanguard (7 day PHI), a very common material used to control botrytis between veraison and harvest. The third material

was a mixture of a boscalid and pyraclostrobin called Pristine, which is capable of controlling a broad spectrum of disease fungi (powdery and downy mildew, black rot and botrytis). Pristine has the longest PHI of the materials we used in 2012 at fourteen days. We included this material to see if a broader spectrum material might impact yeast metabolism, and therefore fermentation and/or sensory characteristics as well.

We applied each material to Cabernet Franc fruit in 2012 using the PHI and re-entry intervals to determine how long to spray each material before our chosen harvest date. All of the treatments in each variety were harvested on the same day (October 10) in order to avoid differences in fruit composition as much as possible. Treatments were split into two reps and fermented separately. Standard winemaking methods were used, and the time to ferment each lot (including malolactic fermentation) was tracked to see if there were any impacts to fermentation rates.

Treatment	Cyprodinil (‘Vanguard’)	Captan	Pyraclostrobin (‘Pristine’ component)	Boscalid (‘Pristine’ component)
	µg/ml	µg/ml	µg/ml	µg/ml
Juice				
Control	0.005	0.390	0.101	0.050
Captan	0.025	29.260	0.095	0.040
Vanguard	1.625	ND	0.113	0.040
Pristine	0.010	0.035	8.779	1.795
Wine (highest of 2 reps)				
Control	0.020	0.290	0.007	ND
Captan	0.005	0.225	0.009	ND
Vanguard	0.045	0.345	0.003	0.045
Pristine	0.005	0.250	0.440	0.070

Table 1. Residue analysis of Cabernet Franc juice and wines for all materials in each treatment (values presented for wine treatments are highest value of two replicates). Similar colors represent residues of a single fungicide before and after fermentation.

Results

Fermentation times for both reps of all treatments were not significantly different, similar to 2011. I keep waiting to see the delay in fermentation caused by captan that has been well documented in the past, but we still have not seen a major difference in fermentation time for musts with and without captan applications.

We had juice and wine samples analyzed for fungicide residues to determine the levels that were present before and after fermentation (Table 1). For each of the chemicals that we analyzed, there was a significant decrease (90%+) in each of the materials during fermentation. The residues in the final wines were all below the maximum residue thresholds for these materials on winegrapes in the US (it's unclear if these apply to finished wines as well).

Sensory Analysis

In addition to analyzing the effects on fermentation, we also want to know if there are any changes in sensory characteristics. We performed this

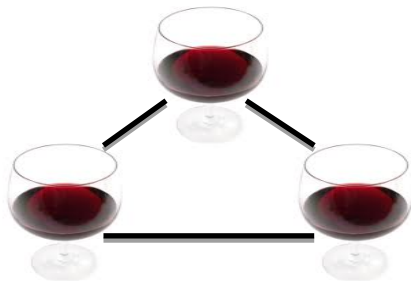


Figure 1. The Triangle Test, a.k.a., "Which one of these is not like the others?"

'difference test' using a technique called a 'triangle test', which presents two samples of one treatment and a single sample from a second treatment to our panelists (who are regular red wine consumers) and ask them to try to identify the wine that is different from the other two. If enough people correctly identify the different wine, we can say statistically that the two wines are different from a sensory perspective.

When we presented the three treatments used in our 2011 trial (captan, Vanguard, Elevate – we removed the Elevate in 2012 and replaced it with Pristine) to our panel, they were able to identify the captan treatment as different from the control, the Elevate

treatment was just shy of being statistically different, and there was no sensory difference between the control and the Vanguard treatment (Table 2).

Treatment	# of correct responses	Significance
Captan	20 / 33	**
Elevate	16 / 33	(*)
Vanguard	10 / 33	ns

Table 2. Results from triangle test of 2011 Cabernet Franc treatments. Result for Elevate was one correct response short of being statistically significant.

Keep in mind that we were not asking the panelists if they *preferred* one wine or the other – we were only asking if there was a difference. We have followed this test up with a *preference test* recently, and we are still working on finishing that data. We have also just recently done similar tests with our 2012 wines, and we will be releasing those results soon as well.

Implications. So why should growers care about this? This might sound more like a winery problem than a grower problem. And after all, which is worse - a little spray residue, or letting more rot and disease take over my vines? It should be a concern to growers because it is potentially a concern to the people who are buying their fruit, their customers. In most years, this is primarily a problem only for growers with *vinifera* varieties or Vignoles, but remember that we were seeing *botrytis* infections in 2011 in varieties where it has never been seen before - Vidal, DeChaunac, Lemberger, and yes, even Concord and Niagara. And downy mildew is always a concern late in the season, especially under conditions like we have been having this year.

What it really takes is good communication between grower and winemaker so both understand the pressures and priorities of each, so good decisions can be made. Some winemakers won't be concerned at all about these residues, while others may.

Late Season Pest Management

Tim Weigle, NYS IPM, LERGP

As we move toward harvest the question of “when can I quit spraying?”, always seems to come up and there is never a cookbook answer that can be given. The best answer is developed through knowledge of the vineyard operation, the variety, the pest(s), the current season’s growing conditions and the end use.

Vineyard operation – Vineyard operations should be broken down into blocks to make management decisions more effective and economical.

Typically, only the smallest of vineyard operations can treat their entire acreage uniformly. Blocks can be developed by variety, by potential for frost damage, ripening or damage from any number of pests. For example, the areas of vineyards with wooded edges can be hot spots for grape berry moth damage and/or diseases if wetting periods are extended due to shading of the morning sun.

Variety – Knowing the characteristics associated with a variety will go a long way in determining the need for further sprays. Each variety is more or less susceptible to the disease and insect pests that affect grapes. The susceptibility of a number of varieties to disease can be found in **Table 3.1.2 Relative disease susceptibility and sensitivity to sulfur and copper among grape varieties** found in the *2013 NY and PA Pest Management Guidelines for Grapes*. Having a handle on this information for the varieties you grow will assist in the decision of when and how long you need to keep spraying. Knowing the typical harvest date of a variety in a particular block (if you haven’t started keeping these types of records this would be a good year to start!) will not only help you plan for the need for further pest management applications, but will also help you in choosing the appropriate material to use. When choosing pesticides to use later in the season, it is always important to check the days to harvest restriction found on the pesticide label.

Pests – The importance of a particular pest can change from one point in the season to another. Know the lifecycle of the pests that are of

importance for the varieties you are growing in each of your blocks. Life cycle information for the majority of the important grape pests can be found at: <http://www.nysipm.cornell.edu/factsheets/grapes/>

Current season’s growing conditions – The Network for Environment and Weather Applications (NEWA) <http://newa.cornell.edu/> is an excellent resource to determine where the current season stands in the accumulation of growing degree days and rainfall, the occurrence and frequency of infection periods for powdery mildew, black rot and Phomopsis (the downy mildew model never came on line this year) as well as grape berry moth development. This information can be compared to historical databases to determine where this year stands in comparison to others. Both grape programs in the Lake Erie and Finger Lakes regions make these calculations and report them in their weekly electronic updates. At last report, the 2013 growing season is tracking just ahead of average in the Lake Erie region and up to 5 days ahead in the Finger Lakes region.

The end use – Wine makers and processors may have restrictions on the materials that they allow late in the season (sulfur immediately comes to mind) so check with those who are buying your grapes to see what, if any, restrictions they have. Keep in mind that this should be a two-way conversation. You can learn what effects your vineyard practices potentially have on wine quality while the winemakers can gain a better understanding of the difficulties involved in late season disease management in a difficult year.

The foundation for deciding whether or not to continue spraying is to know what is going on in your vineyards currently. Combining scouting information with the information listed above, should allow you to be able to make an informed decision on the need for further sprays in your various vineyard blocks.

(Continued from page 4)

For those that still want some glittering generalities

Phomopsis and black rot – What you see is what you’ve got. While we are still seeing what looks like fresh black rot infections, these are the result of infections that occurred weeks ago. No further fungicide applications against these diseases will be necessary or effective in controlling fruit infections.

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Current season’s growing conditions – The Network for Environment and Weather **Powdery and downy mildews** - At this point in the season we are concentrating on keeping the foliage clean. Concord growers with clean foliage should be ready to call it a spray season, but keep walking the vineyards to keep from being surprised at harvest. Niagara growers should continue to watch for downy mildew infections to avoid excessive loss of leaves. For *V. vinifera* and late season varieties that are susceptible to powdery and downy mildew, additional sprays may be needed to keep foliage functioning, not only to help ripen the crop, but to also assist in ripening of the wood to improve winter hardiness.

Botrytis – The need to manage Botrytis is very variety dependent. The No sense reinventing the wheel. Check back to the newsletter that contains Wayne Wilcox’s 2013 disease management update for the best information on effective management strategies and materials for Botrytis. I have also included the following information (developed by Wilcox and Alice Wise) on Botrytis materials reprinted from the August 1, 2013 *Long Island Fruit and Vegetable Update*.

1) Switch. Most of the international viticultural world has been using Switch, a mixture of cyprodinil (=Vangard) + a second active ingredient called fludioxanil, which has a wide spectrum of activity that includes Botrytis and a number of other fungi. This gives Switch some ability to reduce sour rot, an increasingly uncontrollable disease complex in wet years.

2) Rovral. We all remember the resistance issues in years past. Bottom line is that Rovral should not be the workhorse of your program. However, if you've been giving it a rest, it may be a useful tool in a rotational program when used on a limited basis. Rovral is one material where the use of an adjuvant improves control. Stylet Oil (assuming proximity to sulfur sprays is not an issue) is a good choice.

3) Vanguard. A consistent performer in Wilcox's trials, Vanguard is absorbed into the berries, so it's rainfast and has limited postinfection activity. There doesn't seem to be any data showing improved performance by adding an adjuvant. Vanguard is highly prone to resistance development, so its use should be strictly minimized. The label allows a maximum of two applications per season, but keep it to a single spray each year unless you really get into a bind.

4) Scala. Same chemistry and mode of action as Vanguard, the two have performed similarly in a limited number of head-to-head tests. Same resistance concerns, consequently, there is no benefit in "rotating" between the two in terms of resistance management.

5) Elevate. Unrelated to any other on the market. Wilcox's results with it have been good to very good. Elevate is retained within the waxy cuticle of the berries, so it is rainfast within a few hours after its application (lab studies show 50% retention within 3 hr and 75% retention within 24 hr). Long sold as strictly a protectant fungicide, it does appear to reduce infection within the berries – see Wilcox's write up for details. There is a resistance risk, not as significant as that for Vanguard. The label allows a maximum of three applications per season, but European guidelines recommend just one, in rotation with unrelated materials.

6) Flint. Provides very good to excellent control at 3 oz/A, versus 1.5 to 2 oz for PM. Limit strobie use to a maximum of two applications per season, so if you're already there, this is not an option.

7) Pristine. Has provided good control at a rate of 12.5 oz/A in limited testing, and excellent control at 19 oz/A. Both the strobie and non-strobie component of this "combination product" have activity against Botrytis, so there is some resistance-management benefit to using it. Still not a preferred option if you've already used it or another strobie product twice earlier in the season.

8) Oxidate. Oxidate is formulated to stay on the outside of the waxy cuticle covering leaves and berries rather than enter them. In '06 trials on Chardonnay at LIHREC, it did indeed burn out Botrytis sporulation. However, since the fungus extends into the flesh of the berry, new sporulation reappeared within a week or so and infections progressed (this was in the absence of botrycides). The temporary reduction in sporulation may inhibit the spread of spores, particularly if repeat applications are used. This is purely a guess; however, given the last two seasons of difficult-to-control cluster rot, it may be worth a shot. Use of Oxidate in combination with or in addition to botrycides may be a better strategy but it is still unclear if the addition of Oxidate will enhance control. If possible, leave treated and untreated to gauge efficacy.

Final word: Cultural practices (canopy management, leaf pulling, thinning out clumps of clusters, moderate use of nitrogen) are critical components of Botrytis control programs. Botrycides will be minimally effective if cultural practices are not timely and well executed.

Grape Berry Moth – According to the new Phenology-based degree day model for grape berry moth found on the NEWA website, we will see only three generations of grape berry moth in 2013.

Depending on the date of wild grape bloom in your location (biofix that starts the model) we are closing in on, or have surpassed the 1720 DD timing for management of the third generation using contact insecticides.

Note: A corrected version of Insecticides for use in New York and Pennsylvania Vineyards has been included in this newsletter. Please discard any

previous versions you may have received. In Luke Haggerty's article he writes about preharvest sampling of grapes. I would like to mention that this is also an excellent time to document the severity of pest problems (disease, insect and weed)

and their locations in the vineyard. This will be valuable information this winter when you are planning next year's vineyard IPM strategy.

Table 1. Insecticides for use in New York and Pennsylvania Vineyards

Insecticide	IRAC Number	Control method	Longevity	GBM	Leafhopper	Japanese Beetle	Toxic to Natural Enemies
Delegate	5	C, I	**	***	*	*	Moderate
Spintor/Entrust	5	C, I	**	**	*	-	Moderate
Biobit, Dipel	11	I	*	**	-	-	Safe
Movento	23	S, C, I	***	Phyloxera control only			Moderate
Altacor	28	C, I	***	***	*	***	Moderate
Belt	28	C, I	***	***	-	-	Moderate
Voliam Flexi	28	S, C, I	****	***	***	***	Moderate
Intrepid [^]	18	I	****	***	-	-	Safe
Sevin	1A	C	**	**	***	***	Toxic
Imidan	1B	C	***	***	**	***	Moderate
Avaunt	22A	C, I	**	**	*	**	Moderate
Tourismo	28 + 16	C, I	****	***	-	-	Moderate
Evergreen	27A + 3A	C	*	*	*	***	Moderate
Baythroid	3A	C	***	***	****	***	Toxic
Brigade/Capture	3A	C	***	***	****	***	Toxic
Danitol	3A	C	***	***	****	***	Toxic
Leverage 360	3A	S, C, I	****	***	***	***	Moderate
Mustang Max	3A	C	***	***	****	***	Toxic
Provado	3A	S, C, I	****	-	****	***	Moderate
Pyganic	3A	C	*	*	*	**	Moderate
Actara	4A	S, C, I	****	**	***	***	Moderate
Admire Pro	4A	S, I	****	-	***	**	Safe
Assail	4A	S, C, I	***	-	***	***	Moderate
Venom, Scorpion	4A	S, C, I	****	**	****	***	Moderate
Brigadier	4A + 3A	S, C, I	****	***	***	***	Toxic

[^] = not registered for use in New York

Control Method

S = systemic locally or through vine

C = Contact activity

I = ingestion required

Longevity Rating

* = 3-5 days

** = 7 days

*** = 7-10 days

**** = 10 - 14 days

IRAC Number indicates Mode of Action and Chemical sub-group for the insecticide. Rotating mode of actions will decrease the chance of resistance development.

Soil and Petiole Testing

Mike Colizzi, Finger Lakes Grape Program

How do you evaluate your vineyards fertilizer needs? Visual observations, soil tests, petiole tests? The correct answer is to use all three regularly. When used together these three methods provide the best assessment of a vineyard's nutrient status. This, however, can be time consuming and costly so it is important to find a plan that works for you and stay consistent.

Every time we look at a vine we can visually check its nutrient status. Therefore, this method is fairly easy. Soil and petiole tests, however, are where things can get tricky. Soil tests are very helpful to assess things including, but not limited to, pH, organic matter content, and overall levels of plant available nutrients. As we have seen many times there can be differences between soil and plant levels for the same nutrient. Due to a number of different factors, soils could be high in a nutrient, but petiole samples show the vine to be deficient. This is why it is important to have both soil and petiole samples taken regularly. No one likes to waste money, but over applying fertilizer based on traditional maintenance recommendations could be costing you money.

When taking any vineyard sample it is important to be representative and consistent. This is true for soil samples. Blocks larger than three acres that have varying topography or different soil types should be sampled separately. If you are unsure of your vineyard's soil characteristics a map can be obtained from your local extension office or online through the [web soil survey](#). There are two different types of soil samples that can be taken, surface and subsurface. For pre-plant situations we recommend you take both, however, in an established vineyard it can be difficult to change the subsurface nutrient status. This is why we recommend taking surface samples from the top 8 inches in established vineyards. Samples should be made up of ten to fifteen subsamples depending on the size of the block. Dump all subsamples into a large bucket and mix thoroughly. Next remove rocks, sod, small

stones, and any surface trash. The soil can then be packaged for shipment to the lab of your choice.

Petiole samples can be taken at two key physiological stages; bloom and 70-100 days post bloom (around veraison). Choosing which time to use is based on what nutrients you are looking to assess. Bloom is a great time to evaluate micronutrients because it gives the grower time to remedy any problems with foliar sprays during the season. Veraison is a great time to look at the vine's macronutrient levels. For example, potassium levels in the vine are more stable around veraison. Also potash is most effective when applied in the fall and allowed to percolate into the soil profile over winter. At bloom samples should be taken from the leaf opposite the basal cluster while at veraison samples should be taken from the youngest mature leaf with a cluster on it. Samples should always be taken from leaves free of disease and injury. Samples can also be taken anytime during the growing season if visual observations indicate a "trouble spot". In this case one sample is taken from the trouble spot while another is taken from healthy looking vines near the trouble spot.

Consistency is one of the most important things when assessing your vineyard's nutrient status. It would be a good idea to have the same person do the sampling at about the same time every year, and then send the results to the same lab. Routine soil and petiole testing will give you a good basis to make soil amendment decisions. More information on soil and petiole testing can be found on our [website](#). Remember applying fertilizer based on traditional maintenance recommendations could be costing you money.

Economics of Late Season Niagara

Kevin Martin

An Explanation

Late season Niagara harvest scheduling is highly dependent on weather conditions and crop load. Increased investments in crop management need to reflect a range of possible outcomes and harvest schedules. This year late harvest Niagara will be processed in Pleasant Valley. The trucking may or may not represent a considerable cost, depending on vineyard location. A North East grower, for example, would do well to avoid late season harvest because of the associated logistical issues. Avoidance will be a likely option for these growers, assuming the fruit is adequately mature. In a different year North East growers might be asked to heavily participate in late season Niagara.

Harvest plans are often formulated during the growing season. Plans have changed as late as October. Growers must begin the season and sustainably plan for a late season harvest, yet remain equally profitable if it does not happen. For many sites, doing just that is possible. Low cost investments and planning allow growers to profitably and flexibly respond.

Benefits of Late Season Niagara

Currently late season Niagara harvest sees an increase in brix anywhere from .5 – 2.00 brix. The average increase in brix for Eastern growers has been just above .5 brix for growers reporting. Increased gross revenue per acre will be dependent on yield. Average yields would lead to an increase in gross revenue of \$60 per acre. Growers struggle to produce average yields with cyclical Niagara crops. When the harvester presents late harvest as an option, it makes the most sense when yields are above average. Above average yields should see more of a gain in low risk soluble solids.

From a cooperative perspective, higher brix Niagara are more marketable to consumers and more desirable from an ingredient perspective. This is reflected in the gradually increasing emphasis the industry has put on brix payment

scales for Niagara grapes. Harvesting at higher brix may be a long-term and sustainable way to manage the current supply.

Costs or Risks of Late Season Niagara

The large majority of tips and recommendations to ensure an efficient and profitable late season Niagara operation do not involve additional costs. Rather, the costs associated with marginal practices become more exaggerated. In other words, following best practices simply becomes more important.

Flexible Planning

Initially it was thought that enhancements in recommendations may be necessary to maintain profitability and minimize risk of loss through late season rots and related insect pressure. For many growers in the right sites, enhancements need to be made to their practices. These enhancements however, would only bring growers in line with existing recommendations. Minimizing additional costs is particularly important because benefits are scheduling dependent.

Harvest Capacity

Some growers strategically planted Niagara grapes to expand their harvesting capacity as traditionally harvest was completed before Concords were ripe. Growers may have to adjust their commitment at harvesting. If a grower is reaching theoretical harvesting capacity, it would be advisable to avoid late harvest Niagara when possible. Costs associated with harvesting capacity may be mitigated by newer harvester methods. For the few large operations near harvesting capacity, bulk harvesting, demogging units and gondolas all increase harvesting capacity. Fortunately, the initial capital investment of this technology is quickly recouped when the investment right sizes harvest operation capacity.

Grape Berry Moth

Science based IPM strategies for the management

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of Grape Berry Moth would be recommended for all Niagara markets. Better timing and no increase in spray material costs leads to less than half of the fruit rot as compared with historical grower standards. With 2012 damaged berries over 2% at the North East lab additional increases in material costs seem to be necessary to manage GBM in late season Niagara vineyards under significant GBM pressure.

An easier solution, if possible, would be to avoid late season harvest. Making these investments would produce a negative net return as compared to early harvesting. Having made the investment in GBM control, the fruit may need to be harvested at lower brix due to scheduling reasons. If better timing does not adequately control GBM, the next best option is to market low brix Niagara. If early harvest is not an option, increased investments in GBM become a far superior option as compared to no market, risks of rejected loads or damaged in excess of 5%.

application should be made to manage inoculum levels and disease pressure when weather and vineyard conditions demand it. Once inoculum levels do rise, control will typically require a multi-year proactive spray program including this spray application. At \$25 per acre this should be a fairly common consideration for both late season Niagara growers and the industry in general. Measuring crop loss that small is usually within the margin of statistical error. When measurable phomopsis damage impacts crop size, it can easily exceed the cost of ten EBDC applications.

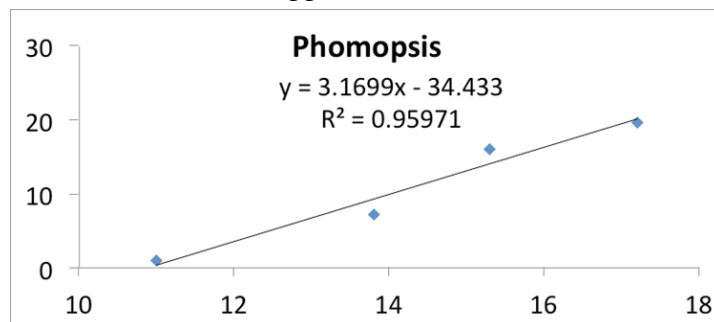


Figure 2: Hed et al., *Improving Recommendations for Phomopsis Fruit Rot and Grape Berry Moth Management in High Brix Niagara Grape Production. Progress Report LERGEP. 2012.*

Given the low cost of the application, when damage does occur it always makes sense to invest in EBDC as a control measure. If a spray application is missed or it has become difficult to control inoculum levels it is advisable to avoid the late season market. The late season market can magnify the damage caused by phomopsis. Brian Hed's work with field inoculations and simulated inoculum levels at the North East lab shows a strong correlation between rising brix and the percentage of fruit rot loss. See figure 2, which shows no loss at 11 brix linearly rising to 10% at 14 brix.

Net Profitability of Late Season Niagara

To maximize net profitability site selection is essential. Extremely high GBM pressure in some Pennsylvania sites may undermine profitability. Phomopsis pressure can also undermine profitability through fruit loss. Over the long-term pressure can be economically controlled with three pre-bloom sprays.

% Damaged Berries: Late Season Niagara Trials 2012

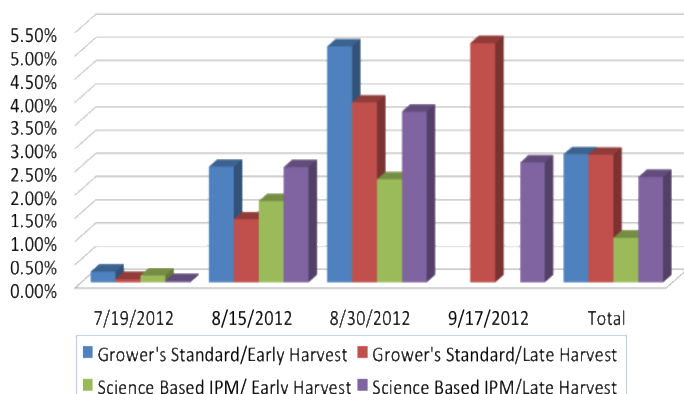


Figure 1: Hed, Timer, Weigle, Martin, *Improving Recommendations for Phomopsis Fruit Rot and Grape Berry Moth Management in High Brix Niagara Grape Production. Progress Report LERGEP. 2012.*

Phomopsis

Science based IPM strategies for the management of phomopsis include an additional EBDC application at 3"-5" of shoot growth. Economic benefits of this spray are dependent on conditions such as inoculum and disease pressure. This

(Continued from page 10)

Without knowing in May what the harvest schedule looks like, growers should limit increased investments in Niagara crops to guidelines appropriate for standard Niagara crops. This may represent an increase in cost as compared with existing grower practices. These costs are typically outweighed by the benefits, over the long term, whether the crop is harvested early or late.

Research, thus far, has shown higher levels of profitability with late season harvest. Increases in brix have resulted in an average increase in revenue of \$50 per acre. Net profitability would likely double to \$100 per acre in high yielding years, relative to an early harvest.

Berry Sampling Instruction and Purposes

Luke Haggerty, LERGP



Purpose of Sampling

As veraison approaches, there is a good reason to get out in vineyard.

Berry sampling is vital to tracking and plotting the traits of berry maturity. Each grape variety has its target soluble solid content and/or organic acid level, and these traits can differ within and between vineyard blocks. Different soil types, elevation, and micro-climates can have an effect on the chemical composition and the rate in which grape berries mature. Having a well-represented sample set from your vineyard will help make sure there are no big surprises at harvest. With a heavy crop this year, most growers are thinking the same thing: *Will this large crop ripen? or How long will my grapes have to hang?* To answer this you need sound and adequate samples accompanied with the grape berry measurement you are interested in.

How to Take Berry Samples:

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



Kelly Link gathering samples

directly related to the accuracy of your total sample set. For example, 2 samples of 100 berries each should get you within 1.0 °Brix, and 5 samples of 100 berries will increase your accuracy to 0.5 °Brix.

- Berry selection
 - * Select from both sides of the cluster
 - * Select from both sides of the row (sun exposed and shaded).
 - * Collect berries from all parts of the cluster (2 from the top 2 from the middle and 1 from the bottom).
 - * Pick random berries and not just the ones that catch your eye.
 - * Sample from all areas of the vine
 - * Stay away from border rows and the end panels.
 - * Samples should be cooled until processed.

Note: Randomization is key to a representative sample.

- Sample processing
 - * Juicing can be done using a hand juicer, jelly juicer, fruit press, or simply crushing fruit by hand in a Ziploc bag.
 - * Try to process your samples so all the berries are crushed (trying not to break the seeds if possible).

Note: For more accurate readings, leave juice samples in a cool area long enough for particulates to settle out before taking measurements.

- Measurements
 - Make sure juice samples have reached room temperature before taking any measurements.
 - Common measurements include berry weight, soluble solids (°Brix), titratable acidity (TA), and pH.

Note: Timing and grape type will dictate which measurements are required.

Sampling Considerations

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 you sample from. 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.

Upcoming Events

Don't forget to check out the calendar on our website (<http://flgp.cce.cornell.edu/events.php>) for more information about these and other events relevant to the Finger Lakes grape industry.

Vineyard Tailgate Meeting

Tuesday, August 20, 2013 5:00 – 6:30 PM

Goose Watch Winery

5480 Route 89, Romulus NY ([click here for map](#))

Final Tailgate Meeting of the season!

These are a series of informal meetings held with growers in different locations around the Finger Lakes during the growing season. Meetings are held every other Tuesday afternoon, starting at 5:00 PM and usually ending around 6:30 PM. During the day of each meeting, Mike and I visit a few growers and vineyards near the meeting location to get a sense of what has been happening in the area, and give us some ideas about some potential topics for the meeting later that day. There will also be ample time to discuss any questions or issues that others want to bring up as well. There is no need to register ahead

of time – just show up when you can, and leave when you have to.

There will be 0.75 pesticide recertification credits available for each meeting. As with other events where credits are available, you need to be present at the beginning of the meeting to sign the meeting roster – make sure to have your card with you - and stay until the end to receive your certificate.

Many growers have told us that they get a lot out of these meetings, and that they have brought back something they heard about and implemented on their own farm. This is the final Tailgate Meeting of the season, so if you haven't had the chance to attend one, why not come by and see what these meetings are all about.

New Grower/New Winery Workshop

August 22-23, 2013

Room 251, Food Science Building

NY State Agricultural Experiment Station

614 W North Street, Geneva NY ([click here for map](#))

This workshop is an opportunity to learn about key aspects grape growing and winemaking for those interested in starting a new vineyard or winery business. Attendees will learn about the decisions that need to be made in preparation for planning or starting a winery, and also once production has begun. The workshops will include a tour of a vineyard and winery.

The first day will focus on developing a new vineyard. **Hans Walter-Peterson** and **Mike Colizzi** of the Finger Lakes Grape Program, **Andrew Landers** from Cornell University, and **Tim Weigle** with the New York Integrated Pest Management Program, will cover topics including site selection and preparation, appropriate varieties to plant, essential equipment for new vineyards, and pest and weed management.

The winery workshop on the second day will look at

winemaking, analysis, equipment and more. **Anna Katharine Mansfield** and **Chris Gerling** of Cornell's extension enology lab will be joined by enology lecturer **Patricia Howe** to cover the wine topics. **Sam Filler** from the Empire State

Development agency's "one stop shop" for wine beer and spirits will also be giving a presentation and answering questions related to licensing and other legal aspects of starting a winery.

Registration for either day is \$150, or \$250 for both days, and includes all materials and lunch.

Registration for the workshop [is available online](#). Questions can be directed to Gemma Osborne at gro2@cornell.edu or 315-787-2248.



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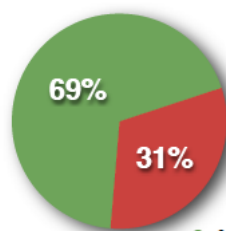
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NYS Grape Crop Insurance

Total acreage in grape production in New York State is 31,800 acres. Of those acres, 68% or 21,600 acres were insured in 2012. There were 349 policies sold, covering 1,783 separate units.



Crop insurance paid out \$5.4 million for grape losses in 2012.

69% of grape producers with crop insurance received indemnity payments.

● % receiving payments ● % not receiving payment

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Enroll by November 20 for the 2014 growing season.

Contact a crop insurance agent to get started.

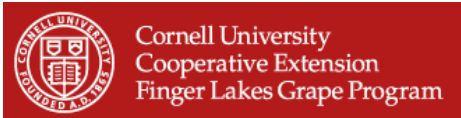
To locate an agent, go to

www.rma.usda.gov/tools/agent.html



New York State Department of Agriculture & Markets
Crop Insurance Program
www.agriculture.ny.gov/ap/CropInsurance.html
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