



Pennsylvania Vineyard Loop

Dr. Kevin Ker, the outstanding viticulturist from Ontario joined me for a tour of vineyards in northern Pennsylvania. I cannot emphasize enough the value and importance of having an objective second mind and set of eyes on a vineyard. I knew as a grower that I was too close to the issues in my vineyard and over time somewhat blinded by them. It was always helpful to get a trusted consultant to critically evaluate the condition of the vineyard. Kevin would be a great place to start.

We started in northeast Pennsylvania in the Endless Mountains, which I have visited and written about before. In an area like the Finger Lakes, aromatic white varieties excel and they are growing *vinifera* and cold hardy hybrids. Even just a few years ago it was thought that winter injury would be the greatest challenge but severe late spring frosts in the past two years have altered the priority list. Any variety that has green tissue is subject to frost damage, regardless of its cold hardiness. Across the northern tier into Erie and down into the hills around Pittsburgh frost damage occurred and crops reduced with economic consequences for grower and wineries. The heat spike in early April jump started the season earlier than any old-timer can remember and exposed longer shoots and more varieties to frost. The only variety that seemed to make it through the carnage with primary shoots intact was Vidal, which demonstrates the importance of variety selection according to site characteristics. Kevin and I agree that site selection is the key to frost and winter injury mitigation – avoid low areas, wet soils, and trees and brush around the vineyard perimeter. After that, passive and active prevention measures are often expensive and inconsistently effective. We didn't have a lot of specific recommendations for growers beyond the need to for wind machines where topography permits and the use of double pruning. I would advise wineries whose grape supplies are affected by frost to secure sources of high quality fruit as soon as possible. The last minute scramble and shopping the last minute spot market often result in lesser quality grapes.

It appears that frost may become paramount among viticultural concerns in cooler-colder regions of the state since it impacts the economic sustainability of a vineyard. At the moment, preventative measures are somewhat haphazard and it may take a very cold, hard look at the dynamics and realities of certain vineyard sites by the grower to come up with a long-term solution. In the meantime, we'll try to offer every remedy available.

We saw a lot of French and cold hardy hybrid (MN and NY) varieties being grown on VSP and wondered about the viticultural and economic logic of this. Of the single canopy systems VSP is the most expensive to develop and maintain. It is the most light efficient trellis system but for anything but the latest ripening white and red varieties it is probably more trellis than is needed to get the fruit into proper configuration to maintain and fully ripen. Chambourcin may be a

candidate for VSP but Vidal, Marechal Foch and other standard hybrid varieties can excel on a high wire system with some carefully-timed shoot positioning. Just because a variety is put on VSP does not translate to higher quality grapes. Downward trained shoots also reduce vine vigor which, in almost all vineyards we saw, could benefit canopy management practices. I liked the occasional use of a pendelbogen style of training to increase shoot density and mid-cane fruitfulness and uniformity. We saw some variations of the old kniffen system but I continue to worry about the shading on lower fruit levels.

Wet soils are the scourge of cool and cold climate wine growing and this applies across varieties and species. I have come to believe that drain tile, as they are widely employed in Ontario, can greatly assist vines in both ripening fruit for wine quality and ripening wood for cold hardiness. We saw too many low spots with damaged vines to ignore this relationship. Do anything possible to move the surface air and water, and subsurface water out of the vineyard. It will have the added benefit of lowering vine vigor which will help with disease control and ripening the fruit.

Management of vine growth is done by managing of soil nutrition and water. Terry Bates commented on at least one grower who may be using the high acid soils in the Lake Erie area to limit nutrient uptake and keep vine size smaller. Everywhere it seemed that well-drained soils sustained healthier and older vines.

It was hot all week long and warnings of heat and water stress began to appear on extension networks. We saw some new vines toasted in grow tubes and older vines showing signs of water stress – yellowing of basal leaves and, if severe, burning of the leaf edges. Water stress is related to capacity of the soil to hold and give up moisture. I write a lot about the need for well-drained soils to make fine wines but this is the flip side and danger of dry conditions without the benefit of irrigation. We have a very long way to go in developing methods to monitor plant available water, vine water status and appropriate scheduling of irrigation. In years like 2007 and perhaps 2010, the ability to keep vine function at the minimum requisite level deep into the harvest season may

The Penn State grape research lab in North East, PA (Erie County) is always a fun and interesting place to visit. We had a great exchange with a group of about 25 wine growers focusing mainly on crop estimating systems and methods, grape prices, grower and wine maker relations, canopy and disease management and other current topics. The conversation drifted into grape prices and grower-winemaker relationships and we were lucky to have Mario Mazza and John and Mike Moorhead on hand to set the tone of cooperation on that topic. Vineyards and wineries are mutually dependant on each other so it often puzzles me why they are so often at odds with each other. Often it boils down to communication about expectations and what's actually going on in the field and cellar. Sharing information can be a great way to avoid conflict and disappointment. Eric Miller recently shared an excellent article about vineyard enology by Clark Smith. I think all growers and wine makers would benefit from reading it at: http://www.winesandvines.com/template.cfm?section=columns_article&content=74762&columns_id=92

As native growers transition to wine grapes there is a bit of a mind-set adjustment that needs to take place and the relationship between processor and grower takes on a very different complexion, mainly it gets more complicated because the demands for quality are more strict. These growers come in with a healthy background in farming grapes but natives are more agronomic in their approach and wine grapes require more attention. The '08 vineyard survey showed a significant jump in wine grape acres and I have a feeling most of it was in Erie. As an industry we need to make sure these vineyards are comfortable and successful in their transition to wine grape production.

For a small research shop, North East sure delivers the goods. Bryan continues to work on his trace bloom leaf removal treatment to loosen clusters and Jody Timer is still chasing after the perfect recommendations for management of grape berry moth. Speaking of GBM, we had the good fortune to run into Greg English-Loeb, the Cornell grape entomologist and Tim Weigle, NY IPM specialist at the lab in Fredonia. Because of the early start to the season and the continued warm weather there is likely to be an additional flight of GBM in late August or early September in Erie and most certainly even earlier in the southern parts of Pennsylvania. This last one has the potential to do a lot of damage to berries near harvest so growers should be aware of it. Each subsequent flight has a flatter and wider distribution curve over time so it is harder to know exactly when to treat for later broods but use the material with the longest residual effect like Intrepid. We talked a lot about the most accurate biofix system for moth development, should it be native vine bloom or degree days. This still needs to be determined by researchers. There will be consistent information about GBM coming through grape networks from Michigan State and the Lake Erie Regional Grape Program. If you are not tapped into these sources you should get connected.

In a casual conversation Andy Muza, the horticulture extension educator in Erie County and Bryan Hed told me that they did a field grafting trial in the research vineyard this spring and had quite remarkable success. I consider field grafting to be one of the holy grails of eastern viticulture since up to now we have not been able to interchange varieties as they do so quickly and efficiently in arid wine regions. They grafted three different scions onto three different stocks (Vignoles was one of them). It was a small trial but the results are promising. Yes, it has been a warm and dry summer but they grafted before the warmth really arrived. It would be a huge benefit to wine makers and growers to be able to change varieties and be back in production in the second year. Bryan and Andy said they will try this again next year in a more rigorous research setting.

The Penn State-USDA NE-1020 wine grape variety trial is doing very well in the Erie location. Vines are being carefully trained and should yield some fruit this year and a significant crop in 2011, just in time, hopefully, for the new Penn State extension enologist to make wine samples for industry evaluation. Potatoes and snap beans grow well in Potter County but Bill Waltman, the extension educator sees a potential for wine and has planted a test vineyard with cold hardy varieties such as Frontenac, Marquette, Brianna, and others. Bill has done some amazing climate mapping for the region that significantly guides the selection of suitable varieties. I am hoping to extend his climatological experience to mapping rain shadows in SE PA which should help fine wine production. With data resolution to 30m it should be possible to find pockets of dry

conditions. All of this information should be helpful as more growers explore colder regions of the state for wine potential.

The new Cornell Lake Erie Research and Extension Lab (CLEREL) in Portland in western NY is impressive and working hard under the leadership of Dr. Terry Bates, one of our best viticulturists. I cannot help but envy the resources at Cornell. With 50 acres of research vineyard it dwarfs the Penn State North East station and the researchers at the mother ship, NYSAES in Geneva are very active at this station. I ran into Dr. Andrew Landers who is hosting a sprayer workshop later in the month and will demonstrate his bi-zonal sprayer that can apply different materials to specific areas of the canopy and fruit zone. Dr. Wayne Wilcox has a significant grape pathology plot at the station. Lots of new vinifera vines have been planted. You can read more about CLEREL at <http://lergp.cce.cornell.edu/>

We saw weed problems in a few vineyards. It is a complicated problem in mature vineyards with replants due to winter injury. Kevin explained that research indicates that 18" grow tubes are the optimal length while 12", 30" or 36" is not as effective. Grow tubes help to keep herbicide away from new vines but must be managed carefully. They should be sealed with soil at the base and removed by mid to end of August. Chateau has been a particularly effective pre-emergence herbicide on 3+ year old vineyards. Once the rows are cleaned up, weeds can be managed with tillage and/or post-emergence materials such as Roundup.

Bryan told us that this has been the perfect season for powdery mildew and we saw some berry infections on Riesling and Gewurztraminer in a very well managed vineyard. Close intervals, correct materials applied at best rates and coverage were the minimum necessities for powdery control early in this growing season. For post infection relief Kevin suggests two apps of a bicarbonate product seven days apart. We talked a lot about sulfur and how much and when to use it, amounts over 6 lb/ac are excessive and tank mixing can reduce the risk of fungicide resistance. Between outbreaks of powdery and berry moth it seems prudent for the wise grower to identify the hot spots in blocks of vines and scout with great intensity in warm years as well as wet ones. In the past few weeks I have encountered four times in various viticulture articles some variation of the old adage, "the best management is the grower's footprints in the vineyard". Yes, this is true, if the grower knows what to do in the vineyard. You can't just stand in the vineyard. It's the difference between seeing and observing. The latter requires interpretive knowledge behind what is seen. It is the European method of empirical viticulture that comes with experience and training, not a book or a few weeks or even years in the vineyard.

On the way home Andy and I had the pleasure to stop at the Greendance, the winery at Sandhill Farms, in the rolling hills southeast of Pittsburgh. Lee Young, the Washington County extension director, helped organize a grape and wine meeting here. This is a truly revelatory place, a value-added farm par-excellence. Vineyards and a winery were added in 2007 to the crop portfolio and it is truly well-executed, from immaculate vineyards to beautiful tasting room staffed by the friendliest people you'll ever meet. Walt Vinoski, the wine maker, has a lab that goes way beyond the norm of a Pennsylvania winery, stocked with a centrifuge, microscope and other high tech equipment. He spoke often of his relationship with the wine analysis lab at Virginia Tech and how they work together to keep his wines sound and stable. They are making mostly hybrid varieties that have wide appeal to their regional customers. I'm not sure if their

relative isolation from the rest of the wine world is their secret or handicap. Whatever is going on here, it's all for the good and a great story for Pennsylvania and a lesson for anyone seeking to start a rural winery business. If you ever go to Pittsburgh, stop at Greendance.

I drove 1200 miles to cover the state and it was worth every one of them (even having my car broken into). In every corner I met people with a great passion for life and wine. It was a refresher course in exactly why I got in this business and still love it. An evening with Bob Green, and Deb Phillips and Jack Russell at their beautiful home overlooking their vineyards in Erie was a highlight. We had a delicious, full bodied, ripe Cabernet Franc from Freedom Run Vineyard and a home-made Merlot from a neighbor's vineyard that was loaded with ripe fruit and a nice balance of tannin, oak and acidity. Who says we can't get color in our reds. Both of these wines were deep and dark.

We still have big challenges like frost, drought, and diseases, the old ones never seem to quite get any better and new ones, like yellow jackets and late season rots just add consternation to the already frightful act of growing wine in these conditions. But it never ceases to amaze me how people who one day woke up and decided to have a vineyard or a winery undertake the mission with zeal and tireless energy and, more often than not, it seems a very nice wine pops out at the end of the process.

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