



Cool Climate Viticulture in Pennsylvania: Lessons from our Neighbor

I get inquiries from every corner of this state from people who are passionate about wine and want to grow grapes. I used to scratch my head when calls from the “frozen north” arrived but with ever-improving viticulture, what was once considered very risky business may actually be viticulturally and financially rewarding. New hybrid varieties developed in Wisconsin and Minnesota that barely flinch at -30°F make growing wine in cold places possible. But there is still hesitation about planting vinifera where winter temperatures can plunge. I discovered on a recent trip to the Finger Lakes, Riesling, one of the truly great noble European varieties, has excellent hardiness and durability in challenging climates and it can make wines of great distinction.

Why cool climate viticulture? Well, beside the fact that I’m just not a cab or butter chard kind of wine consumer - in my humble estimation, many (most?) of the best wines in the world are from cooler regions. These would include Pinot Noir, Chardonnay and Riesling. Most wine people probably do not associate “cool” with Pennsylvania. We break down into four regions – Erie and the southeast corner below the mountains are our “warm” regions with GDD exceeding 3000 and a growing season sometimes more than 200 days, making many varieties possible. But there a cool Pennsylvania as well and they can be found in areas around southwest and northeast Pennsylvania where temperatures decrease as elevation and latitude increases. In these places the season shortens and grape culture is challenged but possible. In the U shaped section of the far north central part of the state, only Eskimos survive.

In every wine region there are two imperatives that affect variety choice – viticulture and marketing. My preference is always to plant grape varieties that are best suited to the site realities. However, to ignore market realities would be as foolish as to plant in a valley with rich soils. While Riesling was considered DOA or MIA in the American wine market even as recently a few years ago, the variety is making a strong comeback based on a new generation of winegrowers in Europe who are focusing strictly on quality. I am encouraged that Riesling may be candidate for planting outside the warmer Pennsylvania regions. It offers a distinctive wine of great elegance that can be crafted in a variety of styles. Other varieties like Vidal and Traminette, are great compliments to Riesling and on the red side Chambourcin, while a late ripening variety, is a contender. Among the Minnesota varieties, Frontenac, St Croix, Sabrevoir, LaCrescent, LaCrosse and others offer their own distinct flavors and while they may never sell in fancy restaurants in the city, they offer their own distinctive appeal to non-snobby palates. They are the bread and butter wines that pay the bills and survive even the harshest winters.

Site, cultivar, clone and rootstock selection are the key to success and sustainability in these cooler regions. The primary goals are to fully ripen fruit for wine quality and wood for cold

hardiness. Elevation, both absolute and local, are critical factors in achieving just the right zone to ripen varieties like Riesling yet not expose the vines to drastic winter low temperatures or spring/fall frosts. Warm sites in a cool region are preferred with very well to excessively well drained soils. East to south slopes of >5% with soils containing a high percentage of rock fragments is ideal. Viticulture must be performed at the highest possible level of competence to assure healthy and strong vines that will resist disease and cold. I have written before about “extreme viticulture” which is, in essence, extremely good viticulture. This is no big secret – great canopy management, rigorous crop regulation, disease and pest control, and getting the vines in balance. In cool climates, where ripening to full maturity is often a challenge, top notch viticulture is essential to attain a consistent and high quality wine. We have the additional concern of cold hardiness but fortunately, almost anything a grower does to ripen the grapes will help to ripen the wood as well. I met John Santos at Hazlitt and John Wagner at Wagner, two of the best wine growers I have ever met, anywhere. They are innovative, observant, meticulous and hard working. Given the right tools and funding, I know they could give the best European Rieslings a run for their flavors. Hit with two consecutive winter injury years, John Wagner developed a 3-pt vine planter that mechanizes replanting while lowering costs and improving replant quality. It is an ingenious device that he hopes to patent. As they plant more acres, vine densities are increasing and care of soil selection is more serious.

I had the pleasure of attending a tasting organized and hosted by Dr. Thomas Henick-Kling and his enology group at the NY State Agricultural Experiment Station in Geneva. The invited guest was Mr. Stuart Pigott, a Brit living in Berlin who has written extensively about German wines and continues to write about wine for a variety of European publications. Along with 40 wine growers, we tasted 40 Riesling wines from around the world. It was a fascinating exercise and revealed the versatility and true charm of this grape. I’ll admit right away my own bias. It was in the vineyards of the Rheingau in Germany that I first fell in love with vines, and later with wines. But I consider Riesling to be unmatched in quality and class among all white (and red?) wines due to its expressive nature and potential for character and complexity. Like Pinot Noir, it is a cool climate variety that is very terroir sensitive. In other words it is a vehicle for the true expression of typicity for a vineyard site. In the right place, like the Nahe or Mosel, the results can be unbelievably sublime. I would argue that there are fewer places in the world where truly great Riesling are grown than any other noble variety, including Pinot Noir. Fortunately, for all of us and especially the nice folks around the Finger Lakes, they are among the blessed few who share this unique terroir association. We tasted wines from great estates from Germany, Alsace and Austria. They have their own special character and, at least for me, Germany is still the benchmark. When my palate applied these criteria to a dozen Finger Lakes wines, I was able to write “classic” next to four of them and the others were pretty darn good besides. This bodes well for the lakes because if a region can make an intrinsic connection to a variety in the mind of the consumer (Napa/Cabernet, Willamette Valley/Pinot Noir) then the deal is sealed and you can go to the bank. I doubt that we can apply quite the same formula to Pennsylvania and cool climate wine growing, but if Riesling can be well made here, it can bring acclaim to sub-regions that might otherwise go unnoticed.

Riesling is a versatile grape, yet performs at peak quality only in special places. It can be harvested at low brix, bordering on unripe and still make a good wine. It is finished dry, semi and sweet with equal distinction and can offer a wide palate of flavors. And, of course, the late harvest wines with “noble rot” are among the most amazing and difficult wines to produce in the world. German wines elicit descriptors such as mineral, earthy, floral, citrus and adjectives such as racy, vibrant, and bracing. I tasted these attributes in many of the wines including those from the lakes. I am not sure what a Riesling from Sullivan County, for example, would yield in flavors but it would be interesting to find out.

The viticulture for great Riesling is daunting. Just try walking on any slope in the Mosel Valley and the absolute full concentration needed to avoid falling and rolling right down to the bottom, bouncing off the road and into the river. In his comments, Stuart told us about a visit with the great Nahe wine grower Herman Donnhoff and how he once showed him a “happy vine” that would produce phenomenal Riesling. I asked Stuart if he could quantify for me exactly what constitutes a happy vine. In our American obsession for statistics, data and parameters I mentioned measurements like cm^2/g of fruit, pruning weights, shoots per meter and so on. He shook his head and made this analogy All of that stuff, the golden rules etc., get the wine grower to first base, a significant accomplishment to be sure. But if he or she wants to make truly great wine and get to second, third and, in Herr Donnhoff’s league, home plate, then you have to bring intuition, experience, art and craft to the wine growing process and know, intuitively, when you are standing in front of a vine, whether or not it is a happy vine – he used the example of Herr Donnhoff knowing how each leaf on the vine should be positioned. As my extension colleague Tim Martinson and I traveled around the lakes, it was clear that many growers had reached first, they have some of the most talented growers in the country, but none were rounding third... yet. If they are able to figure out site specificity, where the best soils are matched to the ideal mesoclimates, then the classic will become commonplace. All wines were tasted blind in flights and Mr. Pigott identified the Finger Lakes wines by consistencies or unexciting “sameness” in their style. He commented that they were perhaps a bit formulaic in composition and encouraged the wine makers to stretch their creativity in order to get more terroir expression. Here in Pennsylvania, we need to go through the same exercise. I think it exists at just the right elevation in many areas, mostly along the mountains in the Lehigh Valley, further north and the southwest quadrant of the state. After site selection, crop level and absolute top level management will ultimately decide the full potential of this grape by the lakes.

In the vineyards there were obvious drought stress symptoms in many vines we saw of all ages. The three hurricanes that blew through Pennsylvania in July followed by humid weather with sporadic storms in August did not affect the Finger Lakes area. Only the remnants of Katrina added 3-4 much need inches recently. Alan Lakso, a vine physiologist at Cornell has done some leaf temperature and photosynthesis measurements this summer and his findings are interesting – leaf temperatures on irrigated or vines in deeper soils are normally a few degrees above ambient, but stressed leaves spiked over 100 degrees, shutting down stomates and photosynthesis. It is odd to consider that on a beautiful sunny day the vine is not working to ripen fruit but instead retreating into a protective mode. Tim reported on the beneficial effects of irrigation in a dry year on just about every measure of juice quality and vine performance, as well as subsequent cold hardiness. We clearly need to learn and

understand more about the physiological response to drought and heat stress and the proper irrigation of grapevines in the East beyond our current shoot from the hip approach. Irrigation scheduling using evapotranspiration rates and crop coefficients as well as direct measures of soil moisture and leaf or petiole water status is imperative to fine wine production in dry years.

I like Riesling's chances for long term productivity in our region. The lakes have, as we have, been hit by three very significant cold injury events in the past five years which have particularly damaged vinifera vines. Yet, in a survey of 200 vineyards in the summer of 2004 by Tim, Riesling was exceeded only by Pinot Gris as the most durable of all vinifera varieties. In a similar survey in Ontario by Ken Slingerland, Riesling was the second most durable after Pinot Noir. To be fair, losses in both regions were around 50% which is economically significant. Protective measures such as hilling up over graft unions and wind fans may provide some of the insurance we need for these high value varieties.

It is exciting to see new growers appearing around the lakes with serious vineyards focused on quality. The future of the industry is dependent on their success. The lakes should spend more time and effort understanding just where the best vineyard sites are in a very complex terroir. Even just Seneca has its north, south, east and west areas, all certainly distinctive in many climate and soil characteristics. Until this is all sorted out, great wine will be a more a matter of chance than skill.

I would encourage all wine growers who are serious about Riesling to make a trip to the Finger Lakes to taste and learn about their wines. Better yet, go to Europe and taste the great wines in Germany, Alsace and Austria. Look very closely at the vineyards and talk to any grower who will share knowledge of growing and vinifying wines.

I would like to thank Dr. Tim Martinson for showing me around his neighborhood, Dr. Thomas Henick-Kling for the invitation to attend the tasting, and his intrepid staff for their hard work in hosting the event and all the wine growers we met who are so incredibly hospitable and willing to share their knowledge with others. This is a great business we work in.

References:

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