



## The Wine Grape Program at Ten Years

Sorry I have been out of touch for a while. For those that may wonder, I finally finished my master's degree at Penn State and the commercial vineyard development manual. I hope the book will be available this spring and that it will be helpful to new wine grape growers. I wrote it because in the past 2-3 years we have had so many new entries into the wine industry, and frankly, I have grown weary of explaining the entire complex process of how to start a vineyard. Now there will be a practical user manual that, along with Tony Wolf's *Wine Grape Production Guide for Eastern North America*, pretty much covers everything you need to know and do. The manual focuses on vineyard development and is very practical and anecdotal while Tony's also covers mature vineyards and is more technical in nature. I hope they will complement each other and offer new and experienced growers alike the full feast of viticultural knowledge necessary to develop and sustain a successful commercial wine vineyard. It is so important that our new growers get a good start in their grape/wine production businesses. As a region seeking to gain the respect and recognition of consumers and critics the quality in every bottle counts.

October marked ten years that the Wine Grape Program at Penn State Cooperative Extension has been serving the needs of Pennsylvania's wine growers. I'm still grateful to people like Eric Miller, Howard Miller, Fred Maki and others in the industry who lobbied Penn State to create the position. John Schwartz, the CED in Lancaster and Michelle Rodgers, the regional extension director, created a robust position. Ten years is a good time to look both backwards and forwards, although I prefer the latter. I think we have made a lot of progress, and I make that statement based on the growth of the industry and the quality of our grapes and wines. I am encouraged by the direction we are heading. Judging at the PA Farm Show wine competition recently, hosted by Rutgers and UMd, it was a pleasure to taste through dozens of wines and not find a single technically flawed wine among them. The fine wines are at international level of quality. Most wines are very correct and pleasing. I can offer my opinion that Pennsylvania continues to excel at our bread and butter wines, semi-sweet and sweet traditional native and hybrid varieties. This is good news because they represent the core of our wine industry. The challenge continues with the high quality hybrid and vinifera wines which, as Dr. Tim Martinson at Cornell describes as needing "fussy viticulture" and you can add expensive as well. I appreciate that the producers of natives and hybrids have found a comfortable production niche. I'm not sure if there is a higher plateau of quality for these varieties or, if the producers and consumers are content with the wines just as they are. I

have a sense that bulk juice and wine brokers are selling good quality product which allow wine makers to make good wines.

We are moving forward with the quality of our finer hybrids and vinifera wines but there is still plenty of work to be done and challenges to be met. Tastings at workshops for Cabernet Sauvignon and Bordeaux reds, Maryland reds and aromatic whites this summer clearly demonstrate what is possible in good, warm, drier and ripe vintages like 2006, 2007 and 2008. '06 and '08 had their issues but wine makers still made very nice wines. I just think we are getting a lot smarter in the vineyard and cellars, especially in lesser vintages. 2009 will be a real test. If fine wines pop out of this one, then maybe we have figured this region out. We'll have to taste and see later on. The Pennsylvania Wine Society's annual Best of PA Wines is coming up on January 17 in Harrisburg. Dr. Gary Pavlis from Rutgers who presides over the competition told me we have some outstanding wines to look forward to. At the farm show event, I tasted delicious Merlots, Riesling, Gewurztraminer, Chardonnays and hybrid and native wines. The Cabernet workshop in July revealed that red wines from Long Island to Virginia have the stuffing to compete with Bordeaux. The PQA/PWA workshops in August helped to highlight progress with aromatic white wines and a recent taste-off between a PA Chardonnay producer and competition from Burgundy and California showed that we are very competitive in the world's most popular white wine variety. This is all part of a process and maturation that connects the dots to quality.

When I was hired ten years ago Fred Maki told me that SE PA needed a regional identity and that it was a high priority for the wine industry. Since I now serve the entire state, I would like for all of our distinctive regions to form their own unique identities based on the wines that excel under their conditions. For the southeast and other warmer areas, I unashamedly wish for an Oregon-like reputation for wine typicity and quality. We know now that we have the viticultural necessities and prowess to make really good wines. The key is to do it consistently and continue to push quality. I believe that if you do that the market will come to you, as it did in Oregon. Pushing quality comes from two places in the wine trade, innovative applied viticulture and enology research and education, and aggressive, empirical-based viticulture by creative wine growers. We have easy access to a world of viticulture and enology knowledge and technology. There really are no excuses any more for not making excellent wines.

But as a regional wine industry we are not immune to the absoluteness of the bell curve in everything that in or out of nature. I think our great challenge is to shift the curve more to the right and get more truly fine wines being produced. One of my favorite Car Talk mantras is, "only the mediocre can always be at their best." Well, we want to stick a pin in it. The other phrase I hang tightly on to is "in vino veritas" and from all indications we are certainly finding reasons for optimism in the truth of our wines, regardless of provenance. I urge all wine makers and growers to taste critically, not only your wines but others in the region and around the world. There is a benchmark Concord wine as well as a Chardonnay or Chambourcin. Ask yourself who is doing the best and why. Find the benchmarks, pin them up on the wall of your mind and palate, and start throwing darts at them until you hit them squarely in the center.

Sound, if not extraordinary viticulture is the answer, of course. Wine makers need clean and ripe grapes and preferably earlier in the vintage to make fine wines. Strict vineyard site selection is probably the foundation of quality and an area we need to improve upon. I remain convinced if we can identify the better soils and mesoclimates for high quality wine production that we can progress towards a standardization of quality as the French have done in Bordeaux, the wine region that most favorably compares to the Mid-Atlantic, or the Mosel or Alsace for the Finger Lakes. The viticulture is almost as important. Lucie Morton is shifting the viticulture paradigm from medium density to higher densities around 2000 vines per acre. The early results on reds and whites are very promising. This is fussy AND expensive viticulture but it is the price of admission into the 90 point club of Parker and the Spectator. She is moving vines closer, using better trellis systems, picking the best clones and rootstocks, and managing the vines like a Catholic nun in a 3<sup>rd</sup> grade classroom. If you add drain tile and drip irrigation to the picture you have a very Napa-like vineyard with the potential for similar results. This is all very experimental and I wish that there were research projects to back up the methodology but for now, it is the progressive and adventurous growers that are setting the pace for quality. A few examples of pushing the quality envelope that I have come across recently are Karamoor Farms, where Nelson Stewart used leaf blowers to remove excess moisture from clusters prior to harvest this season. I saw the same practice being used at Dominus in Napa and Chateau Petrus in Bordeaux. Nelson has set up an amazing sorting system that is super gentle and checks every berry before it reaches the fermenter. Rutger suggests that part of a quality recipe for the East is a slope, upwards of 30% at RdV, which is ideal for the best drainage of soils, despite the fact that he looked far and wide for a vineyard that possesses great drainage features. This idea could never be turned into an extension recommendation but it suggests the value of slope for drainage effects and shows yet another way that growers are pushing ahead in high quality wine growing practices. This brand of wine growing isn't for everyone but it just shows we have growers who are out there pushing the envelope of quality. I hope that someday we will develop a quantifiable and systematic method to evaluate soil moisture and make correct rootstock assignments.

In no way am I suggesting that this is the only brand of wine production that I endorse. We make excellent wines from low to medium density vineyards. It is admirable and exciting because the wines it will produce will help to put Pennsylvania solidly into the minds of wine neophytes and snobs alike. Not everyone will agree that the top level of wine type should be a goal for either their own winery or vineyard or the wine industry but based on recent new entries into our industry, it is the direction we are moving because it is where they want to go. Natives and hybrids will continue to be the bread and butter foundation of the industry. Their needs are just as important to our overall success. I have never viewed us as an "either/or" industry but rather a rich diversity of varieties that cater to many needs. Read my *Grape Varietal Diversity: the Spice of Wine Life* article (<http://www.winebusiness.com/wbm/?go=getArticle&dataId=59825>) if you want my opinion on the matter.

Harvest was a long and arduous affair this year with most varieties coming in 2-3 weeks later than normal. It is years like this one (and '03 and '04) that test the mettle of

growers and wine makers. The assessment of fruit quality has been mixed but generally I am hearing that whites are good to excellent and most wine makers are reserving judgment on reds pending ML and checking acidity for balance, otherwise color and tannins seem to be fine, especially in Chambourcin, but sugars are lower almost across the board. For reds it is always about flavors and the fine balance of acidity and tannin. It is prudent not to make quick judgments about quality and wait until spring after the wines have had a chance to rest over the winter and figure out what they want to be. It was an Eastern vintage. But if you noted the rainfall distribution in Virginia Tony Wolf's August *Viticulture Notes* you can see how much location matters. The Virginia coastal region got lots of rain, the mid-section a moderate amount and the foothills were almost in a drought situation. These variable conditions have a huge impact on fruit quality in each region.

It was, to be sure, the wackiest vintage in my 10 here in the East with cool temperatures and plentiful rainfall, hardly conditions normally associated with fine wines. Yet, we seem to have had just enough heat and sunshine hours in September and deep into October to give the reds a shot at ripening. I had made dire predictions of rot problems due to excessive vigor caused by all the rain but the rot issues were sporadic and unpredictable. Riesling, usually a magnet for rot, came through in many vineyards unscathed and colleagues in the Finger Lakes, where they live and breathe Riesling, report very little incidence of botrytis or other rots. I wonder if the exceedingly cool temperatures may have helped to slow the sporulation and keep the rots at bay. If so, it's a benefit of cool temperatures but not one I would generally trade for fruit ripeness, except for flexible white varieties like Riesling.

Quality comes at a price and certainly is not without its problems and challenges. Many of our new vineyards are experiencing plant material problems that are affecting the sustainability of the vineyard and business. We have long known that problems such as crown gall, Tomato Ringspot Virus, winter injury and other vine decline issues are a threat to successful wine production. Fortunately there is some progress being made in addressing these problems. Research is the way out of the forest of viticultural challenges that wine growers face and there is a lot of fascinating work going on around the region. I encourage all serious wine growers to review the USDA Viticulture Consortium East 2008 Project Reports that summarize the viticulture research funded by VC-East.

A few examples of VC research that will be of interest to Pennsylvania wine growers include:

- Demonstration and Verification of Best Management Practices for Wine Grape Production in the Ozark Mountains (Striegler, Allen, et al.)
- Improving Wine Grape Production in Acid Soils with Rootstock and Management (Bates, et al.)
- Evaluation of New Herbicides for Grape Production (Bellinder, et al.)
- Developmental Changes of Berry Composition in Riesling as Affected by Crop Load, Water Stress and Nitrogen Supply (Cheng, et al.)

- Precision Applications of Botrytis Sprays (Landers, et al.)
- Development and Evaluation of Cold Hardy Wine Grape Breeding Selections and Cultivars in the Upper Midwest (Luby, et al.)
- Integrated Disease and Insect Management in Organic Grape Production (Travis, et al.)
- Targeting leaf removal practices towards development of specific flavor and aroma compounds in Cabernet Franc and Merlot fruit (Vanden Heuvel, et al.)
- Development and Evaluation of Crown Gall-Free Riesling, Chardonnay and Cabernet Franc Grapevines (Zabadal, et al.)

One VC project I would particularly like to highlight due to its applicability for Pennsylvania wine growers is the work being done by Dr. Tony Wolf and two graduate students at Virginia Tech on vine vigor management using root restriction, root pruning, rootstock selection and cover crops. The early results are interesting, enlightening and informative. Tony reported extensively on last year's experimental results in the Sept/Oct *Viticulture Notes* newsletter (see attachment: Wolf). This is an effective demonstration of how viticulture research has the potential to help to push vineyard management and wine quality forward.

These are a few among the 42 projects reported on to VC-East. If you want a copy of the 2008 reports, please contact Mrs. Mary Lou Dumbleton at Cornell at [mld2@nysaes.cornell.edu](mailto:mld2@nysaes.cornell.edu) for a cd. The reports will eventually be posted on the VC-East web site. The final reports offer a clear sense of what is being emphasized in viticulture research in the non-western states and new knowledge that is being generated. There is a lot of research going on out there and the scientists who are doing it to help you need your help and support!

The '08 Farm Bill created funding for research in specialty crops which includes horticultural crops like grapes, tree fruits, small fruits, and nuts. SCRI grants are large, competitive grants that have great potential to generate new practical information that can help you to grow better grapes. There are some significant SCRI projects that are in the pipeline for the East and Midwest. Here are a few examples that I am currently involved with:

- Dr. Tony Wolf (VA Tech) and Dr. Anna Katherine Mansfield (Cornell) are in the process of designing a very comprehensive viticulture quality improvement project that will have an impact on Eastern US wine growing with a focus on controlling vine vigor.
- NCPN – East G1 (various ag research units in East and Midwest) to provide certified grapevine materials to the wine and grape industries.
- SCRI Disease – Dr. David Gadoury (Cornell) will conduct a comprehensive grape disease research project.
- SCRI Extension – Dr. Eric Stafne (OK State Univ)/Dr. Ed Hellman (TX A&M) will enhance the services of national viticulture extension educators
- SCRI Cold – Dr. Tim Martinson (Cornell) will address the needs of wine growers in cold climates

- NE-1020 wine grape variety trial – Dr. Rob Crassweller (Penn State) is an ongoing project to evaluate existing grape varieties and new ones with potential to help the wine industry.

Of the SCRI proposals, to my knowledge, only the Stafne extension project has been funded. The others will be included in the current application process for 2010. They all deserve your attention and support. USDA places a very strong emphasis on stakeholder support and participation in their review process. So if a researcher contacts you and asks for help, I hope you will give very serious consideration to the request.

There are those in and outside of our industry who doubt the need for an intensive and focused applied research viticulture and extension program at Penn State. But just look south and north of us at Virginia and New York and see and taste how their wine industries have sped ahead of us with robust programs at Virginia Tech and Cornell. I can honestly say that a small but progressive vit/enol program at Oregon State University helped to drive the quality of Oregon wines forward and were essential in helping Oregon wines to gain the respect and recognition they now enjoy. We have a lengthy laundry list of viticulture and enology issues that need to be addressed in Pennsylvania but we lack the resources to find the practical solutions our wine makers and growers need.

One example of a serious problem our growers face is the proliferation of “dirty” and mislabeled plant material arriving from commercial nurseries. In particular, new clone materials have shown a variety of leaf symptoms that indicate virus infection. Six years ago a small group of intrepid growers working with Bill Nelson, the government liaison for WineAmerica (and now its president) worked the hallways of Congress to try to raise funds for a clean grapevine program in the Mid-Atlantic. That small effort, along with those of other states, led to the creation in the 2008 Farm Bill of the National Clean Plant Network, a nationwide effort to provide clean, certified grape and tree fruit plant materials to these industries. Currently, there are serious discussions about establishing an eastern G1 foundation program that will import, quarantine, test, sanitize, propagate and distribute certified grapevines. It will focus on problems that concern Eastern wine growers such as crown gall, Tomato Ringspot Virus, leafroll and other grapevine pathogens. You’ll be hearing a lot about certified vines in the future and the need to use them in your vineyards. A great vineyard starts with a good site and healthy plants.

Penn State needs to be fully engaged by the wine industry. There is tremendous talent and resources already in place, such as three young and extremely bright new scientists in the food science department. The industry may be able to think of ways to creatively utilize their skills to the benefit of wine quality. But as small gains are made, losses continue to mount. The wine industry has been without an extension enologist for almost two years, a position that it invested in heavily through PWA, PAW, and PWMRP. With so many new entries in the wine industry, extension enology services are more crucial than ever to make sure these new wine makers have the skills and knowledge they need to make technically correct wines, or better. Dr. Jim Travis, our grape pathologist has announced his retirement effective in December. That is a huge loss for our wine industry. Jim never had an official obligation to serve the wine industry yet he provided

essential research and extension programs to benefit all of the growers in Pennsylvania. Fortunately, Jim is just crossing to the other side of the fence, he and his son, Mike, are taking over Phil Roth's venerable vineyard in Adams County. Jim, like Dr. Elwin Stewart, will be former scientists wearing overalls and caps and scouting their own fields for problems. We will miss him enormously and he deserves our highest praise, gratitude and respect. Jim leaves behind two outstanding research technicians, Noemi Halbrendt at the Fruit Research and Extension Center in Adams County and Bryan Hed at the North East Grape Research Center in Erie. They are extremely capable and will help to fill the void that Jim leaves but the industry needs to enthusiastically demonstrate its support for their work with grapes. It is too soon to know if Jim's position will be refilled but the wine industry should take note of the opening and voice its needs to those who can respond. The College of Agricultural Sciences and its new dean, Dr. Bruce McPherson, recognize and appreciate the wine industry and want to be good working partners. The industry has to take the initiative to engage the college and come up with creative strategies that enhance and serve the goals and needs of both partners.

I would argue that at this stage of industry evolution that proper disease and pest control is probably the area of greatest quality impact that deserves attention. Many growers were heroic in their disease management and others fared much worse in 2009. The bottom line is that any diseased grapes that reach the crush pad and get into a fermenter compromises wine quality. That is why protecting assets like Bryan and Noemi and supporting the Gadoury grape disease SCRI project are so important to all wine growers. Downy appeared to be the major threat from mid season to mid harvest but then it dried out enough towards the end to help push the reds through. Powdery took out a lot of fruit this year. We have the tools necessary to manage these diseases but they must be used properly and in combination with good canopy management. It was a year of difficult decisions and compromises. A good example was the decision of how much crop to leave on vines. It was very clear early in the season that it would be a late vintage. The normal recommendation would be to reduce yields to enhance ripening later on but with all the rain removing an important vegetative growth sink would only exacerbate vine vigor. Only a good guess based on experience could determine the proper balance of fruit and vegetation.

Dr. Robert Crassweller, Professor of Tree Fruit in the horticulture department has been directing the planting and nurturing of the USDA NE-1020 wine grape variety trials for three years. This is a national, replicated and controlled trial of wine grape varieties that each participant has selected for potential value and use in their wine area. There are eight varieties common to each trial location so data can be compared. Strict viticulture and enology standards are applied so that the data generated from each trial will be of greatest accuracy and impact. The main problem in Pennsylvania is there is no research enologist to make wine from the first grapes that will be harvested in 2010. Grape maturity data is valuable but in order for the trial to have the greatest impact and value, the grapes must be made into experimental wines that can be judged for their quality by industry panels. The industry must act quickly, decisively and intelligently to secure a research enologist or a joint appointment research and extension enologist.

There is a new dean in place at the college and he likes wine and he is ready to do business with the wine industry. Dr. Daney Jackson, director of cooperative extension, stepped down in July but his position is very capably filled by Dr. Dennis Calvin, interim director, who also is open for business with the wine industry. Add to that, Mr. Russell Redding, the interim Secretary of Agriculture and we have a positive confluence of influential forces that can help the wine industry. Secretary Redding's wife, Nina, is the county extension director in Adams County. The Secretary has a degree in Ag extension and education so he is very aware of how Penn State and ag industries collaborate and help each other.

You do not need to depend on Penn State or other traditional research programs to solve problems in your vineyard. Marty Keen at Landey Vineyards in Lancaster County has used NE SARE (sustainable agriculture research and education) grower research grants to study grape root borer and, as a result of his work, has become one of the foremost grower experts on this insect pest. The results he has achieved in his vineyard have been dramatic. Marty has shared his knowledge with growers at numerous meetings and has applied for another grant to continue his study of GRB. A second grant he has applied for titled "Development of a Low Cost Vertical Patternator" will help growers to build and operate a device that can evaluate spray patterns, similar to the work done by Dr. Andrew Landers at Cornell. The empirical and curious grower can solve their own problems with creative and thoughtful methods. At the PAW annual meeting in February, vegetable grower and NE SARE educator Steve Groff shared his experience using cover crops in farm applications.

2009 was the most challenging vintage in the ten years I have been here. Yet, I marveled as growers and wine makers creatively and intelligently fought and overcame the adverse conditions of cool and wet weather. It's what you do in a bad vintage that really highlights what you know about growing wine. Chaddsford, our largest winery, has a grading system from 1 to 4 for grapes as they arrive at the crush pad. At about mid-vintage I asked Jim their cellarmaster to rank the overall quality and he said between 2 and 3. '07 and '08 showed we are pretty good with the good vintages. The challenge now is to push a "2" vintage to a "3" with just the soundness and quality of our viticulture and wine making. I hope to focus on this goal in the viticulture extension programming offered in 2010. It's nothing really very new, just doing what we already know even better:

- Balanced pruning
- Proper canopy management, especially shoot number and positioning
- Managing vine vigor
- Adjusting the crop to the optimal amount for the style of wine being made

I think there are two things that growers and wine makers can do this winter to help yourself and the wine industry:

1. Hire an extension enologist at Penn State
  - a. In the absence of an extension enologist, there are some very capable wine making consultants working in the region. An outside opinion and review of the cellar and wines can be very helpful.
2. Every commercial wine grower and wine maker should critically read the *Wine Grape Production Guide for Eastern North America* cover to cover this winter

I welcome your ideas and feedback as I begin to plan for the next ten years of the Wine Grape Program. If there are viticulture and/or enology topics that you feel strongly need to be addressed, please let me know. If we can't come up with answers ourselves, we'll find someone who can.

January through April is the busy winter meeting season in the region and a time to learn, network, relax and enjoy the camaraderie of the wine community. The Mid Atlantic Fruit and Vegetable Convention in February will offer its annual grape section and Wineries Unlimited in early March is a big event for the region. There will be pruning and educational workshops scattered between. Attend as many as time will allow. There is nothing but benefits to enhancing your wine growing knowledge.

Don't forget to visit the wineries and taste YOUR wines, especially if they have been kept separate. They offer a great lesson about the past vintage and help you to look ahead to how you can better manage your vineyard and cooperate with the winery to make better wines in 2010.

**Happy holidays and Merry Christmas!**

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