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WINE GRAPE INFORMATION FOR PENNSYLVANIA AND THE REGION
From Penn State Cooperative Extension

Note: the new URL for the Pennsylvania Wine Grape Network is http://pawinegrape.com/

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Cornell Disease Update: After a year off the *Grape Disease Update* from Cornell grape pathologist Dr. Wayne Wilcox is back and it's better than ever. His Magnum Opus in tandem with the *2011 New York and Pennsylvania Pest Management Guidelines for Grapes* is everything a commercial wine grower in the Northeast and Mid-Atlantic region needs to cope with our treacherous growing conditions. The way this season is beginning, these reference resources will come in handy. It is not light reading, but growing fine wine grapes will never be easy here. These are must reads for the serious wine grower. You can find links to these and other grape IPM information at the Pennsylvania Wine Grape Network web site – http://pawinegrape.com/.

Spring Frost: My friends in California tell me they are getting hit hard by frost again this spring. It is a frustrating problem in vineyards and appears to be getting worse with climate change. Buds are popping in Southeast Pennsylvania and there is still a good 3-4 weeks of frost season left. Last year our northern tier took a severe hit in mid-May with scattered damage to the south. In places like Napa Valley frost is an annual problem that they take very seriously, engaging active and expensive measures such as overhead irrigation and wind machines. The reality here is that site features usually have the greatest influence on frost, except for an event like the April, 2007 killer frost that annihilated much of the vineyards in the Midwest and southeast. The Niagara Peninsula, with its 12,000 acres of valuable *vinifera*, is the exception with its many wind machines standing guard. When the risk is assessed as the value of the wine in a vineyard, a wind machine seems like a very reasonable expense. Active frost prevention measures in Pennsylvania are more limited. In his recent *Viticulture Notes* (Vol. 26 No 2) Dr. Tony Wolf makes the following recommendations: mow cover crops close to the ground, contact helicopter services well in advance and mobilize other active measures such as tractor mounted heaters and fans, avoid the use of crop oils after bud break (past research indicates bud break delay on some varieties when dormant oil is applied well before bud break). In addition, remove barriers to air drainage at the bottom of slopes. There is excellent information about frost and frost prevention and protection at these web sites: http://cesanluisobispo.ucdavis.edu/Viticulture/Frost_Protection/ and http://www.grapes.msu.edu/springfreeze/index.htm

2011 Vintage: Besides frost concerns the vintage is getting off to a cool and late start, certainly in comparison to 2010, which was by most accounts an anomalous year. If you can remember way back to

2009, a delayed bud break extended into a late harvest and all of the problems that entails. As a grower in a cool region (Oregon) I learned to take a cue from early season weather as an indicator of how the season will develop. What a late start means for fruit quality is that disease and other late season threats and fruit maturity must be given serious consideration even this early in the growing season. The first two-thirds of the vintage are important, especially for canopy and crop management but it's the weather during the last third, the stretch run that often determines the quality of the vintage. Suffice to say, some real vigilance during these cool/wet, warm/humid early days is recommended. Early applications of fungicides, especially in hot spots, and great care for phomopsis and powdery mildew will help now and further into the season. There is a new tool that Penn State is offering to help grape and tree fruit growers. PA PIPE is a disease modeling system that forecasts the occurrence of certain disease based on biological models. It will tell growers when conditions are suitable for the development of powdery mildew, downy mildew, phomopsis and black rot. PIPE is another tool to use to assist with best sustainable viticulture practices - http://pa-pipe.zedxinc.com/. Grape flea beetles and climbing cutworm are our early season insect pests and while they are most often more a nuisance than a threat, active scouting can determine whether any control measures are needed. A couple of growers have already warned me about the presence of flea beetles (see NYS IPM at http://www.nysipm.cornell.edu/factsheets/grapes/pests/gfb/gfb.asp). June is coming up fast and the vines will be growing like crazy. Jim Law at Linden Vineyards says June is the critical month for canopy management, either you get it done correctly and on time or you will be playing catch up ball for the rest of the year. Be ready with your labor and management plan. As bloom approaches disease management becomes super important and the selection of the correct and best materials applied with accuracy and ideal coverage will help make the rest of the disease season easier. Bloom is the time to consider taking petiole samples to monitor vine nutrition. Weeds. They are out there. Hans Walter-Peterson, Cornell extension viticulturist in the Finger Lakes recently wrote an excellent article about vine nutrition in the *Finger Lakes Vineyard Notes* - http://flg.cce.cornell.edu/VineyardNotes2011/042011marchaprilnewsletter.pdf. There are excellent herbicide products available. However, some of our best vineyards control weeds with a few or no post-emergence herbicide (Roundup or Rely) and mechanical tillage. It can be done if patience and persistence are employed. Alice Wise and Andy Senesac at the Cornell LIHREC on Long Island have done excellent research on weed control in vineyards. http://ccesuffolk.org/grape-research/. So, ready or not, here we go again (see attachment: Here We Go Again 2011)

Vine Vigor, Size and Balance: Vigorous and-or large vines in the Mid-Atlantic region are often the result of planting vineyards on fertile and moist soils. In arid regions, vine size and vigor can be regulated by soil selection and irrigation but we don't have the later luxury. In an area that averages 4" of rain a month, even during the critical pre-veraison to harvest period, it can be very difficult to achieve full fruit maturity and this is not an easy problem to solve. My preferred method to manage vine size and vigor is through rigorous site selection, striving to moderate, if not minimize, rainfall amounts and soil moisture retention by seeking rain shadows and well to excessively well-drained soils. In general, we know the components of a fine wine site, we just have to quantify and locate them. Unfortunately, these physiographic features have not been precisely mapped so they remain difficult to find. Vine vigor is the vegetative growth of the vine during the growing season. Most of the vineyards I visit in the summer are moderately to excessively vigorous, as are the many of the potential vineyard sites I am asked to evaluate. Vine size are the dimensions a vine attains in a mature state. A balanced vine can be any size but has the correct ratio of leaves (surface area) to fruit (weight). Researchers tell us that for a modest *vinifera* vine 12-15 cm2/gram of fruit is ideal but this doesn't translate into anything visual or sensible. Instead, vine metrics such as number of leaf layers (canopy density), cluster exposure, cane length and pruning weights are much more tangible indicators of balance. The best method of course is standing in

front of and to the side of a mature vine and looking at it – knowing eyes recognize balance immediately. Any vine of any size can be in balance and produce good quality fruit, it just so happens that most of the great red wines are produced from smaller vines and whites from slightly bigger vines. A vigorous vine often results from a failure to match vine dimension to soil capacity and the corresponding vegetative growth that exceeds the physical dimensions assigned to each vine, for example, very high density spacing on a deep, fertile soil. On the other hand, vines on a depleted soil spaced too far apart will be under-vigorous. The fact is, most vineyards are planted on sites that will support larger vines. The further out of balance vines become, the more necessary it is to apply viticultural band-aids to them to try to bring them into artificial balance. Common techniques employed include passive measures such as cover crops, vigor diversion, divided canopies, devigorating rootstocks, and active measures such a hedging, leaf removal, and root pruning. All of this information is intended to introduce the work of Dr. Tony Wolf and his research team at Virginia Tech, who for the past four years have been examining different treatments for vine vigor on Cabernet Sauvignon. While these are not novel methods, their work has helped to calibrate the effectiveness of these practices in our growing conditions and the results have been encouraging, if not obvious. You can find an excellent summary of Tony's research in his recent *Viticulture Notes* newsletter at http://www.arec.vaes.vt.edu/alson-h-smith/grapes/viticulture/extension/growers/current_VN_newsletter.pdf. Cornell University viticulturist Dr. Terry Bates is just as intent on finding the ideal balance for Concord vines around Lake Erie to achieve optimal production and maintain healthy vines. These are important concepts for all serious grape growers to understand and the more we, as a regional industry, can move towards balancing our vineyards, the better our wines will be. This is an incredibly complicated matter in viticulture so it's no wonder that it is so widely and passionately discussed. The criteria for a balanced vines have been defined beginning with Dr. Nelson Shaulis and modernized and defined by Dr. Richard Smart. Suffice to say, you'll find vines of various sizes and balance on 3' x 3' spacing in Bordeaux yielding 2-3 lbs of fruit to 12' x 8' Thompson Seedless vines in the San Joaquin Valley that carry 50-60 lbs. Both produce fruit of the necessary quality for their intended type of wine product. This is an extremely important point: the type-style-price point of the wine. Every bottle of wine has a vineyard design to serve it. Our goal as winegrowers is to match the vineyard with the kind of wine it is best able to produce. There is plenty of room for further exploration in all the wines we produce in the region, from Concord to Cabernet Sauvignon. So the conversation about vine balance isn't just viticultural musing but actually points the way to establishing a sustainable fine wine region in the Eastern U.S.

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