



# Grape & Barrel Newsletter

Statewide/Capital



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## Viticulture

### **Vintage View from Chester County**

by Mark Chien, PSU Viticulture Educator

The wine and grape extension team had a productive and sweaty day in the vineyards of Chester County on Tuesday. We appreciate the hospitality of growers who took the time to show us around. As expected, the shoot growth has taken off like a rocket during the warm weather and bloom in many varieties is almost done. The vines looked extraordinarily healthy and Jim was only to find very minor signs of any disease, mainly phomopsis on leaves and shoots and some black rot. I do not believe we saw any powdery or downy, which does not mean that growers should be any less vigilant. Jim told growers at the twilight meeting at Kreutz Creek Vineyards that almost every night this week with the extreme humidity has been an infection period for PM. Things look good now, but your critical bloom to post-bloom sprays will allow you to remain clean through the mid-season. Get those on using the best materials at the right rates with complete coverage. Canopy management is a challenge right now with shoots growing an inch or two per day, it's tough to keep up. But do your best and bring in the people needed to help get the job done. We noticed that VSP with movable wires were able to position much faster than fixed catch wires and tucking. The movable wires are pulled out and used to sweep up shoots into the upright position then fasten in place with wire locks. Shoots positioned evenly apart and straight up are ideal, creating a well ventilated and exposed canopy. Also, that first wire should be 6-10 inches above the fruit wire so it can catch shoots before they droop. Once the first wires are positioned it will soon be time to think about hedging and leaf pulling. Consider the reasons why you want to pull leaves and, if so, how much and on which side(s). Pulling leaves shortly after fruit set will allow the grape skins to acclimate to UV light and not burn as easily. Having clusters exposed at bunch close will allow better spray coverage. It was too early to make a prediction about fruit set, but my instincts tell me that bloom was very successful. That means two things, big crop and tight clusters. If we are late, you'll have to pay close attention to crop size. If at all in doubt, estimate and thin. You can do preliminary thinning while leafing, as a general rule, if a shoot is less than 12", remove all the clusters, < 24" leave one cluster. Now is the time to start using botryticides. While the heat has helped us to gain some time, we may still be in for a later harvest so consider protecting tight cluster varieties. Weeds have also taken off during the warm weather. At one vineyard, we were impressed by the quality of weed control. They explained that they have moved to a fall application of glyphosate, immediately after leaf drop and another application in spring. The vine rows were

squeaky clean and no pre-emergence herbicides have been used for the past 3 years. If blended with a grape hoe, a grower may be able to eventually eliminate the spring application and just do spot spraying. Vineyards are still suffering from cold injury during the last three winters but particularly the cold winter of 03/04. We saw collapsed shoots on canes and cordons and trunks that need to be replaced. Heroic retraining efforts have occurred and I congratulate everyone on their diligence with this tedious task. While variable, injury to Cabernet Sauvignon, Syrah and Gewurztraminer is so pervasive that I would be reluctant to grow these varieties anywhere but the very best sites in the furthest southern areas of Pennsylvania. Merlot seems to have done better than expected and Cabernet Franc shows good hardiness but unexpected tenderness in some sites. The key to winter hardiness is not stressing the vine by over cropping, good general vine care and viticulture, keeping the leaves until the first hard frost, draining the soil and picking the right site.

One thing that surprised us was the discovery of European Red Mites (ERM) on the leaves of many different varieties in different vineyard in varying quantities, from one to up to 20 per leaf. Mites are insects that pierce the cells of the leaf and suck the contents of the cell. Mites are typically found on the undersides of leaves. Mite damage occurs in most fruit crops and is typified by a “bronze” discoloration of the leaf. The amount of bronzing is related to the amount of mite feeding and severely affected vines can often be seen from a distance. The reddish-orange mites can be seen quite easily with a 10x hand lens or very careful naked eye examination on the tops of older to medium age leaves, mainly in the 12” zone above the clusters. Alice Wise, Cornell extension viticulturist says that early outbreaks are not unusual. Her suggestion is to take a sample of leaves from various vines and if 50% have mites on them, regardless of total numbers, a treatment is needed. Eggs can be found on the bottom side of the leaf along the veins. Jim says it only takes 300 mite days (e.g. 30 mites on a leaf for 10 days) to totally bronze a leaf, which is caused by the mite destroying the chlorophyll, essential to photosynthesis. I have been seeing more mites in vineyards in recent years and this is clearly a concern for our growers. Certain practices can cause mites to flare up. They like this hot, relatively dry weather. There is a common notion that mites do not like wet weather but Alice has seen flare ups in rainy periods. It has been found that manzate products can encourage mite populations. Some growers sprayed carbaryl for other insects like flea beetles or cut worm which killed many of the beneficial insects that keep mites in check so always be extremely prudent with the use of Sevin. Control options are Kelthane, Vendex, Agrimek, JMS Stylet Oil, Danitol and Acramite. Acramite and Stylet Oil being the “softest” of the materials. Agrimek will also help control berry moth. Stylet oil cannot be sprayed within two weeks of a sulfur application or on very hot/humid day so be well aware of these conditions before you spray. On all products, follow the label instructions carefully and be sure to scout the vineyard thoroughly before deciding on a control strategy. Miticides need excellent canopy coverage to be effective so calibrate accordingly. You can find IPM recommendations for ERM in the NY/PA Pest Management Guidelines for Grapes and at <http://tfpg.cas.psu.edu/part2/part22bl.htm>.

We had a very well attended and productive twilight meeting at Kreutz Creek and would like to thank our hosts, Jim and Carol Kirkpatrick. They have a gorgeous 10 acre vineyard in West Grove. Visit the winery if you are in the area. We talked about what we saw during our visits and EPA Worker Protection Standards. If you have employees working in the vineyard, you need to be in compliance. PDA is stepping up enforcement inspections and fines are stiff. There is a lot of compliance information on the web and in print.

This warm weather, while not pleasant to work in, has helped our season a lot. Perhaps even better is that it has been quite dry so far this season. We need a dry season to make good wines. Be aware of disease and insect pests. Scout your vineyard. Try to keep up with all canopy management practices.

In between, if you have time to do some reading, there are two exceptional articles in the May/June issue of Practical Winery and Vineyard – *Vine Balance Drives Grape Quality* by E. Archer and J. Hunter and *Integrated Irrigation of California Winegrapes: Part 2* by Mark Greenspan. I will try to summarize these in a future newsletters for those of you who do not take PWV (subscribe now, it is essential reading!).

## **Plant Pathology**

Disease Update – Bloom through Pea-size Fruit  
by J.W.Travis, PSU Plant Pathologist

Recent touring in PA vineyards found no major foliage disease problems of concern. Growers are only too aware of the disease problems of the last two seasons and are doing an excellent job in protecting leaves and newly forming fruit.

However, vineyards often appear free of disease during bloom, but diseases begin to show-up not long after bloom. From now through pea-size fruit is a critical time period to prevent disease infection. All the major leaf and fruit disease organisms are active during this time period. Once diseases are evident on foliage and fruit, they are nearly impossible to manage. In addition, applying a fungicide to an existing fungal population is the best method to select for resistant strains to the fungicide. Maintain fungicide applications at close intervals and at recommended rates during this time period to prevent the development of grape diseases. Follow the label of the fungicide you are using. Fungicide applications may require shorter intervals due to rapidly expanding shoots. Fungicides are only locally systemic at best, so new growth is not protected by the previous spray application.

Weather conditions have been much more favorable for disease control in 2005 when compared to 2003 and 2004. Some weather events to watch for include, storms with driving rain that stimulates downy mildew, periods of high humidity favors powdery mildew, and high volume rain events (more than 1 ½ inches) washes off protectant fungicides.

I would like to begin to review the Grape Disease Management Principles that were first discussed in 2003. Reminders are always helpful. I'll include another principle in the July Grape & Barrel Newsletter.

**Principle #1.** ALWAYS spray BEFORE the rain. It may seem logical or intuitive that you should wait until after the rain to spray since the rain will “wash-off” your fungicide. However, infection periods for most grape disease occur during rain events and wet conditions following rain. These are referred to as “wetting periods” and are used along with the temperature during the wetting period to determine the potential for disease infection. Fungicides are most effective if they are

applied before the rain, since the fungicide is present on the leaf, shoot, or fruit surface to stop infection before the fungus gets into the tissue. Infection occurs when the fungus spore lands on the leaf or fruit and begins growing into the tissue. For most diseases, water is needed on the surface of the leaf or fruit for the spore to germinate and penetrate the tissue.

This season is beginning as an excellent season for the production of high quality grapes and now is the time of the season to be cautious. Whole crops can be lost from one poorly timed or poorly applied fungicide application. Management of the canopy is also key to good disease management. Shoot thinning and canopy separation will help fungicide applications to be more effective.

## **Enology**

### **Methods of Sensory Analysis**

By Stephen Menke, PSU Enology Educator

In the wine industry, we talk a great deal about the sensory nature of our grapes and wines. Increasingly, our wines are judged, sold, and consumed with sensory evaluation foremost: how it looks, how it smells, how it tastes, how it feels in the mouth.

We all have a common sensory equipment components, but there are interpretive differences among us that can be due to either physical or mental factors. We all have the same physical and structural bases for our sense evaluations, barring physical damage. Our biochemical sensors and nerve transmissions work the same way for all people. But the amount of each type of biochemical sensor helps determine what strength a sensory characteristic must have to register as a sensory stimulus, carried by a nerve to the brain. This is determined by genetics, so each person is different in biochemical sensory ability. In addition, several sensory stimuli can occur at the same time, and are all transmitted to the brain. The brain interprets these signals according to both the physical pattern of nerve stimuli and the set of memories associated with previous similar stimuli. This interpretation process can be quite variable among people, due to variable genetics and previous experiences, especially for color and smell. The bottom line is that each of us must learn how our individual senses work and how to put them in context with other individuals and with large groups that want some sensory consensus in the marketplace or in the social meanings of products.

How do we do sensory evaluation and why are different methods employed? Some sensory evaluation is subjective, and some is objective or scientific. The difference between subjective and objective testing methods is the application of objectively measurable standards.

We are all familiar with subjective consumer preference tasting. This is tasting wine at the winery or wine shop, or tasting food and drink at the bake shop or grocery. We are given samples and asked to tell our preference of one sample over another or asked to rank several samples, or just asked to describe our opinion of any given sample. Our response is based solely on our personal interpretations of our abilities and experiences. The products may be visible, which is an “open” test, or uniformly disguised, which is a “blind” test. Our level of sensory experience and our personal sensory abilities are not taken into account, just our preferences. These preference tests are done with large numbers of people, in order to try to statistically analyze their preferences.

Another subjective method is the “expert” panel, a smaller panel of consumer tasters who have a great deal of personalized experience with the drink or food to be tasted. It used to be assumed that the greater depth of experience of expert panelists would lead to a common set of ‘preferable’ sensory characteristics. This is most often not true, because the small number of panelists and the genetic and experiential differences among tasters most often yields large variability in preferences. Statistics cannot be applied well to expert panels, due to the small number of non-standardized tasters. This is a major problem when having wine writers, wine sellers, and wine competitions choose what constitutes the most preferable or highest quality wines.

Food and beverage sensory researchers in the twentieth century realized the problem with small expert panels involved an inherent inability to reach a consensus of preferences that could be trusted. Therefore, standardized scientific testing methods were introduced into sensory analysis. This involved setting a standard, or measurable value, that is agreed upon ahead of time, against which a sensory characteristic is judged. If all tasters use the same standard value for comparison, then it is more likely that the consensus preferences will show less variability among the tasters for that characteristic. Thus, the variability among tasters can be statistically valid for a smaller group of tasters. This is called objective or scientific sensory analysis. Also, as a standard is varied, then changes in responses to standards can be measured more accurately. We now have the science of sensory evaluation, defined in 1975 by the Institute of Food Technologists as: “Sensory evaluation is a scientific discipline used to evoke, measure, analyze, and interpret reactions to those characteristics of foods and materials as they are perceived by the senses of sight, smell, taste, touch, and hearing.” Wine was among the later products to undergo standardized sensory analysis, mainly because many thousands of sensorially different wines are introduced into the marketplace each year. Currently, wine is undergoing a sensory standardization process, both scientifically and in the marketplace.

The first attempts to standardize sensory analysis for wine were crude compared to current methodology and quite variable in statistical validity, including measures still in common use today, such as the UC-Davis modified 20 point scale or the 100 point scale used by some commercial evaluators.

Currently, the most useful method of sensory evaluation is the standards-trained descriptive sensory panel. Ann Noble’s Aroma Wheel is an outcome of descriptive panel evaluations. This involves rigorous training and selection of panels. Panels are taught to recognize and quantitatively evaluate certain sensory characteristics by exposing them to known standards, thus creating a common and standard sensory experience for each characteristic to be measured afterwards in unknown samples. Then unknown samples are blindly tasted in a standard environment for all tasters (same light, physical equipment, temperature, humidity, air exchange, background noise and lack of background smells). This standardization enables some more sophisticated statistical methods to be applied to smaller tasting panels, resulting in much more accurate (i.e., less variable) judgments about sensory characteristics to be made more efficiently.

Standardized descriptive sensory analysis will be part of the Pennsylvania Wine Quality Assurance Program, perhaps to be started by early 2006. The first standards will involve wine faults. Later standards will involve creating measures of positive market characteristics and standards that characterize various market niches. In a couple of decades, standards for terroir in Pennsylvania

winegrape regions may be created by ever more sophisticated descriptive sensory analysis, coupled with sophisticated market feedback on standard wine descriptors and wine niches. For an current example of the start of one ad hoc, non-research descriptive approach to terroir, see the May/June 2005 issue of *Vineyard and Winery Management*, pp. 35-39, titled “2005 *Grand Harvest Awards Smells Terroir*”, by Bill Moffett.

Meanwhile, use your own “expert panels” to decide which wines to bottle now or later, and which styles you want to change from the last vintage to the current vintage. To taste together is to know more about our wines and ourselves.

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