Virginia Cooperative Extension
Knowledge for the CommonWealth
Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
VIRGINIA STATE UNIVERSITY

Vineyard and Winery Information Series:

VITICULTURE NOTES

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Tony K. Wolf, Viticulture Extension Specialist, AHS Jr. Agricultural Research and Extension Center, Winchester, Virginia
vitis@vt.edu http://www.arec.vaes.vt.edu/alson-h-smith/grapes/viticulture/index.html

I. Current situation

Grapes for sale: We have provided a listing of Virginia-grown grapes for sale and updated and distributed that listing bi-weekly in recent seasons on our listserv electronic newsletter. The Virginia Vineyards Association has agreed to provide this service in 2010 and we will therefore not be posting a "Grapes for Sale" service in 2010. The VVA website is http://www.virginiavineyardsassociation.com/ (go to the "Exchange" link in the left-hand navigation pane).

Viticulture Associate: Our viticulture associate position here at Winchester has been vacant since Mardi Longbottom stepped down in 2008. The position was being funded by the College of Ag and Life Sciences at Virginia Tech at that time. Given the cuts in state funding to the college, we did not foresee the position being re-filled in the near-term. Two things happened this spring, however, that have provided financial resources to refill the position. First, we were successful in obtaining federal funding through the USDA's Specialty Crop Research Initiative with a large, multi-state proposal that starts October 2010. Part of the funding of that proposal provides for a project manager, which will comprise 50% of a full-time equivalent (FTE) role. The Virginia Wine Board simultaneously provided the other 50% of funding in a grant award that commences July 1, 2010. We are therefore initiating the process of advertising and hiring for this position which we hope to fill later this year. More on all of this in future VN editions.

II. Seasonal comments and disease update

Dr. Mizuho Nita, grape plant pathologist

We experienced earlier than usual bud break this year (April 6th for our Chardonnay). As with other years, there have been many rain events since bud break; however, we did not experience a major disease event until relatively recently. Many rains we had in the first month of growing season were either too short or it was too cold for disease to

develop. The major disease risk events were rains on 5/12, 5/17, and 5/22 where we (Winchester) had 18, 55, and 19 hours of wet events, respectively. Temperature during these rain events was in upper 60's. These conditions are conducive for downy mildew, black rot, and Phomopsis. Our station has several non-treated vines to observe the development of diseases, and some of the vines have been showing symptoms of Phomopsis since May 14th, and black rot, downy mildew, and downy mildew since May 27th.

In addition, from May 24th to May 30th, we experienced humid nights (RH > 85%) for six consecutive days. These warm humid nights promote downy mildew fungus to produce spore structures, thus, the risk of infection for the next rain event will be higher. If your vineyards have an issue with downy mildew or black rot in recent years, please spend time on scouting.

Please remember that **the critical period for downy mildew, powdery mildew, and black rot to infect berries are from bloom to 4-5 weeks after bloom.** Please be on top of the situation during this critical period. After this critical time, you can relax a bit in terms of the berry protection.

Also, we have seen a development of mealybug population in our field, and I have been receiving reports of sighting of this insect. If you have seen mealybugs in your vineyards, please let me know, so that I can visit your place to sample them. It is very important for us to find out which species of mealybugs we have in VA to determine whether we have a high risk of spread of leaf roll disease, which is caused by a group of viruses. In addition, if you have a reasonable suspicion that some of your vines are showing leaf roll disease, please contact me. We are offering free virus testing as a part of my research program. If you want to know what mealybugs and leaf roll disease look like, please visit my blog (http://grapepathology.blogspot.com/).

II. Question from the field

Q. The lower portion of my 'Norton' vineyard was frosted twice this spring; once in late-April, and again, more severely, on the morning of May 10th. What can I expect in terms of crop yield and crop maturation? Should I have rubbed off the damaged shoots?

A. My condolences to you on the frost injury. Reports that came in after the morning of 10 May suggested that a number of vineyards in Loudoun County, parts of Fauquier and Culpeper Counties, as well as areas in the Shenandoah Valley experienced some degree of frost injury. What is perhaps most surprising about our collective experience with frost this spring is that there was not *more* injury than what was reported. We had a very early (as much as 2 weeks) budbreak prompted by temperatures of around 90°F the first weekend of April. Ultimately, April 2010 set a record for warmest on record (NOAA records); however, the later part of the month returned to more seasonal highs and lows, as did much of May. This of course set the stage for frost problems and by the 10th of May, shoots of early budding varieties were 18 inches or longer. Another consequence of the early, widespread heat wave is that it essentially nullified our normal latitudinal difference (and much of the varietal difference) in vine phenology; vines in Loudoun County were as advanced as those in the southern Piedmont by the end of April. Neither of these observations address your questions, but they do put your experience with frost injury in perspective to what else was happening in the state (and a large part of the eastern US).

On to your questions: To answer your second question first, No, I don't believe that you should have rubbed off injured shoots, although there could be a justification for this under specific conditions. Vineyardists have dealt with the consequences of frost since weather and vineyards have existed, so it's not surprising that someone took a methodical approach to looking at various vine management strategies following a frost

event. Frost is rarely even-handed in the injury it causes, especially when air temperatures are at, or just below, the critical temperature required to initiate freeze events. Some shoots are totally scorched. Others are unscathed. Still other shoots may have their tips or only a portion of leaf area frosted, with the basal portions of the shoot, including inflorescences escaping injury. To simplify the response discussion here, let's just consider these three scenarios: A) totally destroyed shoots; B) healthy shoots, and C) shoots with injury to the tips and/or some degree of leaf area, but with apparently unaffected flower clusters. As I discussed at the vineyard meeting on 19 May (see additional Upcoming Meetings at end of this newsletter), a first course of action would be to survey the frosted vineyard and determine the classification of injury and the pattern of injury within the vineyard. As you illustrated in your question, topography would obviously affect the pattern or incidence of injury within the vineyard, but also the severity of injury on a given vine.

In areas where a significant portion of the shoots are "A" (totally destroyed), most (possibly 75% or more, but varies by variety) of the current season's crop potential of these vines will have been lost. New shoots will emerge in time from base buds on cordons or from secondary buds in the compound bud of cane-pruned vines. Some of these new shoots will bear some crop. The amount of crop will depend on (i) variety, (ii) training system, (iii), exposure of the buds during their development, and (iv) general management of the vines in the previous year. Certain hybrid varieties, for example, can have very fruitful base buds. High training systems (such as GDC) tend to have somewhat more fruitful base buds than do low-trained (such as VSP) vines owing to the greater sunlight exposure of buds on high training systems. Canopies that were relatively thin and well exposed to sunlight in 2009 will likely have more fruitful base buds in 2010 than would canopies that were heavily shaded in 2009. Growers understandably feel a compelling need to do something, anything, to help vines that are totally scorched ("A"). Would the stripping of damaged shoots benefit the vine? With vines that have total loss of shoots ("A"), there would likely be no benefit to this strategy. Work in California (Winkler, 1933; Lider, 1965; Kasimatis and Kissler, 1974) suggests that while a positive response (slight crop increase) to stripping damaged shoots might *occasionally* be observed with *some* varieties (such as 'Tokay' in the Winkler study), the overriding result was no significant increase in yields. Furthermore, if the shoots were partially lignified at their point of attachment to older wood when the stripping was done (18- to 24-inch shoots), the manual breaking out of damaged shoots often damaged the base buds.

What about vines that have long shoots (24 inches or longer) that had their tops/tips frosted, but which appear to have unaffected flower clusters (what I called scenario "C", above). The consequence of this damage is difficult to accurately predict, but let's try. A damaged shoot will initiate one or more lateral shoots at nodes proximal (below) to the point of frost injury. We've all seen this response with shoots that were decapitated from grape cane girdlers, periodical cicada egg-laying, hedging, wind damage, or from a host of other reasons. The new leaf area of the lateral shoot(s) will compensate in time for the primary shoot leaf area lost to frost. However, the lateral leaf area may not develop rapidly enough to ensure good fruit set on the subtending clusters. We know from leaf pulling research that pulling leaves prior to bloom can cause small reductions in fruit set by depriving the vine of a source of carbohydrates at a critical time (bloom and fruit set). This can be good if we're simply trying to reduce cluster compactness. If the leaf area to flower ratio is greatly depressed, however, the reductions in set may be much greater than desired. There's not a lot you can do here – it simply takes time for the vine to re-foliate after a frost. But don't expect full set on shoots that are damaged in this ("C") fashion.

Vines that bear largely unaffected shoots ("B") will generally set and mature a normal

crop. One could do some shoot-thinning (or cluster thinning) of these vines if/as fruitful secondary shoots appear in order to standardize the crop to primary crop only (see following discussion).

The above discussion focuses primarily on the **yield** response of frosted vines. What can you expect in regards to fruit **ripening**? It's easier to predict the ripening pattern of vines that have completely destroyed shoots ("A") than it is for vines that have partially destroyed shoots ("C"), or those that have a mix of healthy ("B") and damaged shoots. The clock is reset for vines that have lost all shoots to frost. Base and secondary buds will eventually produce a full canopy of leaf area, assuming that temperatures were not so cold as to cause vascular injury (they were not so cold on 10 May). This "second" flush of canopy will have some crop, depending on variety, etc., and this crop will ripen in a generally predictable fashion. It will, however, reach commercial maturity *somewhat* later than a normal crop owing to the fact that budbreak of the second canopy was more than a month later than the original budbreak. On the positive side, it will be a lighter than normal crop and this will accelerate ripening to a point.

The picture is muddied for vines that bear a mix of destroyed ("A"), damaged ("C") and perfectly healthy shoots ("B"). Here we have two or more discrete populations of fruit that differ in the *onset* of ripening, if not the *rate* of ripening. The populations may be mixed on the same vine, and will very likely differ within sections of the vineyard due to topographic impacts of the vineyard on frost incidence. What is the predicted outcome for such vines? Mardi Longbottom described such a situation that occurred in Coonawarra Australia following a frost in 1998. Her description can be read in the July/August 2007 Viticulture Notes (http://sites.ext.vt.edu/newsletter-archive/viticulture/07julyaugust/07julyaugust.html). In sum, Mardi found that the two populations of fruit (primary shoots vs. secondary shoots) did indeed have large differences in Brix at veraison. Those differences tended to converge with ripening, however, and the crops were ultimately picked at the same point in time. They had decided not to drop one or the other crop in advance, which was a gamble, but it paid off for them (quantity-wise, anyway) to harvest the sum of the two crops. Lider (1965) reported a similar pattern of Cabernet Sauvignon maturation in the Napa Valley, with the crop on primary shoots running about 3.0°Brix greater than that of the secondary crop in the week prior to harvest on differentially frosted vines. Lider's advice to differentially sample affected portions of the vineyard makes as much sense today as it did 45 years ago. Seasoned growers know that vineyard topography, variation in vine capacity, and soil characteristics can affect the rate of crop maturation and will stratify their vineyard sampling (and harvest) accordingly. Variable frost damage adds another layer of complexity to this sampling approach. What are your options? One potentially compelling reason to strip off *both* uninjured and partially injured shoots on frosted vines is that it resets the vine to a common crop ripening sequence, and avoids the asynchrony described above. The negatives are three-fold: (i) you will further reduce yield potential; (ii) you might push the ripening end-point beyond what your site/variety/season mix can adequately ripen; (iii) and it incurs a labor expense. In the case described with the leading question, you are starting with a very late-ripening variety (Norton) in a site that has shown its potential for frost damage. If, on the other hand, you had a variety such as Seyval, that has very fruitful base buds, and which ripens early, completely shoot-thinning a partially frosted vine would make more sense (if done immediately after the frost, not a month later!).

Some other general considerations of frosted vines: First, never give up. Even heavily frosted vines may bear a nominal – even "adequate" crop. Here again, go back and look at the yields that we harvested from our Blackstone research vineyard following the Easter freeze of 2007 when vineyard temperatures dipped to 18°F

(http://sites.ext.vt.edu/newsletter-archive/viticulture/07novdec/07novdec.html#II). Secondly, fungal pest management and canopy management should be prudently applied to avoid defoliating disease or shaded canopy interiors, respectively. Remember, we are, in part, farming *this* season to provide optimal vine conditions for *next* year's crop. Light crops on otherwise high-capacity vines can lead to overly vigorous growth, necessitating perhaps some added labor in shoot hedging. Go easy on the fertilizer if the crop is dramatically reduced.

We've (Virginia) not experienced widespread frost since 2007, and northern Virginia has escaped frost, for the most part, even longer. I tell beginning grape producers that the best of growers in the best of sites should expect a weather- or disease-related loss of crop once in 10 years (drought, hail, excess rain, frost, winter injury, disease). If you beat those odds, consider yourself lucky. A final recommendation would be to reflect on this frost event and consider options for future episodes. If this is a once in a decade event for you, you're still doing well. Perhaps some revision of the vineyard layout should be part of the future strategy if portions of the vineyard are being routinely frosted (spring or early fall frost). Previous issues of VN and many other references discuss the various strategies and tactics for *avoiding* frost.

Literature cited:

Kasimatis, A.N. and J.J. Kissler. 1974. Responses of grapevines to shoot break-out following injury by spring frost. Amer. J. Enol. Vitic. 25:17-20.

Lider, J.V. 1965. Some responses of grapevines to treatment for frost in Napa Valley. Amer. J. Enol. Vitic. 16: 231-6.

Winkler, A.J. 1933. The treatment of frosted grape vines. Proc. Amer. Soc. Hort. Sci. 30:253-7.

IV. Plant nutrition reminders

(adapted from an earlier Viticulture Notes article by Fritz Westover)

Proper vine nutrition is often neglected until an obvious problem appears. Following a flurry of diagnoses and corrective measures, the symptoms go away and balanced nutrition is often forgotten about again until another deficiency appears. There are the occasional odd nutritional anomalies that defy explanation and may be hard to correct, but fortunately these situations are rare. Most nutritional imbalances are relatively easy to correct within a 12 to 24-month period, *if correctly diagnosed*. Correct diagnosis of an existing or an impending nutrient imbalance can be achieved by using one or more of three principal approaches: soil analysis, plant analysis, and visual observation of symptoms or general vine performance. Knowledge of past problems and past corrective measures helps inform decisions about potential corrective approaches.

Soil Analysis: Detailed soil analyses are recommended before vineyard establishment, mostly to determine the pH, soil organic matter (SOM), cation exchange capacity (CEC) and absolute quantities of mineral nutrients available for plant uptake. Routine or "maintenance" soil analyses are recommended every 2 or 3 years to monitor nutrient reserves and soil chemistry changes due to leaching of nutrients, additions of fertilizers, and removal of nutrients by annual cropping. Soil tests provide a quantitative measure of the quantity of plant nutrients available in the tested soil. Soil samples typically include pH, phosphorus, potassium, calcium, magnesium, zinc, manganese, copper, iron and boron; however, the addition of CEC and SOM to soil reports will improve nutrient management decisions. For example, changes in pH may occur over time with the addition of some nitrogen-containing fertilizers (i.e. sulfate of ammonia, ammonium nitrate and urea). Subsequently, lime application rates to correct acidity are based on both soil pH and CEC. Soil colloids with a high CEC and SOM may contain larger quantities of exchangeable hydrogen and aluminum ions, inducing a lower soil pH. Soil tillage may decrease SOM

by increasing erosion and by oxygen enrichment of the soil and increased microbial activity. Soil microbial activity has been correlated with SOM content and thus, periodical testing of SOM may also indicate the impact of farm practices on microbial communities involved in nutrient cycling. For Virginia residents, soil samples can be submitted through your Cooperative Extension office. Detailed soil sampling instructions are provided in the Wine Grape Production Guide (see below) or see the instructions at the A&L website: http://www.al-labs-eastern.com/taking_soil_sample.html

Plant tissue analysis: Soil analyses inform us about the relative availability of nutrients to the plant. Plant tissue analysis tells us how much of each essential nutrient is contained in the plant sample (in ppm or percent of dry weight). Sufficiency levels of what is available in the soil and what is absorbed by the plant are occasionally different for a given nutrient, although the two tests are more often positively correlated. Plant tissue analyses reveal the actual nutrients that the vines were able to remove from the soil and utilize and thus, indicate the effects of soil amendments and cultural practices on vine health. The time of season to collect plant tissue samples depends upon the standards adopted in that area. Samples collected at or shortly after full-bloom offer a good snapshot of the vine's overall nutrient status and we have adopted this time here in Virginia. Where bloom-time analyses indicate borderline nutrient levels, particularly for nitrogen or potassium, a second sampling may be warranted in late-summer (70-100 days post-bloom). The tissue collected and analyzed is the leaf petiole. Samples of about 75 petioles collected from leaves located opposite a flower/fruit cluster around bloom-time are the appropriate tissue. The target values for nutrients (Table 1) have been standardized for petioles collected at full bloom or late-summer in the Mid-Atlantic region. Target values for vineyard soils in the Mid-Atlantic are also provided in Table 1 for reference. Detailed instructions for collecting petiole samples may be reviewed at my website: http://www.arec.vaes.vt.edu/alson-h-smith/grapes/viticulture/extension/growers/index.html

Visual Observation: Frequent scouting trips in the vineyard throughout the season are an absolute necessity for identifying early stages of nutritional disorders in grapevines. Visual observation of vine nutrient status is free of charge and may be combined with disease scouting and other routine activities in the vineyard. Many viticulturists look at visual observation as a means of discovering nutrient deficiencies in vines or sections in a vineyard based on symptoms expressed on foliage. Observations of excessive vigor or nutrient toxicities, however, are also key indicators of how a nutrient management program is affecting vine growth. It is also important to realize that not all foliar disorders are nutritional in origin. Herbicide toxicity, for example, may appear similar to certain nutrient deficiencies. Leafroll virus disease may be mistaken for phosphorus deficiency on red-fruited grapevines. Additionally, vines located on hilltops may be subject to shallower or rapidly drained soil conditions compared to lower areas, and may more readily show deficiencies of water-mobile nutrients such as nitrogen, potassium, magnesium and boron, especially during periods of drought. If uncertain about the nature of a disorder, a grower may wish to collect petioles from vines showing questionable growth patterns and submit them to a lab for a "diagnostic" nutrient analysis. Diagnostic petiole samples may be collected at any time of year and should always be submitted with a separate sample of petioles for comparison (collected from the same shoot position on healthy vines). Foliar disorders may be observed on the scale of an entire vineyard, section of vineyard, individual vine or individual leaf. Disorders that are observed over a large portion of a vineyard are potentially the result of a nutrient deficiency. Biological disease agents are suspect when an individual vine or patches of vines are affected. Successful diagnosis of foliar disorders depends upon

grower experience. Combining the visual clues with the soil and plant diagnostic information provides a powerful means of correctly identifying actual or impending nutritional problems.

We continue to recommend the Penn State plant analysis lab or A&L Eastern Laboratories for submission of plant tissue analyses, although other labs, such as Brookside Laboratories (http://www.blinc.com/ag.htm) provide diagnostic testing at competitive prices. IMPORTANT: You can submit plant tissue samples directly to these labs with the appropriate submission forms: Penn State plant analysis forms are available at: http://www.aasl.psu.edu/. Click on "submitting samples" on the menu on the left-hand side of screen. A&L Eastern Laboratories also has submittal forms for plant tissue samples at their website (http://www.al-labs-eastern.com/agricultural.html). Brookside also has downloadable submission forms at its website: http://www.blinc.com/ag.htm. Due to the current lack of personnel assistance, we are not providing fertilizer recommendations unless there is a unique problem. One can formulate a fertilization strategy by following the guidelines in the nutrition chapter of the Wine Grape Production Guide for Eastern North America. A comment on foliar fertilization: this might be desirable if vines are very low in particular nutrients such as nitrogen or boron, but the general response is ephemeral; a more persistent response can be obtained by using soil application of what are normally cheaper fertilizers. If you choose to use foliar fertilizers, be wary of mixing with pesticides and/or spray adjuvants, especially during hot, humid weather. We have seen some dramatic injury occur to developing berries and leaves when certain foliar fertilizers are combined with pesticides.

In-depth discussion of grapevine nutrient requirements, deficiency symptoms and corrective measures is provided in the Wine Grape Production Guide for Eastern North America (2008), which is currently being reprinted (http://www.nraes.org/nra_winegrapecontent.html).

Table 1: Target values for soil, bloom petiole, and late-summer petiole samplings.

Nutrient	Soil		Bloom petiole		Late-summer petiole	
Nitrogen	--[z]	--	1.2 - 2.2	%	0.8 - 1.2	%
Phosphorus	20 - 50	ppm	0.17 - 0.30	%	0.14 - 0.30	%
Potassium	75-100	ppm	1.5 - 2.5	%	1.2 - 2.0	%
Calcium	*500 - 2000	ppm	1.0 - 3.0	%	1.0 - 2.0	%
Magnesium	100 - 250	ppm	0.3 - 0.5	%	0.35 - 0.75	%
Boron	0.3 - 2.0	ppm	25 - 50	ppm	25 - 50	ppm
Iron	20	ppm	30 - 100	ppm	30 - 100	ppm
Manganese	20	ppm	25 - 1000	ppm	100 - 1500	ppm
Copper	0.5	ppm	5-15	ppm	5 - 15	ppm
Zinc	2	ppm	30-60	ppm	30 - 60	ppm
Organic matter	2 - 5	%				
pH	5.5	*V. labrusca*				
	6.0	hybrids				
	6.5	*V. vinifera*				

[z] Soil nitrogen is not normally evaluated for vineyards.* Calcium level is normally adequate when pH is in the proper range for the grape variety.

V. Recap of Sustainable and Organic Viticulture Management workshop, Penn State

Dr. Mizuho Nita

On 27 May, I attended a sustainable and organic viticulture management workshop held at the Farm and Home Center at Lancaster, PA. The event was organized by a viticulturist and education extension agent, Mr. Mark Chien, at the Pennsylvania State University. There were speakers from different grape growing regions to discuss examples of sustainable viticulture practices. Dr. Glenn McGourty of University of California viticulture farm showed examples of organic and biodynamic vineyards in various regions in California. Mr. Dave Mattocks was a representative from Fertrell company. Mr. Ed Boyce from Black Ankle Vineyard presented his challenges at Maryland to grow grapes in a sustainable, and almost organic, fashion. Ms. Barbara Shinn and Mr. David Page from Shinn Estate Vineyard presented their transition process from the conventional to the biodynamic practice at their vineyards at Long Island, NY. Ms. Lucie Morton described challenges and potentials for bio-control and non-conventional materials for the grape disease management. Dr. Tim Martinson from Cornell University showed their VineBalance program (www.vinebalance.com), sustainable viticulture program. Mr. Bryan Hed from Penn State University showed some of their results of management of powdery mildew and Botrytis management using certified materials for the organic production.

There was a wide array of topics discussed at the workshop, and I will not go into details; however, there are two key points that I would like to share with you. Both are about, as the title of the workshop, the sustainability of your vineyard. The first is how to define the sustainability. In his presentation, Dr. Martinson described that a sustainable vineyard management needs to keep a balance between three components: 1) economy; 2) environmental impact; and 3) social outcomes/equity. The sustainability can be achieved by ensuring economic viability, reducing environmental impact, and providing safety to workers and consumers. The second is about the monitoring of the vineyards, which are often commented by the presenters at the workshop. Your vineyards are not only unique to your soil and other growing conditions, but also constantly changing, and you need to make constant adjustments in order to keep balance of the three components using information you obtained from the monitoring of your vineyards.

Let's use a decision to make a pesticide application as an example. It involves all three components for the sustainability, because of the cost (e.g., direct cost for materials and labor, costs for viticultural practices), environmental concern (e.g., fungicide resistance, ground water contamination, etc.), and social outcomes (e.g., protection of workers, pesticide residues, etc.). Moreover, a good reasoning and/or an assessment of the situation should justify the decision. By spraying materials that are not needed, you will not only waste your money, but also you may cause unnecessary impact on the environment, such as a population of a beneficial insect. In this case, insect and disease development monitoring will help your decision making process.

Often time, the environmental aspect is highlighted in a sustainable practice, but other factors, the economy and social outcome, are equally important. Whether your practice is the conventional, or organic, or else, it is important that you have a good vision and tactics to maintain the balance of these three factors to keep your vineyard and your business sustainable.

VI. Upcoming meetings:

American Society for Enology and Viticulture – Eastern Section Annual Meeting
July 13-15, 2010
Hobart & William Smith College
Geneva, NY
Join us for the 2010 ASEV-ES Conference, to be held July 13-15 in Geneva, New York. We are pleased that this year's meeting will be held in conjunction with the National Viticulture Research Conference. The conference will be held at Hobart and William Smith College, a beautiful facility less than two miles from the headquarters hotel, the Ramada Lakefront Geneva. This three-day combined conference will be preceded by a tour of several Seneca Lake wineries on Monday, July 12, including a steak roast lunch at Lakewood Vineyards in Watkins Glen.

Registration, program and lodging information is now available at http://www.nysaes.cornell.edu/fst/asev/2010-information.php.

Vineyard meetings in Virginia

A number of vineyard meetings, arranged by Virginia Cooperative Extension Agents, have been scheduled for the period from April through early August. The format of the meetings is similar to field meetings held in past years and generally include presentations by one to several grape specialists with Virginia Tech, the Cooperative Extension agents, and by the vineyard host(s).

The following meetings are scheduled for the 2010 growing season. Specific topics and travel directions will follow at a later date where those details are not presented here. The meetings are scheduled from 11:00 am – 2:00 pm (Except June 17th) and are held rain or shine. The first hour will be a tour of the vineyard, followed by a lunch discussion. Everyone is asked to bring a bag lunch. Presentation topics may be modified slightly depending upon unique seasonal issues.

June 14th **Democracy Vineyards,** www.democracyvineyards.com
Rt 718, 1 mile west of Lovingston VA (Nelson County)
Contact: Michael Lachance, VA Cooperative Extension, Nelson County, 434 263 4035, Lachance@vt.edu

June 16th **Rappahannock Cellars (**http://www.rappahannockcellars.com/**)**
Tom Kelly and Jason Burrus
- Topics – Seasonal cultural and pest management updates

Directions: Directions from Front Royal: Rt 522 South for 8 miles, then left onto Rt. 635, the winery is on the left.
Contact: contact Kenner Love, Rappahannock County Cooperative Extension klove@vt.edu (540) 675-3619

June 17th **Hiddenbrook Winery (43301 Spinks Ferry Rd., Leesburg, VA 20176 [Loudoun Co.]); start time 6:30pm.**
Contact **Leslie Blischak**, Loudoun Cooperative Extension (LBlischa@vt.edu) for details. Directions: From Leesburg, N on Rt. 15. Right onto Spinks Ferry Rd.

Continue approximately 1 mile and bear left at the grave rd. Continue for ½ mile and look for the Hiddenbrook Winery sign on the Left.

July 12th **Blenheim Vineyards,** www.blenheimvineyards.com
31 Blenheim Farm, Charlottesville VA
Contact: Michael Lachance, VA Cooperative Extension, Nelson County, 434 263 4035, Lachance@vt.edu

August 4th **Virginia Tech's AHS Jr. AREC (**http://www.arec.vaes.vt.edu/alson-h-smith/index.html**)**
Tony Wolf, Mizuho Nita and Cain Hickey

- Topics – review of research projects underway at AREC, including disease and grape root borer management studies, Cabernet Sauvignon vine size/vigor management study, and more

Directions: From Interstate 81: Virginia Tech's Alson H. Smith Jr. Agricultural Research and Extension Center is located approximately 7 miles southwest of Winchester, VA in Frederick County. From Interstate 81, take the Stephens City exit on the south side of Winchester. Go west into Stephens City (200 yards off of I-81) and proceed straight through traffic light onto Rt. 631. Continue west on Rt. 631 approximately 3.5 miles. Turn right (north) onto Rt. 628 at the "T" intersection. Go 1.5 miles north on Rt. 628 and turn left (west) onto Rt. 629. Go 0.8 miles. The center is on the left side of the road.
Contact: Tony Wolf, Virginia Tech (vitis@vt.edu) or (540) 869-2560 x18

Maryland Grape Growers Association Field Day (June 12th)
Only two days left to pre-register at http://marylandgrapes.org and receive a $10.00 discount. Saturday June 12, Knob Hall Winery, Washington County. Discussions will include vineyard management, integrated pest management, disease control, canopy management, accurately estimating crop, root borer control, fungicide updates, and new options in the battle against downy mildew. Meet fellow grape growers from around the state. Discuss what they are doing and how they are meeting the challenges of bugs, critters, and disease. June 6 thru 11 full price registration at website http://marylandgrapes.org Full price registration is available at the door.