



Virginia Cooperative Extension

Virginia Tech • Virginia State University

Viticulture NotesVol. 30, April 2015

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<http://www.arec.vaes.vt.edu/olson-h-smith/grapes/viticulture/index.html>

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I. Current situation:

Spring seemed to take its sweet time getting here to Virginia this year and last time I looked (12 April), the Cabernet and Petit Manseng buds here at the AREC vineyard showed no evidence of swelling, although the pruning cuts were profusely weeping. With spring weather and bud swell come two of the perennial risks to the new growth: climbing cutworms and spring frost. I'll briefly mention both. This is intended mainly as a reminder to be vigilant for cutworm damage, as that damage can easily go unnoticed and cause considerable crop loss in some situations.

Climbing cutworms cause damage in vineyards every spring, although the incidence varies from vineyard to vineyard. Cutworms are the larval stage of several different moth species; the adults are inconsequential in terms of feeding. Doug Pfeiffer lists 6 separate moth species whose larvae can be found in Virginia vineyards (<http://www.virginiafruit.ento.vt.edu/cutwormsgrape.html>). The larvae feed on swollen grapevine buds and can cause significant destruction of buds and recently emerged shoots. Injured buds appear hollowed-out. Grape flea beetles cause similar damage, so don't



Figure 1. Climbing cutworm larva near base of vine, with dime for size comparison.

assume that the damage is necessarily only caused by cutworms. Cutworm larvae feed at night and seek shelter in soil and debris during the day. Thus, if you observe damaged buds, and cannot locate the pest, chances are that climbing cutworms are at work. If flea beetles

(<http://www.virginiafruit.ento.vt.edu/GFB.html>) are the culprits, chances are good that you'll see some of these insects on the vines during your scouting. In my experience, cutworms are usually the greater problem, although we have had some springs where large numbers of flea beetles are present and causing injury. Some of the insecticide options (see below) are effective against both pests.

Cutworm larvae are about an inch long. They are smooth, brown or gray, and have stripes running the length of their bodies. A quick search around the base of an affected vine can usually reveal the pest (Figure 1). Some of the most heavily damaged vineyards are

those where either mulch or weed debris exists around the base of vines. This offers a refuge for the larvae during the day. Feeding begins in the spring when buds begin to enlarge. The extent of damage depends on the cutworm population but also on the duration of the bud-break stage. During cool weather, when the period from bud-swell to bud-break is delayed, damage can be extensive because the larvae have an extended period during which they feed. Conversely, during hot weather, shoots emerge quickly and damage is minimal. Vineyards must be monitored carefully for cutworm feeding in the period around bud-break, and treated with an insecticide if feeding affects more than about 2% of the buds. Note: the 2% level of damage should be adjusted for your specific needs. One of the most damaging aspects of cutworms occurs when they feed on cane-pruned vines. Such canes that are deprived of uniform shoot emergence by cutworm feeding may need to be retrained the following year in order to provide uniform spur placement. On the other hand, older vineyards, that normally crop well, may tolerate 5% or more bud injury without adverse impact on yield. Regardless, you need to walk the vineyard routinely after buds begin to swell to monitor for cutworm activity.



Figure 2. Cutworm damage to swollen grape bud. A tertiary shoot might develop from such a bud, although extensive feeding can eliminate all bud primordia within the compound structure.

Management: Let's cover the cultural (non-chemical) approaches first. Experienced grape growers often note that damage is concentrated in hotspots in the vineyard – often along a vineyard edge or in areas where the debris under the trellis is substantial. I know of some growers who walk their vineyards with headlamps after dark and physically spot and remove the cutworms from vines by hand. If this does not sound like one of the reasons you signed up to grow grapes, it's probably not a good alternative for you. On the other hand, if you want to follow an organic approach wherever possible, it's an option. We rarely find more than one larva per vine, so the task is not insurmountable. I also mentioned our use of Tanglefoot adhesive, applied to trunks, in the nineties. The barrier is fairly effective on young, singly-trunked vines, but it's rather messy and time-consuming to treat individual vines. Chemical control, if needed, is based on a number of older grape insecticides, such as Sevin, Dipel (*Bacillus thuringiensis* [B.t.]) and Intrepid 2F, as well as more recently registered materials such as Altacor (chlorantraniliprole), all of which are included in the 2015

Grape Pest Management Guide (https://pubs.ext.vt.edu/456/456-017/Section-3_Grapes-1.pdf).

Cutworm control can be improved by spraying one of these products in the late afternoon or early evening to ensure that fresh residues are present when feeding commences. Read the insecticide label to determine the correct rate of product application, the restricted entry interval, and other application requirements.

Spring frost: Wish I could say that there's a fool-proof method of protection, but not much has changed on this ancient problem. Ed Hellman has a good overview of frost avoidance measures on the eXtension website (<http://www.extension.org/>) [enter "grapes frost avoidance" in the search box, upper right]. Some of my own comments from a number of years ago still resonate:

- It's mostly about site selection and putting the early budding varieties higher on a slope (*passive* control), but there are some *active* measures that can be implemented, depending on your circumstances, such as use of wind machines (mast-mounted and helicopters), use of sprinkler frost control, and input of heat into the vineyard. Irrigation and heaters are rarely used in Virginia vineyards, but wind machines and contracting with helicopter services are used more commonly. Helicopter services (Warrenton and Richmond, for example, have helicopter

services) are often based at metropolitan airports. Explore these services and their costs well in advance of a potential frosty morning if you choose to use this means of protection.

- Mow cover crops to increase soil heating during the day.
- Wind machines: Inspect, fuel and test solid-set wind machines well in advance of their need. Mobile, tractor-powered are fans and heaters are also available and offer some measure of protection. Overhead irrigation is another alternative, but requires large amounts of water and can cause more injury than protection if not correctly used.
- Avoid use of crop oils *after bud break* if you are in a frost-prone site (note, research has shown some bud-break delay with some varieties when dormant oils are applied to vines in the dormant period, well before bud break)
- Efficacy of prophylactic sprays (“night before” measures) to minimize frost injury are generally ineffective – they promise much but generally fail to deliver. That said, there is some research occurring at Penn State with “KDL” a potassium-containing fertilizer. Results from 2014 were inconclusive, as no frost occurred at the 25 study vineyards. The study is being repeated this year.
- With some variance due to wind speed, cloud cover, and the relative dryness of the air, the temperatures (degrees F) that will damage grape buds and shoots are:
 - dormant bud < 20F
 - dormant swollen 26F
 - burst bud 28F
 - one leaf unfolded 28 - 29F
 - two leaves unfolded 29 - 32F
- What happens if your vines get frosted? Should you rush out and remove the frosted shoots? Not much point. I covered this (my opinion) in an earlier Viticulture Notes: (<http://www.ares.vaes.vt.edu/olson-h-smith/grapes/viticulture/extension/news/vit-notes-2010/vn-june-2010.pdf>) and will stick to that response.

II. Piedmont, Italy 2015

I had the opportunity in mid-March to visit Piedmont Italy with two missions in mind. On the one hand, I’ve been discussing the possibility of a university student exchange program between the College of Agriculture and Life Sciences at Virginia Tech, and the enology and viticulture program at the University of Turin in Piedmont. These discussions have been facilitated in part by Emanuele Gaiarin, a wine importer based in Springfield VA (Siema Wines). When retired enologist Bruce Zoecklein announced a small wine study trip to Piedmont this March, it looked like a great opportunity to combine that study trip with a first-hand look at how the student exchange program might be developed.

Student exchange program: The initial goal would be to provide undergraduates at Virginia Tech with an interest in viticulture or enology an opportunity to visit teaching facilities and commercial vineyards and wineries in the region near Turin (Torino). We envision this initially starting as a “faculty-led study trip”, of from 10 to 14 days. Faculty from Virginia Tech would accompany the students and provide some of the classroom, lab and vineyard instruction, with assistance from the host institution. The students would gain 1 or 2 credits of independent study towards their BS degree. An advantage of the arrangement in Turin is that some of the logistics such as housing could be easily accommodated, and the University of Turin has nearby teaching and research facilities and faculty willing to participate in the bilateral exchange program. For this program to succeed there does need to be a way to reciprocate: for us to provide a learning experience for University of Turin students to study and/or work within the Virginia wine and grape industry. To add complexity, the students at Virginia Tech and those at the University of Turin are not pursuing comparable degrees. Our Virginia Tech students would be, at least in the initial scope of a student exchange program,

pursuing a typical, 4-year BS degree either in horticulture or in Food Science. The horticulture department at Virginia Tech implemented a viticulture minor in 2014, and the study abroad program in Italy would be one elective that would fit that minor. The students from Turin, on the other hand, would be from that institution's "Masters Superior Study" program which is somewhat more akin to our Masters of Science graduate degree program. The Italian Masters program requires the student to conduct applied research and gain some work experience. Turin students currently undertake their study abroad in France or Spain, but the organizers of the program are interested in exploring options in the US. While there is bilateral interest in the student exchange program, there are many details to work out and the earliest that we envision an exchange occurring would be 2016. Among early tasks with this venture will be an assessment of the level of interest by our students to study in Italy, and by our industry to be involved with students from Turin who might wish to intern here in summer or fall. Further to the latter point, I'd be interested in hearing from industry members who might wish to further explore the potential hosting of student interns from Turin for a portion of the summer and/or fall crush.

Wine study tour: The other aspect of the March trip to Piedmont was a one-week study tour of certain sub-regions of Piedmont, including Gavi, Asti, Barolo and Barbaresco. The Piedmont is divided into 42 *Denominazione di Origine Controllata* (DOC) and 16 *Denominazione di Origine Controllata e Garantita* (DOCG) zones although there is some fluidity with those numbers. Barolo and Barbaresco are two of the region's best known DOCG denominations and straddle the small city of Alba. While Nebbiolo comprises the Barolo and Barbaresco wines, Nebbiolo accounts for less than



Figure 1. Vineyards of Castello dei Poggio (346 acres), comprising mostly Barbera and Moscato and Brachetto.

Zonin's largest vineyard. Soils here, like many of those in the Langhe region, were calcareous (>7.0 pH) former marine deposits. Although not exclusive, rootstock Kober 5BB was often used. This is not an arid region – rains occur during the growing season (as much as 3 inches in a 24-hr period) and 2014 was a particularly cool, wet, challenging year according to many that we spoke to throughout the Piedmont. Thus, the use of a relatively high vigor rootstock seemed odd, but our hosts indicated that they use this stock to confer tolerance to the calcareous soil. Vines here were spaced 2.5 m between rows and 0.90 m between vines in the row. Here and in many of the sub-regions that we visited, vine density is to some extent regulated by either DOC or DOCG convention, but many producers were using higher density than the minimum prescribed. When asked why, the common response was that they considered a smaller crop per vine translated to higher quality wine. For the most part, vine

10% of Piedmont's grape production. Other major varieties of the Piedmont include Arneis, Barbera, Moscato (Muscat blanc), Dolcetto, Cortese (Cortese di Gavi), Grignolino, and Vermentino.

We also saw lesser planted varieties such as the white-fruited Albarola grown in the Cinque Terre DOC in Liguria where it is blended with Bosco and occasionally Vermentino, and the Erbaluce which like Cortese, retains relatively high acidity at harvest, although both are rather thin-skinned and susceptible to Botrytis bunch rot.

One of our visits was at Castello dei Poggio near Asti, which like Barbourville Vineyards here in VA, is owned by the Zonin family. Castello dei Poggio is the

training was single-Guyot (head-trained, cane-pruned), and canopy management -- we were told -- was partly by machine-lifted catch wires (or plastic, monofilament lines), and mechanized hedging and leafing. Manual labor was used as needed in follow-up work and for green-thinning to regulate crop levels. Pruning and training systems were modified to meet the vineyard or variety requirements in the several sub-regions that we visited: head-training and cane-pruning were very common, but particularly for varieties such as Nebbiolo and Albarola which have basal bud infertility. Cordons and spurs were used in one Barbera vineyard to “produce lower crops and smaller berries”. Sylvos training (cordons and short canes) were used in some Moscato and Brachetto blocks to increase tonnage. An overhead, pegola training was used with Erbaluce, near Aosta in the northern Piedmont, where the overhead canopy was said to improve air circulation around the fruit.

Back at Castello dei Poggio, near Asti, the highest quality Barbera grapes, destined for Barbera d’Asti DOCG wines, were cropped at no more than 1.8 tons/acre (4 tonnes/ha). The Moscato and lower tiered reds were cropped at higher levels (10 – 15 tonnes/ha, or 4.5 – 6.7 tons/acre). A quick search back home turned up the 2010 Barbera d’Asti on line at \$24/bottle. We didn’t try to fully grasp the economics of production but a few things were apparent. With unemployment in Italy hovering around 13%, and closer to 30% among young people, labor costs were not as high there as we experience here. Italy (including Piedmont) obviously does a great job of exporting wine to the US and many



Figure 2. Dead Barbera vines are stacked at the row ends for removal from the vineyard. Barbera is highly susceptible to grapevine yellows, which killed these vines.

other countries, and the industry receives some EU support for the promotion of this export market. The low alcohol (5 – 7%), sweet, slightly effervescent (frizzante) Moacato d’Asti wines of Piedmont are currently a significant sector of wine exports from Piedmont.

We asked lots of questions about pests and diseases and the answers were not too surprising – powdery mildew, downy mildew, botrytis bunch rot, esca and grapevine yellows were cited as particular troublesome. The invasive spotted-wing drosophila (*Drosophila suzukii*) has been present in Italy since 2008, and trapped in Piedmont since 2010, but the producers that we asked indicated that they had not seen much or any evidence of it in their vineyards, but were monitoring for it. Some of the producers that we spoke to indicated that they pursued “organic” approaches where feasible (this often meant using elemental sulfur for

powdery mildew and copper compounds for downy mildew), but that they didn’t hesitate to use more effective, systemic fungicides and insecticides if conditions dictated. Seems like a very practical, if not organically principled approach.

Take-home messages:

- Challenges to quality wine grape production are universal: diseases, invasive insect pests, poor weather (e.g., 2014) were oft-cited problems in Piedmont. But they make some fantastic wines too... We were there prior to bud-break, but it’s obvious that the vineyards we visited are managed in meticulous fashion.
- Regionally recognized wines (and foods) were, as in our French wine study trips, a cultural treat but of course have taken many years and sustained tradition to achieve such recognition. The Cortese wines of Gavi, the Vermentino of Cinque Terre, the Erbaluce of Aosta, Moscato di Asti, and of course the Nebbiolo of Barolo and Barbaresco, were shining examples.

- Tidbits of knowledge on vineyard management including a novel biopesticide (targeting Botrytis) used at one vineyard, ideas on some lesser-planted varieties that might be adapted to some of Virginia's climate, particularly with some white varieties.
- And of course, an opportunity to further explore the potential for a student exchange program with the University of Turin.

III. 2014 Commercial Grape Report

The 2014 commercial grape report is now available for download on www.VirginiaWine.org. This report includes industry data on grape production and acreage by variety, pricing by variety, and production and acreage by county. Go to the VirginiaWine.org site and click on "News" button on the header, then click on the "Commercial Grape Reports" button on the left side bar.

This marks the fifth year the Virginia Wine Board Marketing Office has managed the annual Commercial Grape Report (CGR) data collection and reporting. Prior to 2010, the CGR was produced by NASS (National Agricultural Statistics Service). The survey questions were consistent with those used by NASS; however, the capture of information was slightly different. The 2010-2014 surveys drew upon exact data provided by Virginia grape producers. If you have any questions about the survey or the report, please contact the Virginia Wine office at (804) 344-8200.

Please contact the Virginia Wine Office if you are not on their survey mailing list (if you did NOT receive a survey in 2014). Why? The data are useful for tracking industry growth and development, and for justifying legislative and other industry support. Please do your part to support this effort to quantify the impact grape growing has on the Commonwealth.

Speaking of wealth – we're all aware of the challenges that grape growers face and the often thin profit margins of commercial grape growing. The data in figure 4 are derived from the 2014 grape report mentioned above. Even if we use the 2013 average value for Vidal (\$1,278/ton), the revenue per acre for Vidal still surpasses that of Merlot. Not too shabby for a hybrid wine grape!

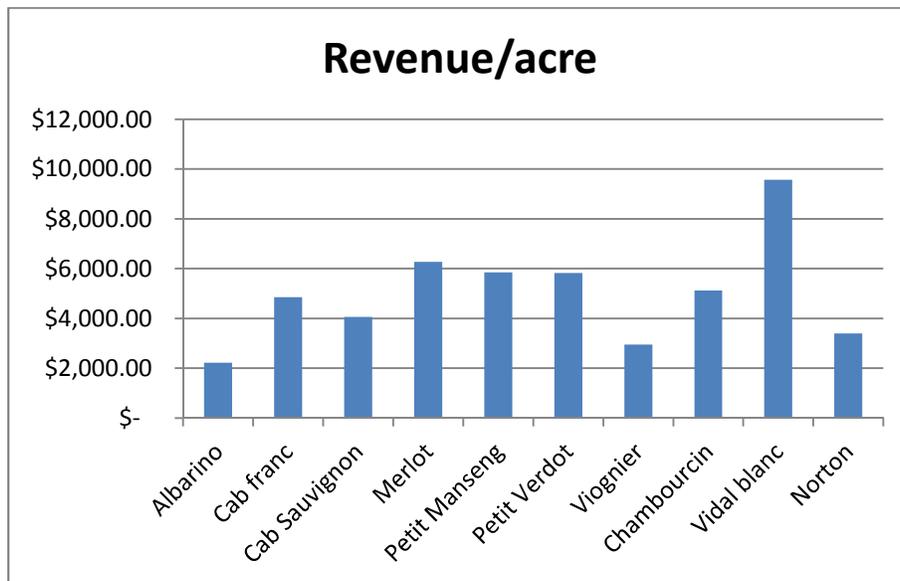


Figure 3. Revenue (\$/acre) for 10 grape varieties produced in Virginia during 2014. Data are based on total tons harvested, total bearing acres, and average price per ton in 2014.

IV. What's your crop load?

Tremain Hatch, Viticulture Research/Extension Associate, Virginia Tech

Spring is finally here and a new growing season is underway. Think back to the 2014 season and ask what you could improve upon this season. What was your crop like last year? Many growers are content to measure the total amount of crop coming from a block of their vineyard but have little objective evidence to say that the crop load was too high, too low, or just about right.

Grapevines are capable of ripening an optimum range of crop per unit canopy area; too little crop can be as deleterious as can too much crop. Crop load is the relationship between the vine's reproductive growth (fruit) and its vegetative growth for a given season. The season's vegetative growth is commonly measured as dormant cane prunings. Crop level is simply the amount of fruit carried by the vines and can be measured as crop per shoot or crop per vine, or crop per unit length of canopy. Crop yield is usually expressed on a unit area of land basis (tons/acre) and while it has economic implications, crop yield is a poor measure of vine performance. The Ravaz index quantifies crop load, an ideal ratio of 5 – 10 (crop fresh weight / dormant pruning weight) with a canopy well exposed to sunlight. Vines planted 5 feet apart that have a pruning weight of 2 lbs. should be able to ripen about 10 to 20 lbs. of fruit per vine using this index. At 9 feet between the rows and 5 feet between the vines this equates to 5 to 10 tons of fruit per acre. This would be a crop level of 2 to 4 pounds of crop per foot of row. **However, those values are a bit high for our conditions.** We grow big vines here in Virginia with congested canopies, and therefore our pruning weights don't always reflect the exposed leaf area of the canopy; and we don't always have warm, dry growing seasons with a surplus of sunshine. Our recommended crop levels are in the range of 1 – 2 pounds of crop per foot of canopy, for well managed, mature vines. With VSP training at 9' X 5' spacing we should be able to ripen 2.5 -5 tons per acre at 1-2 pounds of crop per foot of canopy. The 2014 [Commercial grape report](#) indicates our average to be closer to 2.4 tons per acre. We all know that our industry could use more high quality, Virginia-grown grapes, so exploring individual reasons for low yields is of importance. One to two pound of crop per foot of canopy still leaves a large range for an optimum crop level. Should it be closer to one, or closer to two pounds? We have quite a few variables in Virginia that will influence what crop level is optimum: variety, plant available soil moisture, vine health, canopy management, winemaking goals and seasonal weather patterns. A vine will be able to ripen a substantially heavier crop in warm, dry seasons with lots of clear skies (like 2010), than in cool, damp seasons like 2003. One and a half pounds of crop per foot of canopy is a good target crop level for red wine in a "normal" Virginia season.

One way to increase yield is to increase the canopy per acre. More canopy per acre can be obtained by dividing the canopy (e.g., Smart-Dyson) or by decreasing row width; both will increase the linear feet of canopy per acre. As the canopy per vine (number of shoots) increases the growth rate of individual shoots will decrease. More well exposed leaves are capable of producing and ripening more crop.

These metrics can be quite easy to calculate in your own vineyard. The trick is having good data from your vineyard. Collect pruning weights and crop yield (per vine or per panel), that represent the vegetative growth (pruning weight) and reproductive growth (crop weight) of the vine. Divide the crop yield by the pruning weights of the vine to calculate your own Ravaz index (again, the ideal range is between 5 and 10). Or calculate the crop per foot of canopy; take the yield of a vineyard block and divide it by the linear feet of canopy in that block (make sure to correct for missing vines).

If you get a Ravaz value less than 5 or a crop level value less than 1.5 pounds per foot of canopy, and if it makes sense for your variety and site; think about ways to ripen more crop in the vineyard. Less fruit thinning, maybe more shoots per vine (opportunity to divide the canopy) – think about it and try altering your management on a couple of rows. Depending on the variety, evaluate the fruit chemistry,

flavor and tannin ripeness as harvest approaches and see if you can perceive or measure a difference.

Keeping more crop on the vines probably does not make sense if you struggle to ripen the variety (e.g. Cabernet sauvignon) or may be dealing with winter injury (e.g Tannat), or younger vines (less than 5 years old) that have not reached full production capacity. However, say, with a healthy, mature vineyard (e.g. Chardonnay); see what retaining a couple more clusters per vine will do. Use your own quality criteria (soluble solids, pH, flavor, wine quality) and see how the treated vines differ from the rest of the block. A big caveat here will be any bud injury from last winter or presence of bud necrosis (e.g., with Viognier). Some vineyards with significant bud injury just will not set much fruit this season.

There is room to experiment on the farm – and this type of trial will offer something that can help you grow better fruit in the long run.

V. Upcoming meetings

A. Virginia Cooperative Extension – Vineyard meeting schedule 2015

- **29 April** – Vineyard meeting at Early Mountain Vineyards
 - Early Mountain Vineyards <http://earlymountain.com/>
 - 11 am – 3 pm
 - Vineyard tour, seasonal updates from specialists
 - Lunch will be available for purchase from the winery, please arrive early to order lunch in the tasting room; or bring a bagged lunch.

- **8 June** – Advanced grapevine nutrition workshop
 - Full day technical workshop
 - Registration required (see information below, under “B” on this meeting)

- **23 June** (Tentative) – Vineyard meeting at Zephaniah Farm Vineyard (in conjunction with Loudoun Winegrowers Association)
 - Zephaniah Farm Vineyard http://zephwine.com/Z/Contact_Us.html

- **29 July** – Vineyard technical workshop at AHS Jr. AREC near Winchester VA
 - <http://www.arec.vaes.vt.edu/alson-h-smith/contact/index.html>

B. Advanced grapevine nutrition workshop

What: Advanced grapevine nutrition workshop

When: June 8, 2015, beginning at 9:00 am – we will finish by 4:00 pm

Where: King Family Vineyards; Carriage House

Description: This full-day workshop is intended to provide a detailed description of vine nutritional requirements, assessing nutrient status, and developing a fertilizer program to maintain vine capacity, vine health, and optimally impact fruit chemistry, including yeast requirements for fermentation. We've assembled a noteworthy team to conduct this workshop including:

- Alex Blackburn, Blackburn Consulting
- Terry Bates, Viticulturist and Director, Cornell Lake Erie Research and Extension Center

- Fritz Westover, Westover Vineyard Advising (<http://www.vineyardadvising.com/services/>)
- Molly Kelly, Enology Extension Specialist, Virginia Tech
- Tony Wolf, Viticulture Extension Specialist, Virginia Tech

We are pleased to acknowledge that A&L Eastern Labs of Richmond (<http://www.al-labs-eastern.com/>) and Helena Chemical (<http://www.helenachemical.com/>) are providing financial sponsorship for this meeting.

The program topics will include:

- Impact of chemical and physical features of soil on vine nutrition
- Soil sampling in the pre- and post-plant life of the vineyard
- Plant tissue sampling: methods and interpretation of results (focus on N, P, K, Mg and B)
- Deficiency correction and maintenance of optimal nutrient levels
- Case studies: sampling, interpreting results, action, results
- Impact of nitrogen nutrition on must YAN, fermentation, and wine quality potential

Tentative Program

8:30 am: On-site registration

9:00 am Introduction, workshop aims, pre-workshop knowledge assessment
Tony Wolf, Virginia Tech

9:15 am Vineyard site evaluation from a soils and vine nutrition perspective
Alex Blackburn, Blackburn Consulting Services, LLC

10:00 am Soil amendments in the pre-plant phase: soil pH and other soil amendments
Terry Bates, Director, Cornell Lake Erie Research and Extension Laboratory

11:00 am Assessing and adjusting grapevine nutrient status, Part I: N, P, and K
Fritz Westover, Westover Vineyard Advising
Overview of visual, soil, and plant tissue analysis methods and discussion of N, P and K

Noon: Lunch (included with registration)

12:30 pm: Assessing and adjusting grapevine nutrient status, Part II: Mg, Ca and micronutrients
Tony Wolf and Tremain Hatch Virginia Tech

2:00 pm: Elements of a vineyard Nutrient Management Plan
Greg Klinger, Virginia Tech

2:30 pm: Grower perspective on avoiding and/or correcting vine nutrient issues as the vineyard ages
TBD

3:00 pm: Alternative sources and methods of nitrogen application in the vineyard
Russell Moss, Virginia Tech

3:30 pm: Effect of foliar nitrogen and sulfur applications on fermentation and wine aroma profile
Molly Kelly

4:00 pm: Speaker's Panel for Questions and Answers
All speakers

4:30 pm: Adjourn

Registration information is attached and is included as the last page of this newsletter.

Other meetings and news of potential interest:

Young Grower Alliance (May 28, 2015)

The second meeting of the Young Grower Alliance of Virginia will take place on May 28th at 6 pm in Charlottesville, VA. The meeting will be held in the Albemarle County Office Building (McIntire Building), 401 McIntire Ave., C'ville, VA (<http://www.albemarle.org/page.asp?info=dir>). We will be watching the film "Botany of Desire". There will be a short introduction to the film and a discussion following the film.

The Young Grower Alliance of Virginia is a support group for up-and-coming fruit and vegetable growers. Drawing upon Virginia's rich history and promising future in produce, the YGA consolidates industry information to present it in a manner that encourages and prepares young, beginning, or next generation growers for a career in horticulture. Please share this flyer and information with those who may be interested. Updates and reminders can be found at: <https://www.facebook.com/virginiayga> or <https://twitter.com/younggrowerva>

Please contact Mark Sutphin (mark.sutphin@vt.edu) and follow us on Facebook at Young Grower Alliance of Virginia (<https://www.facebook.com/virginiayga>).

Virginia Cooperative Extension Pest Management Guide, 2015: Just a reminder that the PMGs for 2015, including grape, are available online at: https://pubs.ext.vt.edu/456/456-017/Section-3_Grapes-1.pdf. For novices, this is the full list of chemical (pesticide) options that our pest management specialists revise and issue each year. What you used 5 years ago in the vineyard might still be useful, registered for commercial use, and available locally from your chemical supply company. On the other hand, some materials, such as certain fungicides, may no longer be recommended due to resistance issues.

Winegrape Spray Guide posters: VineSmith's 2015-2016 Wine Grape Spray Guides are now available. This set of unique at-a-glance posters contains all the information you need to quickly and easily select the best fungicide, insecticide or herbicide for the job. They will save you hours of time planning and tracking your spray program. Retail price is \$59, but you will get a \$10 discount if you enter EXT15 in the coupon code box at checkout. For more information or to purchase, please visit www.vinesmith.com

REGISTRATION FORM

**Grapevine Nutrition Workshop
King Family Vineyards and Winery
8 June 2015**

Please provide following information, which will be used on name badges at meetings:

Registrant name: _____

Vineyard or winery name (if applicable): _____

Street or PO Box address: _____

City: _____ State: _____ Zip: _____

Email: _____ Phone: _____

REGISTRATION (\$40 per person)

\$40/person * _____ persons Total = \$ _____

Registrations must be received by 1 June 2015.

A check must accompany registration. Make checks payable to “Virginia Tech Foundation” and mail to: Tony Wolf, Virginia Tech, 595 Laurel Grove Rd., Winchester VA 22602. You may also call 540-869-2560 x18 (TKWolf) if running late on this registration date.

Registration details: Registration covers lunch, refreshments and speaker expenses associated with this workshop.

Cancellation policy: Registration cancellations received by 1 June 2015 will be fully refunded. **NO REFUNDS WILL BE MADE AFTER 1 JUNE 2015.**

If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact Tremain Hatch, AHS Jr. AREC at (540) 869-2560 ext. 11 during business hours of 8 a.m. and 4 p.m. to discuss accommodations 5 days prior to the event. *TDD number is (800) 828-1120