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Vineyard and Winery Information Series:

VITICULTURE NOTES

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I. Current situation:

New Viticulture website: Cooperative Extension and Virginia Agricultural Experiment Station websites were upgraded to a new server and hosting system which required a revision of content and change of URL. The new viticulture website is: http://www.arec.vaes.vt.edu/alson-h-smith/grapes/index.html
Follow the links from here to "Viticulture" and "Extension and Outreach" to find most of the materials that were posted to my old website. Additional content will be added periodically. Several readers have inquired about where old **Viticulture Notes** editions are maintained. They are still available; however, I have lost the cumulative index with hyperlinks and will have to rebuild that as time allows. The URL for the archived Viticulture Notes newsletters is: http://sites.ext.vt.edu/newsletter-archive/viticulture/

2010 Grape Pest Management Guides: Virginia Cooperative Extension's 2010 Grape Pest Management Guide (PMG) can be downloaded at: http://pubs.ext.vt.edu/456/456-017/Section-3_Grapes-2.pdf
The pesticide recommendations are annually prepared by pest management specialists with grape expertise at Virginia Tech, and form the basis of our grape pest management program. Pesticide recommendations augment cultural control practices, including integrated pest management of arthropod pests and good canopy management techniques to set the stage for effective disease control. Detailed disease management recommendations can be found in past issues of Viticulture Notes, in the Compendium of Grape Diseases (http://www.shopapspress.org/40888.html), at Dr. Nita's (our grape pathologist) website (http://www.arec.vaes.vt.edu/alson-h-smith/grapes/pathology/index.html) and by attending regional vineyard meetings, a number of which are listed in this newsletter.

Meet Virginia Tech's new Dean of the College of Agriculture and Life Sciences: Dr.

Alan Grant has been dean of Virginia Tech's College of Agriculture and Life Sciences since October 1, 2009. Dr. Grant will be visiting with interested industry members and the public in a series of 7 town-hall meetings starting in early March (go to this link), one of which will be here at the AHS AREC (April 29th). The public is invited to these meetings and I would encourage you to attend and meet dean Grant and discuss your ideas of how Virginia Tech and the College can best serve the grape and wine industry.

II. Question from the field: I'm exploring the option of purchasing an existing vineyard which has a 5-acre block of mature (about 20 years old) Chardonnay vines of uncertain health and which is missing a number of vines. What are the pros and cons of replanting this entire block vs. filling in the missing vines with replants? What would replanting cost? What is the best procedure to replant, and how long will it take for the replanted vines to be in full production?

Answers: This is a timely question, but there is no one "best procedure" for replanting. There are many vineyards that we see around the state whose vines have suffered from various diseases, abiotic stress, or simply mechanical damage, and are in need either of completely replanting or selectively replanting. While some winemakers extol the merits of "old vine" wines, in cases with good cause, getting a vineyard population of vines to a uniformly "old" age of 25, 30, or more years old – and in good health – is a difficult feat in our mid-Atlantic climate. There was a time when winter injury would often reset this clock for us and cause, at minimum, a retraining of new trunks if not replanting of entire vines. Winter injury has not been a recent, widespread phenomenon in Virginia and we are seeing more vineyards now reaching a ripe old age of 20 or more years. Unfortunately, we are also finding ample evidence of trunk/cordon pathogens such as Eutypa and Botryosphaeria canker, Esca (black measles), and certain virus diseases (getting old is hellish…).

A first step would be to inventory the vineyard block and record the number of missing or diseased vines (for regular VN readers, this was recommended in a "Harvest update" that I issued last September, when disease was easy to spot and flag). "Disease" would be easier to assess when a canopy is present, but an assessment of crown gall, weak or otherwise obviously compromised vines can be helpful even if done prior to budbreak. If the assessment can wait until the growing season, pay attention to symptoms that might be indicative of disease. For example, we have recently focused some of the industry meetings (VA Vineyards Association) on recognition and consequences of diseases such as leafroll virus, esca, Eutypa and Botryosphaeria canker. It's important at this stage of vine assessment to also differentiate the "manageable" problems from those that cannot be corrected. For example, leafroll virus symptoms might be confused with certain nutritional deficiencies, especially phosphorus deficiency. The nutrient deficiency can be corrected, whereas the leafroll disease condition cannot; leafroll-infected vines should be removed/replanted. If leafroll is prevalent in the vineyard block, the entire vineyard block should be removed and replanted. The canker diseases can be managed to some extent with aggressive pruning, protection of pruning wounds on all vines, and destruction of pruned vine parts as though burning or burial outside the vineyard.

At the same time that you inventory vine health and/or record missing vines, note the condition of the trellis hardware. Are posts loosely set, rotted or splitting? Are staples easily pulled out? Is the trellis wire corroded (look at where it passes through staples), rusted, or spliced from previous breakage? Are the in-line tensioners in serviceable condition? Granted, this is a judgment call, but the condition of the trellis, combined with an assessment on replanting needs will help determine whether to replant missing vines or replace the entire vineyard. We figure the life of a normally maintained trellis with

pressure-treated posts to be no more than about 30 years. If the vineyard is approaching that age, and there are other factors that weigh towards entirely replanting the vineyard, then it might also be a good idea to replace the trellis at the same time. As we'll see, there can be advantages, including new opportunities, in installing a new trellis along with new vines.

One other consideration on the vines: What are the current variety, clone and rootstock? What was planted 20 years ago may not be the best choice today. You indicated that the variety is Chardonnay. Chardonnay is still the state's number one variety in terms of quantity for good reason – it is adaptable to a wide range of growing conditions and it's generally well recognized by winery traffic. Varietal clone is more subjective and I would not condemn an otherwise good planting of Chardonnay simply because it's planted to a clone that might not be a preferred clone today. So-called "high yielding" clones, like high-yielding varieties, can make great wines if the time and management is used to keep the crop in balance with functional leaf area.

Another consideration at this point is the condition of the site and the design of the vineyard. Note the row spacing. Is row width (canopy to canopy) much greater than anticipated canopy height (about 5' for vertically shoot-positioned vines)? Vineyards planted in the early to mid-eighties were often designed with very wide rows (12' was common) to accommodate the only machinery that was commonly available at that time. A new vineyard, with narrower rows (e.g., 8 to 9 feet) would more efficiently use the available space. If you can take the time to do some thorough soil testing, this would help assess whether lime, fertilizer, or organic matter should be applied. If so, and depending on the extent of correction required, incorporation of the nutrients and organic matter may be necessary. This is much easier if the trellis is first removed.

Let's come back to your questions. What are the pros and cons of replanting this entire block vs. filling in the missing vines with replants? It's a classic, academic answer: it depends. It depends on condition of the vines, condition of the trellis, soil condition, vineyard design, etc. as I've outlined above. If more than about 30% of the vines are missing or diseased, the trellis is in disrepair, the soil needs substantive remediation and the vineyard rows or vine spacing are too generous, I'd say that a complete reinstallation is in order. That's an extreme option. At the other extreme is to do nothing and continue farming the existing planting with whatever deficiencies it has. There should be some logic to help arrive at alternative options in between those two extremes, but the considerations to do so will vary with individuals' investment time horizon, wine quality benchmarks and goals, available financing, and other unique factors.

If the trellis is in good repair and the existing row width is utilizing vineyard space reasonably efficiently, you could go the route of simply replanting to fill missing spaces. Ideally, this would be done every few years, or as necessary in the life of a vineyard, to keep the vineyard at maximum productivity. Replanting directly into old vine locations in the row can occasionally lead to poor growth of the replant. The reasons for poor growth are due to multiple factors, most of which are considered to be of a soil-borne, biological origin, such as a build –up of parasitic nematodes. Moving the new vine in the row a foot or so, or planting the replant with bulk soil from another location can help avoid retarded vine growth. Another obstacle with simply replanting to the existing rows is having to plant by hand with the trellis left intact. If there are a lot of vines to replant, this can consume a substantial amount of time and labor.

At least one other "compromise" option would be to pull all remaining vines, retain the trellis, and replant, perhaps with another variety, on a different rootstock. I don't have good figures for the cost of replanting in this fashion; our costs and returns of vineyard establishment (Wine Grape Production Guide for Eastern North America) are based on starting with a clean slate. If you choose

to go this route, take the time to do soil testing and incorporate any amendments needed before replanting, even if it requires re-establishing a cover crop. Allowing the vineyard to remain fallow for a year or more will help mitigate some of the replant problems that accompany more rapid replanting schedules.

Renovating and replanting a site should not be rushed, although I can understand the temptation to quickly return the site to a productive vineyard status. If you go the route of removing the trellis and any remaining vines, go through the complete process of soil testing, incorporation of soil amendments, establishment of a cover crop, and design of a new vineyard using contemporary design recommendations. As stated in the preceding paragraph, allowing the vineyard to remain fallow for a year or more before replanting will pay dividends in terms of vineyard longevity. Once the new vines are planted, full production should be achieved in 4 to 5 years, depending on training and vine spacing.

III. Climbing cutworm update: (Note: I dug back into my Viticulture Notes Archives to pull this article out of the March 2003 issue … See the related article by Dr. Doug

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

Pfeiffer on new or recently registered grape insecticides. 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 larvae are either gray or brown, about an inch long, and frequently have either dark or light longitudinal markings (figure 1). 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 assume that the damage is necessarily only caused by cutworms. Cutworm larvae feed at night and 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. 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. As we see more vineyards allowing late-season weed development or intentionally using perennially grasses to help manage vine vigor, we are also seeing more problems with climbing cutworms. 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 canes that have been laid down on the wire to form cordons. 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 or subsequent season spur development. Regardless, you need to walk the vineyard routinely after buds begin to swell to monitor for cutworm activity.

Many of the grape insecticides, such as Sevin XLR Plus, Dipel (Bacillus thuringiensis [B.t.]), and Imidan, are effective against cutworms (and grape flea beetles). See Virginia Tech's 2010 Grape Pest Management Guide for a list of other insecticide options. Cutworm control can be improved by spraying 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. If you wish to try a non-insecticidal approach, we had apparent success at deterring cutworms by applying a zone of Tanglefoot adhesive around the trunk of each vine in our research vineyard. Using a latex dishwashing glove, we simply dipped a hand in the Tanglefoot and made a circle of the adhesive midway up the trunk. It was messy and laborious, especially with older vines that had abundant, exfoliating bark, but it did seem to work.

IV. New pesticides in the revised PMG:
Dr. Doug Pfeiffer, Professor of entomology, Virginia Tech

In this year's revision of the Grape Pest Management Guide, there are several new products. Here is a summary of some recent additions to products that can be used to manage grape insect and mite pests. Abbreviations used: REI, Restricted Entry Interval; PHI, Pre-Harvest Interval. As always, the law requires you to read and follow label directions for pesticide use.

Altacor – The common name is given as either rynaxypyr, or chlorantraniliprole. Altacor is registered on grapes for the control of grape berry moth, cutworms and leafrollers. Altacor is a member of the anthranilic diamide class of insecticides with a novel mode of action on insect ryanodine receptors. It has some contact activity, but is most effective through ingestion of treated plant surfaces. Insects exposed to Altacor will rapidly stop feeding, become paralyzed, and die within 1-3 days. Altacor has provided outstanding control of grape berry moth. For resistance management, treat the following generation with a product having a different mode of action. Restrictions: REI - 4 hours; PHI - 14 days.

Applaud (buprofezin) is an insect growth regulator registered for use on grapes. Formulated as a 70DF, Applaud is labeled for the control of mealybugs and grape leafhopper. The active ingredient acts as a chitin biosynthesis inhibitor and, therefore, has primary activity on the nymphal stages of these pests. Although adult insects are not controlled, there is some reduction in egg laying and viability of eggs. Insect uptake of Applaud is primarily through contact with some vaporization for a period of time after application. Restrictions: REI = 12-hours; PHI = 30-days.

Avaunt (indoxacarb) is the first member of the oxadiazine class of chemicals registered for insect control on pome and stone fruits. It is primarily effective against various Lepidoptera, but also has activity against selected insects of other types. Avaunt acts primarily through ingestion by inhibiting sodium ion entry into nerve cells, resulting in paralysis and death of the pest species. Avaunt results in rapid inhibition of insect feeding, pest knockdown within 1 to 2 days, and provides crop protection for 7 to 14 days. This product has low mammalian toxicity (caution label) and is intermediate between OP's and pyrethroids in toxicity to beneficial insects and mites. Restrictions: REI – 12 hours; PHI – 7 days.

Belt (flubendiamide) is registered for use on grapes for the control of lepidopteran larvae, including grape berry moth and cutworms. Belt belongs to the phthalic acid diamide

chemical class, and is primarily active through larval ingestion by causing a disruption of calcium balance in insect muscle cells, resulting in rapid paralysis. Because Belt is chemically related to Altacor, these two products should **not** be rotated against successive generations of the same lepidopteran pest in order to avoid the development of resistance. REI - 12 hours; PHI – 7 days.

Delegate (spinetoram) is related to spinosad, and is derived from the fermentation, followed by the chemical modification of a naturally occurring soil organism. This product affects the insect nervous system through both contact and ingestion, with excellent translaminar activity. Targeted pests in this area include grape berry moth, cutworms, leafrollers, and thrips. This is in the same class as Entrust (spinosad). Restrictions: REI = 4-hour; PHI = 7-days.

Envidor (spirodiclofen) is an acaricide registered for use on all pome and stone fruits for the control of European red mite, twospotted spider mite, apple and pear rust mites, and peach silver mite. The active ingredient acts as a lipid biosynthesis inhibitor, with contact activity against mite eggs, immature stages and adult females; adult males are not affected. Due to its insect growth regulator properties, Envidor should be applied on a preventive basis or at a low mite threshold, with performance evaluation conducted 4-10 days following application. Formulated as a 2SC, the application rate is 16-18 oz per acre, with a maximum of one application per season. Minimum application volume (ground application only) is 50 gal/acre grapes. Restrictions: REI - 12 hours (6 days for high contact activities in table grapes); PHI – 14 days.

Movento (spirotetramat) is registered for the control of sucking insect pests on grape, including mealybugs and phylloxera. It is a systemic foliar insecticide that belongs to the tetramic acid chemical class (same class as Envidor®) and is classified as a lipid biosynthesis inhibitor. Movento is active by ingestion against the immature stages of target insects. Upon penetration of the leaf cuticle, Movento exhibits “2-way systemically” by moving to all areas of the plant, including new shoot, leaf and root tissues. Restrictions: REI – 24 hours; PHI - 7 days. Prebloom use only on table grapes.

Note on **Movento**: The Natural Resources Defense Council petitioned EPA that the registration process for spirotetramat was flawed. In court action, the registration of spirotetramat was cancelled (http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480ab24d1). The safety of the product was not questioned. The registration process is to be corrected; in the meantime, previously purchased product may be used.

Onager (hexythizox) is an acaricide registered on grape for the control of European red mite and twospotted spider mite. It has activity against eggs and very young mites. Include another miticide if older mite stages are present above threshold. Restrictions: REI – 12 hours; PHI – 28 days.

Portal (fenpyroximate) is a contact acaricide/insecticide registered on grapevines for the control of mites, mealybugs and leafhoppers (no longer restricted to nonbearing vines). Control is provided for grape leafhoper, but suppression only for sharpshooters. Sharpshooters are the vectors of Pierce's disease**.** Like Nexter (pyridaben), its mode of action is to block cellular respiration by acting as a mitochondrial electron transport inhibitor (METI). It also acts to inhibit molting of immature stages. Mite feeding and oviposition stop soon after application, with death occurring in 4-7 days. It should not be applied more than once per season, and should be rotated with products having a different mode of action where additional control is needed. Restriction: REI - 12 hours; PHI - 14 days.

Sniper (bifenthrin) is a pyrethroid registered

on grape for the control of grape berry moth, climbing cutworm, and grape leafhopper. This material will provide short-term chemical control of European red mite. However it is still toxic to natural enemies and rebounding of mite populations can be expected. As with other pyrethroids, biological control of other pests, including mealybugs, will be compromised as well. Restrictions: REI - 12 hours; PHI - 30 days.

SPLAT GBM (**GBM pheromone)** is a new mating disruption product, a useful tool for those interested in this selective method to control GBM following the withdrawal of Isomate GBM (see below). Apply when temperatures are between 60-80 degrees and no rain is expected within 1-2 hours. For high population densities, apply 1.0 kg/acre as 1,000 point sources of 1.0 g (1/4 tsp) throughout an acre. For low-moderate populations, apply 1.0 kg as 250 point sources of 2.5 g (1/2 tsp). Additional application information is on the label. Restrictions: REI - 4 hours; PHI - 0 days.

Zeal (etoxazole) is an acaricide/ovicide registered for mite control on grapes. It is an insect growth regulator that inhibits the molting process through disruption of the cell membrane. It acts as an ovicide, stops the development of immature mite stages, and sterilizes adults. Since Zeal does not kill adult mites and its activity depends upon development of immature stages, it may take a week or more to cause a reduction in the mite population. Therefore, Zeal is best used in an early season preventative approach or targeted against a low mite threshold. Restrictions: REI - 12 hour; PHI - 14 days.

Some losses of uses that are NOT reflected in the 2010 Pest Management Guide:

SpinTor has been discontinued by the manufacturer. This leaves us with Entrust, the OMRI-approved dry formulation of spinosad.

Isomate GBM, a product for mating disruption of grape berry moth, has been discontinued by the manufacturer. This rope-style dispenser has been effective for GBM, especially the improved, longer-lived version released several years ago. Unfortunately, the manufacturer did not feel that current sales justified continued production of the product.

V. Early season grape disease management

Dr. Mizuho Nita, grape pathologist

Another season is soon starting. Some folks in the southern areas of the state will probably be seeing bud break within the next week or so. One of the first seasonal diseases to be considered at this point is Phomopsis cane and leaf spot. The pathogen can be active in cool temperature. The optimal temperature for germination is around 15-18C (60-65F), and it takes 4 hours of leaf wetness (the time that the leaf is wet due to rain or dew) at that temperature range to have a light infection. Because of that, the critical timing of protection starts when the shoots are only 1-inch long. However, often time many of the fungicides for black rot and downy mildew, such as mancozeb, will work against Phomopsis (but not Rally or Sterol-inhibitors); thus, applications specific to Phomopsis may be required only when shoots are short, probably 1-2 times. Phomopsis may not cause as much injury as other diseases, but it can cause enough to be economically significant.

Once weather warms up, you should think about black rot, downy mildew, and powdery mildew. Depending on weather conditions, we may start to see these diseases early, as we did last year. The critical time for these diseases is between bloom and 4 to 5 weeks after bloom because berries are highly susceptible to infection during this period. Botrytis can also cause infection at bloom, thus, this is the time period when you need to focus on disease management.

As many of you know, it is easier to suppress grape diseases early in the season rather than trying to play catch-up later. Please plan ahead so that you can adjust

your schedule according to weather conditions and grape growth stage. To help your planning, I prepared guidelines for fungicide application (attached to this issue of Viticulture Notes). It is intended to be a supplement to our Pest Management Guide (PMG). Please take a look at it.

VI. Upcoming meetings:

A. Fundamentals of vineyard establishment and operations shortcourse (8 April 2010)

AHS AREC, Winchester, VA
See attachments or contact Tony Wolf (vitis@vt.edu)
Registration required: Pre-registration is required: $125 per person, to include morning coffee/danishes, soft-drinks, catered lunch, class materials binder, and to cover invited speaker expenses. Check to be made payable to "Virginia Tech Foundation", and mailed to "Grapes", Virginia Tech, 595 Laurel Grove Rd. Winchester, VA 22602. **Note** – there is still room in this shortcourse – email vitis@vt.edu) by 5 April if you wish to attend.

B. Southeast Virginia grape growing meeting (4 May 2010)

SE Virginia Extension District (Meeting location is not firm at this point, but will be in the Surry or Sussex County area).
Details: This meeting is being organized by Janet Spencer, Area Extension Agent, Commercial Vegetables 757-657-6450 ext. 414 jaashle2@vt.edu **(Registration required)**. Contact Ms. Spencer directly for registration and specifics on location. Program will feature Drs. Tony Wolf, Mizuho Nita and Doug Pfeiffer and will be geared towards advanced cultural and pest management recommendations applicable for SE Virginia.

C. 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 (To Be Determined, **TBD**) where those details are not presented here. The meetings are scheduled from 11:00 am – 2:00 pm (+ or – on adjournment) 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.

May 5th **Horton Vineyard and Winery, Gordonsville (meet at the Winery)**
Dennis and Sharon Horton

- Topics – Seasonal disease management considerations: – Dr. Mizuho Nita, Virginia Tech grape pathologist
- Seasonal viticultural management strategies – Dr. Tony Wolf, Viticulturist
- Additional topics may be added

Directions From Culpeper: Take 29 South to Ruckersville, then left onto 33 East;

the winery is 8 miles on the left.
Contact: Kenner Love, Rappahannock County Cooperative Extension, klove@vt.edu (540) 675-3619

May 19th **Narmada Winery (**http://www.narmadawinery.com/**)**
Sudha and Pandit Patil
- Topics – Seasonal cultural and pest management updates

Contact: contact Kenner Love, Rappahannock County Cooperative Extension klove@vt.edu (540) 675-3619

May 24th **Bedford County (specific vineyard TBD)**
Contact: Michael Lachance, VA Cooperative Extension, Nelson County, 434 263 4035, Lachance@vt.edu

June 14th **Nelson County (specific vineyard TBD)**
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/Skyline Drive: Take 522 South for 8 miles, then left onto Rt. 635, the winery is on the left. Follow the state highway "TOURS" signs. (Driving time: 10 minutes.).
Contact: contact Kenner Love, Rappahannock County Cooperative Extension klove@vt.edu (540) 675-3619

July 12th **Albemarle County (specific vineyard TBD)**
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