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Special Reports

Recap of Viticulture In-service Training for Cooperative Extension agents

Tony Wolf, Professor of Viticulture, Virginia Tech

Virginia Tech's AHS Agricultural Research and Extension Center hosted two viticulture in-service training programs for regional Cooperative Extension agents in the last 18 months. The first was a two-day program held in August 2005. The latter was a follow-up program held in August 2006. The 2005 training was attended by 32 agents from 5 states: VA (15), MD (5), NC (9), PA (2) and MA (1), while 22 agents, representing 8 states, attended the 2006 program.

The August 2005 program was supported by a \$2,500 SARE Professional Development grant to train Extension Agents in commercial vineyard site selection and vineyard management with a focus on economic sustainability with environmental stewardship. The program was team-taught by specialists from Virginia Tech, Penn State, and the University of Maryland (Figure 1). It included sections on economics, site selection, vineyard establishment, and vineyard management. A hands-on, in-field grapevine canopy management discussion (Figure 2) emphasized the cultural practices that can be used to aid disease control and improve fruit quality. The importance of pre-plant soil pH and organic matter modification, and the need for routine plant and soil testing, coupled with visual observation, to formulate nutrient recommendations was discussed. Insect pest management stressed the importance of scouting, the use of action thresholds and other elements of Integrated Pest Management. Disease management options included discussion of the regional and local threat from lethal diseases such as

Pierce's Disease and North American Grapevine Yellows.

The one-day program in 2006 was, at the request of 2005 attendees, focused on grape disease and insect pest identification, canopy management and crop management principles. The 2006 meeting was supported by grants from the Virginia Vineyards Association (\$1,000) and from the Southern Regional Small Fruit Consortium (\$1,000). Appreciation is extended to both for their support. The 2005 program was conducted by specialists from Virginia Tech. Principal objectives of both insect and disease management program sections were to ensure that attendees could recognize the pests and be conversant in broad management options for each, to include cultural as well as chemical control options.

Many of our attendees were recent hires into Virginia Cooperative Extension or Cooperative Extension systems of neighboring states, or had recently included commercial vineyard operations within their horticultural responsibilities. An exit subject matter comprehension test used after the 2005 program suggested that course presenters were successful in teaching the subject matter. As a result of the training, the attendees strongly agreed that they had gained knowledge that would increase their ability to serve local clientele. All participants felt that they were less dependent upon specialists for routine vineyard site selection visits or input on routine vineyard management issues, and that they were in a better position to ask the right questions about why their clientele were exploring grape production.

A follow-up impact survey was done in October 2006 with agents who attended either course. Regardless of which year(s) they attended, the agents were asked the following 10 questions. The answers were ranked from 0 to 4, with 4 being a marked increase in confidence whereas a "1" indicated that no

confidence in addressing the question was gained by the training (numbers preceding each possible response, as shown below). Each question also sought how much the knowledge was put to use after attending the training.

1. What will it cost me to establish my vineyard (e.g., on a per acre basis)?
 - 0 I could confidently address this question BEFORE attending the training sessions
 - 1 I am not confident about addressing this question, despite the training
 - 2 The training somewhat increased my confidence in addressing this question
 - 3 The training moderately increased my confidence in addressing this question
 - 4 The training greatly increased my confidence in addressing this question

Please enter _____ the number of times you recall this question or a closely related question arising SINCE you attended the training.

2. Is my property suitable for commercial grape production?
3. I would like to grow Cabernet Sauvignon (*Vitis vinifera*) at my site. Is that an appropriate variety given that my site has 165 frost-free days and may experience sub-zero (°F) temperatures in most winters?
4. How should I train the grapevines?
5. What are the major insect pests that I can expect to deal with once vines are planted?
6. Do I need to test the soil before planting and if so, what is an appropriate soil pH?
7. What is an appropriate vine spacing in the row and vineyard row width?
8. Is this downy mildew or powdery mildew, and how can I avoid it in the future?
9. Do I have to worry about Pierce's Disease?

10. What does canopy management mean and can it help me improve fruit and wine quality?

Responses to the questions were tallied and are shown in Figure 3 as the numerical average response for each question. Agents generally felt that the training moderately to greatly increased confidence in addressing those specific 10 questions or areas of knowledge. The questions related to adaptation of Cabernet Sauvignon to a cold site (3) and Pierce's Disease (9) left some uncertainties.

We also asked agents for their comments on the training, a few of which are cited here. An agent from North Carolina stated:

"After attending the training in 2006 I identified Pierce's Disease in four separate vineyards in the piedmont of NC. Before the training I did not feel confident in identifying the disease... I am still worried about nutritional deficiency being misdiagnosed as Pierce's however. These training (programs) have been extremely useful to me. I really appreciate VA being open to training agents from other states."

A Massachusetts agent stated:

"The workshop gave me more confidence on how to look for information if I did not know it and to accurately give out information if I did know it. I guess the biggest thing for me (re: the workshop) is that I could understand the needs of the grower better and ask more intelligent questions to help the grower obtain advice or answers for their situation."

An experienced Virginia agent stated:

"The August 2006 training was a wonderful review for me. Although I had a good amount of experience with grapevines in the past, it was nice to reinforce certain management practices and IPM strategies."

The long-term impact of these training programs will continue to be seen as Cooperative Extension agents confidently field more of the questions and site visits that come with the expanding interest in wine grape production throughout the East. My sincere thanks to those agents who took time from their busy schedules to attend these training programs.



Figure 1. Agent participation in 2005 in-service viticulture training program.



Figure 2. Tony Wolf describes grapevine canopy characteristics to agents that attended the August 2005 in-service training program.

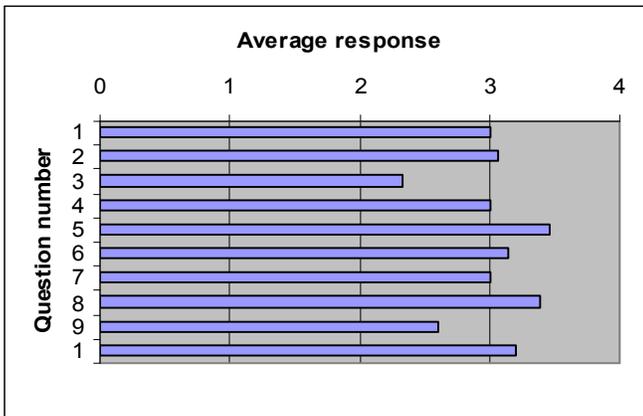


Figure 3. Average response to survey questionnaire used to gauge extension agents' perceptions of value of in-service, viticulture training programs at Virginia Tech. Responses based on following:

- 0 I could confidently address this question BEFORE attending the training sessions

- 1 I am not confident about addressing this question, despite the training
- 2 The training somewhat increased my confidence in addressing this question
- 3 The training moderately increased my confidence in addressing this question
- 4 The training greatly increased my confidence in addressing this question

Muscadine Grape Workshop

Bill Cline, Plant Pathology, NC State University

The Southern Region Small Fruit Consortium hosted a 3-day muscadine grape production workshop for Cooperative Extension Service agents on September 13-15, 2006. Nineteen county agents from North Carolina, Georgia and South Carolina participated in this special training opportunity. In addition to travel stipends provided by the consortium, the meeting was also sponsored by Duplin Winery, Muscadine Naturals, and the North Carolina Wine and Grape Council.

The meeting began with two half-day sessions at the Duplin County extension office in Kenansville, NC. Key questions identified prior to the workshop were:

- How many muscadines are there in the southeast?
- Are muscadines a profitable crop?
- What cultivars are best for wine? For fresh markets?
- What is the best trellis system?

Organizers Bill Cline and Connie Fisk asked agents to assist in an overview of acreage, cultivars and production areas in the southeastern US, followed by an excellent presentation on vine training, canopy management and pruning strategies by NCSU Horticulturist Barclay Poling. Of special interest was an investment analysis for muscadine grape production in North Carolina, presented by Extension Economist Charles Safley. John Braswell from Mississippi State University shared an overview of muscadine cultivar trials, breeding research, and extension programs at the South Mississippi Research and Extension Center. Pest control talks included weed management in Southern vineyards (Wayne Mitchem, NCSU), disease identification and control (Bill Cline, NCSU) and insect pests and

beneficial insects on muscadines (Dan Horton, UGA). The final talk “What do we know about the health benefits of consuming muscadine grapes and wine?” was presented by Leon Boyd, Food Science, NCSU.

A bus tour in Duplin and surrounding counties included the Muscadine Naturals facility for drying and processing products made from grape skins and seeds; grape propagation at Old Courthouse Nursery; trellising, irrigation, summer pruning and harvesting at the Hawkins family vineyard; receiving, grape crushing, winery operation and retail wine outlets at Duplin Winery; and a wine tasting prior to the evening meal, also hosted by Duplin Winery.

On the final day participants toured vineyards at the NCSU Horticultural Crops Research Station in Castle Hayne, NC. We were able to view and taste ripe fruit “on the vine” from over 20 fresh-market and wine cultivars, and were able to identify fruit rot fungi, powdery mildew and other diseases, as well as some key insect pests and the damage they cause.

This workshop was one of the most highly-rated sessions ever sponsored by the SRSFC, due to the excellent participation by agents, speakers and industry professionals. Agents praised the hands-on, in the field, “eat-the-grapes” approach! Those agents who could not stop eating grapes (you know who you are) were allowed to take samples home for further evaluation.



Figure 1. Bill Cline teaches agents to identify fruit rots during the Muscadine Workshop.

NCSU Bramble Team Awarded Golden Leaf Grant

Gina Fernandez

In the fall of 2006, Golden LEAF Foundation, awarded North Carolina State University \$30,000, for a grant titled “Targeting market windows for raspberry and blackberry production in Western North Carolina”. The focus of this project is to determine optimal production practices so that growers in Western North Carolina can produce primocane (fall) fruiting raspberry and blackberry selections/cultivars for several months in the late summer and fall. Combinations of tunnels, row covers and pruning will be used to enhance and delay harvest season. Trials were established in 2006 at 5 on-farm and Research Stations, which were representative of a range of elevations throughout western NC. Trials include cultivars currently available to the public as well as selections from the NCSU and Univ. of Arkansas Breeding programs.

The Golden LEAF Foundation, a nonprofit corporation, was created in 1999 to receive one-half of the funds coming to North Carolina from the master settlement agreement with cigarette manufacturers. In turn, the Foundation is helping North Carolinians make the transition from a tobacco-dependent economy through grants and investments that will positively affect the long-term economic advancement of the state. It gives priority in its grantmaking to tobacco-dependent and economically distressed counties.

General Viticulture Course offered by NC State University

Sara Spayd, Professor,
Horticultural Science Department

Beginning January 11, 2007 the Department of Horticultural Science at NC State University will offer General Viticulture as an experimental undergraduate/graduate level course both as a traditional classroom course and through Distance Education program. It is designed as a broad-based course to cover aspects of grapes from vine anatomy to final products. Coverage includes cultivars, propagation, canopy management, economics, diseases, weed control, physiology, anatomy, irrigation, wine production, climates and soils. Guest lecturers have been tapped to handle topics in their specialties. Hands-on opportunities and field-trips are important aspects of this course.

The classroom enrollment is limited to 25 as is the Distance Education portion of the course. Seven seats remain for the on-campus version of the course. Enrollment for the DE portion opened just before Thanksgiving. There are still seats available. The following links should be useful if you are interested in the DE program:

NCSU Distance Education homepage:

<http://distance.ncsu.edu/>

NCSU Lifelong Learning and DE application:

<http://distance.ncsu.edu/registration/application.html>

Registration form:

<http://distance.ncsu.edu/registration/forms/RegistrationRequestSPRING.pdf>

For specific information for the DE version you may contact Sara Spayd at sara_spayd@ncsu.edu.

NC Viticulture Workshop a Success

Dr. Sara Spayd, Professor, Horticultural Science Department, NC State University

The NC State University Viticulture Workshop held November 17, 2006 at the JC Raulston Arboretum, Raleigh, NC was well received. In the audience of about 75 people were Extension Agents or Specialists and Researchers from Georgia, South Carolina (student), Tennessee, and Alabama. In addition there was a large NC contingent from the County Extension Offices, NCSU-NCDA Experiment Station, and NCSU faculty and staff. Representatives from Appalachian State University, Surry Community College, and James Sprunt Community College attended. Many in the audience were from the North Carolina grape and wine industry.

Off-campus presenters were Sue Sim (Foundation Plant Service, UC-Davis), Gill Giese (Surry Community College, NC) and Drs. Tony Wolf (Virginia Tech), Ed Hellman (Texas A &M), and Keith Striegler (U. Missouri). NCSU was represented on the program by Drs. Julia Kornegay, who welcomed the group; Sara Spayd, who presented; and Dr. Trevor Phister, who served as afternoon moderator.

Topics covered were grapevine viruses, plant material, water status monitoring, vineyard floor management, Traminette production, Cynthiana/Norton production and fruit development

and ripening. The meeting was co-sponsored by the Haw River Wine Trail Golden Leaf Fund grant and the Southern Region Small Fruit Consortium. Reviews of the program are being collected, along with ideas for future programming.



Fig 1. Photo taken during the vineyard/winery tour from the NE-1020 regional project meeting. That meeting preceded the workshop and was attended by about 23 people from about 16 states. Pictured from left to right, Steve Shepard (winemaker RayLen Vineyards & Winery), Lisa Hopkins (Research Tech III NCSU Viticulture Program), Krista Shelly (Research Scientist [Viticulture] USDA-ARS Parma, ID), Sue Sim (Staff Research Associate, FPS, UC-Davis), Keith Striegler (Director, Institute for Continental Climate Viticulture and Enology, Division of Food Systems and Bioengineering, University of Missouri), and Alan Bakalinski (Professor of Food Science, Oregon State University).

James Sprunt Community College Receives Golden Leaf Grant for Muscadine Education and Demonstration Vineyard

Connie Fisk (Extension Associate for muscadine grapes, NCSU) and Jeffery Myers (Dept. Head, JSCC Vocational and Technical Education)

James Sprunt Community College (JSCC) in Kenansville, NC recently was awarded a \$25,000 grant from the Golden Leaf Foundation for use in establishing a Southeast Regional Muscadine Education and Demonstration Vineyard. The vineyard will be established by JSCC in partnership with the Duplin County Center of the NC Cooperative Extension. JSCC began offering courses Fall semester 2006 that count toward their new Certificate and Associate Degree programs in Viticulture and Enology Technology (<http://www.sprunt.com/VoTech/viticulture/viticulture.html>). They also hope to offer short-term courses in viticulture and enology through their Continuing Education Division.

The vineyard will be planted with several different muscadine cultivars over a four-year period in order to provide a wide variety of educational and training opportunities. One goal is to provide training to small farm owners who are interested in transitioning into muscadine production. The demonstration vineyard will also be available for Extension agents to use for agent and grower workshops. For JSCC students the vineyard will serve as a laboratory for providing hands-on training in vineyard establishment, management, and harvesting.

Grants and Guaranteed Loans Provided by USDA Renewable Energy and Energy Efficiency Improvements Program

Connie Fisk

Farmers and rural small businesses looking to fund a renewable energy project or to make energy efficiency improvements are encouraged to check out the Renewable Energy and Energy Efficiency Improvements Program from USDA Rural Development. This program provides grant and guaranteed loan funds to agricultural producers and rural small businesses.

Energy efficiency improvements are improvements to a building, facility or process that reduces energy consumption. Examples of energy efficiency improvements might be the installation of more energy efficient equipment such as heating and cooling systems, ventilation systems, lighting systems, fans, pumps, motors and refrigeration units.

Eligible renewable energy projects include solar, biomass, wind, anaerobic digesters, geothermal and hydrogen.

Grants can cover up to 25% of eligible project costs. The minimum energy efficiency grant is \$1,500 and the maximum is \$250,000. The minimum renewable energy grant is \$2,500 and the maximum is \$500,000.

Guaranteed loans can cover up to 50% of total eligible costs. The minimum guaranteed loan is \$5,000 and the maximum is \$10 million.

Applications can be filed anytime and there is a simplified application process for applications with total eligible project costs of \$200,000 or less. Rural Development is urging applicants to start the application process now to allow sufficient time for gathering the necessary information.

For further information contact you local Rural Development office or David Thigpen at 252-526-9799, extension 4. Energy program information can also be found at www.rurdev.usda.gov/rbs/farbill

Bramble Chores Winter 2007

Gina Fernandez
NC State University, Raleigh, NC

Plant growth and development

- Plant is "dormant" and accumulating chilling hours.
- Some differentiation may be occurring in the flower buds.

Pruning and trellising

- Pruning should occur in late winter or early spring. Ice storms can do tremendous damage to plants and trellis systems. If you produce blackberries in areas where ice storms are common, pruning can take place early winter to help avoid severe damage. Wait until early spring to prune floricanes raspberries so winter injured wood can be removed.
- Make trellis repairs after plants have defoliated but before pruning and training.

Erect blackberry types

- prune out the spent floricanes
- Tie canes to wires in a fan shape
- cut lateral branches back to 8-12"
- thin canes to 6-8 canes/ hill (4 ft spacing)

Trailing blackberry types

- prune out spent floricanes
- tie or weave canes to wire so that they do not overlap
- prune side laterals to 12-18"
- thin canes to 6-8 hill (6-8ft spacing)

Primocane fruiting raspberries

- Prune (mow) primocane fruiting types to the ground

Floricanes-fruiting raspberries

- prune out the spent floricanes
- tie canes to wires so they are spread out
- cut any lateral branches back to 6"
- thin canes to 6-8 / hill (3 ft spacing) or 3-4 canes per linear ft. of row

Weed control

- Many summer weed problems can best be managed in the fall and winter using

preemergent herbicides. Determine what weeds have been or could be a problem in your area. Check with local extension agent for cultural or chemical means to control these weeds.

- Establishing new blackberry or black raspberry plants into rows of black plastic or landscape cloth can reduce weed problems significantly. For red raspberries, straw mulch works best since new canes will emerge within the row, and must be able to push through the mulch.

Insect and disease scouting

- Scout fields for insect and disease damage and remove those canes.
- If possible, remove any wild brambles by the roots that are within 600 ft of your planting during the winter, or treat them with Roundup in autumn.
- Apply liquid lime sulfur to dormant canes, just prior to bud break, for disease control.

Planting

- Growers in warmer areas can plant in December. In northern areas, set dormant plants in spring when the soil thaws.
- Take soil tests to determine fertility needs one year before planting. Amend the soil in the fall prior to spring planting.
- Prepare list of cultivars for next year's new plantings. A commercial small fruit nursery list can be found at www.smallfruit.org or www.hort.cornell.edu/nursery.

Water management

- Make repairs to irrigation system (check pumps, lines, etc).
- Plants generally do not need supplemental water in winter.

Marketing and miscellaneous

- Order containers for next season.
- Make contacts for selling fruit next season.
- Attend grower meetings.

Quarterly Strawberry Plasticulture Checklist

This checklist was originally developed for growers in North Carolina. You will have to adjust your work activities either earlier or later depending on your location.

Gina Fernandez

Winter (Dec-Feb)

- Check all equipment (replace hoses etc)
- Get drip and overhead irrigation system hooked up, check your sprayer, replace hoses etc.
- Keep deer out of the strawberry patch. They can do serious damage to plants and plastic
- Examine plants for spider mite damage, they can be mistaken for winter damage
- Get ready for leaf tissue analysis in late February
- Spray ryegrass in late February/March
- Order chemicals and fertilizer for spring
- Scout crops for insects, mite and leaf diseases
- Scout for weeds, vetch in holes is not killed by winter temperatures
- Spray row middles with grass herbicide such as Poast when ryegrass is 10-12 inches tall
- Purchase digital thermometer
- Calibrate thermometers in 32F water bath
- Purchase row covers
- Monitor weather forecasts closely
- Check frost alarm to see that it is working properly
- Get pumps, hoses and pipe ready for frost protection (First date is usually early March in NC)
- Order picking containers

- Prepare signs for stands, roadside directions, and on-farm use
- For companion crops, order seeds and locate/prepare greenhouse facility for growing transplants
- If selling fruit at wholesale markets, line up buyers now.

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Editor and Contributor.....Tom Monaco

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