CFAES

The Ohio State University Viticulture & Enology Team

Ohio Grape-Wine Electronic Newsletter

Edited by: Dr. Maria Smith **November | 2018**

Grapevine soil hilling in Cabernet Franc, October 2018, Photo credit: D. Kinney

IN THIS ISSUE:

An early November winter…

This November, we saw unseasonable cold, ice, and snow in many parts of the state. While managing vine canopies and crop loads during the growing season are critical to vine winter survival, post-harvest management practices such as soil hilling of graft unions are equally important to avoiding total vine loss during potentially lethal winter temperatures.

In this issue of OGEN, we discuss soil hilling practices, technology for understanding your vineyard site, and upcoming winter events from the OSU V&E programs.

With warm winter wishes,

-Maria and the OSU V&E Team

Grapevine graft union protection strategies

By: Dr. Maria Smith, HCS-OSU

Grapevine graft unions and the importance of protection

Grafting is a technique used to join canopy material (scion) with rooting material (rootstock) of two different grapevine species in order to provide protection from root pests (e.g., phylloxera), influence vine vegetative growth, and permit vine growth under soil-limiting conditions (e.g., high pH, high salinity, drought). In Ohio and surrounding Midwestern and Northeastern regions, graft unions are traditionally insulated by **soil hilling** during the months of October and November before soil freezes. Hilling soil 3 to 4" above the graft union reduces the risk of complete vine loss from damaging mid-winter low temperatures, particularly for cold-sensitive *V. vinifera,* as new renewal shoots may emerge from latent buds on the protected scion in the following season [1]. This occurs because temperatures within the soil mound may be as much as 21 °F higher than the soil surface [1, 2]. However, soil hilling comes with a number of potential drawbacks and should be performed under dry conditions to minimize impacts on soil structural properties (**Table 1**). Furthermore, soil must be removed from the graft union in the spring to avoid scion rooting. Due to these drawbacks, other strategies have been investigated as alternatives to soil hilling.

For more information on soil hilling, see https://njaes.rutgers.edu/fs1264/

Table 1. *Pros and cons of select graft union protection methods, adapted from [1, 2]*

Method	Pros	Cons
Soil hilling	• Good insulating properties • Soil is abundant • Relatively inexpensive compared to mulching	• Requires specialized equipment • Must be performed before soil freezes and under sufficiently dry conditions • May require multiple tilling passes • Long-term use may result in soil erosion and compaction • Increases leaching of environmentally damaging pesticides • Requires de-hilling to avoid scion rooting • Higher potential for mechanical trunk damage, unintentional root pruning, and increased incidence of crown gall • Increased weed pressure
Straw mulch	• Insulates as well as soil • Scions root poorly in straw mulch • Combined with pre-emergent herbicide is effective for weed control • Adds organic matter • Intercepts soil contaminants, thus increasing soil quality	• Expensive material costs compared to soil hilling • Increases moisture retention compared to soil hilling • High carbon to nitrogen (C:N; 80:1) ratio may require additional N fertilization

Graft union protection (continued)

Alternatives to soil hilling

Alternatives to soil hilling that have similar insulating properties include snow pack and mulches (e.g., hay, straw, grass clippings, wood chips/bark). Snow pack, while insulating, is very unpredictable and should not be used as a reliable protection method in Ohio [1]. **Mulching** is a viable alternative to soil hilling that reduces soil erosion and pesticide leaching, while providing equivalent insulating protection to soil hilling [2; **Figure 1**].

A recent evaluation of soil hilling alternatives (wheat straw and wood/bark mulch) found mulching to 4" above the graft union provided equivalent insulating temperatures to soil hilling [2]. However, compared to soil hilling, scion rooting levels were lower in both mulch types. This means that mulch, unlike soil, does not need to be removed in the spring. Furthermore, mulch in combination with pre-emergent herbicides improved weed control compared to herbicide application on bare soil, and mulch retained soil moisture, which may be beneficial in years with early season drought.

Mulching may have drawbacks compared to soil hilling, including promotion of excessive vine vigor from soil moisture retention and a high carbon-to-nitrogen (C:N) ratio that may deplete available soil N, therefore requiring fertilization (**Table 1**). Within mulch types, the C:N ratio and soil moisture retention is higher in wood/bark mulch [2], making wheat straw a better alternative. Currently, Ohio State does not support the use of wood/bark mulch as an alternative to soil hilling.

Cost comparison of soil hilling and mulching

All methods of graft protection are costly in equipment and labor. Traditional soil hilling techniques are estimated to cost approximately $790 per acre, while mulching costs approximately $2600 and $2470 per acre for wheat straw and wood/bark mulch, respectively [1, 2]. The added costs of mulching are primarily due to the materials costs, which decrease with multi-year applications, as only 40% of the mulch material were needed to hill to the same 4" level in the second year [2]. The positive environmental impacts such as reductions in soil erosion and pesticide leaching, make mulching an attractive option for the future. If lower cost materials could be developed, mulching could become a more competitive option for grant union protection. Dr. Dami is currently evaluating the efficacy and cost effectiveness of locally grown plant species as renewable biomass mulch and developing (pending on funding) a prototype for its delivery in collaboration with OSU Ag. engineers. Mulching trials are established at the OARDC research vineyard and in cooperating commercial vineyards. Please contact Dr. Dami if you are interested in mulching as an alternate method of winter protection and soil health enhancer.

References:

[1] Zabadal T. et al. 2007. Winter injury to grapevines and methods of protection. Mich State Univ Ext Bul E2930.

[2] Jiang et al. 2016. Effects of mulching on soil temperatures, scion rooting, and soil moisture of mounded grapevines. Int J Fruit Sci 16:182-190.

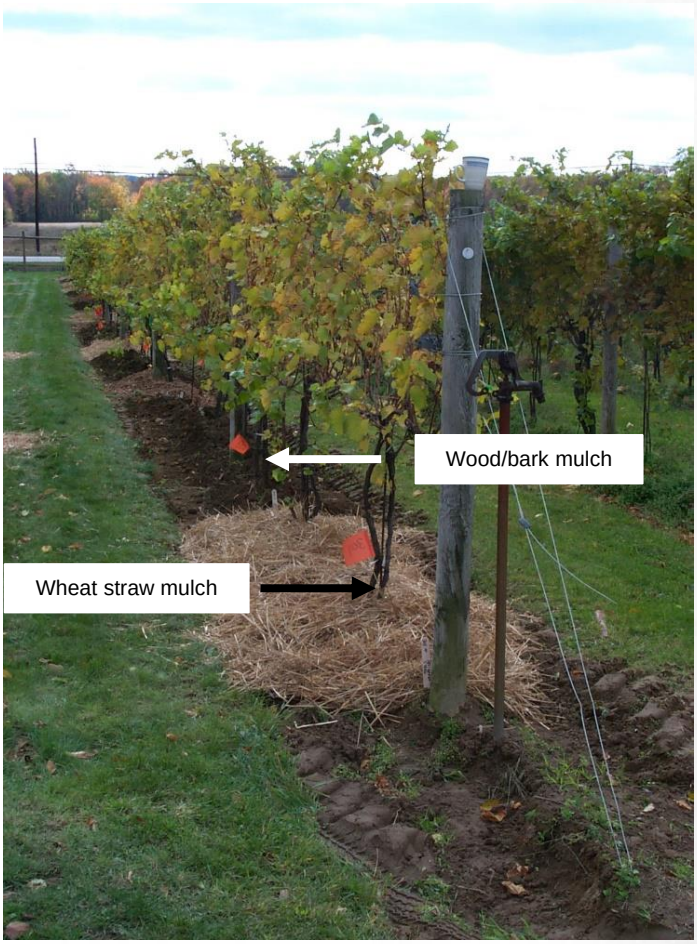

Figure 1. *Wheat straw and wood/bark mulching of* V. vinifera graft unions. *Photo credit: Doohan lab.*

Accessing soil surveys

By: Andy Kirk, AARS-OSU

Vineyard managers across the state are catching their breath after the 2018 harvest. With the vineyard tucked away for a few months, winter is an excellent opportunity to dig into publicly available soil surveys. As a quick reminder, a soil survey is a map of the location of various soil types throughout a property. Understanding the soil profile of your site can help with planning seasonal vineyard operations, as well as allow for wine marketing based on-site characteristics. Moreover, soil surveys are an essential tool for anyone considering vineyard expansion within their own property or purchasing additional vineyard acreage.

Occasionally, there is a misconception that these tools are only available to agricultural extension professionals or county officials. This is not accurate, as there are several methods for members of the public to access soil surveys. This article will demonstrate how to access a site's soil survey through the county auditor web page.

County Auditor GIS Portals.

Many county auditor offices in Ohio provide online mapping tools that can produce a soil survey for a site with relative ease (**Figure 1**). As a full disclosure, I have not investigated the mapping services of all 88 counties but have yet to come across a county that does not offer a version of these tools. There are more in-depth sources of soil information available elsewhere, such as the USDA web-based soil survey or ArcGIS Online, but the county auditor web page will serve most needs and also features relevant legal information.

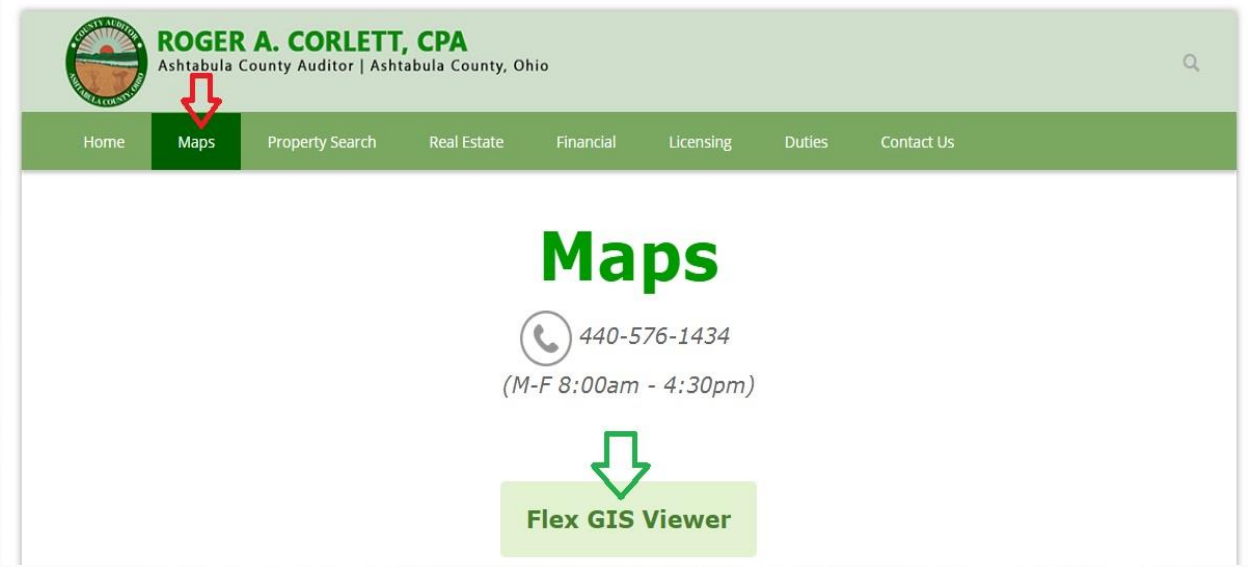

Figure 1. *Ashtabula county GIS viewer. The red arrow shows how to get to the maps page; and the green arrow shows how to get to the GIS portal*

Once in the portal, you need to know how to turn on the map layers that display the soil survey (**Figure 2**). Please note that you can also view site elevation contours by turning that layer on as well. Each county's GIS portal is different, but in each case, there should be a way to turn layers off and on. In most counties, there will be also be a search function. These are often tricky to use successfully, as an address may have been entered by the auditor's office with an extra space between two words, or they may have used a different abbreviation in the address.

(Continued on page 5)

Accessing soil surveys (continued)

At this point, you have a visual display of soil types throughout the property. Some county auditor pages will allow the user to click on the three letter soil type classification to bring forward more descriptive information about the soil series. Should that not be the case in your county, I would advise saving a copy of your county's traditional soil survey manuscript. These are available statewide, and can be found here. With that document, you can look up the three letter soil classification and find a detailed write-up of that soil type's characteristics.

If you are interested in this topic but have additional questions about how to access soil surveys for your site, please do not hesitate to contact a member of the OSU Viticulture Extension team to walk you through accessing or interpreting soil surveys.

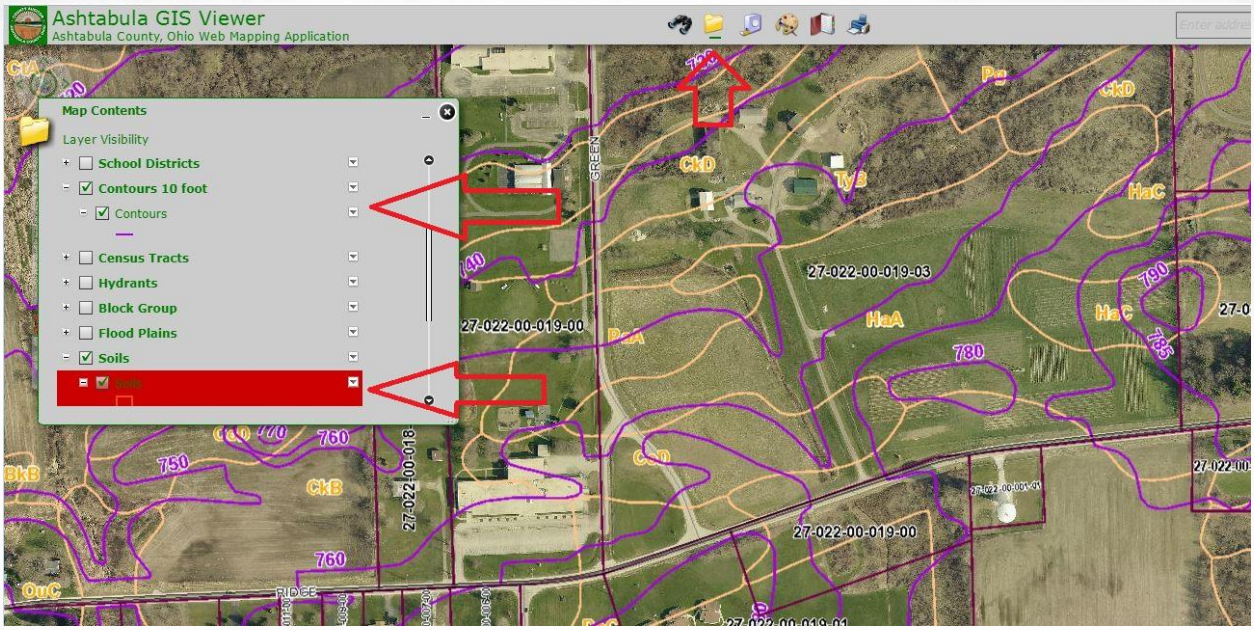

***Figure 2**. Soil and topography at AARS. Note: the boxes for soils and 10ft contours have been check-marked. In other counties, the icon for map contents may be a set of stacked boxes, instead of a folder.*

Vines & Wines News @ Buckeye Appellation | 2018

By: Diane Kinney, HCS-OSU

Vine & Wine News continues to provide updates on grape growing and wine making in Ohio and elsewhere. These updates will be posted on the program website, *Buckeye Appellation* (BA) at:
http://ohiograpeweb.cfaes.ohio-state.edu/.

We would like to invite you to visit the website on a regular basis to help inform you of what our OSU Team has available to you through OGEN, TGE, research updates, events and news. Our hope is that it becomes a resource you look up periodically. ***So why not bookmark this site today?***

In the month of November, we have posted the following updates. Simply click on the blue link and the desired document will automatically open.

Educational Materials:

- Ohio Grape-Wine Electronic Newsletter (OGEN) on homepage and tab (current issue).
- The Grape Exchange (TGE) on the homepage and tab (latest posting on Nov 30).

News:

- Fruit Maturity reporting for 2018 is complete at OSU-Wooster and AARS-Kingsville

Upcoming events:

- November 29, 2018: 2018 Ohio Quality Wine Assurance Program (OQW) Sensory Evaluation
- December 11, 2018: 2018 Post Fermentation wine Quality Control Workshop – Paper Moon Vineyards.
- December 14, 2018: Inversion & Drift Mitigation Workshop
- December 18, 2018: 2018 Post Fermentation Wine Quality Control Workshop – Vinberige Winery
- December 19, 2018: Grape & Wine Analysis Workshop
- January 8, 2019: 2018 Post Fermentation Wine Quality Control Workshop – Valley Vineyard.
- January 22, 2019: 2018 Post Fermentation Wine Quality Control Workshop – Laurentia Vineyards & Winery
- February 18-19, 2019: 2019 Ohio Grape and wine Conference

Has a fellow grape grower or wine maker gone above and beyond?

Nominate your industry colleagues for winemaker and grape grower of the year! Forms are located on pp. 9-10. For additional application information, please email Christy Eckstein at ceckstein@agri.ohio.gov.

The 2019 Ohio Grape and Wine Conference Registration is now open!

For more on featured speakers and registration information visit the event page!

CFAES

GRAPE & WINE ANALYSIS WORKSHOP

WEDNESDAY, DECEMBER 19, 2018 • 9:30-3:30 p.m.

Hosted by Dr. Gary Gao and Ryan Slaughter
Featuring Todd Steiner, Dr. Maria Smith, Dr. Lisa Dunlap, and Patrick Pierquet

Come join us for an informative workshop to learn proven wine grape growing techniques, acquire basic tools to successfully manage a vineyard, and come away with a better understanding of how to get started in the wine business. Experts from The Ohio State University South Centers and Department of Horticulture Crop Science will be on hand for presentations and to answer your questions.

Learn the basics on these topics:

- 2018 Vintage Overview
- Assessing Vine Balance
- Sulfur Dioxide Management in the Cellar
- New and Existing Varieties for Quality Wine Production
- Essential Issues in Fermentation Management
- Vineyard Soil and Tissue Analysis
- And More

LOCATION: OSU SOUTH CENTERS
1864 SHYVILLE ROAD
PIKETON, OHIO, 45661
go.osu.edu/winegrapes

COST: $25 per person
Lunch will be provided

REGISTER: Contact Bradford Sherman
sherman.1473@osu.edu
740-289-2071 x 115

DEADLINE TO REGISTER:
Friday, December 14, 2018

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER

OHIO STATE UNIVERSITY EXTENSION

Winemaker of the Year Award

Nomination Form

Ohio's "Winemaker of the Year" award is an annual honor awarded by the Ohio Grape Industries Committee (OGIC), to a winemaker who displays outstanding excellence in winemaking. The award recipient is recognized by others for their innovation and leadership within Ohio's wine industry.

This award is limited to Ohio winemakers only. Consideration will only be given to nominations that clearly address the criteria on this form. Nominations or endorsements received after the submission deadline will not be reviewed.

Nominator Information:

Name: _____

Business: _____

Phone:_____E-mail: _____

Nominee Information:

Name: _____

Business: _____

Phone:_____E-mail: _____

Winemaker of the Year Criteria:

- Nominee must be a current A2 permit holder.
- Recognized by fellow winemakers as an efficient, successful producer of high-quality wines.
- Contributed to the success of other winemakers.
- Demonstrates a commitment to adoption of new technologies, processes or innovations to improve winemaking in Ohio and/or nationally.
- Demonstrates a commitment to industry well-being.
- Contributes to the awareness and market success of wines produced in Ohio.

Submission Requirement Checklist:

- Completed nomination form.
- One-page letter highlighting why this individual and/or company is being nominated.
- A biography of the nominee, not to exceed one page. (Should include statement of industry contributions.)

Nomination Guidelines:

- The nominator must NOT be an immediate family relative, employer, employee or co-worker of the nominee.
- The nominator can only put forward one nominee per year.
- The nominee cannot be a current Ohio Grape Industries Committee member.
- The nominee must "serve" in the actual capacity for which they are being nominated, not just be an owner.

Nomination Submission:

Send items listed under "Submission Requirement Checklist" to the following:

Ohio Grape Industries Committee
Attn: Christy Eckstein
8995 E. Main Street
Reynoldsburg, OH 43068
ceckstein@agri.ohio.gov
Fax: (614) 466-7754

Questions, contact Christy Eckstein at (614) 728-6438 or ceckstein@agri.ohio.gov

Nominations must be received by March 8, 2019

Grower of the Year Award

Nomination Form

Ohio's "Grower of the Year" award is an annual honor awarded by the Ohio Grape Industries Committee (OGIC), to an individual, family or vineyard who displays outstanding excellence in viticulture management. The award recipient is recognized by others for their innovation and leadership within the Ohio's grape industry.

This award is limited to Ohio's grape growers only. Nominees may include an individual, family or vineyard who reside or are located in Ohio. Consideration will only be given to nominations that clearly address the criteria on this form. Nominations or endorsements received after the submission deadline will not be reviewed.

Nominator Information:

Name: _____

Business: _____

Phone:_____E-mail: _____

Nominee Information:

Name: _____

Business: _____

Phone:_____E-mail: _____

Grower of the Year Criteria:

- Recognized by fellow growers and wineries as an efficient, successful producer of high-quality grapes
- Contributed to the success of other growers
- Demonstrates a commitment to adoption of new technologies, processes or innovations to improve grape quality and/or profitability
- Demonstrates a commitment to industry well-being
- Demonstrates a commitment to enhancing the environmental benefits of grape production
- Contributes to the awareness and market success of a grape variety(ies) or an appellation
- Follows viticultural practices to produce optimum fruit quality and healthy vines.

Submission Requirement Checklist:

- Completed nomination form.
- One-page letter highlighting why this individual and/or company is being nominated.
- A biography of the nominee, not to exceed one page. (Should include statement of industry contributions.)

Nomination Guidelines:

- The nominator must NOT be an immediate family relative, employer, employee or co-worker of the nominee.
- The nominator can only put forward one nominee per year.
- The nominee cannot be a current Ohio Grape Industries Committee member.
- The nominee must "serve" in the actual capacity for which they are being nominated, not just be an owner.

Nomination Submission:

Send items listed under "Submission Requirement Checklist" to the following:

Ohio Grape Industries Committee
Attn: Christy Eckstein
8995 E. Main Street
Reynoldsburg, OH 43068
ceckstein@agri.ohio.gov
Fax: (614) 466-7754

Questions, contact Christy Eckstein at (614) 728-6438 or ceckstein@agri.ohio.gov

Nominations must be received by March 8, 2019

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Name & Address	Phone	Email & Website	Area of Expertise & Assistance Provided
Dr. Imed Dami, Professor & Viticulture State Specialist Dept. Of Horticulture & Crop Science 216 Gourley Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330-263-3882	e-mail: dami.1@osu.edu Website: Buckeye Appellation	Viticulture research and statewide extension & outreach programs.
Dr. Doug Doohan, Professor **Dept. Of Horticulture & Crop Science** **116 Gourley Hall – OARDC** **1680 Madison Avenue** **Wooster, OH 44691**	330-202-3593	Email: Doohan.1@osu.edu Website: OARDC Weed Lab	Vineyard weeds and control. Recommendation on herbicides.
Dr. Gary Gao, Small Fruit Specialist and Associate Professor, OSU South Centers 1864 Shyville Rd, Piketon, OH 45661 OSU main campus, Rm 256B, Howlett Hall, 2001 Fyffe Ct Columbus, OH	740-289-2071 Ext. 123 Fax: 740-289-4591	Email: gao.2@osu.edu Website: OSU South Centers	Viticulture Research and Outreach in southern Ohio
Dr. Melanie Lewis Ivey, Assist. Professor Dept. of Plant Pathology 224 Selby Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330-263-3849 330-465-0309	Email: ivey.14@osu.edu Website: OSU Fruit Pathology	Grape Diseases Diagnostics and Management. Recommendation on grape fungicides and biocontrols. Good Agricultural Practices and Food Safety Recommendations.
Diane Kinney, Research Assistant Dept. Of Horticulture & Crop Science 218 Gourley Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330-263-3814	Email: kinney.63@osu.edu Website: Buckeye Appellation	Vineyard and Lab Manager – Viticulture Program. Website manager for Buckeye Appellation website.
Andrew Kirk, AARS Station Manager Ashtabula Agricultural Research Station 2625 South Ridge Road Kingsville, OH 44048	440-224-0273	Email: Kirk.197@osu.edu	Viticulture Research and Outreach in northeastern Ohio.
Dr. Elizabeth Long, Assist. Professor OSU/OARDC Entomologist 105 Thorne Hall 1680 Madison Avenue Wooster, OH 44691	330-263-3725	Email: long.1541@osu.edu	Fruit and vegetable insects.
Dr. Erdal Ozkan, Professor & Extension State Specialist Food, Agriculture & Biological Engineering Dept, OSU 590 Woody Hayes Drive Columbus, OH 43210	614-292-3006	Email: ozkan.2@osu.edu	Pesticide application technology, Sprayer calibration
Patrick Pierquet, Research Associate Dept. Of Horticulture & Crop Science 220 Gourley Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330-263-3879	Email: Pierquet.1@osu.edu	Wine Cellar Master Enology research, micro-vinification, sensory evaluation, and laboratory analysis
Dr. Lisa Robbins Dunlap, Research Associate Dept. of Horticulture & Crop Science 218 Gourley Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330- 202-3543	Email: Dunlap.352@osu.edu	Cellar assistant Enology research, sensory evaluation, and laboratory analysis
Dr. Maria Smith, Viticulture Outreach Specialist Dept. of Horticulture & Crop Science 205 Gourley Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330-263-3825	Email: Smith.12720@osu.edu Website: Buckeye Appellation	Maria is the primary contact for viticulture extension and outreach. Evaluation of site suitability for vineyard establishment and all aspects of commercial grape production.
Todd Steiner, Enology Program Manager & Outreach Specialist Dept. Of Horticulture & Crop Science 118 Gourley Hall – OARDC 1680 Madison Avenue Wooster, OH 44691	330-263-3881	Email: Steiner.4@osu.edu Website: Buckeye Appellation	Todd is the primary research and extension contact of the enology program. Commercial wine production, sensory evaluation, laboratory analysis/setup and winery establishment.