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]

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

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.

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.
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 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 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!
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

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For an accessible format of this publication, visit cfaes.osu.edu/accessibility.
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.

Nominations must be received by March 8, 2019

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
<table>
<thead>
<tr>
<th>Name &amp; Address</th>
<th>Phone</th>
<th>Email &amp; Website</th>
<th>Area of Expertise &amp; Assistance Provided</th>
</tr>
</thead>
<tbody>
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<td>Maria is the primary contact for viticulture extension and outreach. Evaluation of site suitability for vineyard establishment and all aspects of commercial grape production.</td>
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<td>Todd is the primary research and extension contact of the enology program. Commercial wine production, sensory evaluation, laboratory analysis/setup and winery establishment.</td>
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