

OHIO GRAPE-WINE ELECTRONIC NEWSLETTER

Edited by: Dr. Maria Smith

November / 2019



Photo: Cabernet franc at harvest 10/24/2019, AARS, Kingsville, OH. Photo credit: Maria Smith

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A 2019 November to remember

The 2019 season certainly had its highs and lows. Historical, in fact. While September had record heat across the state, mid-November low temperatures set new records for cold. No matter the season, though, injury to grapevines can occur. Follow along in this issue of OGEN, as we discuss the November cold event and what it can mean for the health of your vine.

Lastly, as fall winds down and winter approaches, the OSU viticulture and enology team switch gears from the field and cellar towards the upcoming annual conference and workshop series. Stay on the lookout for event posting and dates both here and at <https://go.osu.edu/grapes!>

-Maria and the OSU V&E team

November 2019 cold snap

By: Maria Smith, HCS-OSU

November temperatures

The night of November 13 brought a stark reminder that fall is fleeting for us in Ohio and winter is well on its way. Across the state, low temperatures broke long-established records for this time of year, plunging into the single-digits in several areas (**Table 1**). The warmest locations during the cold snap were in the Northeast portions of the state near Lake Erie, which is good news for the region that is dominated by cold-sensitive *V. vinifera* acreage.

While these temperatures may seem insignificant relative to the mid-winter temperatures of January and February, unexpected extreme low temperature events during the fall **acclimation** period may be damaging to living cells and tissues in dormant vines that have yet to reach maximum hardiness (for more information on the dormancy process, see: “Understanding the Basics of Bud Dormancy” at https://ohiograpeweb.cfaes.ohio-state.edu/sites/grapeweb/files/imce/pdf_newsletters/December%202018%20OGEN_0.pdf).

Table 1. Temperatures for regional cities and sites across Ohio on November 13. Weather data from OARDC weather stations (<https://www.oardc.ohio-state.edu/weather/>) and the National Weather Service (<https://weather.gov>).

Site/City	County	Region	Temperature (°F) 13 Nov 2019	Previous Record low (°F)	Previous record year
Akron	Summit	Northeast	10.0	12.0	1911
Caldwell	Noble	Southeast	11.2	--	--
Cincinnati	Hamilton	Southwest	10.0	14.0	1976
Cleveland	Cuyahoga	Northeast	13.0	15.0	1911
Columbus	Franklin	Central	10.0	14.0	1911
Dayton	Montgomery	Southwest	5.0	13.0	1986, 1911
Fremont	Sandusky	North-central	3.9	12.0	1986
Kingsville	Ashtabula	Northeast	21.4	18.8	1986
Madison	Lake	Northeast	21.3	--	--
Mansfield	Richland	Central	6.0	13.0	1911
Piketon	Pike	South-central	10.5	22.9	2001
Toledo	Lucas	Northwest	8.0	11.0	1986
Wooster (OARDC)	Wayne	Northeast	9.4	10.0	1911
Wooster (Unit 2)	Wayne	Northeast	11.0	--	--
Youngstown	Mahoning	Northeast	14.0	17.0	1986

Potential for vine injury in November

Although we think most about the sensitivity of buds and the effects of injury on fruit production, water and nutrient transport tissues (xylem and phloem) vital to vine survival are also susceptible to injury (**Fig. 1, 2**).

Interestingly, when it comes to cold temperature injury in the fall, estimated temperature thresholds for phloem injury may be higher than buds by about 10 to 15 °F (**Table 2**). Lethal temperatures for buds and vascular tissues, though, are highly variable at this time of the year and depend upon vine genetic factors (species, variety), cultural management, and previous temperature exposure prior to low temperature events.

November cold (continued)

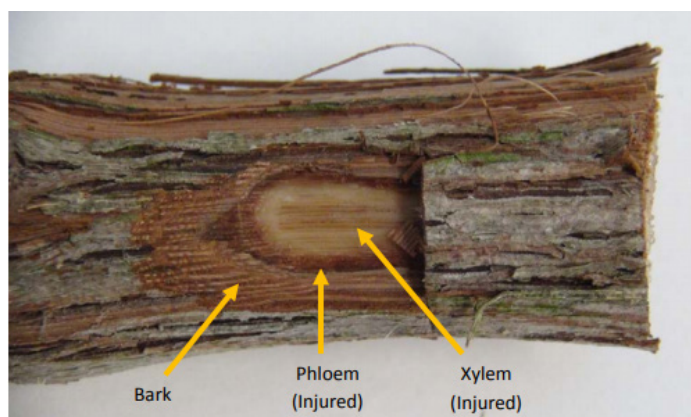


Figure 1. Example of vascular injury in grapevine. Photo from “Assessing and Managing Winter-Damaged Grapevines Part II: Early Spring”



Figure 2. Mid-season collapse of 1 of 2 trunks of *V. vinifera* ‘Sauvignon Blanc’ following tissue injury sustained during winter 2018.

Grape tissue damage at OARDC?

Two cold sensitive grape varieties, **Merlot** and **Dolcetto**, were evaluated by the Dami lab for bud and cane injury following the 13 Nov 11.0 °F temperature event at Wooster, Unit 2 vineyard (**Table 1**).

- **Merlot** - 26% primary bud injury and 32% phloem injury (canes)
- **Dolcetto** - 0% primary bud injury and 23% phloem injury (canes)

Keep in mind, that if mild or moderate injury occurs to buds, it is possible to still achieve a full crop level in the following season. For injury to phloem, assuming that the cells responsible for producing new tissue in the spring (vascular cambium) is undamaged, the vine can repair itself and overcome the injury.

Prior to pruning in the spring, plan to check your vine tissues (buds, phloem and xylem) and use your information on vine injury to adjust your pruning strategy (For assessing winter injury, see: [https://ohiograpeweb.cfaes.ohio-state.edu/sites/grapeweb/files/imce/pdf_factsheets/Assessing%20&%20Managing%20Damage%20of%20Grapes_Early%20Spring_Dami%20et%20al_OGEN_May%202014_Final\(2\).pdf](https://ohiograpeweb.cfaes.ohio-state.edu/sites/grapeweb/files/imce/pdf_factsheets/Assessing%20&%20Managing%20Damage%20of%20Grapes_Early%20Spring_Dami%20et%20al_OGEN_May%202014_Final(2).pdf)).

Table 2. Estimated temperatures for bud (10, 50, 90%), phloem (10%), and xylem (10%) mortality. Note the difference in temperatures required for 10-50% bud and 10% phloem injury. Data from: <http://wine.wsu.edu/extension/weather/cold-hardiness/>. *Temperature estimates are for Washington state and should not be considered an accurate reflection of current hardiness temperatures for the same varieties in Ohio.

Date Sampled	Variety	Bud10 °F	Bud50 °F	Bud90 °F	PHL10 °F	XYL10 °F
11/20/2019	Alvarinho	-2.5	-5.5	-9.0	10.0	-9.5
11/13/2019	Auxerrois	-3.5	-7.0	-10.0	9.0	-12.5
11/13/2019	Barbera	1.5	-2.5	-4.5	10.0	-6.5
11/25/2019	Cabernet Sauvignon	1.0	-5.0	-7.5	8.5	-12.0
11/25/2019	Chardonnay	-8.5	-11.0	-13.0	7.0	-13.5
11/20/2019	Chenin blanc	-2.0	-7.0	-9.5	10.5	-9.0
11/19/2019	Concord	-3.5	-5.5	-9.0	6.0	-15.0
11/20/2019	Green Veltliner	-4.5	-6.5	-8.0	9.0	-3.5
11/15/2019	Grenache	-2.0	-4.5	-6.0	10.5	-4.5
11/12/2019	Malbec	0.0	-4.0	-7.0	9.5	-6.0
11/25/2019	Merlot	-2.0	-4.0	-6.0	7.0	-11.0
11/19/2019	Mourvedre	-1.5	-4.0	-6.5	9.0	-4.0
11/20/2019	Muscat blanc	-4.0	-7.5	-9.5	8.5	-7.5
11/13/2019	Nebbiolo	-4.5	-7.0	-10.5	11.5	-6.0
11/15/2019	Petit Verdot	-1.5	-4.5	-7.0	9.0	-9.5
11/21/2019	Pinot blanc	-6.5	-8.0	-9.5	10.0	-9.0
11/21/2019	Pinot gris	-7.0	-9.5	-11.5	9.5	-6.5
11/21/2019	Pinot noir	-3.5	-7.5	-10.5	10.0	-10.0
11/25/2019	Riesling	-6.0	-10.5	-13.5	6.5	-17.0
11/21/2019	Sangiovese	0.5	-3.0	-7.5	10.0	-6.5
11/13/2019	Sauvignon blanc	-1.0	-3.5	-7.5	10.0	-5.5
11/12/2019	Semillon	8.0	1.0	-3.5	12.0	-6.5
11/19/2019	Syrah	-1.5	-3.5	-6.0	9.5	-7.0
11/15/2019	Tempranillo	1.0	-6.0	-8.0	10.0	-7.0
11/19/2019	Vioignier	-3.0	-5.0	-7.5	9.5	-5.0
11/15/2019	Zinfandel	-1.0	-4.0	-6.5	10.5	-4.5

Last updated by Lynn Mills on Nov 26, 2019 at 9:51 AM

November cold (continued)

Minimizing risk potential for injury during the dormant season

The most important practice for minimizing the risk of cold injury to grapes during dormancy is selecting the appropriate varieties for your site based on the winter minimum temperature before planting (USDA Plant Hardiness Zones; <https://planthardiness.ars.usda.gov/PHZMWeb/>). Be aware that even within local areas temperatures vary based on total and relative elevation. Avoid planting vines in low portions of sites where cold air and water may settle and choose the best portions of sites for more cold-sensitive varieties.

As previously mentioned, **cultural management** decisions, particularly those that influence vine size, crop levels, and canopy sunlight exposure can influence cold hardiness during the late fall and early winter.

Other practices that may influence vine hardiness during winter acclimation and dormancy include:

- Canopy management
- Vine training systems
- Rootstock selection
- Fertilization and soil water content
- Pest management

Management decisions differ by vine variety and site. Ensure you are following best vineyard management practices for your variety and site to ensure optimal vine acclimation in the fall and maximum cold hardiness over winter.

Lastly, **protect your trunks and graft unions** if you have grafted vines by removing any remaining grow tubes on one-year-old vines and insulating the graft union by soil hilling or mulching (see: https://ohiograpeweb.cfaes.ohio-state.edu/sites/grapeweb/files/imce/pdf_newsletters/OGEN%202018%20NOV.pdf).

For any questions regarding vine winter injury and management, contact Maria Smith (smith.12720@osu.edu) or Imed Dami (dami.1@osu.edu).

Save the Date!



2020 Ohio Grape & Wine Conference

February 17-18, 2020

Embassy Suites Columbus/Dublin

5100 Upper Metro Place, Dublin, OH 43017



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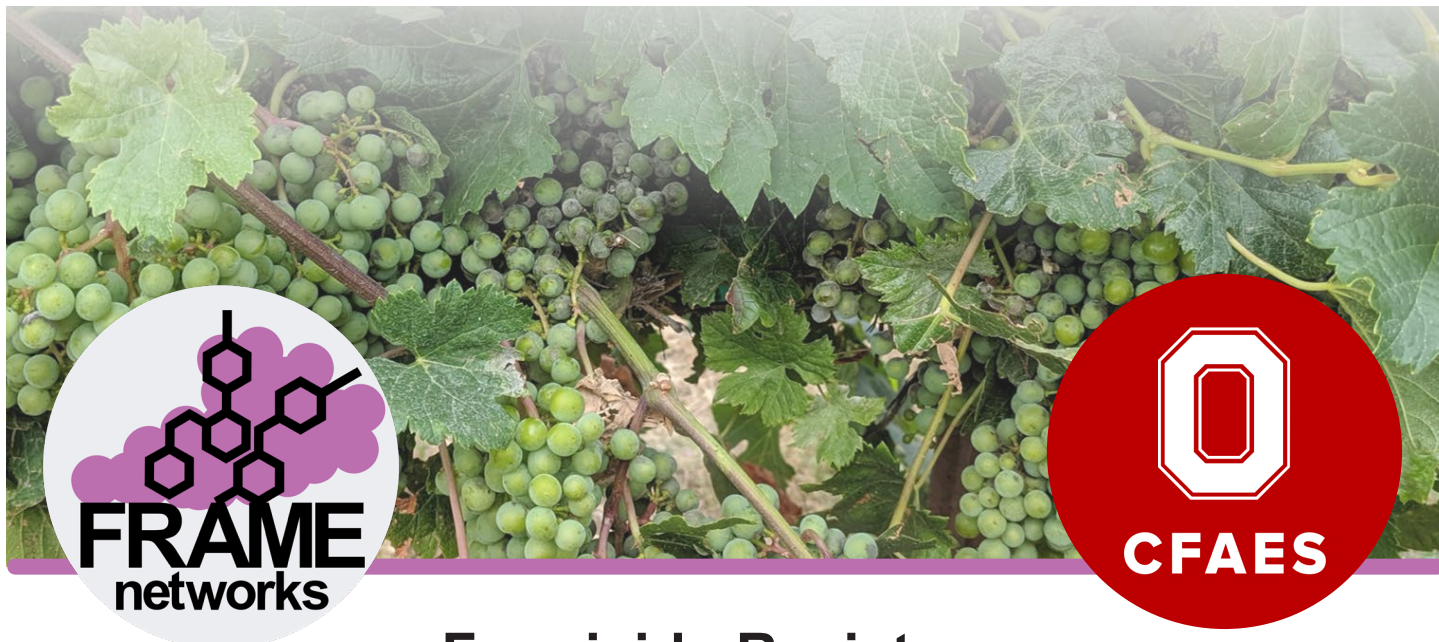
Embassy Suites Columbus- Dublin
5100 Upper Metro Place
Dublin, OH 43017
(614) 790-9000

Program Highlights:

- ◆ Two information-packed days with viticulture, enology, entomology, plant pathology, virology and weed science presentations, as well as an industry trade show, Ohio wine reception, and exquisitely-prepared banquet.
- ◆ Flexible registration options and affordable registration fee.



Ohio Grape Industries Committee
8995 E. Main Street
Reynoldsburg, OH 43068-3342



Fungicide Resistance Management Full Day Workshop

SAVE THE DATE
February 16th 2020
Dublin, OH

This workshop is designed for crop consultants, vineyard managers or anyone who writes or recommends fungicide programs.

Preregistration is required. Registration using the 2020 Wine and Grape Conference Registration Form.
Registration is limited to 60 people.

Contact Dr. Melanie Lewis Ivey, ivey.14@osu.edu for more information.

For more information visit:  framenetworks.wsu.edu

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AND ENVIRONMENTAL SCIENCES

This project is funded in part by the United States Department of Agriculture – National Institute for Food and Agriculture – Specialty Crop Research Initiative Award No. 2018-03375 titled "FRAME: Fungicide Resistance Assessment, Mitigation and Extension Network for Wine, Table, and Raisin Grapes; the Ohio Grape Industry Committee; and federal and state funds appropriated to The Ohio State University, Department of Plant Pathology.

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Fungicide Resistance Management Workshop
February 16, 2020
Dublin Ohio

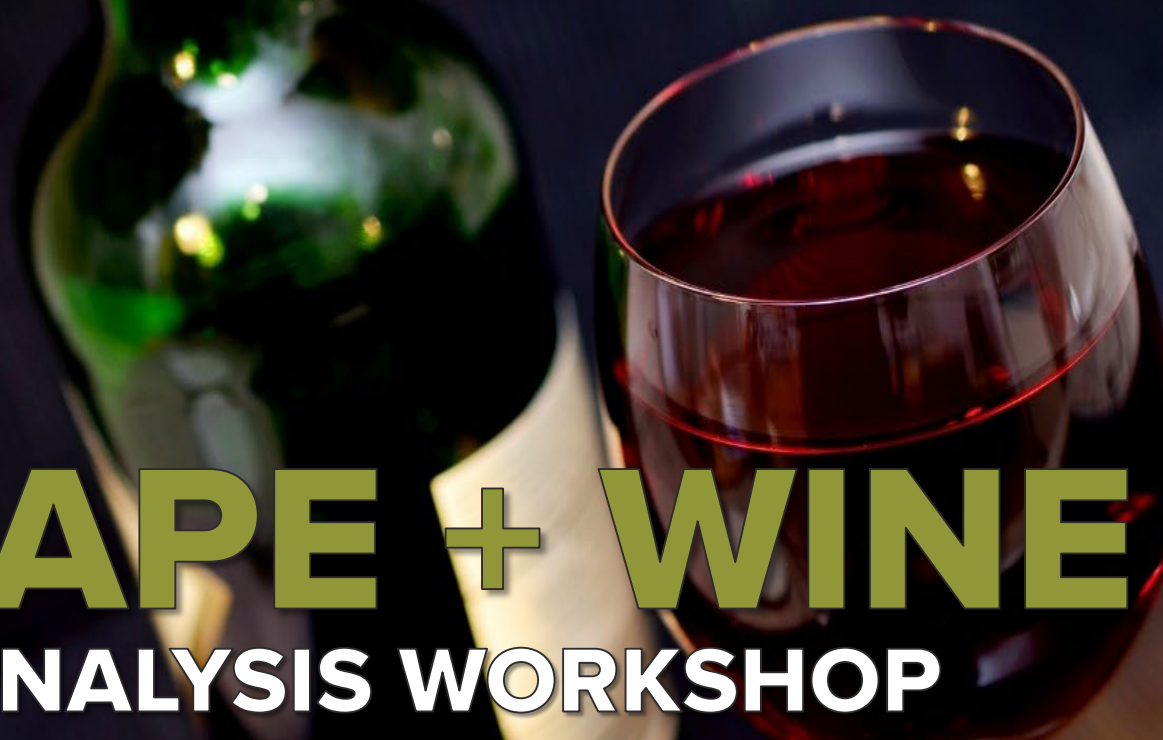
Fungicide resistance to powdery and downy mildews is a growing concern for Ohio grape producers. Developing spray programs that slow the development of resistance in a vineyard can be challenging, especially when there are limited fungicides available that have different modes of action. This workshop is designed to assist crop consultants, vineyard managers or anyone who writes or recommends fungicide programs, with developing a fungicide spray program for wine or table grapes.

During the first part of the day, participants will learn about mildew diseases and management, best practices for using fungicides, and best sprayer practices, from national experts in grape diseases and fungicide resistance management. Participants will then break out into groups and build a spray program based on a real-life scenario. During the last part of the day each group will defend their spray programs and provide suggestions and advise to other groups on how each program could be improved.

REGISTRATION INFORMATION

- **Preregistration is required.**
- Registration costs are \$35 per person.
- Participants can preregister using the 2020 Wine and Grape Conference Registration form.
- Registration opens the week of December 9 and closes December 31 or when there are 60 participants registered.

Additional costs of this workshop are offset with financial support by USDA – NIFA – SCRI Award No. 2018-03375 titled “FRAME: Fungicide Resistance Assessment, Mitigation and Extension Network for Wine, Table, and Raisin Grapes; the Ohio Grape Industry Committee; and federal and state funds appropriated to The Ohio State University, Department of Plant Pathology.



GRAPE + WINE

ANALYSIS WORKSHOP

THURSDAY, DECEMBER 5, 2019 • 9:30 a.m. - 3:30 p.m.

Hosted by Dr. Gary Gao and Ryan Slaughter
Featuring Todd Steiner, Dr. Maria Smith, 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 winery sanitation procedures and essential practices for sound wine production. 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.

Topics to be discussed include:

- 2019 Vintage Overview
- Back to the Basics: A Focus on Red and White Grape and Wine Production
- Vine Establishment and Training
- Grape Cultivars Trialed at OSU South Centers
- Sensory Evaluation of OSU Enology Trials
- Vineyard Maintenance 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:
Monday, December 2, 2019



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Dr. Doug Doohan, Professor Horticulture & Crop Science 116 Gourley Hall - OARDC	330-202-3593	email: doohan.1@osu.edu	Vineyard weeds and control. Recommendation on herbicides.
Dr. Gary Gao, Professor & Small Fruit Specialist OSU South Centers 1864 Shyville Rd., Piketon, OH 45661 OSU Main Campus, Rm 256B, Howlet Hall, 2001 Fyffe Ct., Columbus, OH 43210	740-289-2071 Ext. 123 Fax: 740-289-4591	email: gao.2@osu.edu	Viticulture research and outreach in Southern Ohio.
Dr. Melanie Lewis Ivey, Asst. Professor Plant Pathology 224 Selby Hall - OARDC	330-263-3849	email: ivey.14@osu.edu	Grape diseases, diagnostics, and management. Recommendation on grape fungicides and biocontrols. Good agricultural practices and food safety recommendations.
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Dr. Maria Smith, Viticulture Outreach Specialist Horticulture & Crop Science 205 Gourley Hall - OARDC	330-263-3825	email: smith.12720@osu.edu	Maria is the primary contact for viticulture extension and outreach. Evaluation of site suitability for vineyard establishment and all aspects of commercial grape production.
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