CFAES

OHIO GRAPE-WINE ELECTRONIC NEWSLETTER

Edited by: Dr. Maria Smith

May / 2019

IN THIS ISSUE:

Cheers to summer!

The longest days of the year are here. Warm days and a frenzy of storm activity over the past several weeks has made a combo for rapid growth and challenging pest management conditions.

In this issue of OGEN, find out what's been happening across the state in May, as well as upcoming events this summer.

-Maria and the V&E Team

State-wide overview and observations from May 2019

By: Dr. Maria Smith, HCS-OSU

Throughout May, most of Ohio experienced average, if not slightly below-average, rainfall, except for the central and western portions of the state, which have seen upwards of 1 to 3 inches above average (Fig. 1). Temperatures, however, have been warmer than average throughout the month (Fig. 1). This is contributing to rapid shoot growth and development in the vineyard. In southern Ohio, flowering was observed in mid-May, while bud break was just arriving in northeastern Ohio during that same time period.

Additionally, warm temperatures, precipitation, and the daily threat of humidity is helping fuel weed, insect, and disease development. Particularly for diseases, staying on top of the 7-10 day spray schedule is absolutely criticial as we quickly approach the most susceptible periods for berry infections (early bloom through fruit set; see p. 4 for photos of major developmental stages in 2019). For comprehensive disease (and insect!) management information, a free PDF version of the 2019 Midwest Pest Management Guide is available at https://ag.purdue.edu/hla/hort/documents/id-465.pdf.

Early season cultural practices such as shoot thinning and shoot positioning are also important for reducing disease pressure. Thinning to optimal shoot numbers reduces the canopy density, improving air movement for faster canopy drying time and allowing better fungicide penetration. Furthermore, shoot thinning aids in managing yield levels and increases sunlight exposure, which promotes overall higher fruit quality. For more information on shoot thinning, see: https://psuwineandgrapes.wordpress.com/2017/05/19/early-season-grapevine-canopy-management-part-i-shoot-thinning/

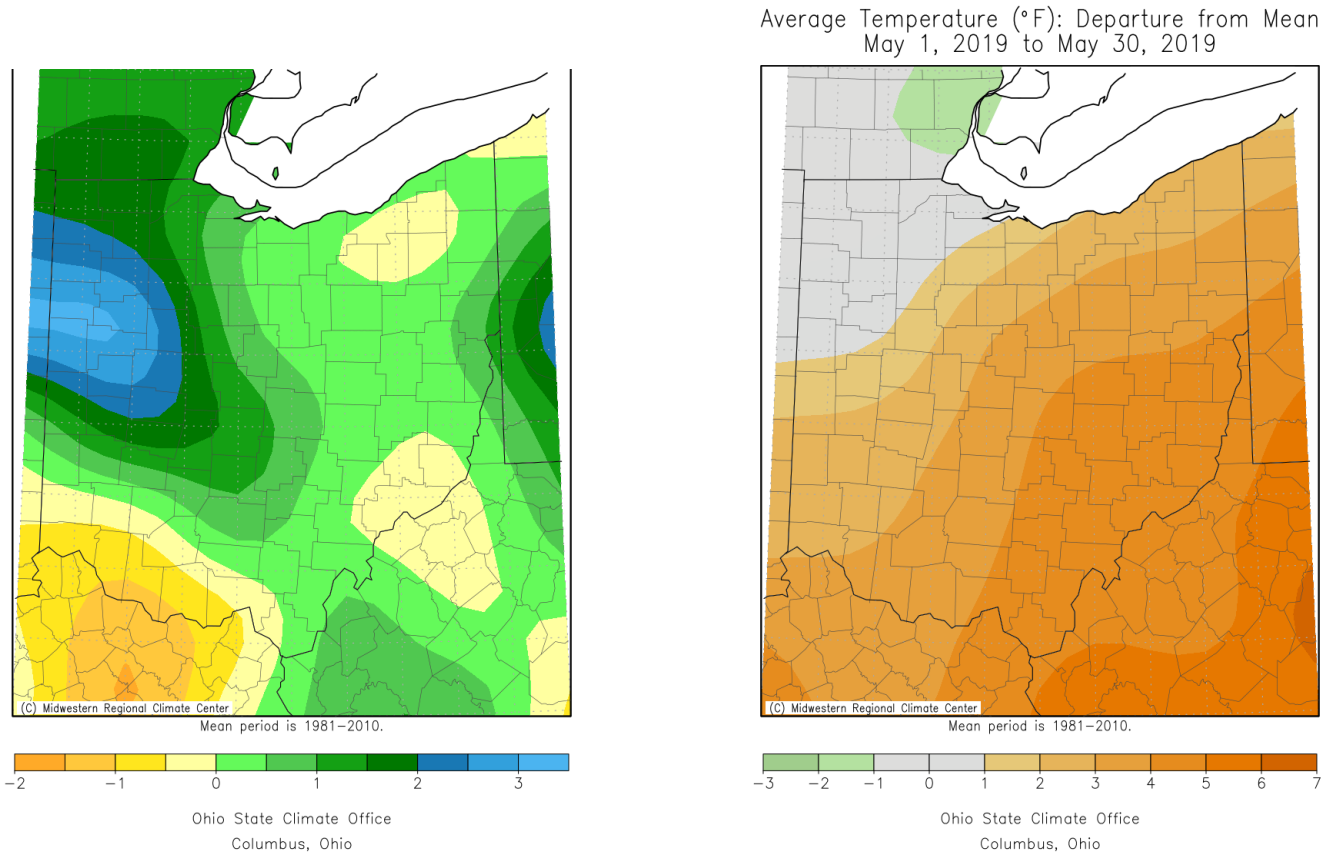

Figure 1: Precipitation (left) and average temperature (right) departures from mean for 1 May to 30 May 2019. Maps from: https://climate.osu.edu/climate-maps-ohio

OARDC-Wooster May Vineyard Update

By: Diane Kinney and Dr. Imed Dami, HCS-OSU (Photos by Diane Kinney)

Grape phenology:

In Wooster, bud break began on April 22, about 2 weeks earlier than in 2018. As of May 30th shoots are 10-16 inches long in Cabernet franc and near the pre-bloom stage. We are seeing very early bloom in our early bud-breaking varieties of La Crescent and Marquette. We are anxious to see what our crop loads will be after the bud injury suffered this past winter.

Photo: La Crescent on 30 May 2019

Table 1: 2019 bud break dates and corresponding GDD of varieties grown at the research vineyard in Wooster, OH.

Variety	50% Bud break (BB)	GDD 1 Jan - (BB-1)	GDD 1 Apr - (BB-1)
Arandell	26-Apr	136	121
Arneis	30-Apr	140	125
Aromella	26-Apr	136	121
Cabernet franc	2-May	155	140
Chambourcin	26-Apr	136	121
Chardonnay	2-May	155	140
Frontenac	22-Apr	111	96
Frontenac gris	22-Apr	111	96
La Crescent	24-Apr	127	112
Marquette	24-Apr	127	112
Regent	3-May	171	156
Riesling	3-May	171	156
Sauvignon blanc	2-May	155	140

OARDC-Wooster May (continued)

Phenology progression of Cabernet franc (Photos left and center show year-over-year comparison of phenological stage at the same date)

Cab franc (25 Apr 2018)

Cab franc (25 Apr 2019)

Cab franc (30 May 2019)

OARDC-Wooster May (continued)

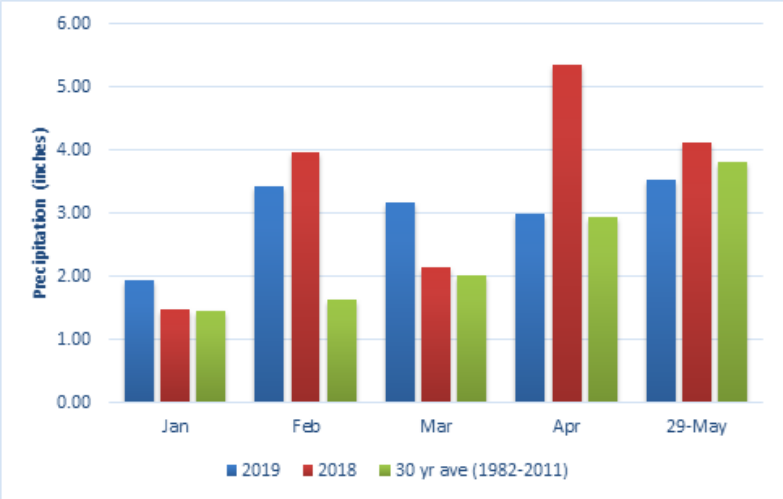

Figure 1. Monthly mean precipitation for Wooster, OH

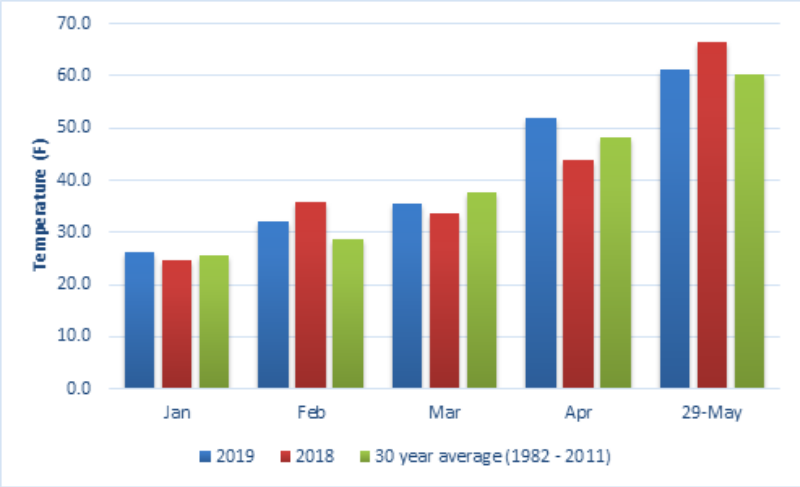

Figure 2. Monthly mean temperature for Wooster, OH

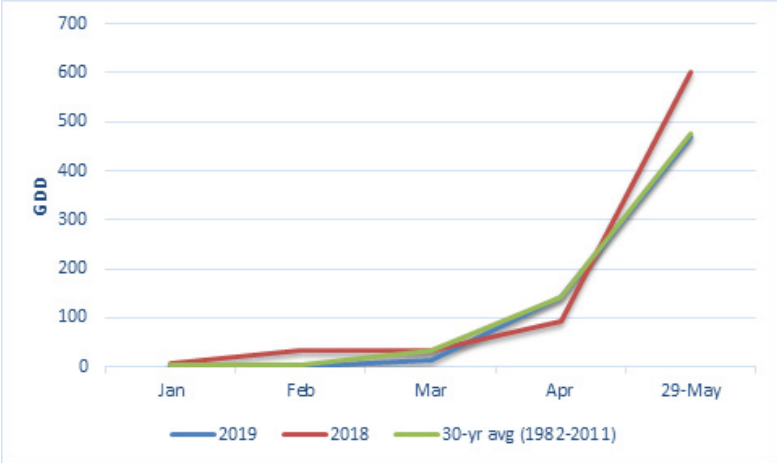

Figure 3. Cumulative GDD for Wooster, OH

Weather Conditions:

In Wooster, precipitation for May is running slightly behind the 30-year average, just as it did in April. We are still more than 3 inches above the average for the year from higher than average rainfall during the first quarter of the year. Mean temperature and GDD are right in line with the 30-year average. Some good news this spring is that we are past the threat of spring frost, and we're glad we have dodged that

Cultural Practices:

Growth in the vineyard has taken off rapidly. All of our varieties have been suckered a couple of times, and we are beginning to tuck shoots in VSP training systems. In 2018, we planted our newest vineyard with table grapes and advanced breeding selection of cold hardy wine grapes. Currently, we have completed initial training of this newest vineyard block. As of May 24th, three fungicide/insecticide sprays have been applied to the vineyard.

OSU South Centers vineyard update

By: Ryan Slaughter, Research Assistant, OSU South Centers at Piketon

Photo: weed control using Weed Badger and pre-emergent Chateau application, photo credit: Ryan Slaughter

Photo: fruit set in MN hybrid, photo credit: Ryan Slaughter

OSU South Centers Weather Update (Piketon, OH): Grapevines are looking very healthy here in Southern Ohio. To date, we have accumulated **827 Growing Degree Days** (GDD), surprisingly, almost 100 days fewer of this date last year. We have had another above average year for rainfall, with the **current total accumulation at 21.8 inches, over 5 inches above the average for this time of year.**

Disease and weed management: Manzate Pro-stick (Mancozeb) and Tebustar (Tebuconazole) are the only fungicides applied at this time, with two total applications: 1) Manzate, 2) Manzate + Tebustar. Our pre-emergent herbicide (Chateau) is working very well at this point; one thing we did differently this year was mechanically "till" the weeds down in row with our refurbished Weed Badger that we brought down from the Ashtabula Research Station. The pre-emergent herbicide was then applied to the bare ground. This has been very successful so far for managing weed pressure.

Vine phenology: As of 31 May, some of our Minnesota cultivars have set fruit, whereas our hybrids are still flowering.

OSU is monitoring powdery mildew resistance at vineyards across the state in 2019

Do you have powdery mildew? Powdery mildew is a major grape disease that can be devastating under favorable environmental conditions. It is characterized by a white or grayish fungal growth on the surface of grape leaves, stems, and fruit. For Ohio, several of our newer hybrid cultivars (Cayuga White, Aromella, Arandell, Marquette, Traminette) are resistant to powdery mildew. However, commonly cultivated *V. vinifera* (Cabernet franc, Cabernet sauvignon, Chardonnay, Gewurztraminer, Pinot noir) and French American hybrids (Vidal blanc, Chancellor, Chambourcin, Vignoles, Leon Millot, Seyval) are highly susceptible.

Unfortunately, powdery mildew may develop resistance to many effective fungicides that result from continued exposure to specific fungicide modes of action (http://www.frac.info/resistance-overview/what-is-resistance-). To track powdery mildew resistance in the state, the OSU viticulture team, as part of the FRAME network, is seeking samples of powdery mildew colonies to assess fungicide resistance during the 2019 season. Maria Smith (smith.12720@osu.edu), Andy Kirk (kirk.197@osu.edu), and Melanie Lewis Ivey (ivey.14@osu.edu) will be distributing powdery mildew sample kits at vineyard sites across the state. These packets can be distrubted during site visits, at workshops, or by request. Please contact us if you suspect powdery mildew this season!

To avoid fungicide resistance, make sure that you are carefully following label instructions and rotating FRAC codes. For more information on fungicide efficacy, see the 2019 Midwest Pest Management Guide: https://ag.purdue.edu/hla/hort/documents/id-465.pdf.

Photos: powdery mildew infection on grape leaf (left) and berries (right). Photos from: https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/b/28945/files/2016/03/HYG_3018_08_REV-ozl0ni.pdf and https://phys.org/news/2015-02-powdery-mildew-grapes.html

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OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER

Early Leaf Removal Workshop and Demo

Monday, June 10, 2019 | 1 to 4pm

Hosted by: Dr. Maria Smith and Andrew Kirk

Early leaf removal (ELR) is a novel canopy management practice for yield and late-season fruit rot control. However, care must be taken in order to achieve desired outcomes. To address commercial use of ELR, topics during this workshop will cover:

- Timing, intensity, and suitability of early leaf removal
- Mechanization versus hand-defoliation
- Demonstration of equipment for mechanical defoliation

Locations:

M Cellars Winery • 6193 South River Road West, Geneva, OH 44041

Cost: Free • **Details:** Handouts provided

Pre-register: Yvonne Woodworth | Woodworth.21@osu.edu or 440-224-0273

ohiograpeweb.cfaes.ohio-state.edu/events

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

HORTICULTURE AND CROP SCIENCE

DIGITAL VITICULTURE Nelson J.Shaulis Symposium

New Tools for Precision Management

AMERICAN SOCIETY FOR ENOLOGY AND VITICULTURE
Eastern Section

Hobart and William Smith Colleges, Geneva, NY

July 16-18, 2019

Shaulis Symposium at ASEV-ES focuses on Digital Viticulture.

Contact: Tim Martinson tem2@cornell.edu 315-787-2448

Geneva, NY. A special vineyard tour and symposium entitled "Digital Viticulture: New Tools for Precision Management" will be featured as part of the annual American Society for Viticulture and Enology- Eastern Section (ASEV-ES) conference at Hobart and William Smith Colleges in Geneva, NY on July 16 through July 18.

Nelson Shaulis

The two-day program and vineyard tour will bring together suppliers, researchers, and growers to explore the tools and concepts of precision viticulture. New technologies, such as inexpensive sensors, digital imaging, geographical information systems, and precision machinery are converging to make precision viticulture possible. This field tour and symposium will focus on tools, concepts, and platforms for putting it all together to manage vineyards.

"Nelson Shaulis and others developed principles of vine physiology that form the basis of modern viticulture over the past 50 years", said Tim Martinson, Senior extension associate with Cornell University. "Yet growers have lacked the tools to apply these principles on a vine by vine basis until now. New precision ag technologies are finally making it possible to vary management within a vineyard to achieve management goals."

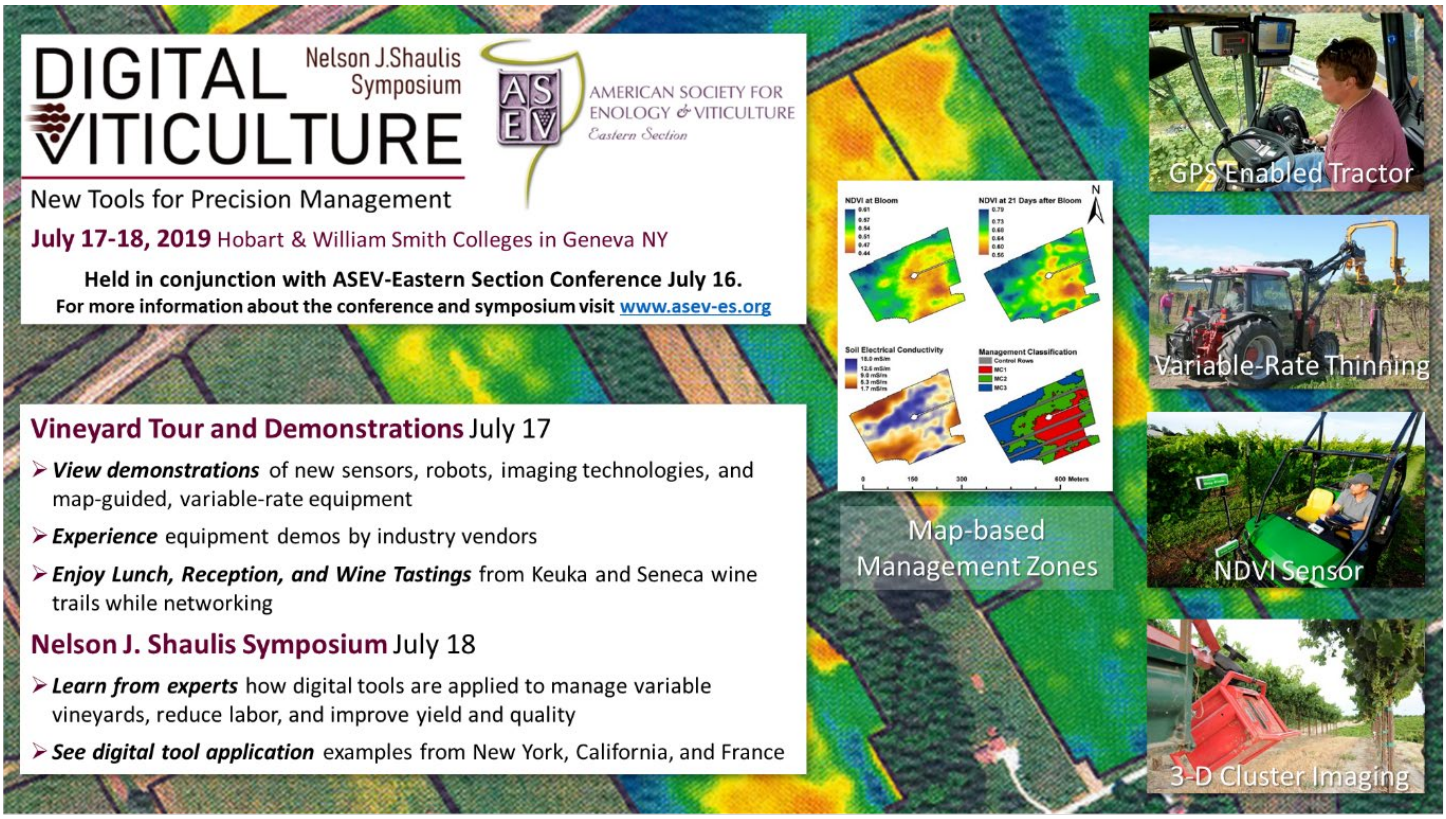
The ASEV-ES conference, featuring presentations on enology and viticulture from students and researchers of the Eastern Section, will take place on Tuesday, July 16. The conference includes lunch and Wines of the East reception.

The vineyard tour and demonstrations on Wednesday, July 17 will include variable-rate shoot thinning, mechanical crop estimation, yield monitors, sensors for measuring soil and canopy characteristics, UAV and tractor-mounted imaging systems, and tools for canopy management. The tour includes lunch and reception featuring regional wines.

The Shaulis Symposium on July 18 will focus on applying viticultural principles to address within-vineyard variability. Four sessions will cover the three-step process of implementing precision management: Measure, Model, and Manage. The symposium will include lunch and reception.

- Session 1: Physiology of vine balance and precision viticulture
- Session 2: Metrics for management: Sensors, drones, satellites, and analytical equipment
- Session 3: Models for management: Translating data to practical tools for deciding 'what I need to do and where'.
- Session 4: Examples of applied digital viticulture.

Registration options for each day are available. Conference, Vineyard Tour, and Symposium information is available at www.asev-es.org .



Dr. Nelson Shaulis and others developed principles of vine physiology that form the basis of modern viticulture. Yet growers have lacked the tools to apply these principles on a vine-by-vine basis to manage variable vineyards.

New technologies such as inexpensive sensors, digital imaging, geographical information systems, and precision machinery are converging to make precision viticulture possible. This field tour and symposium will focus on tools, concepts, and platforms for putting it all together for managing vineyards.

July 17 Field Day and Vineyard Tour: Demonstrations of *sensors, mapping technology, and variable-rate GIS-ready equipment* for vineyard management. Tour includes lunch and wine reception featuring regional wines.

- Morning: Clearview Vineyards, Branchport, NY. *Focus on spatial crop load measurement, yield monitors, tractor-mounted NDVI sensors, mechanical yield estimation, brix mapping, GPS-enabled tractors*
- Afternoon: Anthony Road Vineyards, Seneca Lake, NY. *Focus on vinifera: Drones, Imaging systems including drones and cluster imaging systems, novel sensors, tools for canopy management.*

July 18 Nelson J. Shaulis Symposium: The symposium will focus on applying viticultural principles to address within-vineyard variability using the three-step process: MEASURE, MODEL, and MANAGE. Symposium includes lunch and reception

- Session 1: Physiology of vine balance and precision viticulture
- Session 2: Metrics for management: Sensors, drones, satellites, and analytical equipment
- Session 3: Models for management: Distilling a flood of data to practical tools to guide management decisions
- Session 4: Examples of "Digital Viticulture" from around the world.

Conference, Tour, and Symposium information at:

www.asev-es.org

Ohio Agricultural Research and Development Center (OARDC)
1680 Madison Ave.
Wooster, OH 44691

go.osu.edu/grapes

Name & Address	Phone	Email	Area of Expertise & Assistance Provided
Dr. Imed Dami, Professor & Viticulture State Specialist Horticulture & Crop Science 216 Gourley Hall - OARDC	330-263-3882	email: dami.1@osu.edu	Viticulture research and statewide extension & outreach programs.
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. Lisa Dunlap, Research Associate Horticulture & Crop Science 218 Gourley Hall - OARDC	330-202-3543	email: dunlap.352@osu.edu	Cellar assistant. Enology research, sensory evaluation, and laboratory analysis.
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.
Diane Kinnney, Research Assistant Horticulture & Crop Science 218 Gourley Hall - OARDC	330-263-3814	email: kinney.63@osu.edu	Vineyard and lab manager - viticulture program. Website manager for Buckeye Appellation website.
Andrew Kirk, AARS Station Manager Astabula Agricultural Research Station 2625 South Ridge Rd. Kingsville, OH 44048	440-224-0273	email: kirk.197@osu.edu	Viticulture research and outreach in northeastern Ohio.
Dr. Eliazabeth Long, Asst. Professor Entomology 105 Thorne Hall - OARDC	330-202-3556	email: long.1541@osu.edu	Fruit and vegetable insect management.
Dr. Erdal Ozkan, Professor Food Agriculture & Biological Engineering 590 Woody Haes Drive Colubmus, OH 43210	614-292-3006	email: ozkan.2@osu.edu	Pesticide application technology. Sprayer calibration.
Patrick Pierquet, Research Associate Horticulture & Crop Science 220 Gourley Hall - OARDC	330-263-3879	email: pierquet.1@osu.edu	Wine cellar master. Enology research, micro-vinification, sensory evaluation, and laboratory analysis.
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.
Todd Steiner, Enology Program Manager & Outreach Horticulture & Crop Science 118 Gourley Hall - OARDC	330-263-3881	email: steiner.4@osu.edu	Todd is the primary contact for enology research and extension. Commerical wine productoin, sensory evaluation, laboratory analysis/setup and winery establishment.