

OHIO GRAPE-WINE ELECTRONIC NEWSLETTER

Edited by: Dr. Maria Smith

March / 2020

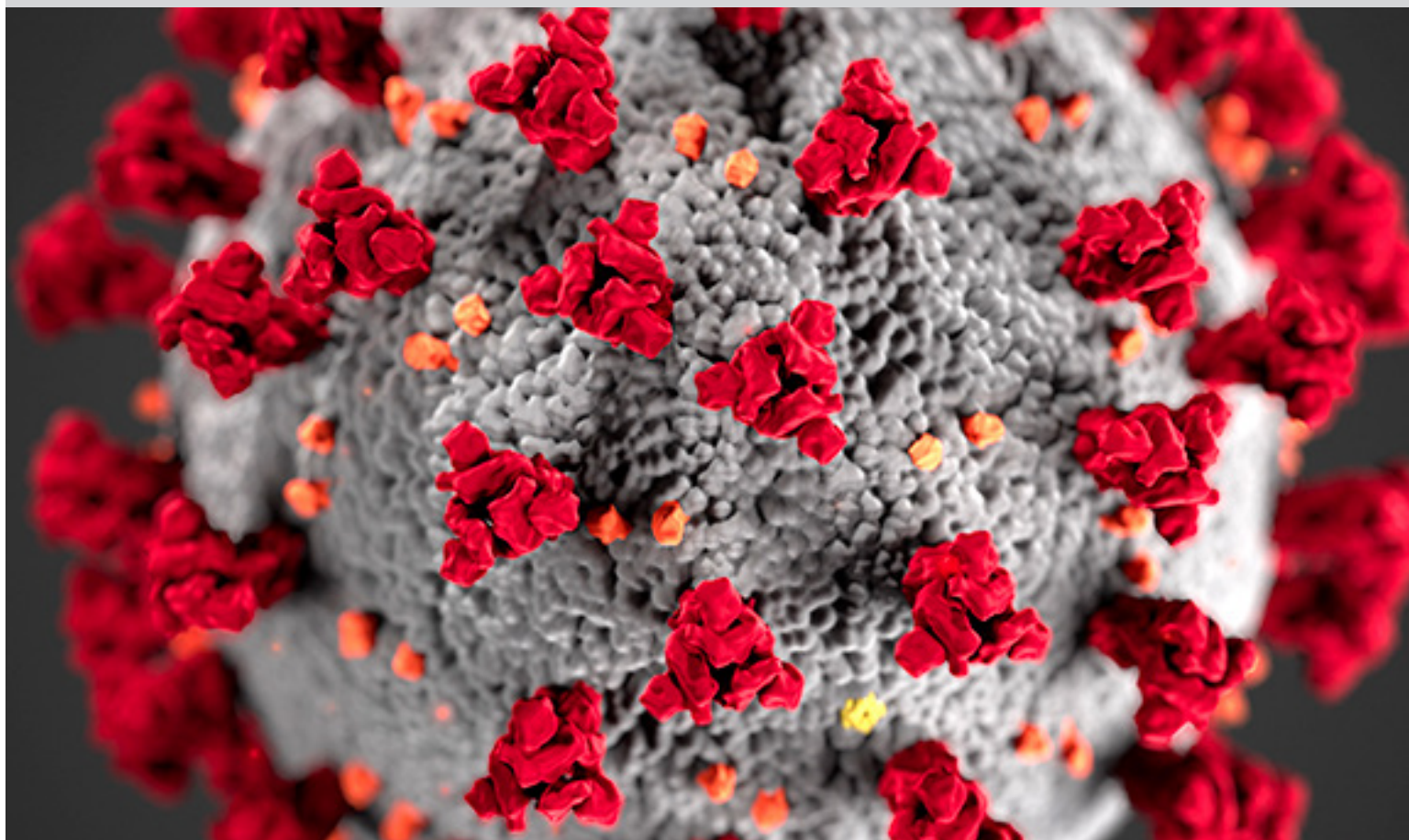


Photo: Corona virus, photo from CDC.

IN THIS ISSUE:

OGEN turns 15!	2
Managing fungicide resistance in the vineyard	3
2019 Grape production and pricing survey	5
Wooster Vineyard Update	6
COVID-19 Food Safety	8
OSU V&E Corona response	10
Wines & Vines News	15
Contact us!	16

We are here for you.

We have all been following updates closely as the Corona virus pandemic has taken a hold of Ohio over the past weeks.

In order to keep our team members and stakeholders healthy, we have suspended all in-person site visits and workshops effective March 11, 2020 until further notice.

Like all of you, we hope this passes quickly. In the meantime, the vines don't stop, and we are working still working, albeit from home. We remain committed and available to you during this time through remote means: phone/text, Zoom meetings, email, social media... your preference.

Stay distant. Stay well. Wash your hands frequently.

-Maria and the OSU V&E team

OGEN: 15-year anniversary!

By: Imed Dami, HCS-OSU

In March 2005, the OSU Grape & Wine Team published the first article of the electronic newsletter named 'Ohio Grape-Wine Electronic Newsletter', or OGEN. Our mission then and now is to provide relevant information on vineyard and winery operations that is useful to our industry members. Over the years we sought feedback from OGEN readers to improve the content, and we have made changes. With the new social media tools available today, we keep adapting to these technologies as well. Dr. Maria Smith will be starting a 'blog' version of OGEN this year (stay tuned). We continue to welcome your feedback for improvement. We are happy to see OGEN subscription increase by 7-fold since its inception! If you would like to subscribe, please contact Dr. Maria Smith (smith.12720@osu.edu). You could also read previous OGEN issues in our archives on the Buckeye Appellation website at: <https://ohiograpeweb.cfaes.ohio-state.edu/pdf-newsletter/newslettertge>

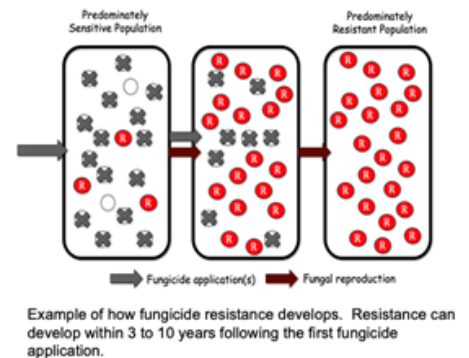
Managing fungicide resistance in the vineyard

By: Melanie Lewis Ivey, Department of Plant Pathology, OSU-Wooster

Fungicides are essential for maintaining healthy crops and reliable, high-quality yields. They form a key component of integrated crop management, and their effectiveness must be sustained as long as possible. Fungicide resistance is a major threat to disease control in all crops, including grapes.

How Does Resistance Develop?

The development of fungicide resistance is influenced by many factors including the cropping system, pathogen, type of fungicide, climate, and fungicide use pattern. Within the vineyard, a few isolates in the fungal population are naturally resistant to fungicides. When fungicides are applied, most but not all of the sensitive isolates are killed. However, the few naturally resistant isolates survive and reproduce. When the next fungicide application is applied any remaining sensitive isolates are killed but the resistant isolates survive. This pattern continues for each fungicide application until eventually the entire population is resistant to the fungicide. Resistance can take from 3 to 10 years to occur. Overuse or misuse of fungicides with a single mode of action can shorten the length of time for resistance to develop in the fungal population.



How Do I Manage QoI Fungicide Resistance?

Ideally management strategies should be put into place BEFORE resistance is detected in the vineyard. However, all is not lost if resistance is detected. It's important to remember that the presence of QoI resistance in the vineyard does not mean control failure is eminent. Rather, it means that the use of strobilurin fungicides should stop or the use pattern should be modified.

Several strategies can be implemented to slow QoI resistance. Every year growers should evaluate the effectiveness of their previous years spray program. When developing the current year spray program consider what worked and what didn't work in the previous year and make modifications accordingly.

When developing a fungicide spray program consider implementing the following fungicide resistance management strategies:

1. Calibrate the sprayer regularly.
2. Reduce the use of QoI fungicides. A reduction of even one application of a QoI fungicide can slow the development of resistance.
3. Avoid applying QoI fungicides during the critical period for fruit disease if resistance is present in the vineyard.
4. Tank mix QoI fungicides with a protectant fungicide such as captan or mancozeb.
5. Rotate modes of actions (i.e. FRAC groups). If resistance is present in the vineyard avoid spraying two sequential applications of a QoI fungicide.
6. Avoid extending spray intervals beyond the recommend interval provided on the label.
7. Do not use rates above or below the recommend range provided on the label.

Managing fungicide resistance (cont.)

A management decision table for vineyards with QoI resistance is available on the Fruit Pathology Program website. The table was developed to assist growers with making management decisions for grape powdery mildew when faced with challenges associated with QoI fungicide resistance. If resistant fungal populations are low enough, resistance can be reversed. However, ***reversal of resistance is not easy and requires that no QoI fungicide be used in plots with resistance for at least three years.***



Powdery mildew on grape is caused by the fungus *Erysiphe necator*.

Lastly, fungal pathogens do not respect fence lines! Fungal spores move between vineyards by wind, which means resistance can also move between vineyards. Therefore, fungicide stewardship needs to extend to your neighbors. Work with neighboring growers to identify spray programs that reduce the risk of resistance developing in all surrounding vineyards. Talk with your neighbors about what has worked (and not worked) for controlling powdery. Be open and honest with your neighbors if resistance has been detected in your vineyard. If we hope to have the long-term conservation of fungicide effectiveness everyone will have to work together!

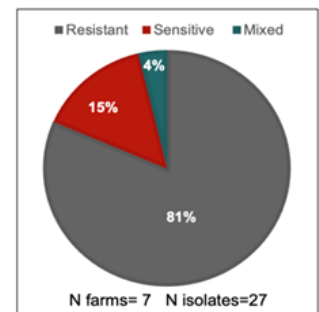
Powdery Mildew Fungicide Resistance in Ohio

Last year the Fruit Pathology Lab surveyed seven vineyards in Ohio and tested 27 samples for powdery mildew QoI resistance (also referred to as strobilurin or FRAC 11 resistance). While the 2019 sample size was small, QoI resistance was detected in six of the vineyards. Overall, 81% of the samples tested positive for QoI resistance and 4% of the samples had resistance and sensitivity (mixed sample) to QoI fungicides.

In addition to QoI resistance testing, a subset of the samples was tested for succinate dehydrogenase inhibitor (SDHI) resistance (also referred to as FRAC 7 resistance). ***Approximately 7% had increased tolerance to boscalid and fluopyram and less than 3% had increased tolerance to boscalid only. SDHI testing of the 2019 samples is projected to be completed this spring.***

As a continuation of the Fungicide Resistance Assessment, Mitigation and Extension Network (FRAME), the OSU Fruit Pathology Program will continue surveying Ohio vineyards for QoI resistance in 2020. A rapid DNA test has been developed by FRAME collaborators to test for QoI resistance. The sampling process is simple and requires only a few minutes to take a sample and place your sample in an overnight mailer to be sent back to OSU or directly to the testing lab in California. All the supplies needed to collect the samples are provided to the grower and shipping costs as well as test costs are free of charge. Results will be made available to growers within 7-21 days, allowing growers to make immediate management decisions and/or management decisions for next year's growing season. A test for SDHI resistance is also available, although the sampling process is a bit more complex and results can take up to 3 months to be reported.

If you are interested in having powdery mildew from your vineyard tested for fungicide resistance, please email **Melanie Lewis Ivey** at ivey.14@osu.edu. If you had your vineyard tested last year, we are interested in testing your vineyard again this year. All results from individual vineyards will be confidential.



Percent of Ohio swab samples in 2019 that had detectable QoI resistance, samples with and without QoI resistance (mixed) and no resistance (sensitive).

2019 Ohio grape production and pricing survey

By: Maria Smith, HCS-OSU

Reasons to establish a grape price index for the Ohio wine grape industry

Generating an aggregated pricing index for Ohio-grown wine grape varieties can help towards guiding profitability, and here's how:

- Ensure growers are not missing out on profits compared to regional and national pricing trends
- Provide accurately estimated revenue loss for vineyard insurance claims
- Understand long-term trends in Ohio grape production and value
- More precisely estimate how grape prices might change with various vineyard management practice use

Updates regarding the 2019 survey

Once again, we are seeking your participation in the 2019 Ohio grape pricing and production survey. This survey will be used to provide a state-wide perspective on the size, diversity, and value of the Ohio grape industry following the 2019 growing season.

We have updated the 2018 survey (<https://ohiograpeweb.cfaes.ohio-state.edu/grape-growing/2018-ohio-wine-grape-production-and-pricing-index>) to reflect industry feedback. Please see the following information for answers to common questions in 2018 and updates to the 2019 survey below:

- No vineyard is too small to participate and all growers provide a valuable contribution
- Yes, please fill out the survey regardless if your fruit was sold. Your production information alone is meaningful to our data set
- If you **did not sell fruit**, please leave the price category as "\$0"
- Please calculate your yield in **tons**
- We have included categories for prices of juice and bulk wine, if fruit was processed prior to selling

The 2019 survey will be open from **April 6 through May 15, 2020**, with distribution provided through our Ohio grape producer contacts list. For any questions or a link to the survey, please contact Maria Smith at smith.12720@osu.edu.

The image displays two side-by-side screenshots of the survey interface. The left screenshot shows the desktop version, which features a white background with a red 'O' logo for The Ohio State University at the top. Below the logo, it asks the user to 'Please select your vineyard location by county' with a dropdown menu. It then asks 'Do you own a vineyard, winery, or both vineyard and winery?' with three radio button options: 'Vineyard', 'Winery', and 'Vineyard and winery'. A red arrow button is at the bottom right. The right screenshot shows the mobile version, which is a simplified version of the desktop one, with a similar layout and a red arrow button at the bottom right. A QR code is visible in the top right corner of the mobile interface.

Photo: 2019 Ohio Grape Production and Pricing Survey preview, desktop version (left), mobile (right)

OARDC-Wooster March vineyard update

By: Diane Kinney and Imed Dami, HCS-OSU

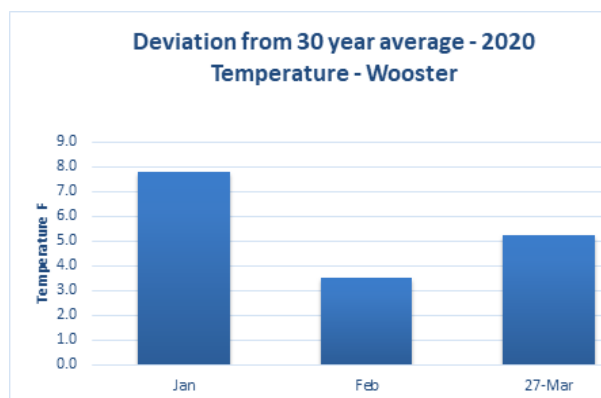
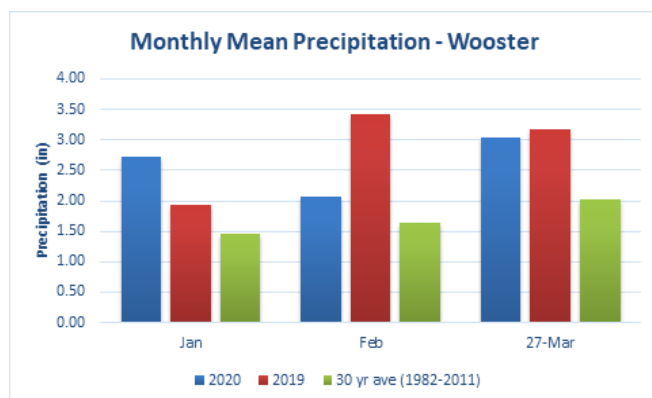
We find ourselves in an extraordinarily uncertain time with the world-wide COVID-19 pandemic. Due to the university-wide restriction stating only critical and essential research could physically continue on campus, we have been working remotely since March 19th. This includes our research farms and vineyards. As we had only just begun our pruning for the 2020 season, we are left in a precarious situation. Everyday passing leaves us with our hands aching to hold a pair of pruners. We still hold on to hope that we will be able to save our vintage for the

Grape Phenology

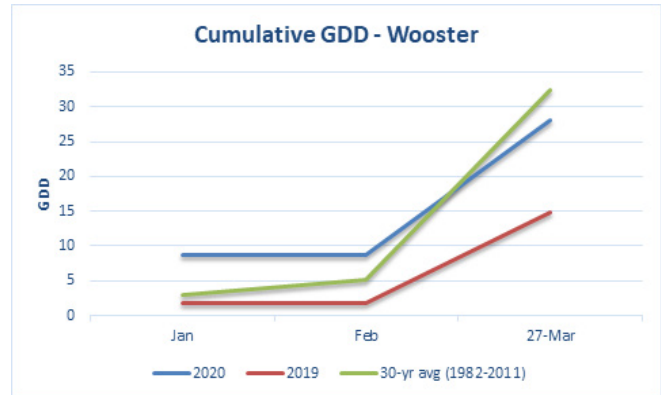
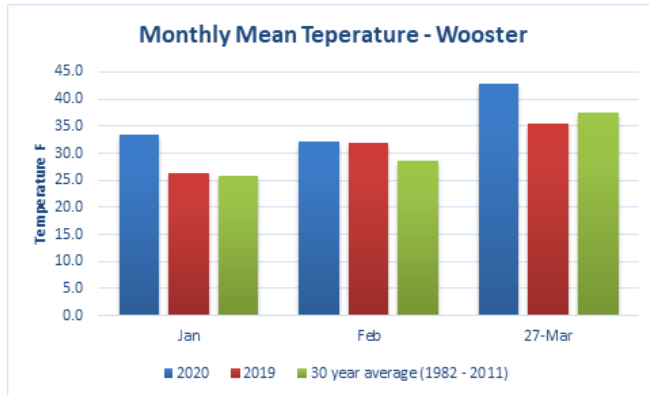
In Wooster, and as of April 2nd, 93 GDD have accumulated. Since grapevines usually begin budbreak in the neighborhood of 100 to 200 GDD, none of the varieties broke buds yet in our research vineyard. However, early varieties like Marquette and LaCrescent are at the bud swell – wool stage. Compared to 2018 and 2019, we are way ahead in GDD. This means that budbreak will occur sooner than in 2018 and 2019, possibly one to three weeks earlier. Since spring frost threats are possible between now and mid-May, be prepared to utilize frost protection mitigation methods (double pruning, keep cover crop short with frequent mowing, etc). Please contact Dr. Imed Dami (dami.1@osu.edu) or Dr. Maria Smith (smith.12720@osu.edu) for more information on spring frost protection.

Weather

In Wooster, precipitation was above the 30-year average during the first three months of the year, but not as wet as that in 2019. However, we have had a warm start to the year with January averages in the mid-30's. In Wooster, low temperature did not hit 0 °F during the first quarter of the year. Our lowest temperature of 3.7 °F occurred on the 15th of February. This is extremely unusual but fulfilled predictions from the NOAA (National Oceanic and Atmospheric Administration). The mean temperature was above the 30-year average since the start of the year. This implies that vines are going through deacclimation and budbreak at a faster rate than normal. Even though we're out of the woods from 'winter' injury, we still have the 'spring frost' threat to worry about. Let's hope not.



OARDC-Wooster update (cont.)



Cultural Practices

As mentioned above, we have only just begun our normal pruning practices. This year we have had little to no winter injury which is very encouraging allowing us to proceed with normal pruning strategies based on pruning weights. This excitement was quickly surpassed by the delay caused by the virus pandemic. We are prepared to move quickly upon our return to maintain the integrity of our vineyard.

On April 3rd, we applied our first spray on grapevines. It consisted of a 'dormant' spray named Sulforix (lime sulfur or calcium polysulfide). This dormant application is aimed at reducing overwintering inoculum on canes/cordons/trunks. Dormant sprays are useful for management against diseases (especially anthracnose) that overwinter on the grapevine. Lime sulfur is also effective against many insect pests that overwinter on the plant.

COVID-19 FOOD SAFETY FOR SPECIALTY CROP FARM OPERATORS



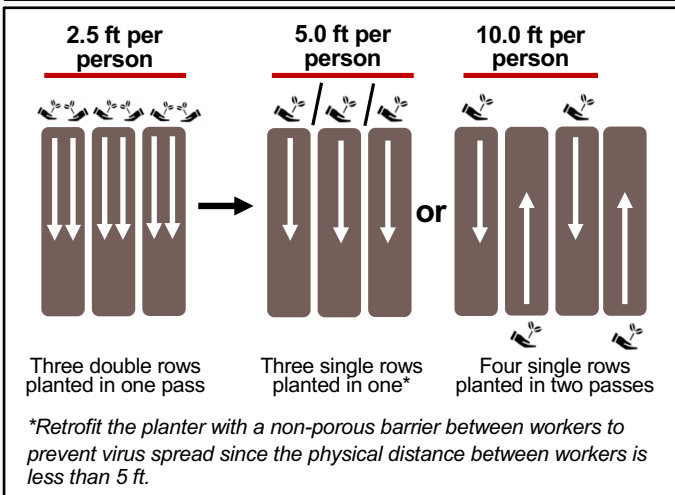
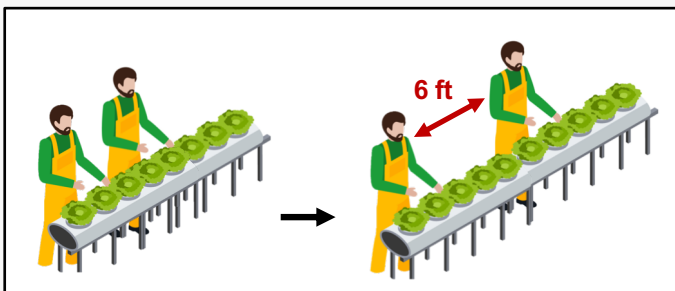
WHAT ARE THE HEALTH RISKS?

COVID-19 is not a foodborne illness. The virus causes illness through respiratory transmission, not eating. There have been no reports that anyone has become sick from COVID-19 by eating food.

COVID-19 transmission occurs when people are physically close to a person who has the virus. The virus is transferred from one person to another through droplets that are produced when an infected individual coughs or sneezes, or through close contact such as a handshake, hug or other physical types of greetings.

COVID-19 can also transmit by touching an object or surface with the virus on it and then touching the mouth or eyes before washing the hands.

Change production and handling practices to allow for a minimum of 6 ft physical distancing



KEEP PHYSICAL DISTANCE

When many people come together in one location the virus spreads quickly.

Practice physical distancing while conducting routine production and handling practices. This may mean that you will have to do things in a different way.

The minimal recommended distance between people to reduce the risk of transmission is six feet.

- Limit the number of people riding in a farm vehicle to one or two members of the same family.
- Decrease the number of people working during a shift. To maintain productivity, shorten but increase the number of shifts in a day.
- Change the flow of workers in the greenhouse and field so that activities (i.e., seeding, transplanting, crop maintenance) are done in isolation and/or workers are separated by at least six feet.

CLEAN AND DISINFECT

Because COVID-19 persists on surfaces for a few hours and up to several days, cleaning is critical.

- Increase the frequency of surface cleaning and disinfection.
- Food grade detergents and disinfectants must be used on food contact surfaces.
- Frequently disinfect high-touch surfaces daily including doorknobs, railings, counters, steering wheels, light switches, tables, tools and equipment. At a minimum disinfect every 4 hours or between shifts.
 - Lysol Brand Heavy Duty Cleaner Disinfectant concentrate is an effective sanitizer in the greenhouse and for equipment.
 - Bleach may be used to disinfect surfaces, but a concentration of 5 tablespoons of bleach per gallon of water is required to kill COVID-19.
 - Additional disinfectants that may be effective against COVID-19 are available on the [EPA Pesticide Registration List](#).
 - Additional cleaning and disinfecting guidelines are available on the [CDC website](#).

Sanja Ilic, PhD., Ohio State University Extension Family and Consumer Sciences; Department of Human Sciences, College of Education and Human Ecology
 Melanie L. Lewis Ivey, PhD., Department of Plant Pathology, College of Food, Agricultural, and Environmental Sciences

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COVID-19 FOOD SAFETY FOR SPECIALTY CROP FARM OPERATORS



WORKER HEALTH POLICY

Procedures that facilitate isolation, monitoring worker health and providing paid sick leave should be implemented to ensure worker behaviors that will minimize the spread of COVID-19.

- **Develop and implement a COVID-19 worker health policy.**
 - Workers with a fever should not come to work and should self-isolate for two weeks.
 - Monitor worker's temperature at specified intervals during the day.
 - Workers who develop a fever at work should stop working, go home, and self-isolate for two weeks.
- Wash hands often with soap and water for at least 20 seconds. If soap and water are not available, use an alcohol-based hand sanitizer with at least 60% alcohol.
- Cover your mouth and nose with a single use tissue when coughing or sneezing, or cough or sneeze into your elbow.
- Wear face masks to limit transmission of the virus (see Personal Protective Equipment below).
- Launder clothes at the end of each workday and wear clean clothes to work.
- Provide additional handwashing stations and keep them fully stocked.
- Maintain all regular food safety activities.

PERSONAL PROTECTIVE EQUIPMENT

- Wear standard personal protective equipment while conducting activities with more than one person.
- Wear clean gloves, face masks, and eye protection. Disposable gloves and effective masks (N-95) are in short supply and are needed for the medical community. Acceptable substitutions include:
 - Rubber gloves. Clean and disinfect after using the gloves.
 - Homemade cloth masks made using double layered cotton, or other fabrics, with a pocket to fit a 2.5-micron furnace or vacuum filter. Masks will encourage hygiene by helping to minimize directly touching one's nose and mouth. They will also reduce the dispersal of droplets containing COVID-19.
 - Safety goggles, face-shields, and masks.

TRANSPORTATION AND MARKETING

Operators should continue to implement best food safety practices for transporting and marketing product. The following practices should be added to your current food safety program:

- Increase the frequency of cleaning and disinfecting, containers and vehicles used to move or transport product.
- Stop using reusable containers until the outbreak is over.
- Post signs or verbally inform customers of new or modified policies.
- Minimize the amount that the product is handled between harvest and it reaching the final point of sale.
- Practice a no touch/no interaction policy at deliveries.

Additional information for farmer's markets, food banks, and U-pick operations on COVID-19 and food safety are available at producesafety.osu.edu/covid-19.

LONG TERM PLANNING

Hybrid seed is produced globally. All hybrid tomato and pepper seed comes from countries that have been affected by the COVID-19 pandemic. In addition, a recent (November 2019) Federal Order was issued that limits the importation of tomato and pepper seed and requires testing restriction due to tomato brown rugose virus or ToBRFV. **A disruption in the seed supply for 2021 and beyond can be expected.**

- If you do not have a supply of seed that will get you beyond the 2020 field season, contingencies for self-produced seed may be necessary. Please contact an OSU Extension Specialist or Educator for further discussion.
- Additional information on the Federal Order for restricting ToBRFV is available on the [APHIS website](https://aphis.usda.gov).

Sanja Ilic, PhD., OSU Extension Family and Consumer Sciences; Department of Human Sciences, College of Education and Human Ecology; David Francis, PhD., Horticulture and Crop Sciences, College of Food, Agricultural, and Environmental Sciences; Melanie L. Lewis Ivey, PhD., Department of Plant Pathology, College of Food, Agricultural, and Environmental Sciences

OSU viticulture COVID-19 response

By: Maria Smith, Imed Dami, and Lorena Brown, HCS-OSU

First, we hope you all are healthy and safe during this incredibly stressful, uncertain, and extraordinary time amidst the coronavirus pandemic. We also wanted to reach out to you and let you know that our OSU Grape & Wine Team is still here for you throughout this challenging time.

Despite these circumstances, the weather continues to warm up, and the vineyard still needs to be managed. Please find below essential tasks that must be completed during the early part of the season:

- Pruning
- Disease management
- Insect management
- Weed management

With labor and social distancing, a major issue, consider prioritizing and implementing these efficient vineyard management practices.

Pruning: Growers either cane- or spur-prune. If your vines are not pruned yet, it becomes more and more difficult to cane-prune. In this case, spur pruning is recommended. Approximate and adjust bud counts to maintain 4-6 buds per foot of cordon. Don't panic if you are behind. Vines could still be pruned even after budbreak. Think of it as winter injury year and you're waiting for growth to make pruning decision. Or, you could think of it as double-pruning for spring frost injury mitigation. In all cases, vines must be pruned prior to or even after growth resumption.

Disease: Remember, most grape diseases occur in early-season including anthracnose, black rot, powdery and downy mildew and Phomopsis. So early control starting at the 1-inch shoot growth stage is very critical. Do NOT skip early-season fungicide sprays!! Pre-plan your spray schedules and check your sprayers now before the season starts and be ready to go (2019-2020 Midwest Fruit Pest Management Guide: <https://ag.purdue.edu/hla/hort/documents/id-465.pdf>; 2020 Grape Spray Management Guide: <https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/b/28945/files/2020/03/2020Grape-Fungicide-Spray-Guide-Rev-3-18-2020.pdf>).

*Updated 4/3/2020: OSU CFAES has deemed diagnostics a critical mission for the university. While physical diagnostic samples CANNOT be accepted until May 1, digital samples CAN be submitted at no cost to commercial growers. Please visit <https://u.osu.edu/fruitpathology/diagnostics/> for digital diagnostic submission guidelines.

Insect management: Scout vineyard for early-season insects for efficient and effective management; prior to and after bud break to watch for early insects that feed on closed (climbing cutworm) or swollen (flee beetle) buds, and when shoots are 4-10 inch long (foliar phylloxera)

Weed management: Allowing some weeds under established vines is not problematic. However, if vines are young (< 3 years) or weeds were out of control in 2019, weed control should be a priority early on in the season. Ensure you are appropriately timing chemical herbicide application according to the weed species and herbicide mode of action. At our research vineyard in Wooster, we have been successful at managing weeds using the following program for many years: 1) use of post-emergence herbicide (e.g. glyphosate) when weeds begin to emerge but prior to soil de-hilling and budbreak; 2) soil-dehilling; 3) apply appropriate pre-emergence herbicide based on the known weed population and age of vines; 4) this program carries through the summer when we either apply a post emergence herbicide (burndown not systemic) or we switch to mechanical weed control (cultivation).

OSU viticulture COVID-19 response

For your convenience, we have included the following reference links to aid in your early-season vineyard management.

Disease management:

- Downy mildew: <https://www.youtube.com/watch?v=pNxYcXcFLn4>
- Downy mildew: <https://www.youtube.com/watch?v=LV2mIPwjTdU>
- Powdery mildew: <https://www.youtube.com/watch?v=ThrOnMhZxeY>
- Black rot: <https://www.youtube.com/watch?v=R38gR9OaE4Q>
- Phomopsis: <https://www.youtube.com/watch?v=YWJ3QaU00ig>

Canopy management:

- Dormant pruning: https://youtu.be/MA_XN9GjIE8
- Tracking phenology (bud break): <https://www.youtube.com/watch?v=DHf-ue49pMI>

While we have transitioned to work from home through this time, we are still available for you via email, phone, and Zoom consultations. Please do not hesitate to reach out to our team to assist you in the vineyard or winery.

Our contact information is below. Our website is also available for you (<https://go.osu.edu/grapes>) for more valuable information and resources you might need.

Dr. Imed Dami, Professor, Viticulture: dami.1@osu.edu

Dr. Doug Doohan, Professor, Weed Ecology: doohan.1@osu.edu

Dr. Gary Gao, Professor, Small Fruit: gao.2@osu.edu

Andy Kirk, Research Specialist, AARS Kingsville, OH: kirk.197@osu.edu

Dr. Melanie Lewis Ivey, Assistant Professor, Fruit Pathology: ivey.14@osu.edu

Dr. Maria Smith, Viticulture Extension: smith.12720@osu.edu

Todd Steiner, Enology Extension: steiner.4@osu.edu

TO: All Ohio Commercial Wineries

FROM: Todd Steiner, Enology Program Manager and Outreach Specialist

DATE: March 24, 2020

SUBJECT: COVID 19 Response

This letter comes with the hope and prayers that each of you are safe, healthy and able to cope during these challenging times we are currently observing with COVID 19 and its repercussions.

I am hopeful that all our wineries will be able to pull through with unique ideas in terms of creative wine sales during these troubling times which also involve an entire statewide shutdown of Ohio residents to essential services only. Hopefully wholesale accounts will pick up and consumers will purchase Ohio wine to support the wonderful people we have involved and employed in our great industry.

I realize that you are all dealing with employee concerns, potential layoffs and staffing issues to help get through these troubling times were experiencing. I am hopeful that other potential state and governmental re-sources will help prepare a way for some relief and get us through this disaster. This letter is to simply let you know that I am available for wine production and quality consultation via e-mail and phone as they arise.

The Ohio State University (OSU) took a proactive stance early with COVID 19 by implementing practices with the goal of limiting the potential spread of this disease. Early measures included shutting down face-face classroom teaching in going to online and virtual classes. This has been followed by moving all on campus students at main campus and all remote campuses back to their primary or safe residence.

Since then, there has been many directives given by both President, Michael Drake, Dean, Cathann Kress among other Senior OSU Leadership in taking additional measures to further reduce the spread of COVID 19 to faculty, staff, students and citizens of Ohio. This is all being done despite the temporary disruption of both research and extension activities. Telework is being accomplished by nearly all OSU staff except for critical workers identified by OSU for essential services to be on campus.

These changes have obviously affected the enology program greatly. Like nearly all OSU employees, we are not allowed on campus but are working on projects remotely. Although we are not allowed to perform winery site visits, I am still available as mentioned above by both e-mail and phone calls for winery consultation and troubleshooting advice in helping to make sure wines are of sound quality during this time.

It is important to emphasize that after these challenging times have passed; we will be able to come out stronger than ever with quality wine offerings for the consumer. Fortunately, we are at

a more reasonable time in the winemaking process with cellar aging mainly taking place during this time. Therefore, with limited staff availability and our valued time in dealing with COVID 19, I have supplied several key elements listed below which are best to address presently in helping retain wine quality attributes in our cellar.

1. **Sulfur Dioxide:** This is the most important thing we can monitor for retaining sound wine quality during this time! It is essential to make sure sulfur dioxide additions are where they need to be based on wine pH at 0.8 ppm for whites and Rosé wines and 0.60 ppm for reds which have gone through malolactic fermentation. This involves performing initial analysis and adjusting as necessary. Proper SO_2 levels will help keep our wines free of potential chemical and microbial instabilities from occurring. Having the correct sulfur dioxide content in our wines will help provide some extra time for some extended aging time while we are looking into other important factors and activities dealing with COVID 19 at this time.
2. **Visual Inspection:** It is also important to visually inspect our tanks for any headspace or surface growth of yeast or bacteria during this time. Headspace in tanks or barrels has an initial concern for excess dissolved oxygen increasing the chance for both chemical and microbial oxidative concerns.
 - Chemical oxidation concerns the increased levels of acetaldehyde representing a “nutty” or sherry-like aroma which is objectionable.
 - Microbial oxidation can be observed through an opaque haze in the case of *Acetobacter* or a “pellicle” (mat) in the case of film forming yeast growing on the surface of our wines.

These aerobic microorganisms can be problematic during cellar aging and are important to catch early in being able to act appropriately. There are other microorganisms that can also cause problems and concern in our wines to be cognizant of as well during this time. Generally, appropriate pH levels, the proper use of SO_2 and lower temperatures can significantly help prevent some of these problems from arising.

- In the case of a surface haze or pellicle, it is best to be proactive now since this can ultimately lead to a rather quick reduction in wine quality. It is best to analyze initially for sulfur dioxide concentration and adjust accordingly based on wine pH. Sulfur dioxide additions can be added upon racking over to another tank leaving the surface disturbance behind.
- Anytime wine is moved from tank to tank, it is important to remember to incorporate an inert gas such as nitrogen, carbon dioxide, nitrogen/carbon dioxide mix or argon to hoses, the receiving vessel and any storage vessel headspace in helping prevent excess oxygen from entraining into our wines. Although red wines with higher concentrations of phenolics (tannin) can withstand a little more oxygen than white or Rosé wines, it is a good practice at this time of cellar aging to limit oxygen which can be detrimental to wine quality.

Other haze formations such as protein, tartrates, phenolic precipitates etc. can be ignored at this time unless providing an off sensory evaluation, change in pH or volatile acidity indicating a concern of additional microbial activity and potential wine flaws

developing in our tanks. Time permitting, excess suspended particles or haze developments can be fined or rough filtered to help clarify our wines if needed.

3. **Sensory Evaluation:** Sensory evaluation of our wines during this time is critical in making sure we are not observing the formation of wine flaws or fruit loss in aroma or taste. Some flaws at beginning stages may observe an initial loss of varietal fruit aromatics prior to further degradation in the production of more perceivable off aromas and flavors reminiscent to their respective flaw. Therefore, catching these potential flaws at the early stages helps preserve wine quality with potential actions being applied.
4. **Temperature:** Since the disruption from COVID 19 has occurred during late winter and early springtime we are fortunate that lower temperatures are still being experienced in our cellars. Temperatures near 50°F or below provides an unfavorable environment for most microbiological growth issues observed in wine. Although there are microbes that can proliferate at lower temperatures, this will surely help in the prevention or slow down the growth of many troublesome microorganisms we generally observe in wine. This in combination with the correct amounts of sulfur dioxide described above are very important to preserve wine quality.
5. **Blending:** Although blending can be important at this time of cellar aging, I would not recommend blending at this time since this process can be addressed after we have more time available from current COVID 19 response activities. Blending can be utilized at this time however if providing a viable remedy to help aid in the reduction of a certain perceived wine flaws at lower thresholds. Generally, blending for obtaining better balance, body and overall sensory perception can be accomplished later under the current circumstances.

In providing a general overview, with all the confusion from COVID 19, the above measures represent the limited essential cellar procedures to follow during this time. The proper SO₂ concentration, use and maintenance of our wines during this time is by far the most important factor in preserving wine quality. Hopefully, this will allow more valuable time to focus on other COVID 19 issues during these challenging times.

Again, our thoughts and prayers are with everyone within the grape and wine industry and all citizens in the state of Ohio. I am hopeful and optimistic that we will pull through this and in many ways become a better nation, state and industry by managing these difficult issues.

Please let me know if you have any winemaking questions or concerns at this time for further quality discussion.

Sincerely,

Todd Steiner

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By: Diane Kinney and Imed Dami, 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 past month (March), we have posted the following updates. Simply click on the blue link and the desired document will automatically open.

Educational Materials:

- Ohio Grape Electronic Newsletter ([OGEN](#)) on homepage and tab (February issue).
- The Grape Exchange ([TGE](#)) on the homepage and tab (latest posting on March 18).
- [Ag Madness 2020: A Tournament of Education Webinar Series](#)

Resources:

- [Developing an Effective Fungicide Spray Program for Grapes in Ohio – 2020](#)
- Ohio Grape Industries Committee: COVID-19 Resources (Facebook Group). Email Christy Eckstein for an invitation to join at Christy.Eckstein@agri.ohio.gov

Miscellaneous:

- Article: [Reducing Cold Injury to Grapes through the use of Wind Machines](#)

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. 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: kinnney.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. Erdal Ozkan, Professor Food Agriculture & Biological Engineering 590 Woody Haes Drive Columbus, OH 43210	614-292-3006	email: ozkan.2@osu.edu	Pesticide application technology. Sprayer calibration.
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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.
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. Commercial wine production, sensory evaluation, laboratory analysis/setup and winery establishment.