Supporting Fruit Production

OHIO FRUIT NEWS

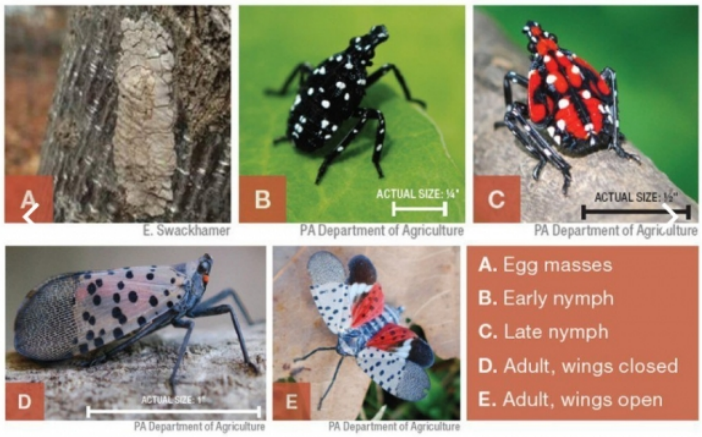
Research and Recommendations from Experts at The Ohio State University

DECEMBER 2020

Spotted lanternfly update and press release

By Jim Jasinski- Department of Extension, IPM Program

The following is a press release from The Ohio State University CFAES, dated December 4, 2020. While the article is focused on grapes, the spotted lanternfly is a broad pest of apples, peaches, pears, other tree fruit, hops and many hardwood trees. The threat of this pest invading commercial crops is over this year due to cold temperatures but please keep vigilant for this insect. If you think you have seen this insect in your orchard or on your farm, please contact your local Extension Educator or Dave Adkins at the Ohio Department of Agriculture (614-387-0907 or adkins@agri.ohio.gov).



All life stages of the spotted lanternfly, from egg to adult.

COLUMBUS, Ohio — A group of spotted lanternflies, which feed on grapevines, hops, and fruit trees, was recently discovered in Ohio, triggering concerns the pest could become established and spread quickly.

In October, adult lanternflies (Figure D and E) were found outside a business in Jefferson County, adjacent to the Pennsylvania border. Adult lanternflies won't be seen during the winter months because they die off as temperatures drop below freezing.

But before dying, the females typically lay 30–50 eggs, and come spring, their offspring could begin feeding.

"If there's anything I'm personally losing sleep over, it's this insect," said Maria Smith, outreach specialist in grape production at The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES).

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Inside This Issue:

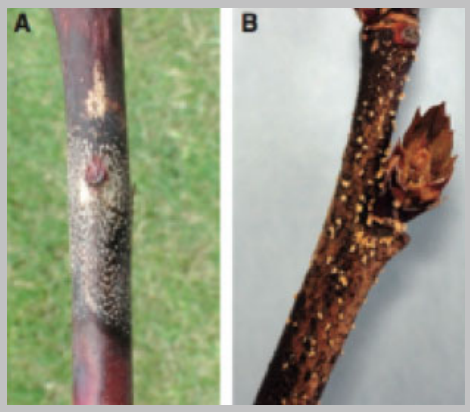
Grower's Corner

When is the best time to apply lime sulfur to blueberry?

This question comes from an Ohio blueberry grower.

The short answer is during dormancy. When lime sulfur (calcium polysulfide) is applied as a true dormant spray (before growth begins) it is very effective against fungal pathogens that overwinter on the plant. According to Mark Longstroth, Michigan State University (MSU) Extension, "blueberry uses the clue of shorten day length in the late summer to prepare for winter" and "freezing temperatures are the final clue, and the bushes go dormant." Once the bushes are dormant (and after they have been pruned) lime sulfur can be sprayed. In Ohio, dormancy generally begins in late November and breaks in early March. However, this obviously depends on how early warm temperatures arrive in the spring. Blueberries require about 1000 hours of chilling before they will begin to grow. Therefore, monitoring chilling hours can help you determine the latest date for which lime sulfur should be applied.

In blueberries lime sulfur is applied to control Phomopsis and anthracnose twig blight. In the spring, fungal spores on overwintering lesions are released and can infect new growth. Dormant sprays of lime sulfur can reduce the number of spores released and reduce disease pressure in the spring. Recent research at MSU demonstrated that two applications of lime sulfur, one in the fall and one in the spring, were slightly better than a single application. For single applications, no differences were observed between a fall or spring application.



Overwintering anthracnose lesion (A) and sporulation lesions (B) on blueberry. Photo courtesy of Tim Miles, MSU

One final note about lime sulfur-it is corrosive and should be handled with extreme caution. Sulforix has the same active ingredient as lime sulfur and is safer to the plant and the applicator. Most fruit growers have switched to Sulforix for this reason. Which ever product you choose to use, follow the label directions. Remember the label is the law!

Spotted lanternfly continued from page 1

Native to Asia, spotted lanternflies were first found in the United States in 2014 in Pennsylvania.
“It’s a ticking time bomb,” Smith said. “They’re taking out acres of grapevines in Pennsylvania. That’s why we’re so concerned about this insect.”

Over the winter, it’s important to look out for the lanternfly egg masses, which are grayish mounds that can be attached to any surface, she said. After they hatch, the developing nymphs are black with white spots, and when they become adults, the undersides of their wings turn red, which can make them easier to see.

“Right now, the most important thing is to get more eyes out looking for the pest. The populations can grow rather quickly. Producers and people in general in eastern Pennsylvania have found that out,” said Amy Stone, an Ohio State University Extension educator in Lucas County.
“We need to know where this insect is so that we can react.”

OSU Extension is CFAES’ outreach arm.

Spotted lanternflies suck sap from fruit crops and trees, which can weaken the plants and contribute to their death. As adults, one of their favorite feeding spots is another invasive species, the tree of heaven. “I was kind of surprised when I saw a live lanternfly. They’re larger than I thought they’d be, for a planthopper,” said Erika Lyon, an OSU Extension educator in Jefferson and Harrison counties.

Lanternflies typically only travel within a radius of about 30 feet, but they can hitchhike into an area, riding on trains, cars, or trucks. People driving out of state should inspect their vehicles and their belongings when they return to ensure they didn’t pick up any six-legged travelers, Lyon said.
“They don’t go very far on their own,” she said. “It’s people that are their main route of transportation.”
— Ohio State University CFAES

Adult spotted lanternfly
Image courtesy of the Columbus Dispatch

If you see a spotted lanternfly or an egg mass, contact the Ohio Department of Agriculture’s Plant Pest Control section at 614-728-6400 or plantpest@agri.ohio.gov, your county OSU Extension office, or submit your findings using the Great Lakes Early Detection Network.

Survey reveals that blueberry viruses are widespread in blueberry production regions in Ohio

By Melanie L. Lewis Ivey- Department of Plant Pathology

Blueberries, like many other perennial fruit crops, are susceptible to plant viruses. In fact, there are 13 viruses known to infect blueberries across North America! These viruses can be spread by insects or nematodes, pollen, or seed, and all of them can be spread from region to region through the distribution of infected propagation material. The impact of viruses on blueberries depends on the species of the virus, plant age and cultivar, and disease incidence and severity. Some viruses do not cause symptoms and/or direct economic losses while others can reduce the productive life of the plant and/or yield, decrease fruit quality, or kill the plant. For example, *blueberry mosaic associated virus* causes mosaic symptoms on leaves but overall has minimal impact on the fruit and yield. In contrast, *Blueberry scorch virus*, which is transmitted primarily by the blueberry aphid, can cause flower and leaf necrosis, tip dieback, and sudden death within three to five years of symptom.

Symptoms of *blueberry leaf mottle virus.*

By gaining an understanding of the viruses present in Ohio blueberry plantings and the distribution of these viruses throughout the state, we can begin to develop regional disease management and sanitation practices and inform the production of clean propagation material and state virus testing programs.

In 2019, we surveyed 27 commercial blueberry farms in 19 counties for viruses. We identified six different viruses infecting blueberries across the state.

Blueberry latent virus was the most frequently identified and was detected in over half of the counties we tested. This was not surprising to us because the virus spreads very easily through seed and pollen and is also widespread in Michigan. While this may be alarming to growers, the virus doesn't cause symptoms, nor does it negatively impact fruit yield or quality.

Mosaic disease caused by *blueberry mosaic associated virus*.

Blueberry mosaic associated virus was detected in one third of the fields we surveyed. Until recently the pathogen causing mosaic symptoms in blueberry was not known. Whole genome sequencing revealed that mosaic is caused by *blueberry mosaic associated virus* and is primarily transmitted during propagation, although a soilborne plant parasitic fungus can also transmit the virus.

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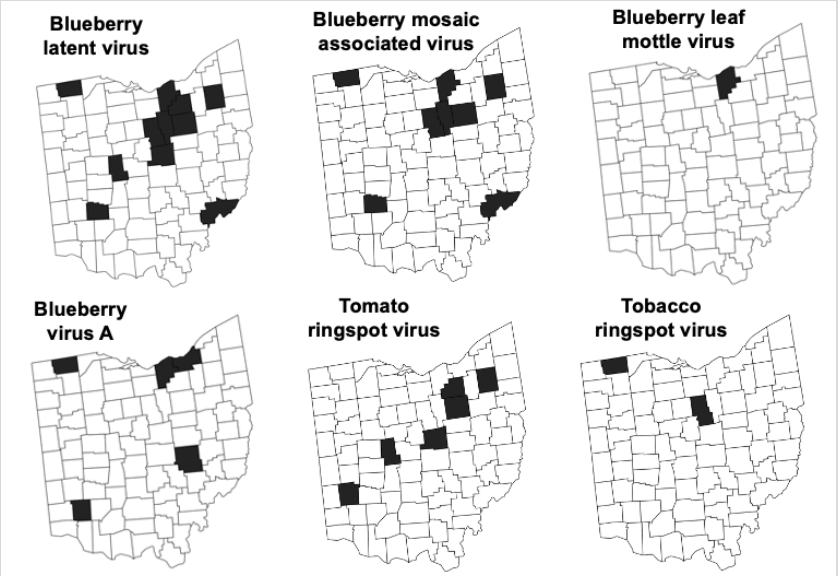
Blueberry virus survey continued from page 4

Tomato ring spot virus and ***tobacco ringspot virus*** were identified in Ohio. These viruses cause necrotic ringspot diseases that overtime result in yield decline. Both viruses are transmitted by dagger nematodes, which feed on blueberry roots. Plants that are infected with either virus should be removed, and the soil should be fumigated before new virus-free planting stock is planted.

Symptoms of *tomato ringspot virus* and mottle disease.



In 2019, 27 commercial blueberry farms in 19 counties were surveyed for viruses. Six viruses were identified and confirmed.

Virus	Transmission	Prevalence (n=27)
Blueberry latent virus	Pollen and seed	52%
Blueberry mosaic associated virus	Propagation and fungi	33%
Blueberry leaf mottle virus	pollen	4%
Blueberry virus A	probably aphids	26%
Tomato ringspot virus	dagger nematodes	22%
Tobacco ringspot virus	dagger nematodes	7%

Blueberry leaf mottle virus, which causes leaf mottle disease, was detected in one Ohio county only. The virus is transmitted by pollen and honeybees can move infected pollen up to one mile. Depending on the variety the disease can cause severe stunting and/or extensive dieback. Plants showing symptoms and confirmed to be infected should be removed and replaced with clean planting stock. It can take up to four years before symptoms are observed so plants surrounding infected plants should be monitored and removed as soon as symptoms are observed.

Blueberry virus A was the final virus we detected in our survey. This virus does not cause symptoms in single infections and is most likely transmitted by aphids. Blueberry virus A was one of two of the most common viruses detected in a recent survey of blueberry fields in the Midwest (did not include Ohio). Currently the impact on yield and fruit quality of this virus is not known.

We wish to thank all the growers who gave us access to their farm and allowed us to take samples. Restrictions on research and outreach due to COVID-19 have delayed our ability to analyze, summarize and share our results. As we continue to sort through the data, we will share the results with each of you. We appreciate your patience and thank you again for your support.

Fresh Ohio strawberries for the holidays?

By Brad Bergefurd - Extension Educator, Horticulture Specialist

Fresh Ohio strawberries at Thanksgiving and Christmas is one of the objectives of a new strawberry season extension research trial being conducted by Dr. Chieri Kubota and Mark Kroggel from the Ohio State University Horticulture & Crop Science Department and Brad Bergefurd from the Department of Extension who are conducting research at both the Piketon and Columbus OSU campuses thanks to the support from the Ohio Department of Agriculture Specialty Crop Block Grant.

Strawberries being planted in the table-top trial

By coalescing more than 30 years of combined strawberry research expertise of the three Principal Investigator's in traditional field and high-tunnel strawberry production (Co-PI: Bergefurd) and more modern greenhouse soilless off-season strawberry production (PI/co-PIs: Kubota and Kroggel), this projects goal is to increase Ohio fresh strawberry production during higher market price periods using a new substrate-based tabletop production system within a high tunnel. This soilless substrate-based production system has been adopted by growers in countries such as Australia, Belgium, Japan, Korea and the Netherlands and other Northern European where it is used widely. The tabletop production system was recently introduced in strawberry production in California and Ontario, Canada in order to mitigate issues of soil-borne disease, drought, as well as labor shortages, The tabletop production systems allows the workers to stand upright while conducting crop maintenance and harvesting. Growing gutters were placed on the table-top system within a 1536 sq. ft. research high tunnel located on the Piketon campus of the South Centers in July and August. Clean substrate (growing media), that eliminates the need for soil fumigants, was used allowing for more highly managed irrigation, nutrient delivery as well as discharge for improved yield and quality.

Conditioned plug plants used in the trial (Left). Substrate bags placed in the gutters (right)

Bare-root Chandler and Camarosa cultivars were obtained in June and grown as plugs with substrate. Plugs were conditioned for flower bud initiation in August and planted on September 15th. Following the fall harvest the end of December or early January, plants will be moved down to the ground with row covers applied to provide additional protection for overwintering. Spring harvesting is expected beginning in April and ending in June.

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Fresh Ohio strawberries at the holidays? Continued from page 6

A virtual field day is being planned in late winter early spring to highlight this new strawberry production system.

For more information contact project managers:

- Dr. Chieri Kubota, Kubota.10@osu.edu, 614-292-3175
- Brad Bergefurd, Bergefurd.1@osu.edu, 740-289-2071.

Our Season Extension Strawberry Team

Spotted-wing Drosophila annual monitoring report

By Jim Jasinski- Department of Extension, IPM Program

Spotted-wing Drosophila (SWD) is a non-native invasive pest that attacks a variety of small fruit, grapes and peaches. It was first detected in Ohio in September 2011 followed by a statewide monitoring program in 2012 by a combination of state specialists and Extension Educators. In 2020, there were 10 counties (Athens, Butler, Champaign, Franklin, Geauga, Greene, Monroe, Shelby, Union, Wayne) that participated in the SWD survey and there were no new counties added to the statewide distribution map (Figure 1). Crops monitored this year included blueberries, blackberries, raspberries and strawberries.

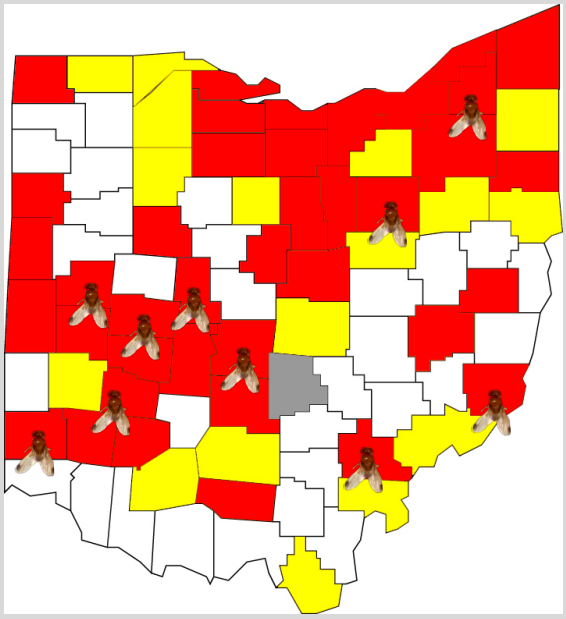

Figure 1. Known SWD Distribution as of 12/2020. Red indicates SWD positive, yellow indicates suspected but not confirmed, grey indicates monitored but not found, white indicates not monitored.

As in previous years, the traps used were Scentry SWD traps baited with the Scentry SWD lure and used a 25% dilute apple cider vinegar drowning solution. After the first month, the lure was changed to 100% apple cider vinegar for the rest of the season.

Traps were deployed during the week of June 21-27, with the exception of Franklin county, which had traps out since January. Seven of the 10 sites had positive detections in the week of June 21-27. Franklin county has positive detections in the week of June 7-13. Both Athens and Shelby counties had their first positive detection in the week of June 28 - July 4.

Six counties (Athens, Butler, Champaign, Monroe, Shelby, Union) discontinued trapping during the week of July 19-25. Wayne county trapped through mid August, and the remaining counties trapped through the end of September. SWD trap catches per trap per week ranged from 1 – 696 male and female flies. As in previous years, the number of flies caught was affected by crop selection, time of season, attractant used, insecticide use, selection and schedule.

For more information related to SWD monitoring program or results, contact Jim Jasinski. (jasinski.4@osu.edu or 937-484-1526).

NC-140 tree fruit rootstock research

By Dr. Diane Miller, Department of Horticulture and Crop Science

Many of you already know that the NC-140 regional rootstock project conducts long-term research on performance of new tree fruit rootstock candidates. Ohio has been a cooperating member since the beginning of this project, with Dr. David Ferree as one of the project founders. Here is the information about the project from the website www.nc140.org :

"The NC140 project is designed to address a number of high priority areas within the North Central Region as well as other parts of North America. This project seeks to enhance economically and environmentally sustainable practices in temperate tree fruit production by focusing on rootstocks… The project involves researchers from multiple states and is multi-disciplinary. Researchers involved in the project have leveraged Federal and state dollars to add significant resources to address this research area… Outreach is integral to the project and includes electronic information transfer through websites, written material for growers and other stakeholder groups, and numerous educational meetings in individual states and at national and international grower and scientific meetings."

Rootstock performance from each state (and combined), on all the rootstock plantings is available from the website. A report from each annual meeting, as well as annual reports from each state is also available. For those of you especially interested in data, you can navigate to the 'NC-140 members' section and click on the anonymous log-in feature to view state and combined data.
I encourage you to visit this website and look for information on rootstocks (apple, peach, cherry, pear) that you may have interest in considering for your site.

NC-140 Technical Committee post-meeting orchard tour North Rose and Sodus, NY, November 14, 2019. Credit: http://www.nc140.org/

I acknowledge that many of these rootstocks listed are not readily available. However, that is for one of two reasons. The first reason is that the rootstock was trialed and did not perform well. The second is that the rootstock was trialed and did perform well but it takes a while to build up supplies so that nurseries have finished trees utilizing them. This second group will become rootstocks available to you in the future.

It is long-term work to evaluate rootstocks, rouge out poor performers, and continually evaluate those which appear promising, looking for the best. Having the NC-140 project coordinating this at a wide variety of geographic locations and environments speeds up an inherently slow process by comparing results from uniform trials. Not only is information obtained within a state, but that information can be compared with results from other states to determine performance consistency.

As you study nursery catalogs, speak with the nurseries, and consider rootstock/variety combinations for your site, I encourage you to also check out the performance history of the rootstock at the NC-140 website. While Ohio has relied heavily on B9 apple rootstock, new apple varieties which are weaker growing and more precocious, such as EverCrisp, are requiring a more vigorous rootstock to get productive tree size. Additionally, B9 in a replant situation can be weaker growing. It is important to keep rootstock as an important consideration in your new plantings.

OSU Extension Cancels In-Person Programming Through January 15, 2021

(as of December 4, 2020)

To our stakeholders:

In an effort to keep our employees, volunteers, and communities safe, effective December 7, 2020, all OSU Extension-hosted meetings and events will be canceled, postponed, or held virtually until January 15, 2021. This includes 4-H club meetings and events, as well as Master Gardener Volunteer meetings and events.

This also means that OSU Extension professionals are not able to attend in-person meetings or events with our community partners; they may only attend virtually. Examples include, but are not limited to, fair board meetings, livestock weigh-ins, and year-end celebrations.

Ohio State University Extension is part of a land-grant academic institution. As such, we follow science and model what the CDC (Centers for Disease Control and Prevention), the Ohio Department of Health, and other experts stress is important in addressing this virus.

As I am sure you are all well aware, the number of COVID-19 cases, hospitalizations, and deaths are all increasing for Ohio and across the nation. We must continue to be vigilant and put the safety of our employees and that of our clientele first. It is the belief of the university, our college, and our organization that if we can help reduce the load by preventing or slowing down the spread of the virus, we should. **Our rationale and assumptions include:**

- The number of cases, hospitalizations and death in Ohio are on the rise, and are NOT likely to reverse in the next three to four weeks.
- The increased gatherings over Thanksgiving and anticipated gatherings likely to occur between now and the new year will only contribute to this pattern of increase.
- Experts are indicating that hospital capacity in Ohio is already stressed by new COVID-19 cases and will soon have limited availability for non-COVID patients. This demand does not reflect the anticipated increases from recent Thanksgiving gatherings.
- We must do our part to reduce the spread of infection to help keep hospitals and the health care workforce from being overwhelmed.
- We, as part of an academic institution, need to follow science and model what the CDC and other health experts stress is important in addressing this virus.

We also have updated our current office staffing guidelines; those are based on the rating assigned to each county by the Ohio Public Health Advisory System. Please see the summary on the next page for more information.

THE FOLLOWING GUIDANCE WILL BE IMPLEMENTED, EFFECTIVE DECEMBER 7, 2020 AND RUN THROUGH JANUARY 15, 2021:

County Office Staffing

The Ohio Public Health Advisory System indicates the status of counties based on a color-coded system. If a county is purple or approaching purple, OSU Extension offices will be closed and employees will be working virtually. If a county is red, OSU Extension offices will be staffed by appointment only. You will need to call in advance to schedule a time to go to the office.

If a county is orange or yellow, the OSU Extension office can remain open to the public, with safety protocols in place. There will be a limited number of employees in the office at any one time. If a county's status changes to red or purple, the staffing guidelines listed above will apply immediately.

Please note that there may be additional guidelines from county health departments. If a county has issued a local health advisory, we expect the Extension professionals in that county to follow the most restrictive guidance (Ohio State or local).

Our Request for your Continued Understanding

We ask for your continued support in encouraging a respectful understanding that our OSU Extension county professionals are required to follow this guidance as part of the university. We all share the disappointment and sense of loss that comes with not being able to connect in-person.

We will continue to monitor the situation and look forward to being able to return to in-person programming when the situation has shown sustained improvement. Our collective actions will have much influence on the timing of when that might occur, given the spread of the virus and our need to work together to limit infection and spread.

We will continue to effectively and efficiently serve our clientele via phone, email, and virtual programming. While distanced programming is not our first choice for serving you, it is currently the safest choice.

Thank you for your continued support of OSU Extension, and for supporting our approach to our work in the way that contributes to the safety and well-being of our employees, volunteers, and communities during the COVID-19 crisis.

Sincerely,
Jacqueline Kirby Wilkins
Associate Dean and Director, Chair, Ohio State University Extension
College of Food, Agricultural and Environmental Sciences

Grower Resources:

- 2019-2020 Midwest Fruit Pest Management Guide
- 2020 Grape Disease Management Guide (u.osu.edu/fruitpathology/spray-guides/)
- 2020 Hop Disease Management Guide (u.osu.edu/fruitpathology/spray-guides/)
- OSU Fruit Pathology website (u.osu.edu/fruitpathology)
- OSU Fruit and Vegetable Safety website (https://producesafety.osu.edu)
- OSU Fruit and Vegetable Pest Management website (entomology.osu.edu)
- OSU Fruit and Vegetable Diagnostic Laboratory (u.osu.edu/vegetablediseasefacts/)
- OSU Bramble: Production Management and Marketing Guide (Bulletin 782) (extensionpubs.osu.edu)

Image courtesy of Certis

Powdery mildew of strawberry is a common occurrence in controlled environment production systems. The fungus can affect the leaves, flowers and fruit. Upward leaf cupping is an early symptom of powdery mildew and can easily be confused with a nutritional disorder or non-optimal temperatures. White lesions first appear on the underside of the leaves and are frequently overlooked. An integrated approach that focuses on host resistance, environmental control and fungicides is recommended. For more information on controlling powdery mildew in controlled environments contact Dr. Lewis Ivey.

OSU Upcoming Events-2021

January 11 – 2021 Private and Fertilizer Recertification; Link here
January 18-20 – Ohio Produce Network (Virtual); Link here
January 19 – 2021 Commercial Recertification; Link here
January 21 – Good Agricultural Practices Training Webinar (save the date)
February 10-15 – 42nd Annual OEFFA Virtual Meeting; Link here
February 15-17 – Ohio Wine and Grape Conference (Virtual); Link here
February 18 – Good Agricultural Practices Training Webinar (save the date)
March 4 – Winter Grape School (Virtual) (save the date)
March 18 – Good Agricultural Practices Training Webinar (save the date)

For a list of all CFAES events and schedule changes go to the CFAE Events Page

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

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