

VegNet

The Vegetable and Fruit Crops Teams Newsletter

<http://vegnet.osu.edu>

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Take the PM Challenge

From Jim Jasinski, IPM Program Coordinator

Growers of squash, melon, zucchini and pumpkin know that powdery mildew (PM) season is likely just a few weeks away, usually arriving in Ohio around mid July. While this powdery white infestation of the leaves and stems is not as severe as downy mildew, it is still important for growers to detect and treat early for best management results. Be sure to scout the lower leaf surface as well as the upper leaf surface, as PM tends to develop on the lower surface first. OSU recommends treating upon initial detection.

(Continued on next page)

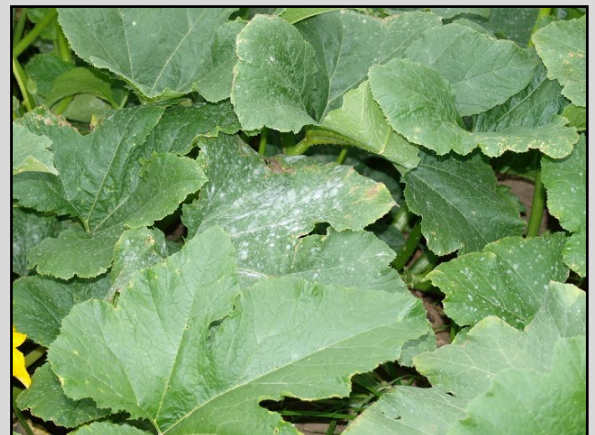


Photo:

Powdery mildew on upper and lower surface of pumpkin leaf.

Take the PM Challenge

From Jim Jasinski, IPM Program Coordinator

To that end, Dr. Sally Miller has conducted powdery mildew fungicide trials on pumpkins for over the past 15 years in Wooster and Willard, and I have similar trials at the research station in South Charleston over roughly the same time span. Over the years, we have seen systemic products like Quintec, Torino, Luna Experience, Merivon, Procure, Rally, and Pristine provide good or better control of this disease. We have also found that sulfur is a good contact material but coverage on both sides of the leaf is critical, and applications when temperatures are above 90°F can cause injury. It is also a good resistance management practice to use a multi-modal fungicide like Chlorothalonil or Manzate/Dithane/Mancozeb every other spray to control a wide spectrum of foliar and fruit rots.

Every year we try to look at novel products to understand how their efficacy compares to our “standard” recommendations. This year my demonstration trial will evaluate Evito and PH-D (Arysta LifeScience), and Fontelis (DuPont) at the South Charleston research station.

I have been on enough farms to know that often growers have their own favorite spray treatments for powdery mildew, and this year, I’m inviting growers to send me their best combination of products for consideration to be entered in the fungicide trial here at the Western Ag Research Station. From all the entries, I’ll pick the one that seems to have the most promise or is the most unique and compare it against our standards. Later in the season, I’ll report the status of the treatments.

To enter, send me (Jasinski.4@osu.edu) the names of at least two products to be sprayed, such as Spray 1 would be product X at a specified rate, followed by product Z at a specified rate for the second spray, etc. Treatments will be applied every 7-10 days, and there will likely be six sprays for the season. Entries must be received by July 10th.

I won’t divulge who sent me the winning combination, but come see the results for yourself at our Pumpkin Field Day on August 18th at the research station in South Charleston. More details coming soon.



Photo:

Powdery mildew on upper and lower surface of pumpkin leaf.

North Central Report

From Allen Gahler, Agriculture and Natural Resources Educator, Sandusky County

Dry conditions persist in Sandusky and surrounding counties, with recent rains very spotty and light. Irrigation is in full swing at the North Central Agricultural Research Station and on farms that are irrigation-equipped. Pickle harvested is expected to begin this week, and other crops are progressing well despite the dry soil. Local sweet corn looks to have first harvest around July 10 on a few farms, a week later for most.

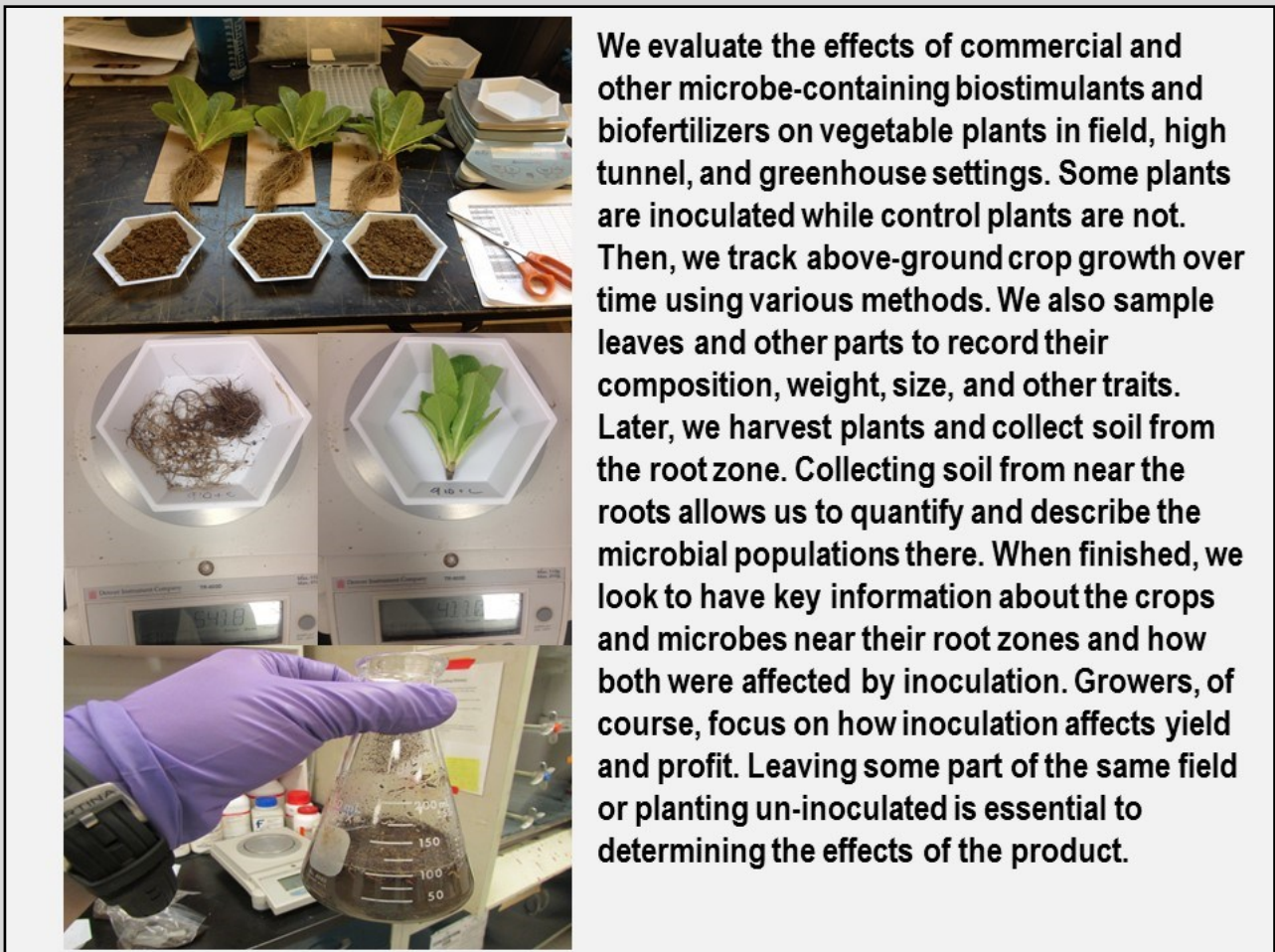


Getting the Most from Crop Biostimulants and Biofertilizers

From Zheng Wang, Julie Laudick, and Matthew Kleinhenz, Department of Horticulture and Crop Science, The Ohio State University

Naturally-occurring microbes dwelling in the root zone are invisible, abundant, and influential. Some affect crops in either clearly negative or positive ways, while the effects of others are unclear. Over many years, people have identified microbes that can help crops grow faster, produce more, and/or withstand stress (e.g., moisture, fertility) more successfully. As a result, beneficial microbes, usually certain bacteria and/or fungi, are included in products sold as biostimulants and biofertilizers. Various types of evidence indicate that manufacturing and selling these products is a huge industry in the U.S. and Europe and that more and more growers experiment with or use them in field, high tunnel, and greenhouse settings.

However, growers say that there is a lot to learn about getting the most from microbe-containing biostimulants and biofertilizers. People agree that the process involves selecting the correct product for the crop (i.e., a productive crop-microbe combination), storing and handling the product correctly, and applying it at the right time, at the right rate, to the right place, and in the right way. Research and on-farm tests have not provided all the 'rights' for most crop-product combinations. Still, one trend currently stands out: microbe-containing biostimulants and biofertilizers tend to have the greatest effect where background soil fertility is low to moderate, not extremely low or high. **(Continued on next page)**



We evaluate the effects of commercial and other microbe-containing biostimulants and biofertilizers on vegetable plants in field, high tunnel, and greenhouse settings. Some plants are inoculated while control plants are not. Then, we track above-ground crop growth over time using various methods. We also sample leaves and other parts to record their composition, weight, size, and other traits. Later, we harvest plants and collect soil from the root zone. Collecting soil from near the roots allows us to quantify and describe the microbial populations there. When finished, we look to have key information about the crops and microbes near their root zones and how both were affected by inoculation. Growers, of course, focus on how inoculation affects yield and profit. Leaving some part of the same field or planting un-inoculated is essential to determining the effects of the product.

Getting the Most from Crop Biostimulants and Biofertilizers Continued

Different explanations are given for this trend. One says that microbes in the products are unlikely to colonize crop roots when fertility levels, perhaps especially nitrogen (N), phosphorus (P), and potassium (K), are high. According to another explanation, microbes in products cannot survive when fertility levels (including carbon) are extremely low. These soils lack enough nutrients to support microbial life (at least enough to form productive associations with crop roots).

There are three take-aways from research and on-farm tests regarding the influence of soil fertility on the efficacy of microbial biostimulants and biofertilizers. One is that responses to inoculation tend to be greatest where soil fertility levels are low to moderate: enough to support microbial life but low enough to promote colonization of crop roots. A second is that using certain products may allow growers to reduce the use of synthetic and other sources of fertility (e.g., N, P, and K) by ten to thirty percent without reducing yield. A third is that application rarely harms the crop. So, some growers apply microbial biostimulants and biofertilizers as an “insurance policy.” Unfortunately, whether these insurance applications actually enhance profit is another question.

Developing guidelines for using microbe-containing biostimulants and biofertilizers most effectively will take teamwork, with contributions from researchers, educators, growers, and manufacturers. Please contact us (Zheng - wang.2735@osu.edu, Julie - laudick.15@buckeyemail.osu.edu, or Matt - kleinhenz.1@osu.edu) if you have questions or would like to experiment with these products.

Cucurbit Cooperators Needed

From Jim Jasinski, IPM Program

This is an exciting time in agriculture and OSU faculty are constantly looking to apply new technology to the production and management of specialty crops. If you consider yourself to be an early technology adopter, please continue reading.

We are currently looking for 3-4 cucurbit growers (mostly pumpkin and cucumbers/pickles, but squash, melon, zucchini can also apply) and a few processors who are interested in discussing how Unmanned Aerial Vehicles (UAVs/drones) can be used to scout fields for disease detection, or generally speaking, be used for various aspects of pest management. The size of the operation can range from small to large acreage.

Growers selected for the stakeholder panel would be invited to a 1-2 day meeting in Michigan where they would express their interests and/or concerns with the technology to other growers and university specialists from Ohio, North Carolina, and Michigan. We have secured a grant that would pay for all travel expenses, and the findings of the meeting would be used as the basis to write a multi-state and multi-year proposal on this topic which would likely include on-farm demonstrations or research.

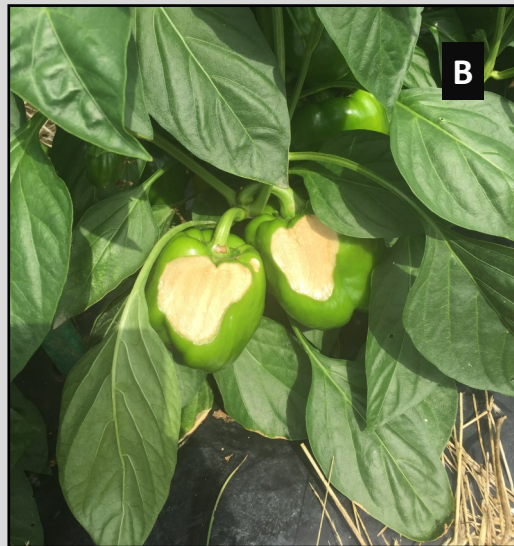
The meeting is slated for late August or early September. If you are interested in being a stakeholder or would like more details, please contact Jim Jasinski (Jasinski.4@osu.edu) by July 15th.

Southern Ohio Vegetable and Fruit Update

June 30th — IPM Report

From Zach Charville, OSU Extension IPM Crop Scout Intern

Following recent rains in the area, blackberries are now starting to be harvested in the southern parts of the state. Spotted-Wing Drosophila (SWD) traps have been placed on several blueberry and blackberry farms and will continue to be monitored weekly for activity. Traps have also been placed for dogwood borer, cotling moth, oriental fruit moth, and peach borer in apples and peaches. These traps are also being monitored weekly. Dogwood borers have been found in an apple orchard in Southern Ohio. As sweet corn continues to mature across the area, a few fields have been found to have the presence of European Corn Borer. Damage from the insect is easily seen as broken tassels on the plants. Sun scald has also been seen on peppers in Southern Ohio over the past week. Unfortunately, there really is no way to prevent this from happening after the plant has developed its canopy. It is best to remove the injured fruit so that the plant doesn't waste energy on the damaged peppers.



Photos:

- A. Ripe blackberries awaiting harvest
- B. Sun scald on peppers
- C. European Corn Borer damage to the tassel of a corn plant

Photos by Zach Charville, IPM Scout Intern

Wayne County IPM Report: June 30th

From Rory Lewandowski, Extension Educator, Wayne County

A number of vegetables were being harvested the week of June 27. Scouts noted high-tunnel tomatoes, cucumbers, green snap beans and potatoes in harvest. Cabbage, zucchini and summer squash are all near harvest as well. Deer and ground hogs are active and causing damage in some crops.

Diseases are starting to pick up. Scouts noted early blight in some high-tunnel tomatoes, angular leaf spot in pumpkins, zucchini/summer squash and melons. After our stretch of hot, humid weather, powdery mildew showed up in some zucchini and summer squash. A variety of insect pests were noted by scouts the week of June 27. In high-tunnel tomatoes, some light levels of white flies were found as well as the occasional stalk borer. Some onion plantings continue to have high numbers of thrips, above the treatment threshold. Depending upon harvest plans, growers are being urged to always check the label and note the pre-harvest interval of the pesticide.

The imported cabbage worm ranged from light to over treatment threshold levels. Flea beetle populations and the associated damage was light on cabbage and cauliflower this week. Cucumber beetles also ranged from just a few beetles to plantings where beetle pressure was heavy and insecticide treatments were recommended. Colorado potato beetle was noted in both potato and eggplant. Feeding damage by Colorado potato beetle was very heavy in some potato fields. Japanese beetles are about and feeding on various vegetable crops including eggplant, green snap beans and sweet corn. All feeding damage was light. In addition to Japanese beetles, some green snap beans also had bean leaf beetle and potato leaf hopper feeding. At this point all feeding damage is light and no treatment is necessary.

Sweet corn can be found at a range of development stages from V3 to tasseling and silking. Pheromone trap numbers for European corn borer (ECB) moths are low, ranging from 0 to just 1-2 moths/trap. However, scouts did note one sweet corn field with 45% of the plants showing feeding damage from ECB larvae. Corn earworm pheromone traps are out in some tasseling sweet corn fields but no moths have been caught to this point.



Photo:
A. Powdery mildew on summer squash leaf. Photo by Chris Smedley, IPM scout.

Southern Ohio Vegetable and Fruit Report

June 17th to June 30th

From Brad Bergefurd, OSU Extension Educator and Horticulture Specialist, Ohio State University Extension Scioto County & OSU South Centers

Field work remains in full force with farms in full harvest mode. In most areas, farmers were driven out of fields June 22 and 23 when severe weather made its way across Ohio with thunderstorms producing hail, strong damaging winds, and a tornado in Wilmington, with areas reporting anywhere from 1.5 to 5.5 inches of badly needed rainfall. However, it came down fast, ran off, and did not soak in.

Sweet corn, peach and green bean harvest began in the region on June 17 with daily harvests being made and excellent quality, yields and market demand being reported. Field work has included plowing, working ground, spraying, bed shaping, laying plastic, staking and tying tomatoes, staking and tying peppers, transplanting tomatoes, cabbage, melons and watermelons, and transplanting and direct seeding pumpkins. Planting sweet corn, cucumbers, beans, summer squash, cucumbers, pickles and winter squash continues. Peach harvest is in full swing with high yields, great quality and high market demand being reported where crops were freeze protected. Bing cherry harvest began the first week of June with early varieties winding down.

Apple crops are looking very good and continue to be sprayed regularly. Harvest activities include sweet corn, peaches, Sweet Bing cherries, day neutral strawberries, green beans, high-tunnel tomato and cucumber harvest, field tomatoes, sugar peas, zucchini and summer squash, lettuce, sweet onion, new potatoes are being dug, bell and hot peppers, blueberries, black raspberries, red raspberries and blackberries. Spraying fungicides on tree fruit, hops, brambles, blueberries, grapes and all vegetable crops continues. Spraying pre-emerge and post-emerge herbicides on all plantings continues.
(Continued on next page)



Photos:

Peach and Bing cherry harvest is in full swing with high yield, quality and market demand. (Photo by Paige's Produce and Rhoads Farm)

Southern Ohio Vegetable and Fruit Report

June 17th to June 30th Continued

From Brad Bergefurd, OSU Extension Educator and Horticulture Specialist, Ohio State University Extension Scioto County & OSU South Centers

The last fertigation of Nitrogen on hop plantings was completed around 6/22 in preparation for harvest. Systemic and foliar fungicides for hops Downy and Powdery Mildew continue to be applied. Leafhoppers and spider mites are reaching threshold levels in hop plantings with many farms reaching threshold levels and requiring a tight insecticide and miticide program. New plantings of hops continue to be hand planted and new high-trellis hop systems are being installed. Cucumber beetles continue to reach threshold levels in melons, cucumbers and squash, because at-planting insecticide treatments are beginning to lose their effectiveness. Flea beetles continue to cause damage to eggplant. Tomato hornworm pressure has increased in tomato plantings. Eastern Ohio Counties that had the 17-year periodical cicada emergence this month are experiencing severe damage on blueberries and caneberries; cicada damaged limbs and tips are breaking off. Herbicide carry-over damage has been reported where pumpkins were transplanted into a 2015 corn field that had been sprayed with Atrazine herbicide. Close attention must be made when planting any specialty crop into previous corn or soybean fields for many herbicides have a long plant back period for most specialty crops. Always read and follow label directions and ask previous farmers or landowners for up to three years of herbicide history.



Photos:

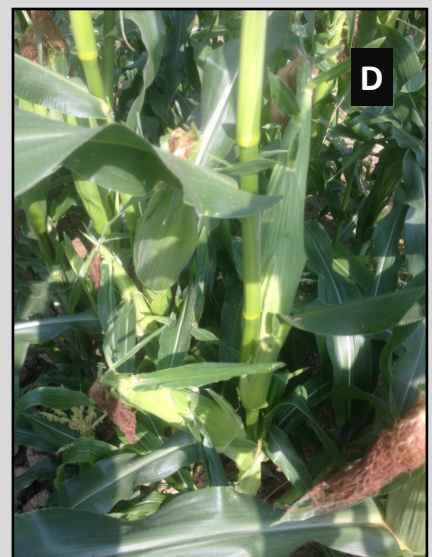
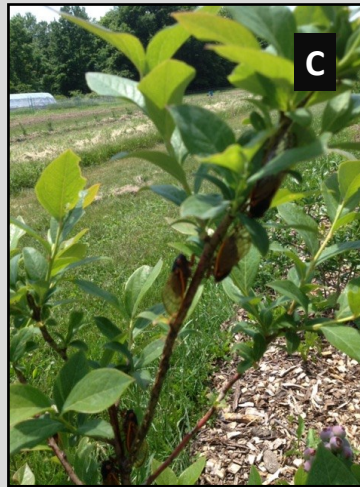
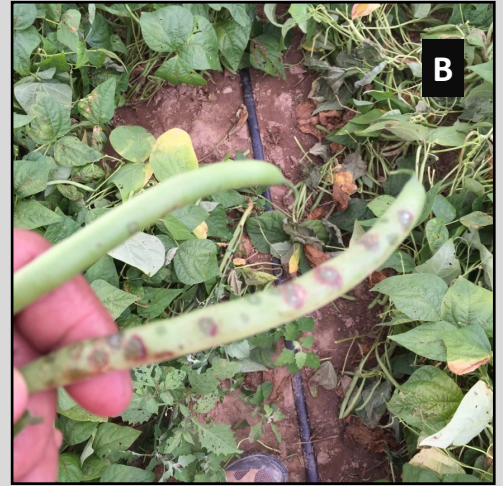
- A. Leafhoppers threshold levels continue to reach threshold levels in hop plantings. (Contributed photos)
- B. Atrazine carryover injury has been reported on pumpkins transplanted into a 2015 field corn field. (Photos by Brad Bergefurd and contributed)
- C. Hop harvest for the green brew market will be starting soon. (Photo by Todd Wingate)

(Photos continued on next page)

Southern Ohio Vegetable and Fruit Report

June 17th to June 30th Continued

From Brad Bergefurd, OSU Extension Educator and Horticulture Specialist, Ohio State University Extension Scioto County & OSU South Centers



Photos:

- A. Day neutral strawberry harvest has begun following renovation from the spring harvest. (Photo by Rhoads Farm)
- B. Suspected Anthracnose disease has been found in green beans that have not been on a fungicide program. (Contributed photo)
- C. Periodical Cicada damage to blueberries is reported to be severe in some areas. (Contributed photos)
- D. Sweet corn harvest began on June 17 and is in full swing. (photo by Brad Bergefurd)

Spider Mites on Hops

From Susan Ndiaye, Ohio State University Graduate Student, Department of Entomology

The hops have been setting flowers for a few weeks now. Twospotted Spider Mites have been detected in hop yards in Clark, Greene, Union, and Warren Counties. Spider mites cause stippling on the tops of the leaves (Figures 1 and 2), but when scouting you have to look at the bottom of the leaves to locate the mites. Upon initial infestation, they are usually found at the base of the leaf in a little bit of webbing. To see spider mites, you will need a 10x hand lens. Currently, mites are being found more on the bottom half of the hops plant, but as their populations continue to grow, they will move up the plant. Spider mites thrive in hot, dry weather, so populations are on the rise. It is important to control mite populations early. They can cause huge loss in yield, as they infest the hop cones causing them to become dry and brittle. Other pests to be on the lookout for are Japanese beetles (Figure 3) and leafhoppers. When treating for these pests, it is important to keep in mind the effect the pesticide has on other potential hop pests.



Pictures:

- A. Light stippling visible on the tops of hop leaves caused by spider mite feeding on the underside of leaves.
- B. Heavy stippling caused by spider mite feeding on the underside of hop leaves.
- C. Hop leaves damaged by Japanese beetles.

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
OHIO STATE UNIVERSITY EXTENSION

2016 VEGETABLE WORKSHOP SERIES



2nd Thursday, April - October

North Central Agricultural Research Station
1165 County Road 43
Fremont, OH 43420

Topics

April 14: New Fungicide Strategies with Orondis™, Sally Miller, Plant Pathology

May 12: Scouting Cucurbits with Drones, Jim Jasinski, OSU Extension

June 9: Alternative Crop Enterprises – Barley and Hops – Are They an Option for You?, Eric Stockinger, Horticulture and Crop Science

July 14: The OSU Food Safety Program – What It Can Do for You, Beth Scheckelhoff, OSU Extension

August 11: Sweet Corn Evaluation, Field Walk, and Taste It for Yourself, Mike Gastier, OSU Extension

September 8: Pepper Evaluation and Field Walk – Bells, Bananas, Jalapenos, Allen Gahler, OSU Extension

October 13: Soil Health and Water Quality – How Does It Affect Me? A Look at Edge of Field Studies and NCARS Water Samples, Libby Dayton, School of Environmental and Natural Resources

Please join us at the North Central Agricultural Research Station, Fremont, OH, the second Thursday beginning April 14 through October 13 for breakfast, industry updates, in-depth tips, tricks, and information from researchers to help make your 2016 growing season a profitable one! Attend when the topic suits you or take advantage of each month's program

Registration

Free and open to the public

Bring your plant disease and insect samples to the OARDC Lab for identification and same day results, free of charge!

Free breakfast begins at 7 A.M. followed by the featured speaker, field walk and networking

For more information

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OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
OHIO STATE UNIVERSITY EXTENSION

Ohio Superberry Field Night

at Ohio State University South Centers

Thursday,
July 7, 2016
6:00 p.m. — 9:00 p.m.

*Hosted by Dr. Gary Gao,
Dave Scurlock, & Ryan
Slaughter*

Location: OSU South Centers
1864 Shyville Rd., Piketon, OH
Large Auditorium, Research
Building

Cost: \$15.00*
**includes a light dinner*

To Register:
Contact Charissa Gardner
gardner.1148@osu.edu or at
740.289.2071 ext. 132

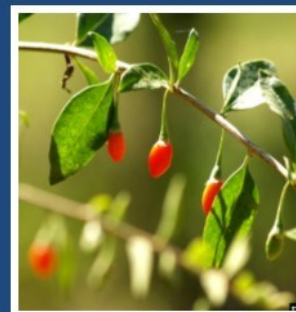
DEADLINE to Register:
Tuesday, July 5, 2016

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Learn the basics on these topics:

- ◆ Blueberry Cultivars and Production Techniques
- ◆ Summer Vineyard Management Practices
- ◆ Blackberry Production Systems
- ◆ Introduction to Elderberry, Aronia, and Goji Berry Production
- ◆ Container Fruit Production
- ◆ Chemigation for Pest Management
- ◆ Field tour
- ◆ And more!



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OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
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Ohio State University Direct Marketing Food & Agriculture

2016 Webinar Series

One-hour webinars will be offered to bring exceptional speakers to your home, office or local Extension center. If you're interested in finding out more about marketing issues, visit the website for details.



2016 Direct Marketing Webinar Series All webinars begin at 12 noon

Date	Topic	Lead Presenter	Connection
Feb. 18	Marketing Trends Learned from the Super Bowl	Eric Barrett & Rob Leeds	http://carmenconnect.osu.edu/marketingtrends2016/
Mar. 2	Using All Your Senses in Branding Your Business	Eric Barrett & Rob Leeds	http://carmenconnect.osu.edu/brandingyourbusiness/
Apr. 21	Enhancing Your Web Presence	Melissa Carter	http://carmenconnect.osu.edu/enhancingwebpresence/
May 26	Product Recall & Traceability	Eric Pawlowski	http://carmenconnect.osu.edu/productrecallandtraceability/
June 16	Product Labeling	Emily Adams	http://carmenconnect.osu.edu/productlabeling/
July 21	Celebrate Ohio Local Foods Week	Heather Neikirk & Patricia Barker	http://carmenconnect.osu.edu/localfoodswk/
Aug. 18	Produce Auctions	Brad Bergefurd	http://carmenconnect.osu.edu/auctionsforproduce/
Sept. 15	Pricing Your Products	Megan Leffew	http://carmenconnect.osu.edu/pricingproducts/
Oct. 20	Cooperatively Marketing Your Products	Hannah Scott	http://carmenconnect.osu.edu/marketingyourproducts/
Nov. 17	Using Facebook for Your Business	Duane Rigsby	http://carmenconnect.osu.edu/facebookforyourbusiness/
Dec. 15	Survey Results for Ohio Produce Marketers	Direct Marketing Team	http://carmenconnect.osu.edu/surveyresultsformarketers/

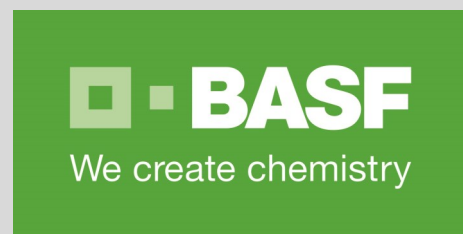
For recordings of all webinars go to go.osu.edu/DirectMarketingWebinars



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COLLEGE OF FOOD, AGRICULTURAL,
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VegNet Newsletter

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

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Submit Articles:

To submit an article to the VegNet newsletter please send the article and any photos to **Brad Bergefurd** at bergefurd.1@osu.edu or for questions regarding the newsletter call 740.289.2071 ext.132

About the editor

Brad Bergefurd

Bergefurd is an Extension Educator, Agriculture and Horticulture Specialist with Ohio State University Extension, with statewide responsibilities for outreach and research to the agriculture and commercial fruit and vegetable industries Brad has offices at the OSU Piketon Research & Extension Center in Piketon and at OSU Extension Scioto County in Portsmouth.



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