The Ohio State University Extension

VegNet *The Vegetable and Fruit Crops Teams Newsletter*

http://vegnet.osu.edu

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Plasticulture Strawberry Field Day

from Eric Barrett, Extension Educator, Agriculture and Natural Resources, The Ohio State University, Mahoning County

Join us in Northeast Ohio on Tuesday, August 4th, to talk about plasticulture strawberry production. For those of us north of I-70, this type of produce requires some unique management due to early frosts and winter conditions. Thus, we will give an overview of plasticulture strawberry production and focus on the unique issues in the northern half of Ohio. As popularity grows, so do the benefits of using plasticulture, such as increased profit and efficiency.

During this program, we will learn what to plant where and how to keep diseases at bay. We will also discuss how to keep your strawberries profitable from year to year. This program is OPEN TO THE PUBLIC.

Our featured speaker will be Brad Bergefurd, Extension Specialist for Horticulture. Brad conducts research and extension programs in vegetable crops and plasticulture strawberries. For registration and more details, please see the flyer on page 12.

Strawberries on plasticulture
Photo by Brad Bergefurd

2015 Upcoming Events

- **July 23 Hops Field Night, Wooster Ohio For full details see flyer on page 13. Contact Charissa McGlothin at mcglothin.4@osu.edu to register**
- **July 25 Ohio Hops Growers Open House For full details see flyer on page 14.**
- **July 30 Hops Field Night, Piketon Ohio for full details see flyer on page 15. Contact Charissa McGlothin at mcglothin.4@osu.edu to register**

To list your upcoming events in future additions of the VegNet newsletter, please send details to bergefurd.1@osu.edu

Ohio Pesticide Disposal

from Chrissy Kaminski, Program Coordinator, Agriculture and Natural Resources, The Ohio State University

Leftover pesticides should be disposed of properly to protect both human health and the environment. Pesticides are considered a hazardous waste and should never be poured down the drain or into a sewer, or thrown into the trash. Ideally, any remaining pesticides should be used on an alternative label-approved site. For disposal of remaining product, there are a variety of options often available within a community. Begin by reading the "storage and disposal" statement on the label for specific instructions. Then, locate a facility or event near you that accepts hazardous waste. Listed below are suggestions on how to locate a disposal facility near you.

Ohio Department of Agriculture Farm Pesticide Disposal Collection. Ohio Department of Agriculture (ODA) schedules several collection dates and locations each year for farmers to dispose of unwanted pesticides. This service is free of charge for farm chemicals only. The ODA currently has two disposal events scheduled, and will be adding a third. The complete set of dates will be posted at *pested.osu.edu* once they are announced.
For more information, contact the ODA at 614-728-6987.

ODA Pesticide Disposal Collection Events Dates and Locations
August 13, 2015 – Mahoning County Fairgrounds – 9:30 a.m. – 2:00 p.m.
August 18, 2015 – Ross County Fairgrounds – 9:30 a.m. – 2:00 p.m.
One more location to be announced later

Wayne County IPM Program: Scouting Summary

From Rory Lewandowski, Extension Educator, Agriculture and Natural Resources, The Ohio State University, Wayne County

We are into our vegetable crop walk season now. Vegetable crop walks offer a good opportunity to learn more about vegetable production including specific growing and management practices as well as current pest conditions (disease, insect and weed) and how to manage for those pest conditions. The basic elements of a crop walk include a host farm, a gathering of vegetable growers and some resource people with some expertise in vegetable production and/or vegetable pest management. The basic format of a crop walk is to walk through the host farm fields, making occasional stops to look more closely at the crop condition and have some discussion related to crop growth, as well as identify any disease, insect or weeds that are present with some discussion on how to manage those pests. The resource people may take the lead in these discussions, but growers are encouraged to add their comments, share from their accumulated knowledge, as well as raise questions. If the group is large, it is not uncommon to have several smaller clusters of growers discussing a separate topic from the main group, perhaps pulling aside a resource person to get their perspective, or maybe just sharing grower to grower. The informal atmosphere allows growers to focus on topics and crops that are of most interest to them.

Recently I was involved with a crop walk for growers associated with the County Line Produce Auction in the West Salem area. Noah Hostetler hosted the crop walk on his farm. I made arrangements for Matt Kleinhenz, OSU Extension Vegetable Production specialist, Celeste Welty, OSU Extension Fruit and Vegetable Entomology specialist to help resource the crop walk. Sally Miller, OSU Extension Vegetable Pathology specialist was not available to participate but she sent Anna Testen, the coordinator of the vegetable pathology lab at OARDC to help with the crop walk. In addition, Art Sigler and Christine Smedley, two of the Wayne County Extension IPM scouts were on hand as well. Art and Chris scout Noah's farm weekly so their insights and knowledge were much appreciated.

Noah Hostetler began the evening by welcoming those who came. On this evening we had 150 plus who attended. I introduced our Extension resource people and then because we were gathered near a high tunnel, we began the evening with Matt Kleinhenz talking about some basics of high tunnel tomato production and high tunnel management. Celeste Welty then showed an example of the stink bug traps that were set up on Noah's farm and led a discussion about stink bugs, stink bug damage and stink bug management. From there, we moved to a nearby field of tomatoes and began to look at some symptoms of septoria leaf spot and early blight that were showing up. Anna Testen led a discussion on some tomato diseases and gave the group a little saying on how to tell the difference between a fungal and bacterial disease; "if your spots have dots, it's a fungus you got".

From this point we began to walk to take a look at other crops on Noah's farm including cucumbers, potatoes, melons, and peppers. It was at this point that I noticed the large group began to split into smaller sub-groups. Some folks stayed behind to continue discussions with Celeste Welty. Celeste had brought some display boxes of insects and that attracted some discussion.

Another group hung back in the tomatoes and continued the discussion about tomato diseases. Matt Kleinhenz had a discussion going about potato production and some current research involving smaller sized, quicker maturing potato varieties. Meanwhile growers had walked into the field with the IPM scouts and were finding samples of insects and possible diseased leaves to be identified. ***(article continued on the next page)***

Wayne County IPM Program: Scouting Summary Continued...

There was a lot of hands-on learning taking place in all of these smaller grower groups (see photos). Periodically Noah would try to gather folks together to move to the next crop and call on those resource people who could start a discussion and then let it go from there.

At the end of walking by some of the crop fields the group ended up to where some tables had been set up and growers had brought in some plant samples for diagnosis. Celeste Welty addressed some insect questions, Matt Kleinhenz addressed some more production questions and Anna Testen displayed her "lab in a bag". One sample on the table showed virus like symptoms. Anna took out a virus detection kit and demonstrated to the growers how the kit was used and was able to show a positive reading for tobacco mosaic virus. Another sample showed possible bacterial disease symptoms. Anna took out a microscope and demonstrated the procedure the lab used to check for bacterial disease.

In conclusion, I don't want to give the impression that the fields at Noah's farm were full of insects and disease, because they were not. However, given our rainy weather, there is certainly opportunity for diseases to get going. Insects move and are a fact of life in vegetable production. The purpose of IPM and these crop walk events are to show and demonstrate to growers how to scout fields and find potential disease and insect pests early on. Early detection gives growers opportunity to manage and implement control measures so that the crop can be productive. Crop walks provide a good opportunity for growers to learn from one another and from resource experts.

A. Celeste Welty showing stinkbug trap and lure at crop walk
B. Matt Kleinhenz in discussion with some Amish growers at crop walk
C. Anna Testen, Art Sigler, and Celeste Welty at diagnostic table at crop walk
D. Anna Testen with microscope at crop walk

Photos by Rory Lewandowski

Managing Downy Mildew

from Sally Miller, Professor-Agriculture and Natural Resources, The Ohio State University, Department of Plant Pathology

Managing Downy Mildew and Phytophthora Blight in Cucumbers
Sally Miller, Professor, Department of Plant Pathology, The Ohio State University
Ohio Veggie Disease News: u.osu.edu/miller.769; Twitter @OhioVeggieDoc

We just finished one of the wettest Junes on record in Ohio, and for vegetable growers, lots of rain can mean lots of disease problems in their crops. With the early outbreak of downy mildew in cucumbers this year, growers need to be prepared for some serious disease pressure unless we have a dry July.

Cucurbit downy mildew. Cucumbers are very susceptible to downy mildew; they are the most susceptible of all of the cucurbits. While there are some differences in susceptibility among different cucumber varieties, none are highly, or even moderately resistant to downy mildew. Melons (cantaloupe and related) are next in susceptibility to downy mildew.

Where does downy mildew come from? The downy mildew pathogen does not survive in the absence of cucurbit plants, so it must be introduced each year into Ohio. We have two likely sources of the pathogen – a northern source that is probably coming from cucumber greenhouses in the Great Lakes Region, and a southeastern source that usually comes later in the summer on remnants of storms from southeastern states. The northern source is the one that concerns us most, because it appears earlier, usually about the end of June. Cucumbers and melons in the northern half of the state are most at risk from this inoculum source. Our first report of downy mildew on cucumbers was on June 25 in Seneca County; this past week it was reported in cucumbers in Wayne County and both cucumbers and melons in Geauga County. It has also been reported in southeastern Michigan (Monroe County) and Kent County, Ontario. So cucumber and melon growers in northern Ohio should just assume that the risk of downy mildew is fairly high.

What about pumpkins, squash and watermelons? These cucurbits are generally less at risk of severe damage from downy mildew than cucumbers and melons, especially from the northern source of the pathogen. A protectant fungicide should be applied now to protect plants from several diseases that are favored by wet weather, such as anthracnose and gummy stem blight. We have seen gummy stem blight in summer squash from southern Ohio already this year. Products containing chlorothalanil such as Bravo and Equus, or mancozeb (Dithane, Manzate, etc.), have good activity against these diseases.

Phytophthora blight. This disease is different from downy mildew in a number of ways, and similar in others. One big difference is that *Phytophthora* movement through the air is limited, unlike downy mildew. Another is that the pathogen survives over the winter in Ohio. Third, *Phytophthora* has to be introduced into a field, by contaminated water or movement of soil, for example. So we don't send out alerts for *Phytophthora* as we do for downy mildew, since its presence on one farm doesn't necessarily mean a disease risk for nearby farms – unless they are using the same contaminated equipment or water. *Phytophthora* tends to thrive in hot weather and downy mildew in cooler weather, but there is considerable overlap. *Phytophthora* and the downy mildew pathogen are related; some of the fungicides that are effective against downy mildew are effective against *Phytophthora*, although none are highly effective against this pathogen. All cucurbits are susceptible to Phytophthora blight, as are peppers and some other vegetable crops. ***(article continued on the next page)***

Managing Downy Mildew Continued…

The cucumber plant itself is less likely to be killed by *Phytophthora* than are other cucurbit plants, but the fruits are very susceptible. No varieties of cucurbits are resistant to Phytophthora blight, so cultural practices (raised beds, good drainage, clean irrigation water; no cull piles) and fungicides are needed to manage this disease. The pathogen is a "water mold" and moves around readily in wet, and especially flooded fields. The sporangia that contain the zoospores that swim to and infect plants can also be splashed onto stems, leaves and fruit.

Fungicide applications. Keeping ahead of both diseases is important, but any efforts to manage them can be undone by long periods of wet weather, when it is particularly important to keep a tight schedule of fungicide applications. The Midwest Vegetable Production Guide for commercial growers (free online: http://go.osu.edu/6aZ) lists the products labeled for these diseases on cucumbers – see page 109 in the 2015 guide for a chart on relative efficacy of fungicides against different diseases of cucurbits. Dr Mary Hausbeck, Michigan State University, recommends applying fungicides when pickles are 1", 3" and 5" long to suppress Phytophthora blight. Fungicides with 0-days pre-harvest interval (PHI) – Ranman, Zampro and Zing! – will be useful when pickles are close to harvest. Make sure to note re-entry intervals. While copper in itself is not very effective against Phytophthora blight, tank mixing with a copper fungicide (e.g. Kocide 3000 – also 0 days PHI) improves activity against *Phytophthora*. Dr. Mohammad Babadoost's research at the University of Illinois indicates that Revus tank mixed with a copper fungicide and alternated with Ranman + copper, Tanos + copper, or Zampro + copper (7-day intervals) is effective in suppressing Phytophthora blight.

If a field has a history of Phytophthora blight, and is in a high risk area for downy mildew, it will be necessary to develop a spray program that includes several of the fungicides shown. During rainy periods the short application intervals should be used, and products with different modes of action should be alternated.

Product	PHI (days)	**Downy mildew (DM)**	**Phytophthora blight**
Revus 2.09SC	0	Not effective – pathogen has developed resistance	One of the more effective fungicides against *Phytophthora*; tank mixing with a copper fungicide and non-ionic surfactant improves activity
Presidio 4SC	2	Has failed in some areas*	Tank mixing with a copper fungicide improves activity
Ranman 400SC	0	Currently most effective fungicide against DM*	Tank mixing with a copper fungicide improves activity
Gavel 75DF	5	Good activity against DM**	Tank mixing with a copper fungicide improves activity
Zing!	0	Similar to Gavel but contains chlorothalanil; good against DM**	Not labeled for *Phytophthora* blight
Zampro	0	Good activity against DM*	Tank mixing with a copper fungicide improves activity
Previcur Flex	2	Has failed in some areas*	Not labeled for *Phytophthora* blight

*Tank mix with a protectant fungicide and rotate with a fungicide with a different mode of action;
** Rotate with a fungicide with a different mode of action.

(article continued on the next page)

Managing Downy Mildew Continued…

Angular leaf spot. Like all diseases caused by bacteria, this disease is favored by rainy conditions. We are seeing many instances of bacterial diseases in vegetables this summer, including angular leaf spot. Symptoms of angular leaf spot can be similar to those caused by downy mildew. Once angular leaf spot is established in a cucumber field, there is really nothing to be done to control it. It is important that this disease is diagnosed correctly; if it is mistaken for downy mildew, fungicides may be applied for no gain.

A. Phytophthora blight of cucumber
B. Angular leaf spot
C. Downy mildew
Photos by Sally MIller

Spotted Wing Drosophila Traps

From Sara Cross-Extension Educator, Agriculture and Natural Resources, The Ohio State University, Mahoning County

Spotted Wing Drosophila (SWD) traps were placed in a grape crop on June 13th in northeast Ohio. The traps used the new Trece SWD lure as the attractant.

June 22nd
Both traps were checked on June 22nd and NO SWD adults were identified among the captured insects.

June 30th
Both traps were checked on June 30th and NO SWD adults were identified among the captured insects.

July 7th
Both traps were checked on July 7th and NO SWD adults were identified among the captured insects.

Sandusky Report

from Alan Gahler, Extension Educator, Agriculture and Natural Resources, The Ohio State University, Sandusky County

The NCARS received 10.65 inches of rain from the period May 27 through July 2, and approaching 4 inches from July 3-9, so conditions continue to deteriorate. Areas less than 10 miles north and west of the station have seen nearly double those amounts of rain since the end of May. Fortunately, as seen in the pics, most crops at the station were well established from timely transplanting and even some hand transplanting by station staff to stay ahead of conditions. However, disease pressure continues to increase, and spray schedules have been extremely difficult to maintain. Local area producers have found several cases of downy mildew, fusarium, and some insect damage, and all are battling limited field access for pesticide applications.

Local raspberry crops have been producing well, but Spotted Wing Drosophila was detected on July 8 in both Raspberries and grapes at separate locations in different parts of Sandusky County.

Some producers are hoping to begin sweet corn harvest in the next week, but progress with cool and damp conditions has been slow.

The NCARS field day has been set for August 6 at 6 pm and will be a disease workshop with several sessions to choose from throughout the evening. Details will be available in a press release soon.

A. Northern Ohio Cabbage variety trial
B. Northern Ohio Pepper Variety Trial
C. Northern Ohio Sweet Corn SH2 Variety trial
Photos by Matt Hofelich

Southern Ohio Vegetable and Fruit Update

from Brad Bergefurd, Extension Educator, Agriculture and Natural Resources, The Ohio State University, Scioto County & South Centers

Storms and heavy rain have resulted in wet and muddy field conditions plaguing the region the past 2 week with over 15 inches of rain reported during this time. These wet field conditions have prevented sidedress applications, herbicide spraying, fungicide and insecticide applications, cultivation, planting and ground preparation. These wet conditions have caused severe flood damage, onset of disease and flush of weed growth.

Harvest is in full swing including hops, sweet corn, day neutral strawberries, blueberries, black raspberry, blackberry, cantaloupe, high tunnel tomato, green beans, half runner beans, potato, zucchini, yellow squash, cucumber, pickles, cabbage, broccoli, radish, greens, lettuce. The wet weather has resulted in harvest gaps for some crops with increased demand from retail farm markets a spike in wholesale prices.

There was a dry spell 7/4 to 7/6 allowing for spray applications of herbicides, fungicides and insecticides to be made, ground to be worked and planting of sweet corn, pumpkins, tomatoes, melons, squash and beans to resume. Sidedressing of Nitrogen and cultivation was also conducted during this dry spell into the wee hours of the morning with more storms rolling into the region on Tuesday 7/7/afternoon..

Reports of growth regulator herbicide drift injury symptoms continue to be reported on small fruit, grapes, field vegetables and tunnel crops.

Planting and transplanting of all vegetable and melon crops continues as field conditions permit. Tight fungicide spray schedules are being applied on tree fruit, small fruit, hops and grapes. Burn down and pre emerge herbicides continue to be applied. Scouting and trapping for insects continue. Nutrient deficiencies continue to be reported on hops and vegetables where Nitrogen has leached under isolated heavy rainfall events.

A. Neutral strawberry harvest has begun
B. Cascade hops harvest has begun
Photos by Rhoads Farm and Granpop's Hops

Southern Ohio Vegetable and Fruit Update Continues...

C. Cascade hops harvest has begun
D. Melon harvest has begun
E. Hail has damaged some area crops
F. Sweet corn harvest is in full swing
Photos by Brad Bergefurd and Witten Farm

South Centers Update

from Thom Harker, , Research Assistant, Horticulture,
The Ohio State University

With most crops at the South Centers in Maintenance mode we are trying to keep up with fungicide applications and weed control in between the rain showers. Most of the hop varieties have reached the top of the trellis. Many of the varieties have good cones set already with some have both burrs and small cones set. Fungicide applications are being made every ten days to control Downy Mildew. Hop leaves are being samples from the hop yard every week to monitor for insect infestations. With the rains we have not been seeing many adult Two Spotted Spider Mites; however we have noticed their eggs on most every leaf sample. We have sprayed for the Potato Leaf Hopper once and seem to have them under control at this time. Here at the South Centers we planted a new hop yard this spring, we are in the process of putting in a permanent irrigation system. The new yard has no trellis at this time and the newly planted hops are growing on the ground. Pumpkin varieties are looking good with the rainfall received over the last month herbicide broke down and was no longer suppressing the weeds. Hand hoe and cultivation was done to remove weeds from the pumpkins. Pumpkins are being sprayed every 7- 10 day with fungicide.

A. New hop plant
B. Hop plant with cones and burrs
C. Hop plant with developed cones
D. Both adult TSSM and TSSM eggs from Piketon hop yard

Photos by Thom Harker

OHIO STATE UNIVERSITY EXTENSION

Plasticulture Strawberry Field Day

What to Plant, How to Start, Disease Management & How to Succeed

The Ohio State University Extension will demonstrate how to plant strawberries using plasticulture. As popularity grows, so do the benefits of using plasticulture, such as increased profit and efficiency.

During this program, we will learn what to plant where and how to keep it disease free. We will also discuss how to keep your strawberries profitable from year to year. This program is **OPEN TO THE PUBLIC**. Our featured speaker will be Brad Bergefurd, Extension Specialist for horticulture. Brad conducts research and extension programs in vegetable crops and plasticulture strawberries.

Date: Tuesday, August 4th

12:30pm - Registration

1pm-3pm – Program

Location: Catalpa Grove Farm, 41473 OH-14, Columbiana, OH 44408

Cost: FREE

Details: Register by July 31st

Contact: -Eric Barrett at barrett.90@osu.edu

-Mahoning County Extension at (330) 533-5538

R EGIST R AT ION INFO R MAT ION. Please mail to 490 S. Broad St. Canfield, OH 44406, fax (330-533-2424), or drop off the registration by **Friday, July 31st** to reserve a spot for the program.

Name: _____

Address: _____

Email: _____ Phone: _____

Number Attending: _____

www.mahoning.osu.edu

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OHIO AGRICUTURAL RESEARCH AND DEVELOPMENT CENTER
OHIO STATE UNIVERSITY EXTENSION

HOPS RESEARCH

Hops Production Field Night

OARDC
Wooster, Ohio

Hosted by Brad Bergefurd, Mary Gardiner, & Chelsea Smith

Topics to be covered:

- View high trellis system
- Nutrient management
- Fertigation demonstration
- Drip irrigation
- Landscape fabric, weed control
- Insect management techniques
- Harvesting
- Disease management techniques
- Variety evaluations
- Yard establishment economics

Thursday,

July 23, 2015

6:00 p.m. — 9:00 p.m.

Location:
OARDC Horticultural Research
Unit 2, 5082 Oil City Rd,
Wooster, OH 44691

Cost: $20.00
Dinner will be served at 5:30 p.m.

To Register:
Contact Charissa McGlothin
740.289.2071 ext. 132
mcglothin.4@osu.edu
Deadline to register:
July 21st, 2015

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

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For more information: http://go.osu.edu/cfaesdiversity

OHIO HOP GROWERS GUILD
2015 HOP YARD OPEN HOUSE

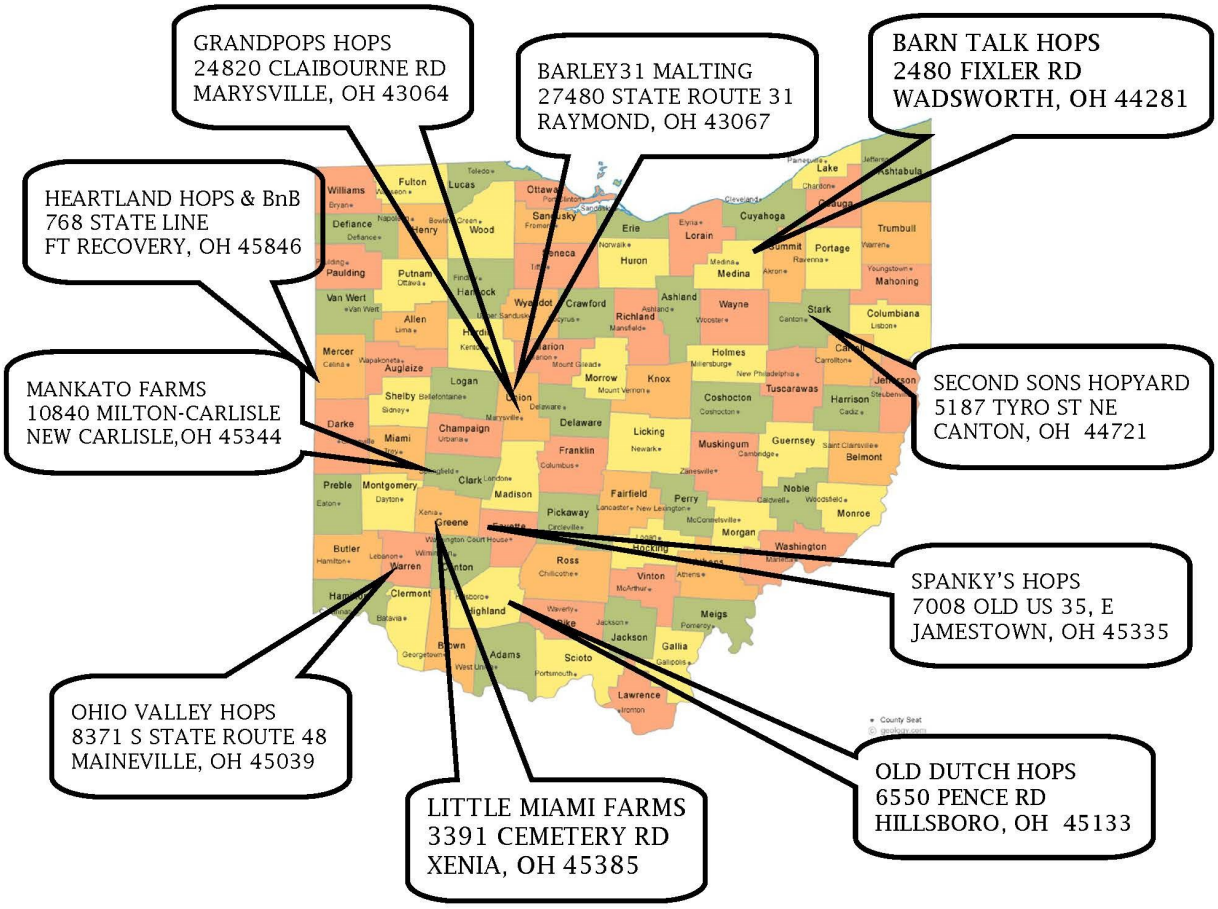
Already growing? Thinking of growing? Brewing?

Visit commercial Ohio hop yards and talk to the growers. Varieties, design, construction, fertility management, pest management, harvesting, processing, marketing.

SATURDAY, JULY 25, 10 AM ~ 2 PM

Please give us a heads up that you're coming!
Pre-register at WWW.OHGG.ORG

Participating hop yards:



OHIO AGRICUTURAL RESEARCH AND DEVELOPMENT CENTER
OHIO STATE UNIVERSITY EXTENSION



Hops Production Field Night

OSU South Centers
Piketon, Ohio

Hosted by Brad Bergefurd

HOPS RESEARCH

Topics to be covered:

- View high trellis system
- Nutrient management
- Fertigation demonstration
- Drip irrigation
- Landscape fabric, weed control
- Insect management techniques
- Harvesting
- Disease management techniques
- Variety evaluations
- Yard establishment economics

Thursday

July 30, 2015

6:00 p.m. — 9:00 p.m.

Location:
OSU South Centers
Endeavor Room 160
1862 Shyville Road
Piketon, Ohio

Cost: $20.00
Dinner will be served at 5:30 p.m.

To Register:
Contact Charissa McGlothin
740.289.2071 ext. 132
mcglothin.4@osu.edu

Deadline to register:
July 28, 2015

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

VegNet Newsletter

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

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http://vegnet.osu.edu/newsletter

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.

Brad Bergefurd, MS

Extension Educator, Agriculture and Horticulture Specialist with Ohio State University Extension