

VegNet *The Vegetable and Fruit Crops Teams Newsletter*

<http://vegnet.osu.edu>

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OSU South Centers Update

from Thom Harker, Research Assistant, OSU South Centers

Last week plasticulture strawberries were cleaned up, removing old dead leaves from the winter. Fertigation of plasticulture strawberries continues with matted row fertigation beginning this past week. With the rains fungicide applications for disease control is very important. Last week fungicide application was made using the airblast sprayer due to wet field conditions. We have seen some mouse damage to our strawberries along the field edge in a guard row. We are thinking that the mice may have been over wintering in the straw of the matted row strawberries. Temperatures mid-to-late week are looking like we could be cooler, right now, they are forecasting mid to upper-30s. We will want to keep a close eye on the night time temperatures with plastic berries starting to bloom heavily. One forecasting website we like to use here at the South Center is <http://wx.hamweather.com/maps/forecasts/weather/wxfrost/12hr/useastcentral.html>, this is only one tool that we use to determine whether or not to pull row covers to protect our bloom from frost.



2015 Upcoming Events

- ♦ **April 27-28** High Tunnel Training, South Centers in Piketon. For more information and to register go to go.osu.edu/hightunneltraining2015 See flyer on page 12.
- ♦ **May** details. Good Garden Bugs Workshop, 3 locations and 3 dates, see flyer on page 11 for full details.
- ♦ **May 21** Strawberry Field Night, South Centers in Piketon. For more information email Charissa McGlothlin at mcglothlin.4@osu.edu

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

Natural Enemy of the Week: Mantids (Mantodea)

from Mary Gardiner, Entomology, College of Food, Agriculture, and Environmental Sciences

Did you know most of the praying mantids you encounter in the field are exotic? Both the European mantid (*Mantis religiosa*) and the Chinese mantid (*Tenodera sinensis*) were introduced into the U.S. in the 1800s to aid in pest control within agroecosystems. The European mantid is approximately 2 ¼ inches in length with a bull's-eye spot on the inside of its foreleg. The Chinese mantid is the largest mantid species found in the United States at 4 ½ inches in length. This species has a green lateral strip running along its forewing. The only native mantid within the great lakes region is the Carolina mantid. It measures 2-2 ½ inches in length and is found from New York south to Florida and west to Utah, Arizona, and Texas. The Carolina mantid can be gray, brown or green in color. In females, the wings only extend ¾ the length of the abdomen and have a black patch present.

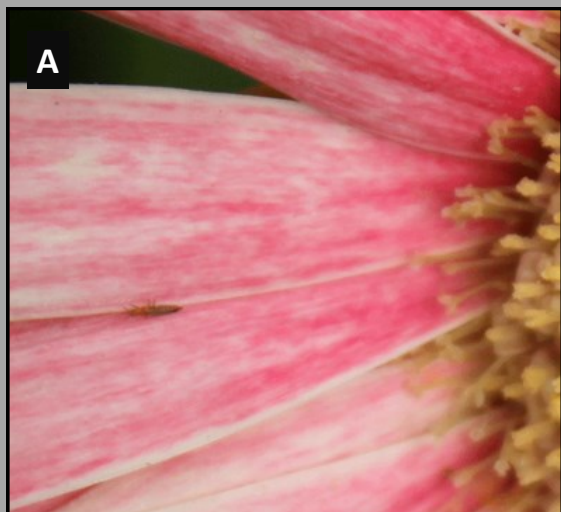
Gardeners may ask you if they should purchase mantid egg cases for pest control. Mantids are extreme generalist predators, feeding on larger pests such as grasshoppers but also on other beneficial insects. Releasing mantids is unlikely to lead to suppression of most common garden pests because they generally will not take much interest in small prey such as aphids (Aphididae) or spider mites (Tetranychidae). However, it is fascinating to watch them forage, and they are a great way to interest children in Entomology!



Greenhouse updates for NW Ohio

from Beth Scheckelhoff, Extension Educator - Greenhouse Systems

Several growers have been implementing biological pest control in greenhouse vegetable and ornamental crops this year to move away from reliance on insecticides. They are using beneficial insects to control thrips populations during production.



Thrips are tiny, cigar-shaped insects that feed on plant surfaces by piercing cells and sucking out the contents (Fig. A). This causes plant tissues to die, often leaving silver-grey patches on flowers, leaves and fruits that dessicate and turn brown over time (Figs. B, C). In addition to this physical damage, thrips also transmit plant viruses such as tomato spotted wilt virus (TSWV) and impatiens necrotic spot virus (INSV), among others. The Western flower thrips, *Frankliniella occidentalis*, is the most common species encountered in ornamentals and can be found feeding on pollen and flowers, especially in petunia, chrysanthemum, gerber daisy, and many others. Growers can visually inspect flowers for the presence of thrips or tap flower heads over a piece of white paper. If present, small, light brown insects can be seen moving across the paper.

There are several natural enemies for thrips that can be used in biological control programs for ornamental crops. Predatory mites such as *Amblyseius cucumeris* and another predatory insect, *Orius* are commonly used to control larvae and adults in greenhouse. In this greenhouse, sachets containing a complete breeding system for *Amblyseius cucumeris* release thousands of mites over several weeks (Fig. D). **Article continued on the next page**

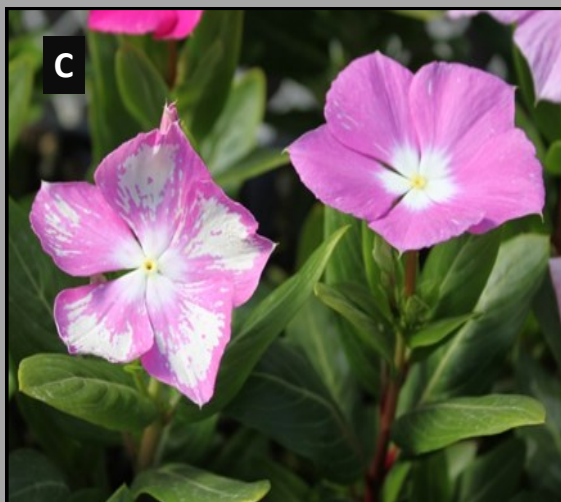
A. A Western flower thrips on Gerber daisy

B. Thrips damage foliage by sucking out the contents of plant cells, leaving a silvery patch.

Photos by Beth Scheckelhoff

Greenhouse updates for NW Ohio, Continued

from Beth Scheckelhoff, Extension Educator - Greenhouse Systems



Ornamental growers interested in implementing a biological control program during production need to plan accordingly and begin before pest populations get out of control. In this example, the greenhouse producer shared that her first year of growing with beneficial insects has required a significant change in pest management mindset. Scouting has become a major priority, thoroughly surveying and inspecting crops to monitor pest populations. Time is also needed to establish beneficial insect populations in order to effectively control target pests such as thrips.

C. Significant thrips damage on vinca flowers (Note discoloration on petals)

D. Sachets containing the predatory mite *Amblyseius cucumeris* are placed in each container, hanging basket, and bedding flat throughout the greenhouse

Photos by Beth Scheckelhoff

Hops Research Update, Wooster

Chelsea Smith, Research Assistant, OSU Department of Entomology

The hops are growing! We have almost 100% emergence of bines in the hop yard, some of which are passing 1 ft. in height. When a majority of the bines are about 1-2 ft we'll be cutting everything down to ground level. Many of the first bines, often called bull shoot, are hollow inside and would snap easily if trained. This practice also helps remove some of the downy mildew that may be active in the field.



Spotted Wing Drosophila Webinar May 6th

from Jim Jasinski, Associate Professor, Extension Educator
Integrated Pest Management Program Coordinator

The spotted wing drosophila (SWD) is a pest that was first found in NW Ohio in the fall of 2011. Since then it has spread to nearly every part of the state, causing mild to severe crop damage on raspberries, blackberries, blueberries, and occasionally on strawberries, grapes, and peaches. Both field-grown and high tunnel crops are at risk to this pest. Damage is usually first detected on ripening fruit around late June or early July, and is most severe during August and September.

To help growers understand the biology and control of this pest, on Wednesday, May 6th from 10:30 am to noon, OSU's Dept. of Entomology and IPM Program are teaming up on a webinar to cover the basics of adult monitoring including various baits, trap styles, and field placement. This will be followed up with key points in cultural and chemical management to be taken if adult SWD flies are detected in a trap. The last part of the webinar will include how to inspect fruit for SWD larval infestation using a simple salt water test.

This webinar can be viewed from any location with a high speed internet connection. To register for the webinar, complete this form (<https://www.surveymonkey.com/s/SWDmm2015>) or call 937-484-1526 to register, and we will send you the webinar link.

If you do not have such a connection at your home or business, here is a list of Extension offices that will host the webinar for you to attend, please contact them directly to register so they can make sure space is available:

- **Athens County**, Ed Brown, brown.6000@osu.edu, 740-593-8555
- **Champaign County**, Amanda Douridas, douridas.9@osu.edu, 927-484-1526
- **Monroe County**, Mark Landefeld, landefeld.6@osu.edu, 740-472-0810
- **Portage County**, Jeannie Stenson, stenson.16@osu.edu, 330-2966432
- **Ross County**, Chris Bruynis, bruynis.1@osu.edu, 740-702-3200
- **Washington County**, Levi Morrow, morrow.169@osu.edu, 740-376-7431
- **Wayne County**, Rory Lewandowski, lewandowski.11@osu.edu, 330-264-8722

If more Extension offices offer to host a site for the webinar, we will report it in next week's VegNet newsletter.

If you have any questions, please contact Jim Jasinski, Jasinski.4@osu.edu, 937-484-1526.



Strip Tillage in Vegetable Production – Recent Experiences, New Study

from Zheng Wang, Postdoctoral Researcher, Department of Horticulture and Crop Science, The Ohio State University

In strip tillage, only the area to be planted is disturbed, between-row areas are not. Tilling only a small portion of the total field offers the benefits of both traditional and conservation tillage. Strip tillage is most common in agronomic crop production and its benefits in those systems have included maintenance of grain yield and soil moisture and structure. Strip tillage has also limited tractor fuel consumption. The success of strip tillage in mic systems has made people ask if it can be achieved in vegetable systems. The question does not appear to have been tested as widely in Ohio as in other locations. Still, Ohio growers can learn from experience gained elsewhere and they will soon have home-grown data, also.

My research at The University of Kentucky involved comparing a strip-tillage approach to one using standard raised beds covered with plastic mulch. I grew bell peppers both ways (strip till, standard raised beds) and also included organic and conventional, and well-watered and water-restricted versions of each system. The previous crop in all plots was either hairy vetch/winter rye or just winter rye, and each cover crop was incorporated into the soil before strip tilling or setting up plastic-covered raised beds. Bell pepper plants were transplanted in double rows on each plastic-covered bed but in a single row in strip-tilled plots. All plots were drip-irrigated at different regimes to maintain optimal soil moisture or to create drought stress. Fruit yield by number and weight were measured. Strip tillage led to higher yield in organic plots but lower yield in conventional ones. Also, among the multiple harvests, time to the largest one was delayed in strip-till plots. Overall, peppers grown in strip tillage used less water for irrigation than those in plastic mulch. Strip tillage also helped soil maintain higher moisture throughout crop growth. This experience indicates that tillage system (strip versus standard) should be chosen carefully based on soil, farm and crop effects.

The Ohio Vegetable & Small Fruit Research & Development Program (OVSFRDP) recently provided support for related work to be completed in Ohio in 2015. Experimental plots will be established at OARDC in Wooster soon. Check VegNet and <http://hcs.osu.edu/vpslab> and <http://www.facebook.com/osuvpslab> for project updates or contact me (wang.2735@osu.edu), Dr. Matt Kleinhenz (kleinhenz.1@osu.edu), or Jennifer Moyseenko (moyseenko.2@osu.edu) for more information.

Southern Ohio Vegetable and Fruit Update

from Brad Bergefurd, Ohio State University Extension Educator, Ohio State University Extension Scioto County and OSU South Centers

Southern Ohio Vegetable and Fruit Update- Brad Bergefurd, OSU Extension Educator and Horticulture Specialist, OSU Extension Scioto County and OSU South Centers 4/3-4/19

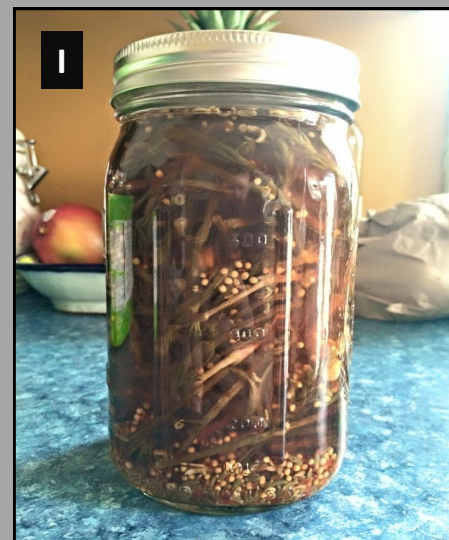
Even with almost non-stop rain events the past 2 weeks, field work has been in full force as field conditions permit and between showers. Chisel and moldboard Plowing is finishing up, fertilizer and compost continues to be applied, pre-emergent and burn down herbicides are being applied, ground is being worked, plastic being laid and planting being done. Anhydrous continues to be knifed in on corn ground. Third plantings of sweet corn have been made working late into the evenings to beat the rains to stay on schedule. Lettuce, radishes, peas and greens are emerged with second and third plantings being made. Fresh market tomatoes were field planted in the Bainbridge and Lowell areas 4/17-4/19. Asparagus harvest began over the Easter weekend and continues daily. Cabbage was planted 2 weeks ago and weekly plantings continue. Sweet corn is about 3 inches tall under plastic. January planted high tunnel tomatoes are at the mature green stage and beginning to show a little color. Later planted high tunnel tomatoes are in full bloom with some fruit at the 1 inch diameter stage. The last of the high tunnel tomatoes were planted the week of 4/13.

Pruning is complete on all brambles, grapes and hops however there appears to be winter damage on blackberries. Matted row strawberries were uncovered 2 weeks ago and plasticulture strawberry row covers were removed early April. Strawberries on plastic are about ¼ inch diameter and are at about 40% bloom. Matted row strawberries are just starting to show a little bloom. Hops have all been pruned, asparagus hops have been harvested, and new bines are being trained. Twine was dropped over the past 3 weeks. Weekly nitrogen fertigation of strawberry and hops continues.

Beds and soil are being tilled and fertilizer knifed in and trees are being planted in new apple plantings. Deer fence is being repaired and erected on several fruit and vegetable farms throughout southern Ohio for deer pressure is VERY HEAVY. Peaches are in full bloom with a good bloom being reported in the Laurelville area at 1100 foot elevation. Many lower elevation peach crops are showing no or little bloom due to several below normal temperature events this past winter. Tight spray schedules are being applied on tree fruit with pink bloom being reported in Wheelersburg area and tight cluster and bloom in the Laurelville and Carrol areas on 4/16. For more information on the life cycle, identification and control of fungus gnats see fact sheets at [http://ohioline.osu.edu/ent-fact/pdf/Fungus Gnats ENT 59 15.pdf](http://ohioline.osu.edu/ent-fact/pdf/Fungus_Gnats_ENT_59_15.pdf) and

[http://www.oardc.ohio-state.edu/floriculture/images/INSECTS-Fungus Gnats.pdf](http://www.oardc.ohio-state.edu/floriculture/images/INSECTS-Fungus_Gnats.pdf)





A. Asparagus harvest began in Wheelersburg and Canal Winchester areas over the Easter Weekend

B. Field work has been in full force in the Willard area

C. Sweet corn planted under plastic is 3 to 4 inches tall

D. Hops have been pruned for the first time here is a before and after shot

E. Plasticulture strawberries are at 30 to 40% bloom

F. Localized flooding has occurred in area hop, fruit and vegetable farms

G. Hops have been strung and are being trained

H. Hop prunings known as Asparagus hops are a chef delicacy and can be pickled

I. Hop prunings known as Asparagus hops are a chef delicacy and can be pickled

J. Hops are being crowned and divided on mature plantings

Photos by Brad Bergefurd, Paul Furrman, Buurma Farms, Witten Farms, Mankato Farms, Grandpop's Hops, Welch Farms

New Herbicides for Weed Control in Berry and Bramble Crops

Mohsen Mohseni-Moghadam, OSU Horticulture Science and Crop-Postdoctoral Researcher and Douglas Doohan-Professor and State Specialist

Weeds have negative effects on berry and bramble crops by competing for light, water, and nutrients. They can reduce the quality and/or yield as well as cause problems during crop harvest and serve as hosts to insects and diseases. Therefore, weed control and management is of utmost importance for berry and bramble growers. In order to achieve effective weed management in berry and bramble crops a combined approach of hand-weeding, ground cover crops, mulches, tillage practices, and herbicides is required. Weed control should start at least one year (preferably two years) before the plant is placed in the ground, during the establishment year by controlling the perennial weeds. The use of a broad-spectrum herbicide such as glyphosate (RoundUp) before planting is recommended. Preventing weed seed production, especially for the new and hard to control weeds, is a crucial part of any successful weed management program. Once the stand is established, maintaining weed control will require a series of herbicide applications in spring, summer and fall to control the annual cycles of spring, summer and fall annuals as well as perennials establishing from seed. Here we summarize some recent registrations that will be part of a complete herbicide program for berry and bramble crops. None of the herbicides mentioned below will control all weeds, and must be part of a broader program.

Zeus XC:

Zeus XC is a selective soil-applied herbicide for the control of susceptible broadleaf (i.e. redroot pigweed, common purslane, common lambsquarters), grass (e.g. green and yellow foxtail, large crabgrass) and sedge (e.g. purple and yellow nutsedge) weeds. It should be applied as a uniform broadcast soil application or a uniform band application directed to the base of the crop (e.g. blueberry, bushberry, caneberry) to provide preemergence control of weeds listed in the label.

For broadcast applications, a single application of Zeus XC should be made at 8-12 fl oz per acre (0.25-0.375 lb ai/A). When applied as a banded treatment (50% band or less), refer to the formula in the label for rate and volume. Zeus XC may be applied twice per year. Do not apply more than 12 fl oz product per acre (0.375 lb ai/A) on a broadcast application basis per year. Zeus XC should only be applied to crops that have been established for 3 growing seasons and are in good health and vigor. For best control, Zeus XC should be applied before weeds emerge. If weeds are present, tank mix with a post-emergence herbicide to eliminate emerged weeds.

Zeus Prime XC:

This is a selective herbicide that provides post-emergence contact and soil residual weed control. It may be applied as a burn-down and or preemergence application before or after weed emergence for control of susceptible broadleaf weeds. Zeus Prime XC is a 3.5 pound per gallon containing the active ingredients carfentrazone-ethyl and sulfentrazone. Zeus Prime XC should be uniformly applied as a band application directed to the base of the berry and beds in berries (avoid contact with green foliage) to provide preemergence control of weeds. For broadcast applications, a single application of Zeus Prime XC should be made at 7.7 to 15.2 fl oz per acre (0.21 to 0.41 lb ai/A). Do not apply more than 15.2 fluid ounces (0.41 lb ai) per acre per twelve month period. Zeus Prime XC should only be applied to crops that have been established for two growing seasons and are in good health and vigor. For improved weed management, Zeus Prime XC can be applied in a tank mixture with other pre-emergence and post-emergence herbicides.

Matrix:

For improved control of annual and perennial broadleaf weeds and some grasses apply Matrix SG at 4 oz/Acre. Matrix controls weeds when applied preemergence, or post-emergence. Post-emergence applications require addition of a non-ionic surfactant. Matrix can be applied tank-mixed with other herbicides labeled on the crop. Matrix tank-mixed with glyphosate and either Karmex or Princep has provided improved control of perennial weeds in trials conducted at OSU. In particular, Matrix has provided good suppression of ground ivy a species that is often a problem in brambles. Applications must be directed to avoid contact with crop stems and foliage. New growth that is sprayed with Matrix will suffer temporary crop injury. 21 day PHI. *(article continued on the next page)*

New Herbicides for Weed Control in Berry and Bramble Crops Continued...

Callisto:

For improved control of annual and perennial broadleaf weeds apply Callisto at 6 oz/Acre. Include a crop oil concentrate for post-emergence applications. Tankmixes with Princep or Karmex may improve perennial weed control. Brambles are less tolerant of Callisto than blueberry and some temporary chlorosis of new growth will occur within several days of application. Callisto should not be applied after the onset of bloom or illegal residues may occur.

Sandea:

The great strength of Sandea is post-emergence control of yellow nutsedge. In addition to nutsedge, post applications can be expected to control ragweed and pigweed. However, emerged lambsquarters and some other broadleaf weeds will not be controlled. Non ionic surfactant must be used with post sprays. For nutsedge $\frac{3}{4}$ oz/Acre is recommended. Care should be taken not to spray primocanes or foliage in general. For blueberry less than 5 years established, do not use more than $\frac{2}{3}$ oz/Acre, and do not apply if established for less than 12 months. Some blueberry varieties may be sensitive (eg. Elliot). Generally, temporary chlorosis should be expected if foliage is sprayed. 45 day PHI.

North Central Update

from Timothy Malinich, Extension Educator, Agriculture and Natural Resources, Erie County

Field Report

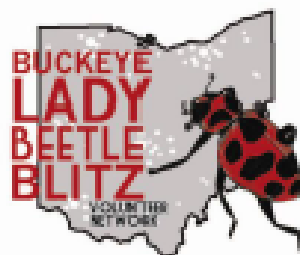
- Last week the trees finally started to move and with the current warm weather apples have gone quickly from silver tip to green tip. They will likely be half-inch green before the week is out.
- Cutting open peach buds did not go well last week as we generally found less than 50% viable in some blocks.
- Bramble canes have begun to color up and you can now easily ascertain winter killed portions from healthy.
- Last week saw rain every day keeping equipment out of the fields. Less rain is forecast this week so perhaps we will be into some of the better drained fields if we can get a couple of drying days.

Weed Control

One question came in last week that concerned longevity of weed control products. Remember that pre-emergent herbicides do not give year-long control. Herbicide labels will note the time frame that the product will actively control weeds. In fact, rates of application of some products will influence how long they will be active. If your weed control seems to be failing in June, then check to see how long your pre-emergent application was expected to last.

Very early applications of pre-emergent herbicides, though convenient, may not last as long as you would like. Other conditions that will shorten the life of pre-emergent herbicides are high organic matter content of soil, heavy rainfall, and disturbing the herbicide barrier by tilling or weeding. Make sure you have a good ID of the weeds that are a problem. Proper ID will help you to better target that weed.

Buckeye Lady Beetle Blitz & Good Garden Bugs Workshop



9:30AM – 4:00PM at three locations across Ohio!

The content presented at all three locations will be the same

WOOSTER: May 14th, 2015 at OARDC's Fisher Auditorium, 1680 Madison Ave, Wooster, OH

CLEVELAND: May 21st 2015 at the OSU Cuyahoga County Extension Office, 5320 Stanard Ave., Cleveland, OH 44103

DAYTON: May 27th 2015 at the Montgomery County Fairgrounds, 1001 South Main Street, Dayton, OH 45409

Become part of our laboratory by participating in our citizen science project

Participants can elect to participate in our 2015 Buckeye Lady Beetle Blitz Project. You will receive a toolkit and all the training needed to survey your home garden for lady beetles this summer.

Learn about good garden bugs:

Learn about the diversity of beneficial arthropods that inhabit your garden. Dr. Mary Gardiner will cover information from her new book "Good Garden Bugs" due out in spring, 2015.



Thank you to our local organizers for their help with this event!

- Jacqueline Kowalski (Cleveland)
kowalski.124@osu.edu 216-429-8200
- Suzanne Mills-Wasniak (Dayton)
mills-wasniak.1@osu.edu 937-224-9654

PRE-REGISTRATION IS REQUIRED.

Registration:

The cost for the workshop is \$20.00. Lunch will NOT be provided. Participants can bring a brown bag lunch or visit a local restaurant (a list of local options will be provided). The registration fee includes workshop attendance, beverages, and BLBB sampling kits.

Find the form on our website ladybeetles.osu.edu and send it by email to Chelsea Smith: smith.7231@osu.edu or US mail:

Chelsea Smith
1680 Madison Ave
Thorne Hall
Wooster, OH 44691

Checks should be written to "Ohio State University"

Please send your registration form in at least 3 days before the workshop you are attending.

For more information please contact: Chelsea Smith (smith.7231@osu.edu)

Learn more by visiting our website: ladybeetles.osu.edu



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER

OHIO STATE UNIVERSITY EXTENSION

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OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
OHIO STATE UNIVERSITY EXTENSION

High Tunnel Training

OSU South Centers

Hosted by Brad Bergefurd & OSU EIPM

April 27th & 28th 2015



April 27th, Day 1– High Tunnel Training

Topics include: high tunnel basic and advanced techniques on Integrated Pest Management in high tunnels, crop physiology and nutritional aspects of high tunnel production, petiole sap analysis demonstration, high tunnel greens and berry production, tomato grafting demonstration & exercise, water quality management for irrigation and fertigation in high tunnels

April 28th, Day 2– High Tunnel Facility Tour

The tour will consist of four local farm locations. We will begin at The Ohio State University, South Centers in Piketon, Ohio. Following the tour of South Centers will we load the bus to tour three local farms.

2-Day Training
Monday & Tuesday

For more information
contact:
Charissa McGlothlin
740.289.2071 ext. 132

1864 Shyville Rd.
Piketon, Ohio 45661

**Application Deadline
to apply is
Thursday, April 23, 2015**

Cost: \$50.00* per person

*the cost includes: attendance
both days, bus tour, breakfast,
lunch, and snacks on both days

To register go to
go.osu.edu/hightunneltraining2015

Note: Space for participating in this training is very limited.



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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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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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