



## **The Ohio State University Extension Vegetable Crops**

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### **Irrigation and Fertility considerations during Tomato Crop Establishment in High Tunnels-** Dr. Matt Kleinhenz Extension Specialist, OARDC, Wooster

A fast and vigorous start for the high tunnel tomato crop is everyone's goal. Proper and coordinated irrigation and fertility programs can help. However, there are limits to how much growers can 'push' the crop, especially by feeding it. Keep comments below in mind when establishing early high tunnel tomato crops.

Days are still relatively short, skies are often cloudy, temperatures (especially soil) are typically low and plants are small. Therefore, the crop's natural combined demand for water and nutrients is also low. Adding more of either rarely forces the crop more than the combined action of light and temperature may. Young crops are pre-programmed to develop rapidly. However, light and temperature drive their demand for water and nutrients during establishment.

Light and temperature affect plants differently. Light is required to capture solar energy and create building blocks for growth. Growth is a building process but it consumes energy. Growth happens when the energy captured is greater than the energy consumed. Energy capture is low at low light levels setup by cloudy and/or short days. Growth and the burning of energy (respiration) are faster at higher temperatures. Therefore, heating the high tunnel does not overcome the starving effect of low light. In fact, excessive heating during low light periods increases respiration (the burning of energy captured during photosynthesis) and may actually slow growth. Monitor air, soil, and plant conditions consistently and irrigate and fertilize accordingly.

Soil and irrigation water temperature are also important. Root growth is slower at lower temperatures whether they are created naturally by weather or by irrigating with cold water early in the season. Many high tunnels appear to be irrigated with water that is below the optimum temperature for root growth and that is minimally heated inside the tunnels before reaching the root zone. Irrigation may actually slow soil warming when cool water is applied. Therefore, growers may be heating the air but bathing roots in cool water early in the season. These conditions may suppress the demand for water and nutrients but and slow growth and establishment.

Finally, in my experience in recent years, the number of calls from high tunnel growers following “aggressive” irrigation and fertility programs during crop establishment has increased. They report that their crops are not responding as they expect and they are disappointed and looking for explanations. We discuss the situation and often conclude that their expectations of the crop were inconsistent with how crops usually behave (physiologically), how soils behave and the growing conditions. Occasionally, fertilizer applications have followed the ‘more is better’ philosophy. For fertigated tomato crops, ‘feed and water according to documented need’ may be a useful rule of thumb.

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### **Buckeye Lady Beetle Blitz 2014 Workshops – Dr. Mary Gardiner, OSU Entomology**

The Agricultural Landscape Ecology Lab is hosting three sessions of a workshop this year in May to kick off The Buckeye Lady Beetle Blitz 2014! This workshop will focus on the ‘secret lives’ of beneficial garden arthropods. You will learn about the diversity of predators, parasitoids, and pollinators that inhabit your garden. We will discuss foraging strategies, courtship, parental care of young, shelter and nest building, and much more! Many of the presentations feature excerpts and photos from the new book “Good Garden Bugs” written by Dr. Mary Gardiner due out in spring, 2015. Participants can also get involved with two exciting research projects, the Buckeye Lady Beetle Blitz and a NEW

study examining pollination services in home gardens! As part of the afternoon session, we will include an update on what we have learned from the BLBB surveys to date, a review of lady beetle identification and sampling procedures, and distribution of 2014 toolkits.

**We have three locations for this workshop:**

- May 14th, 2014 at OARDC's Fisher Auditorium, 1680 Madison Ave, Wooster, OH
- May 15th, 2014 at the Rocky River Nature Center, 24000 Valley Parkway, North Olmsted, OH
- May 16th, 2014 at the Garden Civic Center, 2715 Reading Road, Cincinnati, OH

**Registration:** We are offering early-bird registration for \$35 until May 1st.

Registration after May 1st will be \$40.

Follow this link to register: [http://ale.cfaes.ohio-state.edu/sites/gardinerlab/files/imce/Events/2014%20registration%20form\\_workshop\\_fillable3.pdf](http://ale.cfaes.ohio-state.edu/sites/gardinerlab/files/imce/Events/2014%20registration%20form_workshop_fillable3.pdf)

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**Available for Sale Through OSU South Centers: "2014 Midwest Small Fruit and Grape Spray Guide and the "Midwest Blueberry Production Guide" – Dr. Gary Gao, Berry Specialist, OSU South Centers**

OSU South Centers still has a limited number of "2014 Midwest Small Fruit and Grape Spray Guide" and the "Midwest Blueberry Production Guides" available for sale. The cost for the Midwest Small Fruit and Grape Spray Guide is \$11.85 per copy. The cost for the Midwest Blueberry Production Guide is \$20.00 per copy. To order your copy of either guides, you may contact Charissa McGlothlin at 740-289-2071, ext. 132, [mcglothlin.4@osu.edu](mailto:mcglothlin.4@osu.edu). You can also send a check directly to OSU South Centers. Please include a note of which book you need and how many you want.

Make the check out to OSU and mail it to:

OSU South Centers

Attn. Charissa McGlothlin

1864 Shyville Road

Piketon, OH 45661-9749

Credit card orders can be placed by calling Charissa McGlothin at 740.289.2071 ext. 132.

Some of our southern Ohio growers may be interested in this upcoming strawberry field day.

**Kentucky Strawberry Association Field Tour & Meeting**

Saturday, March 22, 2014

Wilson's Cedar Point Farm

66 Garfield Tarter Rd.

Nancy, KY 42544

Joel & Beth Wilson

Joel's phone: 606-305-8762

**Directions:**

From Somerset take the Cumberland Parkway west

Take the Nancy exit #78

Turn right on Hwy 80

Travel 4.5 miles and turn left onto HWY 837.

Follow for 2.2 miles to the Cedar Point Baptist Church on your left.

Turn in at the second church driveway and proceed around to the grey building.

We will meet in the cooler.

**Program (EDT):**

10:30 a.m.      Welcome and introductions

10:35            Field walk and discussion

11:30            Questions and answers with university extension entomology,  
horticulture, plant pathology specialists and other growers

Noon            Conclude

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### **New resource for airblast sprayers- From NH Vegetable and Fruit Newsletter**

For growers that currently use an airblast sprayer, or those that are considering it, there's a new resource available to help you get the most out of this equipment. Our own George Hamilton (UNH Extension Field Specialist, Hillsborough County) was a contributor to this website, and you can find his calibration videos among the resources posted on the site.

Airblast 101 is a four hour classroom-based course designed to provide participants with practical tools to allow them to apply pesticides, plant growth modifiers and foliar nutrients in an effective, economic and environmentally-responsible manner. Developed by the Ontario Ministry of Agriculture and Food and the Ministry of Rural Affairs (OMAF/MRA) and funded by Croplife Canada, this course was created to introduce a new operator to spraying, or to refresh a seasoned veteran.

Since its introduction in 2011, hundreds of operators have received a solid grounding in the basics of airblast sprayer operation, as well advanced techniques. Those that have made changes to their spray programs report significant improvement in the effectiveness of the application (i.e. improved crop quality and/or yield) and greater application efficiency (e.g. pesticide inputs reduced by ~10% or more per year and reduced environmental impact such as drift and runoff).

[The Airblast 101 website](#) hosts all the content in the participant's handbook, but also includes a library of additional resources such as:

- factsheets
- a series of sprayer-related PowerPoint presentations
- instructional videos
- articles submitted by extension and university staff across North America.

The website is a one-stop shop for airblast sprayer information, and it is free to anyone interested in improving their spray programs. For more information contact the site developer, Jason Deveau ([jason.deveau@ontario.ca](mailto:jason.deveau@ontario.ca)).

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**Upcoming Farm to School Workshops-** Carol Smathers, MS, MPH , Field Specialist, Youth Nutrition and Wellness

Are you interested in promoting Farm to School activities in your local schools and communities?

Attend a regional Farm to School Workshop to learn about supporting and developing Farm to School programs in your community!

Encourage local food service directors and producers to participate, too.

**Workshop sessions will provide information and resources on the following topics:**

- Farm to School updates at a state, regional and national level
- Purchasing Local Foods for Schools—The Cafeteria Perspective
- Food safety related to Farm to School
- Direct Marketing—Connecting producers, cooperatives, distributors with schools
- The Education Connection—Farm to School in the classroom
- Networking opportunities

**Regional Workshops:**

Region	Date	Location	Venue
Northwest	April 29	Perrysburg, OH	Hilton Garden Inn
Southwest	April 30	Mt. Orab, OH	Mt. Orab Elementary School
Southeast	June 10	Hocking, OH	The Inn at Hocking College
Northeast	September 26	Canton, OH	Walsh University
Central	October 24	Columbus, OH	Ohio 4-H Center

**For more information and registration visit:**  
**farmtoschool.osu.edu/events/workshops/**

**Please share this with your networks and remember to like the Ohio Farm to School on [Facebook](#) and check out our [events page](#)!**

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**Living the Small Farm Dream Conference** - Tony Nye and Eric Barrett, OSU Extension Educators Clinton & Mahoning counties

**Registration Extended!!**

**Date: Friday, March 21 – Saturday, March 22**

This conference is hosted by OSU Extension as part of the Ohio Small Farm Conference and Trade Show, and will be an exciting event for small farm enthusiasts in Ohio. This intensive conference will give you the opportunity to choose from seminars taught by Extension professionals and industry leaders on a wide variety of agricultural enterprises. A trade show of the many industries servicing small farms will be available throughout the 2-day event. Friday evening will be an informative session, *Small Farm Boot Camp*, which will embrace interactions between presenters and audience. [Saturday's agenda](#) will provide opportunities to attend the informative sessions of your choosing.

**For more information and to register:** <http://go.osu.edu/smallfarm2014>

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## **CROP REPORTS**

**Hops update (Wooster site):** Chelsea Smith, Research Assistant, OSU Department of Entomology

None of the plants have emerged yet (however this is not a surprise since it has been cold). Once the bines emerge and the tallest bine reaches a height of 2-3 feet we will cut back the first growth and train the second growth.

**Report from Cleveland-** Jacqueline Kowalski, Extension Educator, Agriculture and Natural Resources, Cuyahoga County Extension

Spring is finally close at hand although you wouldn't have known it this morning. High tunnel growers should have finished soil prep and should be finishing up transplanting or direct seeding cool season crops. Everyone is behind due to the weather.

**Food Safety Program Update-** Lindsey M Hoover, Coordinator, Dept of Horticulture and Crop Sciences

As the planting season gets started up, fruit and vegetable growers should keep food safety in mind. Consider testing and/or inspecting water sources such as ponds, streams or wells to make sure they do not pose a risk of contaminating produce. Start your season off right with clean and sanitary tools and equipment. Train every worker on good health and hygiene practices. Record keeping is also a great practice to maintain while prepping, planting, harvesting and while performing post-harvest activities. If you would like a more in-depth class on good agricultural practices on the produce farm, visit <http://producesafety.osu.edu/events> to find a program near you!

**Regional update from the North central/northwest- Allen M. Gahler, Extension Educator, Ag and Natural Resources, OSU Extension Sandusky County**

We will finally be above 32 degrees today and expect ground to have ½ inch of topsoil that is not frozen by late afternoon!!!

**OSU South Centers Report- Thom Harker and Ryan Slaughter, Research Assistants, OSU South Centers, Piketon, Ohio**

We have seeded tomatoes here for our grafting have seeded for the second week. High tunnel blackberries are breaking dormancy. OSU South Centers began pruning blackberries this week and local farms started two weeks ago. Plowing is being done by local farmers. Uncovered strawberries in observation plantings were defoliated with this winters repeated polar vortex weather events.





## **OSU South Centers Research Assistant, Ryan Slaughter pruning thornless blackberry field trials**



### **High tunnel blackberries are breaking dormancy**

#### **Southern Ohio Crop Update- Brad Bergefurd, OSU Extension Educator, OSU Extension Scioto County and OSU South Centers**

The past week has seen many in the fields plowing, working ground, spreading fertilizer, applying anhydrous ammonia and spreading lime. The first high tunnel tomatoes were planted over the weekend in heated high tunnels. Lime Sulfur sprays are being made to brambles. Pruning of tree fruit is in full swing. Seeding of vegetable transplants continues.

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**Disclaimer** Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions. Ohio State University Extension embraces human diversity and is committed to ensuring that all research and related educational programs are available to clientele on a nondiscriminatory basis without regard to race, color, religion, sex, age, national origin, sexual orientation, gender

identity or expression, disability, or veteran status. This statement is in accordance with United States Civil Rights Laws and the USDA. Keith L. Smith, Associate Vice President for Agricultural Administration; Associate Dean, College of Food, Agricultural, and Environmental Sciences; Director, Ohio State University Extension and Gist Chair in Extension Education and Leadership. TDD No. 800-589-8292 (Ohio only) or 614-292-1868.