

VegNet *The Vegetable and Fruit Crops Teams Newsletter*

<http://vegnet.osu.edu>

Lead Editor and Contributing Author: Brad Bergefurd
Graphic Designer & Editor: Charissa McGlothlin

In this issue:

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Cuyahoga County Crop Updates
Upcoming Events
Wayne County IPM Program: Scouting Summary
Testing Microbe-Containing, Crop Growth-Enhancing Products on Tomato Production
What's the Cucumber/Melon Downy Mildew Situation?
Southern Ohio Vegetable and Fruit Update

Cuyahoga County Crop Updates

From Jacqueline Kowalski, Extension Educator, Agriculture and Natural Resources, The Ohio State University, Cuyahoga County

Cuyahoga County has experienced above-average rainfall and high humidity for the past week. Over 6" of rain has fallen in many parts of the county since the first of June, with more predicted in the next couple of days. Ground conditions are at saturation, making field work difficult.

Pests reported in the last week are cucumber beetles on cucurbits and leaf miners on Swiss chard. Slug damage on leafy greens has also been noted. High tunnel cherry tomatoes, cucumbers, and squash are being harvested. Blueberries and raspberries also made their first appearance at local Farmers' Markets.



A. Squash and Cucumbers, Morning Side Farm

B. High tunnel tomatoes, Good Earth Farm

Photos by Jacqueline Kowalski

2015 Upcoming Events

- July 23 Hops Field Night, Wooster Ohio
Contact Charissa McGlothlin at mcglothlin.4@osu.edu to register
- July 30 Hops Field Night, Piketon Ohio
Contact Charissa McGlothlin at mcglothlin.4@osu.edu to register

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

Wayne County IPM Program: Scouting Summary

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

Fruit:

Overall both apples and peaches are still looking good although scouts did note a large increase in both European red mites and 2-spotted spider mites on some varieties of apples the last couple of weeks. Populations were large enough that miticide treatments were recommended. We are currently in between generations of codling moth and oriental fruit moth.

In the small fruit area strawberry harvest is approaching an end, while some red raspberries will soon begin harvest, and some blueberry varieties also have ripe berries. Birds are already working on some of the ripe blueberries. Grapes are developing fruit which are approximately pea-sized to a little larger at this point. Japanese beetles are showing up in grapes but any damage is below threshold at this point. Scouts are monitoring and trapping for spotted wing drosophila fruit flies and all trap counts are negative at this point.

Vegetables:

Recent rainfall events have caused in ponding in some areas of fields and lots of areas of wet, saturated soils (see photo by IPM scout Chris Smedley). As a result, scouts are seeing yellowing of plant leaves, damping off, and some dying plants. While diseases were very minimal in most vegetable fields through mid-June, the rains and higher temperature and humidity since then has kicked off some disease cycles and scouts are noting more incidences of disease during the scouting week beginning June 22. Sally Miller's announcement of downy mildew being found in SE Michigan on June 22 triggered an advisory to begin a protectant fungicide spray program on cucumbers and melons. One issue that scouts are running into is high tunnel management with tomatoes. Tomatoes are ripening and harvest is underway in some tunnels, but some growers need to work on opening up the tunnel to get more air movement and to reduce some of the high relative humidity that can be present. Scouts have noted leaf mold, early blight, sclerotinia timber rot, blossom end rot and yellow shoulder in high tunnel tomatoes. Field grown tomatoes are at flower and fruit set. Until the week of June 22, no diseases had been found by scouts in field tomatoes, however that has changed and scouts reported plants in some fields with symptoms of septoria leaf spot, early blight, and bacterial spot.
(article continued on the next page)

Onions and garlic are developing well in the majority of fields. Scouts have found yellow strip virus, a potyvirus, in garlic. A couple of onion fields have some purple blotch (alternaria), while thrips have remained below treatment threshold level, possibly due at least in part to all the rainfall events. Cole crops look good overall, although a few fields are at threshold level for imported cabbage worm.

Green snap beans are at a range of development stages as staggered planting continues. Some early plantings are just at harvest ready. Common pest problems include: bean leaf beetle leaf feeding, flea beetles, and Japanese beetles. Currently, all pests are below threshold levels. Eggplant and pepper plantings were doing well, but some saturated soils may change that status over the next couple of weeks in some fields.

Sweet corn is another crop at various development stages due to staggered planting and growth stages range from V-2 to tassel and silking. Both corn earworm and European corn borer moths are being caught in pheromone traps. European corn borer larvae feeding damage and larvae are being found, and with some fields at tassel and silking stage, the threshold level of damage has been reached and growers have been advised to spray. Japanese beetles are also present, currently at low levels in some fields.

As mentioned at the beginning of this report, cucumber and melon growers are being advised to start a protectant fungicide spray program against downy mildew. Other diseases that have shown up in vine crops include angular leaf spot, anthracnose and alternaria/target spot. Some water logged fields have plants dying back due to wet soils. Growers have treated for cucumber beetle pressure in squash, pumpkins, zucchini and melons and treatment has been effective as scouts have noted the presence of dead beetles. Other fields have reached threshold level and will need to be treated.

Many potatoes are in flower and tuber development. Colorado potato beetles is at or above threshold levels in some fields and in others control treatments have been successful in bring beetle numbers down. Potato leaf hopper numbers have remained low. In a few fields, Scouts have found some plants with black leg in fields.



Ponding and saturated soils in pepper field
Photos by Rory Lewandowski

Testing Microbe-Containing, Crop Growth-Enhancing Products on Tomato Production

from Julie Laudick, Graduate Researcher, Environmental Science Graduate Program, and Zheng Wang, Postdoctoral Researcher, Department of Horticulture and Crop Science, The Ohio State University

The application of microbes to soils and crops using commercial inoculants is increasing. Some microbe-containing products are advertised to enhance crop growth while lessening the need for various inputs, such as fertilizer. However, selecting products and verifying that they work can be difficult, partly because reliable, research-based information on products is limited. In the May 4, 2015 issue of VegNet, we introduced a searchable, sortable, user-friendly database including key information on 150 commercial microbe-containing products (MCPs) advertised to enhance crop growth (http://hcs.osu.edu/vpslab/organic_microbe-based_products).

We also recently began to evaluate the performance of four MCPs on four Ohio vegetable farms and at the OARDC in Wooster. Support from the Paul C. and Edna H. Warner Endowment Fund for Sustainable Agriculture made the experiment possible. In recent weeks, simple, water-based solutions containing the commercial inoculants were applied to tomatoes at transplanting as a root drench. Going forward, the growth and yield of inoculated and non-inoculated control plants will be monitored and compared.

More information on the product evaluation is available. Check future issues of VegNet, see the project webpage at http://organicfarmingresearchnetwork.org.ohio-state.edu/network_activities/evaluation_of_microbe-based_products/ or contact a project team member: Julie Laudick (laudick.15@osu.edu), Zheng Wang (wang.2735@osu.edu), or Matt Kleinhenz (kleinhenz.1@osu.edu).



A. Products used in the spring 2015 tomato study

B. Application of treatments to transplants via root drench at OARDC in Wooster

Photos by Julie Laudick & Zheng Wang

What's the Cucumber/Melon Downy Mildew Situation?

Sally Miller, Department of Plant Pathology, The Ohio State University

Last year downy mildew appeared on cucumbers considerably later than in previous years. The table shows the dates and locations of first Ohio reports in 2014 vs. 2013. Even in 2013, downy mildew appearance was later in some counties than previously. The first report of downy mildew on cucumbers generally occurred around the 4th of July in the northern third of Ohio.

Cucurbit	First Report 2013	First Report 2014
Cucumber	July 3	Aug 15 (Wayne); Aug 25 (Huron)
Cantaloupe	August 2	Sep 8 (Clark)
Pumpkin	August 19	Sep 3 (Ross)
Watermelon	August 22	?
Squash	?	Sep 12 (Guernsey)

We don't know why downy mildew appeared later than "usual". Weather conditions were generally favorable in both 2013 and 2014 in early summer. However, it is possible that better control of early sources of inoculum in the Great Lakes Region may be slowing spread of the disease. **There have been no reports of cucurbit downy mildew north of North Carolina to date.** However, given the gravity of a downy mildew outbreak in cucumbers, and to a slightly less extent, melons, cucumber and melon growers in the northern third of Ohio and especially in the lake counties should start the following this week:

1. SCOUT cucumber and melon fields for symptoms. Early symptoms on cucumbers are yellowish angular lesions on the tops of the leaves. Lesions on melon leaves are less angular than on cucumbers. A downy mold growth with tiny dark purple/black specks may be seen on the underside of the leaves.
2. SEND downy mildew-suspected samples to the OSU Vegetable Pathology Lab (http://www.oardc.ohio-state.edu/sallymiller/t08_pageview3/Diagnostics_Services.htm; miller.769@osu.edu or 330-263-3678) for confirmation. There is no charge for diagnosis of vegetable diseases from Ohio growers. Samples may also be dropped off at OSU-OARDC facilities: Wooster Campus (234 Selby Hall); the North Central Agricultural Research Station in Fremont; the Western Research Station in Urbana; and the Muck Crops Experiment Station in Celeryville.
3. FOLLOW me on Twitter @OhioVeggieDoc for reports of downy mildew in Ohio; tweets will direct you to more information and recommendations on u.osu.edu/miller.769 – Ohio Veggie Disease News. You can also see forecasts and sign up for alerts on downy mildew throughout the US on the Cucurbit Downy Mildew IPM PIPE website <http://cdm.ipmpipe.org/> (don't use Chrome for your web browser for this site).
4. TREAT cucumbers and melons preventatively with fungicides. Given the recent rainy weather, you should be applying a protectant fungicide to prevent anthracnose, gummy stem blight and other diseases. Add the downy mildew fungicides once the disease starts moving in the Great Lakes Region. See the Midwest Vegetable Production Guide for more details. (article continued on the next page)

Fungicide application:

General protection: Apply Bravo, Manzate, Dithane or other broad-spectrum protectant fungicide on a 7-10 day schedule to prevent a number of diseases.

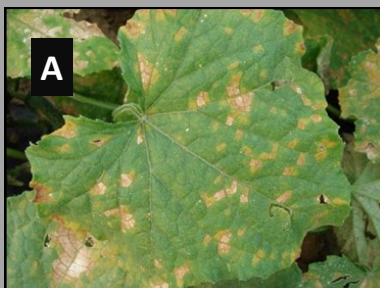
Protection before downy mildew appears but is “on the move” in the Great Lakes Region:

Apply one of the following fungicides on a 7-10 day schedule, tank mixed with Bravo, Manzate or Dithane: Presidio, Ranman, Previcur Flex, Tanos, Curzate, Gavel (Gavel already contains mancozeb), Zampro or Omega (melons only). Alternate products. The application interval can be lengthened under dry conditions. Use the shorter interval under cool, moist conditions.

Management after disease appears: Apply one of the following fungicides on a 5-7 day schedule, tank-mixed with Bravo or Dithane: Presidio, Ranman, Previcur Flex, Zampro or Tanos. Alternate products. The application interval can be lengthened under dry conditions. Use the shorter interval under cool, moist conditions. See product labels for fungicide rates.

Always tank mix targeted fungicides with a protectant fungicide and alternate targeted fungicides with different modes of action (see FRAC Codes below). Note that the fungicides recommended above have different pre-harvest intervals (PHI). Keep this in mind when fungicides are applied after harvesting begins. Note also that some fungicides have plant-back restrictions that may affect decisions regarding crop rotations.

Product	PHI (days)	FRAC Code	Comments
Chlorothalanil e.g. Bravo Weather Stik	0	M5	Protectant; tank mix with targeted fungicides below
Mancozeb e.g. Dithane or Manzate	5	M3	Protectant; tank mix with targeted fungicides below
Ranman	0	21	No reports of reduced efficacy
Previcur Flex	2	28	Reduced activity suspected in some Ohio counties
Tanos	3	11 + 27	Up to 2 days curative activity but low residual (3-5 days)
Gavel	5	22	Contains mancozeb
Presidio	2	43	Likely resistance in some CDM populations
Curzate	3	27	Up to 2 days curative activity but low residual (3-5 days)
Zampro	0	40 + 45	No Ohio data; moderate efficacy in Eastern US
Omega 500F	30	29	Use only for Cucurbit Vegetables Subgroup 9A – includes muskmelons/cantaloupes/honeydew; use early for protection: note 30 day PHI



- A. Cucumber downy mildew
- B. Cantaloupe downy mildew
- C. Underside of cucumber leaf showing downy mildew sporulation

Photos by Sally Miller

Southern Ohio Vegetable and Fruit Update

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

What a difference a week makes? Many southern Ohio areas that were irrigating and experiencing drought like conditions on June 15 received upwards to 10.5 inches of rainfall from June 16 to the 20th which caused severe flood damage, onset of disease, and flush of weed growth. Needless to say irrigation pumps have been shut down this week.

There was a dry spell the afternoon and evening of June 24 allowing for ground to be worked and planting of sweet corn, pumpkins, tomatoes, melons, squash and beans to resume.

Sidedressing of Nitrogen and cultivation also is being conducted during this dry spell into the wee hours of the morning with more rain forecasted for this week.

Sweet corn harvest began in the Lowel (Marietta) area last week with harvest increasing this week. Strawberry harvest came to an abrupt end on late maturing varieties when the storm front and high heat approached the area on Saturday, bringing with it 3 to 5 inches of rain in less than 24 hours.

High tunnel tomato harvest continues but the high temperatures and disease are beginning to take its toll on plant health and quality though many farms have already topped out the plants and will be transitioning from high tunnel to field harvest soon. Harvest of zucchini and yellow squash continues with the high temperatures causing a spike in harvest resulting in lower than average wholesale market prices. Cucumber harvest has increased with market demand and price remaining fairly strong,

Other crops being harvested include blackberries, blueberries, black raspberries, high tunnel tomatoes, lettuce, potatoes, cucumbers, radishes, leafy greens, zucchini, yellow squash, cucumbers, late maturing varieties of strawberries and sweet corn.

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

Watermelon, cucumber and cantaloupe are in full bloom with a heavy fruit set. Vine training is being done weekly to keep plants out of the row middles. Pumpkin planting is finishing up the week of June 22 with early plantings approaching vine tip.

Planting and transplanting of all vegetable and melon crops continues. 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 continues.

Nutrient deficiencies continue to be reported on hops and vegetables where Nitrogen has leached under isolated heavy rainfall events. (article continued on the next page)



A. Black raspberry harvest has begun in southern Ohio



B. The OPGMA Summer Tour held in Wooster was a huge success on 6.24

Photos by Brad Bergefurd



C. Rainfall the week of 6.15 caused severe flooding damage in southern Ohio
 D. Sweet corn harvest began on June 18 in the Lowell area
 E. Strawberry harvest continues in Doylestown, Ohio
 F. Cherry harvest continues throughout Ohio
 G. Pumpkins are beginning to vine tip with the last plantings going in week of 6.21
Photos by Brad Bergefurd, Bob Peterson, & Witten Farm



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COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

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Editor, **Brad Bergefurd**

Bergefurd.1@osu.edu
740.289.2071 Ext. 136

Graphic Designer and Editor, **Charissa McGlothlin**

McGlothlin.4@osu.edu
740.289.2071 Ext. 132

<http://vegnet.osu.edu/newsletter>

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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