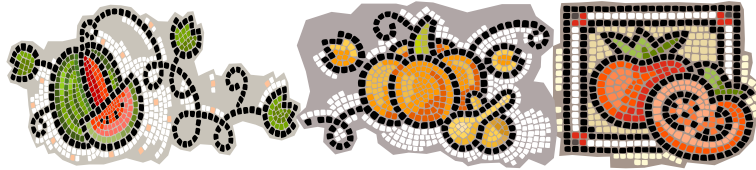


VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the Purdue University Cooperative Extension Service

Dan Egel, Editor
4369 N. Purdue Road
Vincennes, IN 47591
(812) 886-0198
egel@purdue.edu



<<http://www.btny.purdue.edu/pubs/vegcrop>>

No. 543
August 19, 2011

IN THIS ISSUE

- 'PUFFINESS' IN TOMATO FRUIT
- DOWNY MILDEW OF CUCUMBERS
- PHYTOPHTHORA BLIGHT OF CUCURBITS
- BACTERIAL FRUIT BLOTCH OF WATERMELON
- MEIGS TWILIGHT TOUR
- SUGGESTIONS FOR WINTER MEETINGS
- NATIONAL FARMERS MARKET DIRECTORY
- THANK A FARMER THURSDAYS

'PUFFINESS' IN TOMATO FRUIT - (Liz Maynard) -

Sometimes a sliced tomato shows open areas in one or more locules where gel is missing (see Figures 1 & 2). Close inspection may show that there are few seeds or poorly developed seeds in the affected part. Externally, the wall of the tomato in those areas may look flat, giving the tomato an angular appearance. The fruit may be light for its size. This deformity is called 'puffiness.' It has been linked to a variety of factors that can reduce pollination, fertilization of the ovules, and seed development. These include low light, high nitrogen, and high temperature. In Indiana this summer, high temperature is probably the cause.



Figure 1: Tomato fruit with slight puffiness. Arrows point to flattened side wall visible externally and corresponding lack of gel inside the fruit. (Photo by Liz Maynard)



Figure 2: Tomato fruit showing lack of gel development and corresponding lack of seed development in some locules. (Photo by Dan Egel)

DOWNY MILDEW OF CUCUMBERS - (Dan Egel and Liz Maynard) - This disease has been reported on cucumbers in LaPorte County Indiana. This is the first report of downy mildew in Indiana in 2011. The strain of the fungus that affects cucumber may also affect other cucurbits such as muskmelon, watermelon and pumpkin. However, it is also possible that the particular strain of the downy mildew fungus found in LaPorte may affect just cucumber. Therefore, all cucurbit growers should scout their fields for symptoms of downy mildew (see Figure 3, next page) and growers with valuable cucurbit crops may want to consider a specialized fungicide that is labeled and effective against this fast moving disease. More information can be found in the ID-56 <http://www.btny.purdue.edu/Pubs/ID/ID-56/>, the extension bulletin BP-140-W <http://www.ces.purdue.edu/extmedia/BP/BP-140-W.pdf> and previous *Vegetable Crops Hotline* issues including number 540 <http://www.btny.purdue.edu/pubs/vegcrop/index2011.html>. An Internet site devoted to tracking the movement of downy mildew of cucurbits across the eastern U.S. can be found at <http://cdm.ipmpipe.org/>. Currently, downy mildew of cucurbits can also be found in Michigan, Wisconsin, Ohio and Kentucky.

Note that many of the specialized products for downy mildew are not labeled for other diseases that may occur on cucurbits. Exceptions are Tanos[®], which is labeled for downy mildew as well as Alternaria leaf blight and anthracnose and Gavel[®] which is also labeled for downy mildew, Alternaria leaf blight and Phytophthora blight. More information about the fungicide Gavel[®], which is now labeled on pumpkin, may be found in issue number 542 of the *Vegetable Crops Hotline*.



Figure 3: Downy mildew of cucurbits can be recognized by the 'fuzzy' dark growth of the fungus on the bottom of leaves under moist conditions. Shown here is a cucumber leaf. (Photo by Dan Egel)



PHYTOPHTHORA BLIGHT OF CUCURBITS - (Dan Egel) - This disease has been observed in the southwestern portion of Indiana on watermelons and in central Indiana on pumpkins. An article on management tips appeared in issue number 538 of the *Vegetable Crops Hotline* <http://www.btny.purdue.edu/pubs/vegcrop/VCH2011/VCH538.pdf>. The appearance of Phytophthora blight is due in part to heavy rains that have occurred in portions of Indiana. Fields with poor drainage are more likely to be affected with this disease. Note that Phytophthora blight may spread from plant to plant within a field with a rain event. However, Phytophthora blight will not spread as far as downy mildew of cucurbits, which may spread on wind currents many miles. See *Vegetable Crops Hotline* issue number 541 <http://www.btny.purdue.edu/pubs/vegcrop/VCH2011/VCH541.pdf> to learn about the spread of plant diseases. Please contact Dan Egel with questions about this disease.



BACTERIAL FRUIT BLOTCH OF WATERMELON - (Dan Egel) - This disease has been observed in several different locations in southwest Indiana on different cultivars of watermelon. The disease is often not recognized until large, irregularly water soaked areas on the top surface of the watermelon are observed (see Figure 4). Although the initial lesion is limited to the surface of the fruit, infection by secondary organisms may cause the fruit to crack and decay. Necrotic lesions on the leaves are not economically important and are easily missed during scouting.

Bacterial fruit blotch is favored by warm, rainy weather. My observations have been that even small amounts of rain and dew can lead to severe infections. Fruit infections usually take place when the fruit is about 14 days post pollination. After the fruit becomes covered with waxy excretions from the plant, pores on the fruit are covered and further infections are unlikely.

Transmission of bacterial fruit blotch through the seed has been well documented. Transplants should be inspected upon arrival or during growth. Avoid saving seed from fields where the disease has been documented.

The bacterium that causes bacterial fruit blotch may also affect other cucurbits such as muskmelon and pumpkin. This bacterium, however, does not survive well in the soil. A 2 to 3 year crop rotation should prevent the disease from occurring in the next crop in that field. Applications of a fixed copper product may help to limit the spread of this disease within a field.



Figure 4: Bacterial fruit blotch causes a large water-soaked area on the surface of the watermelon. (Photo by Dan Egel)



MEIGS TWILIGHT TOUR - (Liz Maynard) - The Purdue Horticultural Crops Research Twilight Tour at the Meigs Research Farm on August 10 was a great opportunity to meet students and faculty and see current research projects. There was so much to see each wagon could only visit two of the three stops. I got to see High Tunnel Research and Organic and Low-Input Vegetable Production, but missed the Perennial Fruit and Heirloom Tomatoes.

At the high tunnels, Krystyna Hyrczyk, student with Dr. Roberto Lopez, reported that cut flower production looked like a promising opportunity if the right species are selected. Sarah Thompson, student with Dr. Rick Foster, reported on insect pests found on tomatoes and cucumbers in high tunnels compared to in the field. She made it clear that tunnels don't eliminate the need to scout for insects, and some insects may be found in higher numbers in the tunnels. Matt Rudisill, student with Dr. Lori Hoagland, is comparing composted chicken manure, alfalfa meal, and urea as sources of nitrogen. He is looking at how they affect the growth of Swiss chard as well as how they influence soil microbiological activity.

Out in the field, Dr. Steve Weller provided preliminary results from weed competition studies in snap beans done by student Jorge Alberto Reyes: if weeds are kept out of the beans for 3 weeks there doesn't appear to be yield reduction. Dr. Ian Kaplan explained how he is testing to see whether beneficial insects can be attracted into crop fields using plant-derived compounds as attractants. Dr. Lori Hoagland and collaborator Dr. John Novazio from Washington State introduced tomato and carrot variety improvement projects (see Figure 5). These projects will develop improved varieties that perform well in organic and low-input systems. As the projects get underway they will be looking for growers interested in participating in variety development. Dr. Kevin Gibson is comparing how crop rotations, tillage, and the level of weed control influence the number of weeds seeds in the soil in an organic system. In the same plots, other researchers are looking at effects on insects, plant disease, and soil.

There is always a lot of interesting work going on at Meigs, but I was especially excited to see all the different projects and so many people involved. In the last few years Purdue has hired several new faculty to work in horticultural crops, constructed high tunnels at Meigs, and designated organically managed areas at Meigs. This twilight meeting showcased the beginnings of projects that have resulted from those investments. I look forward to seeing the benefits to growers as project results become part of the toolbox for vegetable, flower, and fruit production in Indiana.



Figure 5: Dr. Lori Hoagland evaluates tomatoes for variety improvement at Meigs Horticulture Research Farm. (Photo by Liz Maynard)



WE NEED YOUR SUGGESTIONS FOR WINTER MEETINGS - Purdue staff and grower associations are beginning to plan the program for the Indiana Horticultural Congress (Jan. 17 - 19, 2012), the Illiana Vegetable School (Jan. 5, 2012), and other winter meetings. Please help us with your suggestions for topics.

1. What issues have come up this season that you'd like to hear more about?
2. What new technologies, crops, or marketing strategies have you heard about that you'd like more information on?
3. Have you heard an excellent speaker somewhere we should bring to Indiana?
4. Is there a vegetable grower you'd like to hear talk about his/her operation?

Call, fax, or e-mail your suggestions. Thanks! Phone: (219) 531-4200 ext 4206; Fax: (219) 462-4828; e-mail: emaynard@purdue.edu.



NATIONAL FARMERS MARKET DIRECTORY - The annual U.S. Department of Agriculture's 2011 National Farmers Market Directory indicates a total of 7,175 farmers markets operate throughout the United States as more farmers are marketing their products directly to consumers than ever before. Last year, the USDA reported that 6,132 markets were operating across the country. Indiana has 171 markets according to the annual report, up 37% since last year. If you are interested in being listed in the Farm Market directory contact Dan Egel.



THANK A FARMER THURSDAYS - The Michigan City School Corporation in partnership with Purdue Extension is making an effort to highlight locally grown foods in student school lunches this year. Each Thursday, our goal is to have at least 1 locally grown fruit or vegetable as a component in all Michigan City Elementary School lunches. During the lunch period, education information on things such as how the food was grown, the farm, the farmer, different ways of the preparing the food, etc., will be given. Our goal is to educate LaPorte County youth on where their food comes from and healthy eating choices.

If you are interested in having your produce feed the students of LaPorte County please contact Amanda Chraca (achraca@purdue.edu) at the LaPorte County Extension Office (219) 324-9407.