

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



No. 526
July 23, 2010

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

IN THIS ISSUE

- LATE BLIGHT OF TOMATO IN WAYNE COUNTY
- PHYTOPHTHORA BLIGHT
- WESTERN BEAN CUTWORMS IN SWEET CORN
- BACTERIAL SPOT ON PEPPER
- DOWNY MILDEW OF CUCUMBER AND MUSKMELON
- CLEAN SWEEP PROJECT

LATE BLIGHT OF TOMATO IN WAYNE COUNTY - (Dan Egel) - *The following article was written as a Vegetable Crops Hotline - BULLETIN, July 16, 2010* Late blight was confirmed on a tomato plant in Wayne County, Indiana on July 16. Wayne County is in eastern Indiana and borders Ohio. Previously, late blight of tomato was reported in Dearborn County Indiana on June 30. (*Vegetable Crops Hotline* issue no. 523 <<http://www.btny.purdue.edu/pubs/vegcrop/VCH2010/VCH523.pdf>>). Late blight of potato has been confirmed in southern Michigan as of July 1 (*Hotline* issue no. 524 <<http://www.btny.purdue.edu/pubs/vegcrop/VCH2010/VCH524.pdf>>). Please see *Vegetable Crop Hotline* issue no. 525 for information on biology and management of late blight. Please contact Dan Egel at (812) 886-0198, egel@purdue.edu with questions.



PHYTOPHTHORA BLIGHT - (Dan Egel) - As I write this, the weather radar shows thunderstorms marauding across much of Indiana. While I don't know the statistics yet, it seems to me that much of Indiana has seen too much rain. Perhaps no disease is spread by rain as easily as Phytophthora blight (pronounced fy-tóp-thor-a). The crops that have been observed with this disease in 2010 include pumpkin, watermelon, cucumber and pepper. Read on to find a discussion of the biology, symptoms and management of Phytophthora blight. (Late blight of potato and tomato is caused by a different species of Phytophthora with different symptoms and a different host range.)

Often the symptom one first notices of this disease is the appearance of clusters of dying plants or vines in the field. The outbreaks almost always start in low-lying areas in the field where plant surfaces tend to remain wet for extended periods of time whether the moisture

is in the form of rain or dew. Pumpkin fruit are especially prone to infection where moisture accumulates-at the top of the pumpkin, close to where the fruit is attached to the stem, or toward the base of the fruit (Figure 1). The lesions on watermelon fruit are often toward the underside of the fruit (Figure 2). Pepper plants are often seen dying in low-lying areas (Figure 3).



Figure 1: The white Phytophthora fungus can be seen toward the bottom of this pumpkin where moisture accumulates. (Photo by Dan Egel)



Figure 2: Phytophthora blight lesions on watermelon are large and water-soaked; the white mold observed here is the Phytophthora fungus. (Photo by Dan Egel)



Figure 3: Pepper plants in a low area of the field are dead due to Phytophthora blight. (Photo by Dan Egel)

Management options - Avoid poorly drained fields, especially those with a history of the disease. The use of raised beds can help control this disease in some crops. Limit overhead irrigation as much as possible. Fumigation has been effective in some cases. Reservoirs or rivers can be contaminated with *Phytophthora* from the run off of nearby fields. If such waters are used for overhead irrigation, *Phytophthora* blight may result. Use crop rotations of at least 4 years without crops in the pepper or cucurbit families. Only crops in the grass family such as wheat or corn are truly resistant.

Fungicides can be used to lessen the impact of *Phytophthora* infection, but it is an uphill battle. Contact fungicides may offer moderate protection if used as part of a season long program against *Phytophthora* blight and other diseases. Contact fungicides include chlorothalonil (e.g., Bravo®, Echo®, Equus®). However, systemic fungicides will have more impact against this disease. Systemic fungicides include dimethomorph (e.g., Acrobat®, Forum®), cyazofamid (Ranman®) and fluopicolide (Presidio®). Tanos® is labeled for suppression of *Phytophthora* blight as well as anthracnose of watermelon. No fungicide will provide adequate control without also using the cultural controls discussed here. When deciding to use fungicides to combat *Phytophthora* blight, remember that fungicides will only protect healthy plants. Fungicides are best used at the start of an epidemic.

Phytophthora blight is difficult to deal with, and must be managed with all available resources over a period of time. Do everything you can to avoid an early season outbreak that may jeopardize your other crops, and don't rely only on fungicides for control. In some cases, it may make sense to plow under a field or part of a field with *Phytophthora* blight to protect nearby fields.



WESTERN BEAN CUTWORMS IN SWEET CORN - (Rick Foster) - Our pheromone traps have caught large numbers of western bean cutworm moths in northwest Indiana in recent weeks. We are past the peak of moth activity, but damage from the larvae is now appearing. For more information about how to scout for western bean cutworms in corn, go to <<http://extension.entm.purdue.edu/pestcrop/2010/index.html>> and watch the video in Issue 17 of Purdue's Pest & Crop Newsletter. That video is for scouting field corn, but sweet corn should be scouted the same way.

The western bean cutworm has historically been a pest of dry beans and corn in Colorado, Nebraska and other western states. A few years back, for some unexplained reason, they began to move their range eastward. In 2006, the first year we put out pheromone traps to see if this pest had reached Indiana, we caught moths in the northwestern corner of the state. Since

then, trap catches have increased and the range has spread. In 2009, we saw damage in corn (field, seed, or sweet) in a number of counties in the northern third of Indiana.

Western bean cutworm has a single generation per year. Moths become active in late June and continue to fly and lay eggs through July. Eggs are laid in masses. Larvae will enter the ear through the tip or through the side.

Although the chances of having an economic infestation of western bean cutworms in your sweet corn is much less than having a corn earworm infestation, growers in the northern third of the state should be watching for damage now. If you see damage, you should probably treat with one of the pyrethroid insecticides (Warrior®, Brigade®, or Mustang Max®) that you would use for earworm control. Corn earworm moth catches are relatively low (< 10 moths per night) in most areas of the state so most growers would not normally be applying insecticides at this point. If you see western bean cutworm activity or damage in your sweet corn (Figure 1), it would be advisable to make one or more applications to your silking sweet corn.

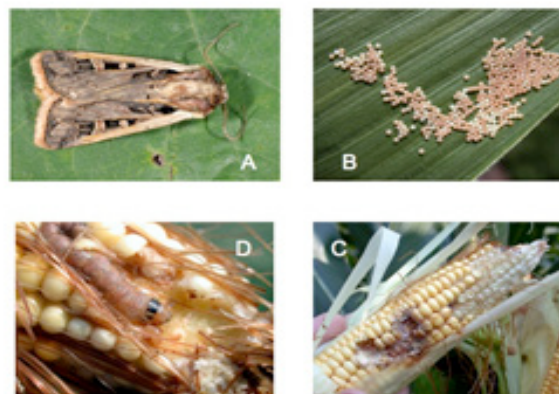


Figure 1: Life stages and sweet corn damage due to the Western Bean Cutworm. A-adult moth, B-eggs, C-feeding damage may occur in the middle of the ear, D-close up of the larval stage feeding. (Photos by John Obermeyer)



BACTERIAL SPOT ON PEPPER - (Dan Egel) - This disease has been severe in some fields this year. In one instance, I observed lesions on pepper fruit, which is an unusual occurrence in Indiana. Bacterial spot of pepper may or may not go to tomato and will not affect pumpkins.

Bacterial spot - Symptoms of bacterial spot include irregularly shaped water-soaked spots on leaves (Figure 1). These spots may eventually turn brown. Large numbers of spots may coalesce and cause large brown areas on leaves. In severe cases, defoliation may occur. Similar lesions may be observed on fruit, making the fruit unmarketable (Figure 2).



Figure 1: Bacterial spot of pepper causes irregularly shaped lesions on leaves with some chlorosis (yellowing). (Photo by Dan Egel)



Figure 2: Under severe conditions, bacterial spot can cause lesions on pepper fruit. (Photo by Dan Egel)

This disease is caused by a bacterium that is spread from plant to plant by rains or overhead irrigation. Bacterial spot is favored by warm weather. The bacterium may survive in plant debris or in infested seed.

Management methods include:

- Growers should scout fields and transplants for symptoms of bacterial spot of pepper. Symptoms will be more severe in fields that have not had at least a 3-4 year crop rotation.
- Applications of a fixed copper product will help to slow spread of the disease. Actigard® is now labeled for this disease; however, I have some reservations about this product possibly causing some yield loss to pepper plants under stress (See *Hotline* issue no. 513). Growers who have had yield losses due to bacterial spot may not mind risking possible yield loss due to Actigard®.
- Finally, several pepper varieties have resistance to one or more races of the bacterial spot pathogen. Always use varieties that have resistance if possible. See the *Midwest Vegetable Production Guide for Commercial Growers 2010* (ID-56) <<http://www.btny.purdue.edu/Pubs/ID/ID-56/>> for more information.



DOWNY MILDEW OF CUCUMBER AND MUSKMELON - (Dan Egel) - This disease continues to be found in Ohio, Michigan and Wisconsin, but has not been reported in Indiana to date. Downy mildew of muskmelon has been observed in western Ohio. Cucumber growers, especially those in northern Indiana, should consider fungicide treatments. See *Hotline* issue no. 524 for more information. An extension bulletin about downy mildew of pumpkin can be found here <<http://www.ces.purdue.edu/extmedia/BP/BP-140-W.pdf>>.

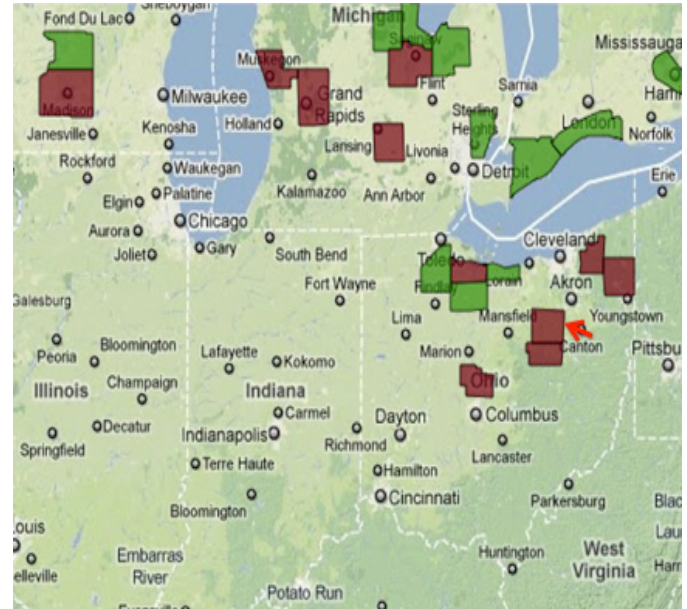


Figure 1: Current status of downy mildew of cucurbits. Recent outbreaks are in red. All outbreaks are cucumber except for the arrow which is muskmelon. <<http://cdm.ipmpipe.org/scripts/map.php>>



CLEAN SWEEP PROJECT - (Dan Egel) - The Indiana State Chemist is again giving pesticide handlers a chance to get rid of suspended, canceled, unusable or just unwanted pesticides. This service is free of charge up to 250 lb. per person. All growers and dealers are invited. Products will be collected 9 a.m. to 3 p.m. at the following county fairgrounds: Knox County (3 Aug) Bicknell; Tippecanoe County (5 Aug) Lafayette; LaPorte County (10 Aug) LaPorte; Fayette County (12 Aug) Connersville. Participants must have a Planning Form filled out. Contact Kevin Neal at 765-494-4331 or your Purdue University County Educator for a form or more information.

