Cucumber Downy Mildew Spreading in Northern Ohio

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Downy mildew is now confirmed in cucumbers in six northern Ohio counties (Henry, Sandusky, Ottawa, Geauga, Ashtabula and Huron). The Ashtabula and Geauga county confirmations were made on July 14, but the disease was first noticed about July 7. In Huron county, cucumbers on the OSU-OARDC Muck Crops Research Station were diagnosed with a very low incidence of downy mildew on July 14. Downy mildew was confirmed in the other counties in late June or early July. The dry weather of the past week has likely slowed development and spread of downy mildew within those counties and to other counties, but cucumber growers in northern Ohio should use the highly effective fungicides (see below) in a rotation that includes fungicides with different modes of action as well as protectant fungicides. Cucumber growers in Central and Southern Ohio should continue to watch for reports of downy mildew nearby and maintain a protectant fungicide spray program.

What about other vine crops? We have not had any confirmed reports of downy mildew in any vine crops in Ohio except cucumbers. The next most susceptible vine crop after cucumber is muskmelon, followed by pumpkin and other squashes and watermelon.

**Downy Mildew Fungicide Recommendations - Cucumbers:**

These recommendations are for cucumbers, which are highly susceptible to downy mildew. A less intense fungicide program may be necessary for other vine crops.

Protection before disease appears (downy mildew is not present in your county/growing area): Apply one of the following fungicides on a 7-10 day schedule: chlorothalonil (e.g. Bravo Weather Stik) or mancozeb (e.g. Manzate or Dithane). The application interval can be lengthened under dry conditions. Use the shorter interval under cool, moist conditions.

Protection before disease appears (downy mildew is in your county/area but not in your fields): Apply one of the following fungicides on a 7-10 day schedule, tank mixed with Bravo, Manzate or Dithane: Gavel, Previcur Flex, Tanos, Ranman, Curzate or Presidio. 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: Previcur Flex, Tanos, Ranman or Presidio. Alternate products. The application interval can be lengthened under dry conditions. Use the shorter interval under cool, moist conditions.

Note that the fungicides recommended above have different preharvest intervals (PHI). Keep this in mind for fungicides applied after harvesting begins.

<table>
<thead>
<tr>
<th>Product</th>
<th>Efficacy</th>
<th>Rate</th>
<th>PHI (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presidio</td>
<td>++ ++++++</td>
<td>3.0-4.0 fl oz 4SC/A</td>
<td>2</td>
</tr>
<tr>
<td>Ranman</td>
<td>++ ++++++</td>
<td>2.1–2.75 fl oz 400SC/A plus an adjuvant</td>
<td>0</td>
</tr>
<tr>
<td>Previcur Flex</td>
<td>++ +++++</td>
<td>1.2 pt 6F/A</td>
<td>2</td>
</tr>
<tr>
<td>Tanos</td>
<td>++ +++++</td>
<td>8.0 oz 50WDG/A</td>
<td>3</td>
</tr>
</tbody>
</table>
Controlling weeds in cucurbits with Sandea by D. Doohan

In the past week I have had a number of calls about using Sandea postemergence (POST) in pumpkins and other cucurbits. From these conversations I’ve learned that many growers are afraid to put Sandea over the top of pumpkins, in particular, and of those who do use it, POST, most do not include surfactant. There is no justification in my opinion for this degree of caution. Literally hundreds of plots testing Sandea on cucurbits have been conducted throughout the US with many of those in Ohio. In the many cases conducted in Ohio the highest trap counts have been in plots not using a non-ionic surfactant. In other words if you are using Sandea POST and not using a surfactant you are likely going to get a much lower population. The growers who are not using surfactant are comparing their results with plots that use a surfactant, and that is not a fair comparison. If you are not using a surfactant you are not controlling weeds. The label recommends using a non-ionic surfactant with Sandea.”

Please note this Quicktime movie is not available in the Flash player on the top of the page but in the right hand column just below the flash player.

Western bean cutworm on sweet corn by Dr. C. Welty

Editor’s Note: The information below is also available in a Quicktime movie slide show; New Pest Alert for Sweet Corn. Western Bean Cutworm with more illustrations at the VegNet website: http://vegnet.osu.edu

What are control options for western bean cutworm?

• Inspect sweet corn tassels weekly for Western Bean Cutworm signs. If more than one egg mass is found, control is recommended. Control is most effective after about 50% of tassels have emerged. Apply the alternate product or tank mix within 14 days of applying Sandea. Do not make more than two consecutive applications of Quintec.

• Rate of Quintec is 4-6 fl oz per acre. See the label for all details, restrictions and crop rotations.

Western bean cutworm does not have these marks, but the corn earworm does.

• Sandea will not control all weeds, and is not a contact sprayer. Sandea POST is an important component in a weed control program that includes cleaning up perennials before planting, using crop rotation to reduce the soil weed seed bank, PRE herbicides such as Strategy, or Dual (in the case of pumpkins), cultivation, and grass control with POST herbicides if needed. However, Sandea will not control all weeds, and is not a stand-alone treatment.

• Sandea POST will not provide complete weed control; its strengths are excellent nutsedge, cocklebur, galinsoga, pigweed, ragweed, smartweed and velvetleaf control.

What are control options for western bean cutworm?

• Insecticide can be used if the threshold is exceeded. Insecticide is most effective if applied at the time when eggs are hatching. Eggs turn purple (Figure 4b) when they are ready to hatch. Insecticide for this pest is most effective if applied when about 90% of tassels have emerged. As for the choice of insecticide, any of the pyrethroids or Penncap-M or Sevin are effective. The pyrethroids are Warrior, Capture, Brigade, Baythroid, Mustang Max, Asana, and Pounce. Another tactic of pest management on corn is the use of transgenic varieties that contain the BT toxin. Attribute® varieties of sweet corn and YieldGard® varieties of field corn are NOT effective in control of western bean cutworm, although they are very effective for control of other species of worms. The Herculex® field corn transgenics are effective for western bean cutworm control, but currently this event is not available in sweet corn varieties. Please alert me or your local county extension educator if you find this pest in your sweet corn, so that we can track its spread in Ohio. Images:
Yellow vine disease on squash, pumpkins, and melons by Dr. C. Welty

Yellow vine is a relatively new disease of vine crops that was first verified in Ohio in 2003 and has been seen sporadically since then. This disease has been known in Kentucky, Oklahoma, and Texas for about 18 years. Studies in Oklahoma have determined the causal organism and its insect vector. The causal organism is *Serratia marcescens*, which is a common bacterium that is not typically a plant pathogen. The vector is squash bug. Squash bug is a well-known pest of squash but never known to be a disease vector until now.

The symptoms of yellow vine are a sudden yellowing of a plant followed by plant collapse and death, usually in late July. There is a period of at least 28 days between infection and appearance of symptoms. Symptoms can be confused with wilting due to squash vine borer or to bacterial wilt. Suspicious plants should be examined to determine if there are holes in the base of the stem that indicate squash vine borer is involved, or if there is yellowing or browning between leaf veins, which often indicates bacterial wilt infection. The best quick field diagnosis of yellow vine is to cut the plant at the stem base and look at the vascular tissue. The phloem ring should be green in a healthy stem but is honey-brown in a plant infected with yellow vine. If a plant is to be sent to a diagnostic lab, this section of the stem base is what should be sent, usually a 2 to 4-inch chunk just above and below the soil line. Our diagnostic OSU clinic is planning to offer a test for $50 per field, to be available in the next few weeks.

As with most insect–vectored diseases, the only control of the disease is control of the vector. To understand control of squash bug, we need to be familiar with this insect’s life cycle and behavior. The squash bug overwinters as adults and moves into cucurbit fields as soon as new crops emerge. The adults are often overlooked because they feed on the underside of the cotyledons. They start to lay eggs in July. Eggs are shiny and brown, usually in clusters on the underside of leaves where two veins meet. In one to two weeks, eggs hatch into grey spider-like nymphs. Nymphs feed by sucking sap from leaves and stems. Nymphs go through 5 instars in about one month before they reach adulthood in late summer. They have one generation per year. Squash bugs are usually found on plants during the day but down on the ground under the plants at night.

Control of squash bug is best started at the time of stand establishment. Chemical or non-chemical tactics can be used. Mechanical tactics are row covers from planting time until first flowering, and destruction of crop residue immediately after harvest. Cultural controls are rotation with non–cucurbit crops, and promotion of early growth of the crop. Biological control often happens in plantings where no insecticides are used; squash bug is commonly attacked by a parasitic fly called *Trichopoda pennipes*, and there are several parasitoid wasps that attack eggs of squash bug. Chemical tactics include foliar insecticide sprays or systemic insecticides applied to soil at planting. Many growers are already using a systemic such as Admire (imidacloprid) or Platinum (thiomethoxam) in–furrow at planting (or as a pre–transplant plug drench) for control of cucumber beetles. These products do not have squash bug listed as a target pest on the label, but they are known to kill adult squash bugs during the seedling stage. Foliar sprays of pyrethroids or Thionex (endosulfan) are other options but these do not have systemic activity. To be effective, these need to be applied at weekly intervals. Pyrethroids currently registered for use on squash are Mustang Max, Baythroid, Warrior, Brigade, Asana, Pounce, Decis, and Danitol. Squash bug can be challenging to kill with insecticides due to their protected location in a dense crop canopy. The soft nymphs are more susceptible to insecticides than the hard–bodied adults. Sprays should be applied at high pressure to get good penetration into the canopy.
Bob's Video Vegetable Notes
Got a disease, insect problem or physiological disorder? Not sure what it is? Check out this week's video at: [http://vegnet.osu.edu](http://vegnet.osu.edu). Find out how to collect plant samples for submission to the Wayne C. Ellett Plant and Pest Diagnostic Clinic. Watch as we follow slicing cucumber and tomato samples in this rare, behind the scenes look into the diagnostic process at the clinic. See if the slicing cucumber sample really has downy mildew.
8. Setting Up a corn earworm trap with Dr. Celeste Welty
7. How to Use a Cardy meter. Monitor your crop Nitrogen needs throughout the growing season.

*Use the scroll bar on the right side of the playlist to see all the videos.*