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**Cucurbit Powdery Mildew is Here** by Sally Miller

Powdery mildew was observed the week of July 10 in northcentral Ohio on zucchini plants initially produced under row covers. These plants had not been sprayed with fungicides. Powdery mildew usually appears in Ohio in the second half of July, so it is a little early this year. Signs of powdery mildew can be observed on both the upper and lower leaf surfaces as white powdery patches (Figure 1). The patches are whiter and denser than those of downy mildew, which only occur on the undersides of leaves. Powdery mildew may also be seen on petioles and stems. Although powdery mildew starts as small discrete patches, the patches may coalesce to cover the entire leaf surface (Figure 2).



Figure 1. Cucurbit powdery mildew.



Figure 2. Advanced cucurbit powdery mildew.

It is time to start scouting cucurbit fields for powdery mildew, followed up by fungicide applications. There are a number of products that are effective in powdery mildew management programs, including the strobilurins (Fungicide Resistance Group 11), Nova and Pristine (Group 3). Powdery mildew strains can develop resistance to Group 3 and 11 fungicides rather quickly, so fungicide resistance management strategies must be used. For example, a strobilurin fungicide such as Pristine should be tank mixed with a protectant fungicide such as Bravo and

alternated with a fungicide with a different mode of action. Read and follow fungicide label instructions carefully. The Ohio Department of Agriculture has submitted a Section 18 Emergency Exemption request to the U.S. Environmental Protection Agency for the use of Quintec for powdery mildew management on cucurbits. Should the request be approved, it will be announced in VegNet check for updates.

Powdery mildew problems (and fungicide application costs) can be reduced by choosing disease resistant cucurbit varieties. Organic producers have several OMRI (Organic Materials Review Institute)–approved materials available to them, including sulfur, copper and various biological control products. See the OMRI website (<http://www.omri.org/>) to check the status of products for use on certified organic crops.

## Septoria Leaf Spot on Tomatoes Bob Precheur

Septoria Leaf Spot is developing rapidly now on lower leaves of home garden fresh market tomatoes and could be coming into unprotected commercial fields. The disease develops during warm wet weather. Splashing rain and wind are important for spreading the disease. Weather conditions over the past several days have been perfect for disease development. The important time to control this disease is mid–July to early August. This fungal disease

will only affect leaves. But if defoliation is more than 50% before the fruit sizes, it can cause significant loss. Septoria Leaf Spot will appear first on lower leaves as circular brown to tan spots with a dark margin. Older spots will have black specks, the fungal fruiting structures. Symptoms will appear gradually on younger leaves. Spots can also appear on stems. The disease does not affect fruit directly.

Strobiluron fungicides are very effective for control of this disease. Chlorothalnil fungicides, for example Bravo, which are commonly used in rotation with Strobiluron fungicides is less effective. See page 257 of the 2006 OH Vegetable Production Guide for recommended materials (hard copy or online edition). For pictures to help in diagnosis of this disease, see below or go to the following link: [http://www.ag.ohio-](http://www.ag.ohio-state.edu/~vegnet/tomcats/tomdis/sept.htm)

[state.edu/~vegnet/tomcats/tomdis/sept.htm](http://www.ag.ohio-state.edu/~vegnet/tomcats/tomdis/sept.htm)

One picture shows the difference between early blight and septoria lesions on tomato leaves.



Figure 1. Septoria leaf spot on tomato leaves. Usually appears on older leaves after first fruit set. Lesions can

also appear on stems, petioles or the calyx of fruit. The lesions are circular with dark brown margins and tan to gray centers dotted with black pycnidia. A narrow yellow halo is often associated with leaf lesions.



Figure 2. Leaves on Left or Right with Septoria lesions compared to leaf in center with Early Blight lesions. Note that the Early Blight lesions have a brown color with concentric circles. The Septoria lesions have a light tan color with black halos around the lesions. In the center of the tan areas, black spot or bumps can be found which are the pycnidia or fruiting body containing the spores

## Squash bugs and Squash vine borer on the rise...by Jim Jasinski and C. Welty

Squash bug adults have been increasing in vine crops over the past few weeks. Female squash bugs have been laying eggs over this same time frame. Squash bug eggs are rusty red in color and laid in a loose mass of 10 – 20 eggs per cluster on the petioles and leaf undersides (see pictures below). These egg masses are often parasitized

and killed by tiny wasps. The current threshold of greater than 1 egg mass per plant at the time of early flowering usually justifies treatment. Insecticides are most effective against younger and smaller nymph stages, but unfortunately may also kill beneficial wasps and other insects in the canopy. The pyrethroids (Ambush, Asana, Capture, Danitol, or Pounce) are good for controlling this pest if directed against stems and the underside of leaves. On July 13th, Squash vine borer moths were seen flying at the Western Agricultural Research Station in South Charleston. The moth resembles a wasp with purplish wings and an orange abdomen (see picture below). The females lay eggs at the base of the plant. The eggs hatch into tiny caterpillars or "worms" that tunnel into the base of the plant. Continued feeding inside the vine will cause the vine to wilt, resembling bacterial wilt. Evidence of this borer can be confirmed by looking for the entry hole at the base of the plant. The hole and surrounding area will be full of a brownish or yellow material called frass, or insect feces. If a hole is found, the vine can be sliced open to reveal the whitish "worms" which should be promptly destroyed. Once the borer is inside the vine, insecticide control is not possible. Insecticide sprays need to be directed at the base of the plants on a 7 day schedule while the squash vine borer moths are actively flying. Thiodan or a pyrethroid (Ambush, Asana, Capture, Danitol, or Pounce) are most effective for control. Two sprays, one week apart, should target hatching eggs,

usually in mid-July.



Squash bug colony (left and center) and squash bug eggs on upper leaf surface (right).



Adult Squash vine borer (left) and larva damage to stem (center) and uniform yellowing of leaf caused by stem feeding (right).

## Veggie Farms, Science on 'Walking the Fields' Tour Aug. 3

FREMONT, Ohio – See northwest Ohio vegetable farms and also what's new in the science that drives them on Ohio State University's Walking the Fields Tour, Thursday, Aug. 3, starting at the North Central Agricultural Research Station in Fremont. The free public tour runs from 1–4 p.m.

"The group will be on a self-driving tour of vegetable fields between Fremont and Bowling Green," said Mark Koenig, an educator in OSU Extension's Sandusky County office and one of the tour organizers.

"The fields of interest will be processing vegetables such as

tomatoes, cabbage, pickles and peppers." Vegetable experts from OARDC and OSU Extension will be on hand at each of the stops to speak and answer questions Capping the tour: a visit to the new Hartung Brothers Inc. facility in Bowling Green. Participants are eligible for both Certified Crop Advisor and pesticide recertification continuing-education credits.

Find the North Central Agricultural Research Station at the corner of County Road 43 and state Route 53 southwest of Fremont in Sandusky County.

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