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Ohio State University Extension Vegetable Crops On
the WEB at: <http://vegnet.osu.edu>

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Managing Cucurbit Downy Mildew by Sally Miller,
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Downy mildew update (June 5, 2007): From the NCSU
Cucurbit Downy Mildew Forecast website
(<http://www.ces.ncsu.edu/depts/pp/cucurbit/>). At this
time downy mildew has been reported on cucurbits in
southern Florida and southern Texas only.

Growers of cucumbers and other cucurbits are starting to
think about downy mildew it was about this time last
season when downy mildew was found on cucumbers in
Michigan, many weeks earlier than usual. Last year downy
mildew was a serious problem for cucurbit producers, the
result of an unfortunate combination of long periods of
overcast, foggy and/or rainy weather and the early
introduction of the pathogen into Michigan. On July 6,
2006, we confirmed downy mildew on cucumbers from a
small, unsprayed field in Wayne County, OH. It is possible
that downy mildew was present in NW Ohio before that

time.

The downy mildew pathogen does not overwinter outdoors in Ohio and other northern states. It is an obligate pathogen, which means that it cannot survive for long periods away from a living host. Normally, it does not appear in Ohio until late summer or early fall, when the spores are carried northward in storms coming from the southeastern U.S. The weather systems related to hurricanes are especially likely to move the downy mildew spores into northern cropping areas. Downy mildew spores are sensitive to drying and UV irradiation; they do not survive long under dry, sunny conditions. However, they are protected by clouds and moisture in the atmosphere.

Downy mildew symptoms include yellow spots on the upper surface of leaves that eventually turn brown and die. Entire leaves may also die if the disease is not controlled. In young lesions, a downy, sparse growth may be observed on the lower side of the lesion under dewy, foggy or humid conditions. Cucumbers are the most susceptible of the cucurbits to downy mildew, although others such as squash, pumpkin and melons also become diseased. Downy mildew symptoms can be confused with those of other diseases (see angular leaf spot, below), environmental damage and chemical burns.

If you find what looks like downy mildew in cucurbit fields,

bring or send a sample (overnight delivery) for confirmation to Sally Miller or Melanie Ivey, Department of Plant Pathology, The Ohio State University, OARDC, 1680 Madison Ave., Wooster. OH 44691, ph. 330-263-3838, or to the C. Wayne Ellett Plant and Pest Diagnostic Clinic, OSU, Kottman Hall, 2021 Coffey Road, Columbus, OH 43210, ph. 614-292-5006 (c/o Nancy Taylor). We will examine the lesions under the microscope to determine if the tell-tale spores characteristic of downy mildew are present.



A.

Downy mildew of cucumber (A, B)



B.

Downy mildew of cucumber (A, B)



C.

Downy mildew of or muskmelon (C).



D.

(D). Angular leaf spot of cucumber NOT Downy Mildew.

Managing Downy Mildew

1. Use resistant or moderately resistant varieties (cucumber and melons).
2. Scout cucurbits under low tunnels regularly. Apply fungicides if necessary.
3. Direct-seed or use locally produced transplants. Avoid transplants from greenhouses producing winter cucumbers or areas where downy mildew persists in the winter, e.g. the southern U.S.
4. Keep abreast of the movement of downy mildew by regularly checking the Cucurbit Downy Mildew Forecast website operated by North Carolina State University (<http://www.ces.ncsu.edu/depts/pp/cucurbit/>). This website is partially supported by your check-off dollars paid to the Ohio Vegetable and Small Fruit Research and Development Program.

5. Scout fields regularly for first appearance of downy mildew symptoms. Downy mildew is favored by cool, moist conditions. Step up scouting under these conditions. Send samples to lab for confirmation if downy mildew has not been reported in the area.

6. Fungicide application:

Protection before disease appears: Apply one of the following fungicides on a 7–10 day schedule, tank mixed with Bravo or Dithane: Gavel, Previcur Flex, Tanos, or Ranman. 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, or Ranman. 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.

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

| Product | PHI (days) |
|--------------------|------------|
| Bravo Weather Stik | 0 |
| Ranman | 0 |
| Previcur Flex | 2 |
| Tanos | 3 |
| Dithane | 5 |
| Gavel | 5 |

Crop Reports by Ron Becker and Brad Bergefurd and Hal Kneen

Meigs county report June 6, 2007

Southeastern Ohio – Major growing regions (Letart, Racine, Big Bend area) still without appreciable rainfall since April. Some rainfall, less than a quarter inch has fallen in regional rainfall in the northern part of Meigs County and surrounding counties. For growers under irrigation, crops continue to grow well. Early sweet corn tasseling, peppers setting, first set of tomatoes enlarging to 3–4 inch size and harvesting squash and cucumbers for local markets.

Weed problems along edge of plastic beds especially nutsedge. Lambsquarters growing in holes of pepper beds around the pepper plant. Hand pulling weeds out.

Insect trap report: Put out traps on June 2nd. Corn earworm trap –0– moths trapped as of June 6th. Beet army worm –0– moths trapped. Found pupa of Diamond Back

moth on underneath side of cabbage leaves. Damage noticeable on wrapper leaves. No sign of European corn borer on sweet corn leaves or tassels.

Southern Ohio Veg Net report for week of June 7

2007 Some growing areas received anywhere from none to 2.5 inches of rainfall over last weekend and the early part of this week, June 2, 3rd and 4th, however the majority of the southern Ohio growing area remains under drought like conditions. Irrigation from drip, center pivot and reels continue to operate around the clock trying to keep up with the dry soil conditions. Temperatures did cool down Sunday, Monday, Tuesday and Wednesday allowing transplanting to continue. Transplanting was postponed last week due to the high temperatures (over 120 degrees Fahrenheit) being experienced on black plastic mulch causing reduced plant stands, death and heat injury to young and tender transplants. Harvest of high tunnel tomatoes is in full swing with this year's harvest being the earliest growers can remember since this region began growing high tunnel tomatoes 15 years ago. Wholesale prices at the Bainbridge Produce Auction in Bainbridge, Ohio are running \$20 to 25 for 10 pound box. Harvest of field grown summer squash and cucumbers is also into its 3rd week of harvest. Harvest of sugar snap peas continues. Harvest of spinach, radishes, leaf and head lettuce, sugar snap peas, green onions, matted row strawberries and some late plasticulture strawberries continues. The

strawberry crop will be about 2 weeks shorter this year due to injury sustained during the Easter freeze and the high temperatures since the harvest began. The rain that fell last weekend on some farms allowed for no till planters to finally penetrate the ground and some no till pumpkins were planted into rye cover crops, seed placement and depth is still a concern in these planted fields. Fusarium wilt symptoms have showed up in a growers high tunnel tomato planting, although the variety is said to have Fusarium tolerance. Plants will be sent to Columbus for positive diagnosis. Black raspberries, summer red raspberries and blackberries continue to show cane collapse and decline due to injury to the plants vascular system during the Easter freeze, as fruit loads enlarge and the weather stress continues. Cucumber beetles continue to feed upon newly transplanted and emerged pickles, melons, cucumbers, squash, pumpkins and watermelons. Fields treated with Admire at planting are showing good cucumber beetle control with many dead beetles around the plants being found. Non Admire treated fields growers are having to follow close insecticide programs as outline in the OSU Vegetable Production Guide OSU Bulletin 672. Melons are in full bloom with good fruit set on early planted crops, however there is concern among growers about a lack of honeybees where supplemental hives for pollination are not present. Growers should consider renting supplemental hives for pollination with the Colony Collapse Disorder that has

killed many honeybees this past winter and spring. Postemergent weed control in sweet corn and snap beans remains an issue where insufficient rainfall fell to activate preemergent herbicides. Frequent cultivation is being done although there is concern about the amount of moisture being lost from cultivating under these dry and hot conditions. Planting of sweet corn, snap beans, snap peas, pumpkins, cucumbers, pickles, summer squash, winter squash, melons, watermelons, tomatoes, radish, red beet, cabbage and broccoli continues. Seeding of fall cauliflower, broccoli and cabbage crops are being made in the greenhouses for transplanting the end of July. Seeding of fall tunnel tomato crops is being done in the greenhouse for transplanting to high tunnels end of July to early August for a late fall and early winter high tunnel tomato crop harvest.

Wayne County Vegetable Crop Report. From June 8, 2007 Cole crops are showing light flea beetle damage and low numbers of Imported cabbage worm and diamond back moth larvae. Some potato fields have high levels of flea beetle and potato leafhopper activity and are being sprayed. Potato beetle eggs are now starting to hatch. European corn borer is being found at low levels in sweet corn over 10 inches in height. Bean leaf beetles and potato leafhoppers are being found in green beans where damage has increased to the point that treatment is necessary for both insects. Cucumber beetles are becoming active in vine crop fields, especially those

planted near where vine crops were last year. Thrips are being found in a few onion fields at threshold levels (10–15 thrips per plant), though most fields still have only light levels (5 or fewer per plant). We are also finding small red mites on the onion plants that seem to be feeding on the thrips. We have collected samples and will send them to Columbus for identification. If they are actually beneficial mites, growers may want to do what they can to protect them. Tomatoes and peppers have had little insect activity other than light flea beetle. Timber rot infected tomato plants found in high tunnels several weeks ago have been removed and no further disease infections have been found. One pepper sample is being sent in to determine if bacterial spot is present. Eggplant has had flea beetle, potato leafhopper and potato beetle damage at threshold levels. Other insects being found on various crops include aphids, common stalk borer and two spotted spider mites.