



# PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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## Pennsylvania Vegetable IPM Weekly Update

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*These are cooperative projects involving Penn State University researchers, Penn State Cooperative Extension educators, growers, the Pennsylvania Department of Agriculture, the Pennsylvania Vegetable Marketing and Research Program and the Pennsylvania Vegetable Growers Association.*

### **DOWNY MILDEW CONFIRMED ON CUCUMBER IN SOUTHERN NEW JERSEY**

***Beth Gugino, Penn State Vegetable Extension Pathologist***

**Downy mildew was confirmed on cucumber in Atlantic County, New Jersey yesterday.** This is the first report in the mid-Atlantic region this season and about the same time it was reported on cucumber last year in NJ. It is important to regularly (almost daily) be scouting both cucumber and cantaloupe fields. There are two clades of the pathogen with Clade 2 preferring cucumbers and cantaloupe and Clade 1 preferring jack-o-lantern pumpkin, butternut squash, etc. so both cucumber and cantaloupe are currently at most risk.

Downy mildew on cucumber has angular lesions that are delineated by the leaf veins while those on cantaloupe tend to be more irregular. Leaf lesions typically appear 3 to 12 days after infection and are initially light yellow in color before turning darker brown. On the underside of the leaves will be purplish-gray sporulation which confirms that the symptoms are caused by downy mildew. This can easily be confused with angular leaf spot which is a bacterial disease so spores will not develop on the underside of the leaves. Place suspect leaves in a plastic bag on the counter overnight and then check for spores the next day. A 20x hand lens can also help when checking for sporulation.

At the very least, a preventative fungicide program with protectants is recommended on cucumber and cantaloupe. Remember that cucurbit crops are susceptible at any growth stage from young seedlings to mature plants and that high tunnel cucumbers are equally susceptible as field-grown crops.

There are many fungicides that are effective for preventatively managing downy mildew when used when conditions favor disease development. To manage for fungicide resistance, it is important to rotate between Fungicide Resistance Action Committee Codes (FRAC codes). These codes/numbers represent different modes of action so rotating among different FRAC codes as well as tank mixing with chlorothalonil or



*Symptoms of downy mildew on cucumber (top) and cantaloupe (middle) compared to angular leaf spot on cucumber (bottom). (Photo credits: Beth Gugino).*

mancozeb (for single active ingredient products) will reduce the chance for resistance development and can help manage other diseases. Timing applications when pollinators are least active will also help to minimize any non-target effects. Fungicides for CDM include but are not limited to Ranman (cyazofamid, FRAC code 21), Gavel/Zing! (zoxamide, 22), Tanos/Curzate (cymoxanil, 27), Previcur Flex (propamocarb, 28), Forum/Revus (dimethomorph, 40), Zampro (ametoctradin, 45), and Orondis (oxathiapiprolin, 49). For more specific information on recommended fungicides see [2022/23 Mid-Atlantic Commercial Vegetable Recommendations](#). Remember that these fungicides will not be effective for managing powdery mildew and that those effective for powdery mildew will not be effective for downy mildew. Therefore, an accurate diagnosis is important!

Organic management of downy mildew continues to be a challenge and continues to rely of fixed copper-based fungicides. There are however a couple of resistant cultivars (DMR 401 and NY 264) that have been recently released by Cornell and demonstrate excellent field-level resistance in the absence of fungicides. If not already doing so, consider planting these in the future.

Fungicide options in a high tunnel are more limited and require the product to be labeled for use in the greenhouse. Some options include Previcur Flex (2-day PHI) as well as copper-based fungicides and several biologically based products. For a more complete list of options see Table E-11 in the [2022/23 Mid-Atlantic Commercial Vegetable Recommendations](#).

**Stay up to date:** Weekly reports on the status of CDM are posted in the educational kiosks at many of the produce auctions, in PVGA and Penn State Extension updates as well as via the 1-800-PENN-IPM hotline. If you want to receive automatic alerts via text or email from the CDM ipmPIPE monitoring website, you can sign up [here](#). For emails, EDDMapS Alert will now be the subject line from [alerts@cdm.ipmpipe.org](mailto:alerts@cdm.ipmpipe.org).