



# Vegetable Crop Update

*A newsletter for commercial potato and vegetable growers prepared by the University of Wisconsin-Madison vegetable research and extension specialists*

**No. 18 – August 17, 2022**

## ***In This Issue:***

- Cucurbit downy mildew

## ***Calendar of Events:***

**November 29-December 1, 2022** – Midwest Food Producers Assoc. Processing Crops Conference, Kalahari Convention Center

**January 29-31, 2023** – Wisconsin Fresh Fruit and Vegetable Growers Conference, Kalahari Resort, Wisconsin Dells, WI

**February 7-9, 2023** – UW-Madison Div. of Extension & WPVGA Grower Education Conference & Industry Show, Stevens Point, WI

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**<https://vegpath.plantpath.wisc.edu/>**

**Cucumber Downy Mildew** has been confirmed on cucumber plants grown for research at the UW Hancock Agricultural Research Station in Waushara County, WI. The disease will be managed with fungicides to reduce pathogen sporulation in this plot. Symptoms were noted on Monday August 15, 2022 and the pathogen sporangia were confirmed morphologically later that day via microscopy. We have not diagnosed this disease in Wisconsin sentinel plots (non-fungicide-treated susceptible cucurbit plants) or in commercial production fields in several years. The sentinel plot in Dane County has not had downy mildew, to date. Symptoms from the Hancock plot are provided, below.




It's important to manage preventatively for downy mildew on cucurbits, especially on cucumber, given the aggressive nature of the pathogen when environmental conditions favor disease. I am presuming at this time that the pathogen is of the Clade 2 grouping of the downy mildew pathogen (*Pseudoperonospora cubensis*) since it has been diagnosed, so far, only on cucumber. The research field does include other cucurbits and foliage has been sampled to determine if they are infected with downy mildew. The research program of Dr. Yiqun Weng, Research Geneticist with the USDA-ARS/UW-Horticulture is working through this and will help determine the pathogen type. I thank Dr. Weng and his research program for their attention and quick response to this disease concern.

**The fungicides listed in the figure, below, for Cucumber Clade 2 DM are currently recommended for best managing this disease in central Wisconsin.** Please be on the lookout for symptoms (yellowing and angular or straight edge/vein-limited lesions) and signs (fuzzy dark growth on leaf undersides) on cucumber and melon crops. Please alert me or our UW Plant Disease Diagnostic Clinic if you see symptoms/signs on any cucurbits. We would very much like to follow up to better understand the pathogen to offer best management recommendations.



### Fungicide Programs for Cucumber (Clade 2) DM


If program is initiated **before** disease onset: adhere to a **7-day** interval.  
If program is initiated **after** disease onset: adhere to a **5-day** interval.



Recommendations based on multiple years of field research by Hausbeck, Michigan State Univ. & Quesada-Ocampo at NCSU

Use of highest labeled rate of products is recommended	
<b>Previcur Flex 6SC (2 day PHI), GH</b>	propamocarb hydrochloride 28
<b>Elumin SC (2 day PHI)</b>	ethaboxam 22
<b>Ranman 3.6SC (0 day PHI)</b>	cyazofamid 21
<b>Gavel 75WG (5 day PHI), GH</b>	mancozeb M3 + zoxamide 22
<b>Orondis Opti (0 day PHI)</b>	oxathiapiprolin 49/chlorothalonil M5
Orondis Ultra (0 day PHI)	oxathiapiprolin 49/mandipropamid 40
Omega 500F (7 day PHI)	fluazinam 29
<b>Zampro 4.4SC ( day PHI)</b>	ametoctradin 45/dimethomorph 40
<b>Zing! SC (0 day PHI)</b>	zoxamide 22 + chlorothalonil M05


Alternate products and mix each with either:  
Dithane (mancozeb) 3 lb 5 day PHI, M3, GH; or Bravo (chlorothalonil) 2 pt 0 day PHI, M5



G. Holmes


SE U.S. and MI (2014) have noted resistance in the downy mildew pathogen to several fungicides

**Bold** indicates best in MI




## Fungicide Programs for Pumpkin (Clade 1) DM

If program is initiated **before** disease onset: adhere to a **10-day** interval.  
 If program is initiated **after** disease onset: adhere to a **7-day** interval.



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**Use of highest labeled rate of products is recommended**

<b>Previcur Flex 6SC (2 day PHI), GH</b>	propamocarb hydrochloride 28
<b>Elumin SC (2 day PHI)</b>	ethaboxam 22
<b>Ranman 3.6SC (0 day PHI)</b>	cyazofamid 21
<b>Gavel 75WG (5 day PHI), GH</b>	mancozeb M3 + zoxamide 22
Presidio 4FL (2 day PHI)	fluopicolide 43
Tanos 50WG (3 day PHI)	famoxadone 11 + cymoxanil 27
<b>Zampro 4.4SC (0 day PHI)</b>	ametoctradin 45 + dimethomorph 40
<b>Orondis Opti (0 day PHI)</b>	oxathiapiprolin 49/chlorothalonil M5
Orondis Ultra (0 day PHI)	oxathiapiprolin 49/mandipropamid 40
Omega 500F (7 day PHI)	fluazinam 29
<b>Zing! SC (0 day PHI)</b>	zoxamide 22 + chlorothalonil M05

Alternate products and mix each with either:  
 Dithane (mancozeb) 3 lb 5 day PHI, M3, GH; or Bravo (chlorothalonil) 2 pt 0 day PHI, M5

As a reminder, the pathogen is now known to have two ‘strains’ for clade types. The type (Clade 2) which infects cucumber, can also infect melon. Due to fungicide resistance within the downy mildew pathogen population, especially in Clade 2, selection of fungicides is important. Management of cucurbit downy mildew requires preventative fungicide applications as commercial cultivars are generally susceptible to current strains (Clades) of the pathogen. Management information can be sourced here:

<https://vegpath.plantpath.wisc.edu/2022/07/03/update-10-july-3-2022/>