
PENNSYLVANIA WEEKLY VEGETABLE DISEASE UPDATE

AUGUST 6, 2008

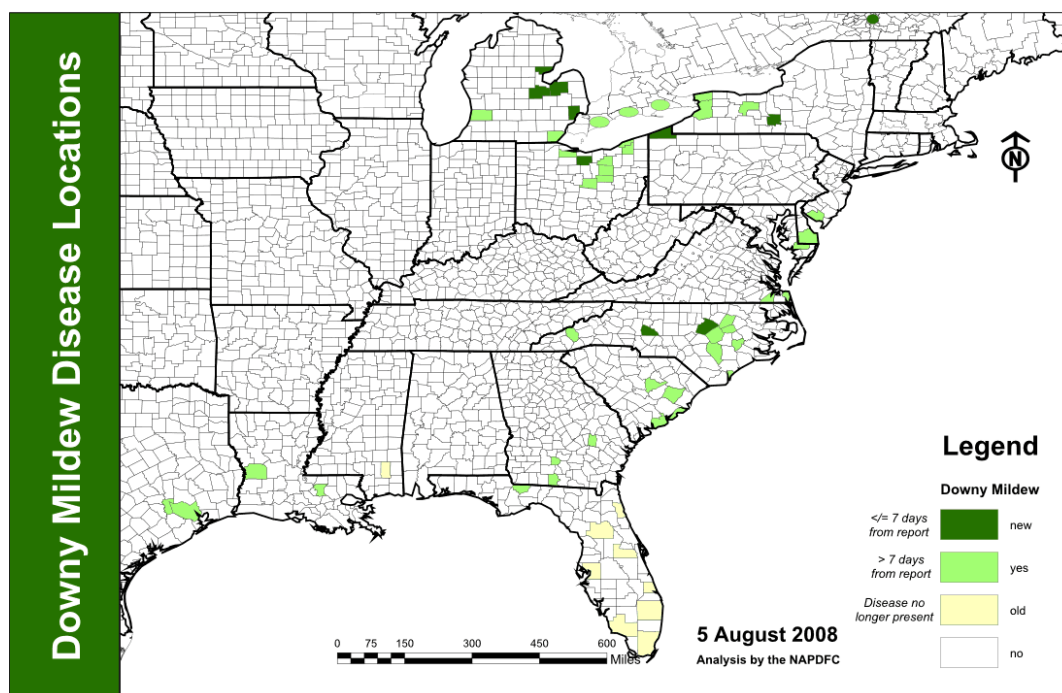
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NOTE: This is the sixth in a series of weekly disease updates that will be made over the remainder of the 2008 growing season. Please feel free to contact me at 814-865-7328 or bkgugino@psu.edu if you have any questions, concerns or suggestions. Please feel free to include this information in your various newsletters and outreach programming.

CUCURBIT DOWNY MILDEW IS NOW PREVALENT IN WESTERN PA

During this past week and especially in the past few days downy mildew has been confirmed on cucumber in the two sentinel plots in Erie and Westmoreland Counties and on three commercial farms. Additionally, I have received reports from several growers who are having trouble controlling downy mildew in their cucurbit fields in Western PA. These outbreaks are not surprising since outbreaks have been reported in the Great Lakes region in Michigan, Ohio, Ontario, and Western New York (see map below). Remember the spores do not overwinter in the field in our region, they move from field to field in the wind trajectories and cause disease when the conditions are favorable both in the wind trajectory and in the field where they are deposited.



This map is from the NCSU downy mildew forecasting website as of 4 August 2008. The counties are shaded based on whether the outbreak is less than 7 days old (dark green), more than 7 days old (light green) or no longer present because the field was harvested or destroyed (yellow). Westmoreland Co. will be highlighted dark green when the map is updated at the end of the day on 6 August 2008.

So far, downy mildew has been observed on cucumbers, the more susceptible of the cucurbits. Initially, symptoms are found on the top surface of the leaves. The small angular spots that are delineated by the leaf veins are pale green to begin with before turning yellow in color. On the underside of the leaf, the spots look water soaked at first and under very humid conditions the lesions will sporulate giving them a purplish gray color. The two pictures below were taken in the field yesterday. Keep in mind that the symptoms will vary between types and varieties of cucurbits.



The risk of transport of the downy mildew spores across the north (which consists of Michigan, southern Ontario, Ohio, western NY and PA; see map on page 1) is high. This means that the conditions are favorable for not only the movement of the spores from field to field but for the spores to infect and disease to develop. With the confirmed presence of downy mildew in Pennsylvania, it is important to switch from using strictly protectant fungicides to using mobile fungicides especially for your most susceptible cucurbits or if you observe symptoms in the field. The recommended mobile fungicides will specifically target the downy mildew fungus and will penetrate and move to the underside of the leaf where the fungus sporulates. University fungicide trials indicate that Ranman and Presidio perform slightly better than Previcur Flex, followed by Tanos and Curzate which perform slightly better than Forum, Revus and Gavel. All these fungicides should be tank mixed with a protectant such as Bravo (chlorothalonil), Dithane (mancozeb), or Maneb (maneb) for resistance management. See the table on page 3.

It is important to also alternate between different modes of action (FRAC codes) for resistance management. The numbers and letters are used to distinguish the fungicide groups according to their cross resistance behavior. The numbers were assigned generally according to the time the product was introduced to the market (numbers 1 to 43, as of 2007). The letters refer to P = host plant defense inducers (e.g. Actiguard), M = multi-site inhibitors (e.g. mancozeb), and U = unknown mode of action or unknown resistance risk.

Keep in mind that fungicides with mefenoxam (FRAC code 4) and QoI fungicides (FRAC code 11) are no longer recommended for downy mildew because of resistance. These products

provided little to no control in recent university trials despite their previous performance. These products include Ridomil Gold Bravo, Ridomil Gold Copper, Quadris, Amistar, Cabrio, Flint, and Pristine. Copper also provides little to no control.

CUCURBIT DOWNY MILDEW FUNGICIDE TABLE

(updated this week to include some additional products that are registered but not included in the 2008 PA Vegetable Recommends)

Trade name	Common name	FRAC code	PHI	Recommended rate/ A
Ranman	cyazofamid	21	0 day	2.1 to 2.75 fl. oz. 400SC
Presidio*	fluopicolide	43	2 days	3 to 4 fl. oz.
Previcur Flex	propamocarb	28	2 days	1.2 pt 6F
Curzate	cymoxanil	27	3 days	3.2 oz. 60DF
Tanos	cymoxanil	27	3 days	8 oz. 50WDG
Forum*	dimethomorph	40	0 days	6 fl. oz.
Revus*	mandipropamid	40	5 days	8 fl. oz.
Gavel **	mancozeb + zoxamide	M3 + 22	5 days	1.5 to 2 lb 75DF

* Presidio and Revus received EPA registration in Feb 2008 so they are not listed in 2008 PA Vegetable Recommends. Forum is a new formulation replacing Acrobat.

** Gavel already contains mancozeb so it does not need to be tank mixed for resistance management.

If you feel your field (or a portion of your field) is too heavily infected with downy mildew for fungicides to be effective then kill the crop as quickly as possible with a herbicide and disk-in or bury the crop residue to facilitate its decomposition and is no longer a source of inoculum for nearby cucurbit fields.

Please visit the Cucurbit Downy Mildew Forecasting website (<http://www.ces.ncsu.edu/depts/pp/cucurbit/>) for the latest list of disease outbreak locations and forecasts. This information is updated by the end of the day on Monday, Wednesday and Fridays.

Please report any suspect cases of downy mildew in cucurbit fields and bring or send a sample (overnight delivery) for confirmation to Beth Gugino, Department of Plant Pathology, 219 Buckhout Lab, University Park, PA 16802. We will examine the sample under a microscope and look for the characteristic downy mildew spores.

TOMATO AND POTATO DISEASE UPDATE

LATE BLIGHT UPDATE

During the past week, there were no new reports of late blight in the region.

Below are the recommended spray schedules for managing LATE BLIGHT as determined on August 5th using the BLITECAST forecaster for 19 locations across the state of Pennsylvania (thanks to Ellen Hay – Penn State). These suggestions are run using site specific SKYBIT weather data provided by ZedX (Bellefonte, PA) and are based on the assumption that late blight inoculum is nearby.

Town	County	7 day rainfall total (29 July to 5 Aug)	Blightcast spray message*
Fairview	Erie	0.76	Spray if none July 29
Corry	Erie	1.68	since..... July 31
Sweden Valley	Potter	1.18	July 31
Butler	Butler	0.60	July 31
Finleyville	Washington	0.35	July 31
Loretto	Cambria	0.55	July 31
Rock Springs	Centre	0.60	July 31
Jersey Shore	Lycoming	0.65	July 31
Montandon	Northumberland	0.61	July 31
Clarks Summit	Lackawanna	0.00	July 31
Wyoming Valley	Luzerne	0.38	July 31
Germansville	Lehigh	0.29	July 31
Kutztown	Berks	0.53	July 31
Ringtown	Schuylkill	0.64	July 31
Gratz	Dauphin	1.65	July 31
Maddensville	Huntingdon	0.72	July 31
Waynesboro	Franklin	1.44	July 31
Leola	Lancaster	1.13	July 31
Mt. Joy	Lancaster	0.61	July 31

*As a general rule of thumb, if you have not applied a fungicide in the past 14 days then one needs to be applied to protect the new vegetative growth especially wherever there is a history of late blight.

EARLY BLIGHT UPDATE

Over the past two weeks the 35 cumulative disease severity value threshold to initiate a fungicide spray program based on the Tom-FAST disease model for early blight was reached for the 19 locations across Pennsylvania. Subsequent fungicide spray recommendations are now based on the accumulation of disease severity values.

Keep in mind that this model is run using site specific weather data provided by ZedX. Since environment varies, sometimes within relatively short distances, the spray recommendation information should be considered in combination with your local environmental conditions. One way to evaluate how well this forecast information is likely to apply to your farm, is to record daily rainfall at the local site of interest and compare it to the nearest forecasted site (see late blight table for rainfall amounts). If the rainfall is similar to rainfall reported for a nearby weather-forecaster site, then the forecast could be quite accurate for use on the farm. When farm rainfall is higher than at the nearby weather-forecaster site, disease conditions could be more severe than reported, and more sprays could be necessary. Likewise, if farm rainfall is lower, farm disease conditions could be less severe, and fewer sprays could be possible.

Town	County	Tom-FAST spray message*	
Fairview	Erie	Spray if none	July 23
Corry	Erie	since.....	July 29
Sweden Valley	Potter		July 29
Butler	Butler		June 16
Finleyville	Washington		July 20
Loretto	Cambria		July 29
Rock Springs	Centre		July 29
Jersey Shore	Lycoming		July 27
Montandon	Northumberland		July 23
Clarks Summit	Lackawanna		July 22
Wyoming Valley	Luzerne		July 20
Germansville	Lehigh		July 30
Kutztown	Berks		July 10
Ringtown	Schuylkill		July 28
Gratz	Dauphin		July 29
Maddensville	Huntingdon		July 28
Waynesboro	Franklin		July 29
Leola	Lancaster		July 31
Mt. Joy	Lancaster		July 23

*As a general rule of thumb, if you have not applied a fungicide in the past 14 days then one needs to be applied to protect the new vegetative growth especially where there is a history of early blight.

*For tomatoes, once any fruit start to ripen, regular fungicide applications may be warranted.

If you hear of any reports of early or late blight on tomato or potato in Pennsylvania or in the region, please report it to Beth Gugino at 814-865-7328 or bkgugino@psu.edu. Tomato and potato disease updates will also be updated weekly and also available via the 1-800-PENN-IPM hotline.

Information provided is intended for consideration by the user, but is not intended to be a recommendation. Production decisions should be based on consideration of many types of information (scientific, experimental, economic, legal, etc.) available to the user.

Where trade names are used no discrimination is intended, and no endorsement by Penn State Cooperative Extension is implied.