
PENNSYLVANIA WEEKLY VEGETABLE DISEASE UPDATE

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NOTE: This is the fourth 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.

DOWNY MILDEW CONTINUES TO SPREAD AROUND THE SURROUNDING STATES BUT STILL NOT REPORTED OR CONFIRMED IN PENNSYLVANIA

This past week, the weather patterns were again conducive for the repeated movement of downy mildew spores up and down the east coast. There continues to be additional outbreaks near or next to existing downy mildew sources including those in Ohio and Ontario, Canada. Most of the reports are on cucumber although downy mildew has been confirmed on melon and watermelon in Ontario, Canada and Louisiana and on acorn squash in South Carolina. Again to-date there have been no reported or confirmed cases of downy mildew in Pennsylvania. However, it is still critical to scout cucurbit fields carefully. Pennsylvania was at high to moderate risk for deposition of downy mildew spores both Monday and Tuesday. Under the most ideal conditions, yellow angular lesions can develop on cucumber in as few as 3 to 5 days but it could take as many as 10 to 12 days when morning dews are followed by less favorable hot and dry conditions during the day. See last weeks' update for pictures of symptoms of downy mildew on cucumber.

With the presence of downy mildew in many of the surrounding states, it is important that a protectant fungicide spray program is in place for your most susceptible cucurbits if you have not already done so. Tank mix one of products listed in the table below with a protectant such as Bravo (chlorothalonil), Dithane (mancozeb), or Maneb (maneb) for resistance management:

Trade name	Common name	FRAC code	Recommended rate/ A
Ranman	cyazofamid	21	2.1 to 2.75 fl. oz. 400SC
Previcur Flex	propamocarb	28	1.2 pt 6F
Gavel *	mancozeb + zoxamide	M3 + 22	1.5 to 2 lb 75DF
Curzate	cymoxanil	27	3.2 oz. 60DF
Tanos	cymoxanil	27	8 oz. 50WDG

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

It is important to also alternate between different modes of action (FRAC codes) for resistance management.

PENNSYLVANIA'S PARTICIPATION IN THE CUCURBIT DOWNY MILDEW IPMPIPE PROJECT

To help in the cucurbit downy mildew forecasting effort, four cucurbit sentinel plots were planted between the end of May and mid-June across Pennsylvania in Erie, Westmoreland, Centre and Lancaster Counties. These plots are planted with 6 different types of cucurbits: cucumber ('Straight Eight' and Poinsett 76'), cantaloupe 'Jumbo', acorn squash 'Table Queen', giant pumpkin 'Big Max', butternut squash 'Waltham' and watermelon 'Micky Lee'. In collaboration with four county extension educators, the plots are scouted regularly to check for symptoms of downy mildew. If downy mildew is positively identified, then the information regarding the type of cucurbit and the severity of the symptoms is entered into a database and that information is incorporated into future downy mildew forecasts.

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 AS OF JULY 15TH 2008

LATE BLIGHT UPDATE

There have been no new reports of late blight in our region. Late blight has moved from New Brunswick, Canada where it was reported three weeks ago on potato into two locations in Aroostook Co., Maine also on potato. Please continue to scout your fields often and continue with a protectant spray program.

Below are the recommended spray schedules for managing LATE BLIGHT as determined on July 22nd 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 (9 to 15 July)	Blightcast spray message*
Fairview	Erie	0.85	Spray if none July 16
Corry	Erie	1.37	since..... July 17
Sweden Valley	Potter	0.55	July 17
Butler	Butler	0.74	July 17
Finleyville	Washington	0.45	July 17
Loretto	Cambria	0.01	July 17
Rock Springs	Centre	0.01	July 17
Jersey Shore	Lycoming	0.49	July 17
Montandon	Northumberland	0.28	July 15
Clarks Summit	Lackawanna	0.00	July 17
Wyoming Valley	Luzerne	0.29	July 17
Germansville	Lehigh	0.52	July 17
Kutztown	Berks	0.27	July 15
Ringtown	Schuylkill	0.01	July 16
Gratz	Dauphin	0.25	July 17
Maddensville	Huntingdon	0.01	July 17
Waynesboro	Franklin	1.18	July 17
Leola	Lancaster	0.59	July 17
Mt. Joy	Lancaster	0.27	July 15

*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

Early blight is continuing to show up in commercial tomato fields as well as in several home gardens. Early blight, caused by the fungus *Alternaria solani*, develops under warm temperatures (75 to 85°F) and high relative humidity, heavy dews or significant rainfall. The lesions are initially small, brown to black in color and may be surrounded by a yellow halo. As the disease progresses, larger lesions will develop the characteristic concentric ring pattern.



Symptoms of early blight on tomato.
Photo courtesy of Jeff Mizer.

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 10
Corry	Erie	since.....	July 16
Sweden Valley	Potter		July 17
Butler	Butler		July 16
Finleyville	Washington		July 16
Loretto	Cambria		July 18
Rock Springs	Centre		July 16
Jersey Shore	Lycoming		July 17
Montandon	Northumberland		July 12
Clarks Summit	Lackawanna		July 16
Wyoming Valley	Luzerne		July 16
Germansville	Lehigh		July 15

Town	County	Tom-FAST spray message*
Kutztown	Berks	July 10
Ringtown	Schuylkill	July 11
Gratz	Dauphin	July 17
Maddensville	Huntingdon	July 15
Waynesboro	Franklin	July 15
Leola	Lancaster	July 17
Mt. Joy	Lancaster	July 14

*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.

Alternate one of products listed in the table below with a protectant such as chlorothalonil (2 to 3 pt 6F/A, mancozeb (3 lb 75DF/A), or Gavel (1.5 to 2 lb 75DF/A) for resistance management. The products in the table should also be tank mixed with a protectant fungicide. It is also a good resistance management practice to alternate between modes of action (FRAC codes).

Trade name	Common name	FRAC code	Recommended rate/ A
Quadris	azoxystrobin	11	5 to 6.3 fl oz 2.08F
Cabrio	pyraclostrobin	11	8 to 12 oz 20EG
Endura	boscalid	7	2.5 to 3.5 oz 70W
Flint	trifloxystrobin	11	4 oz 50 WDG
Tanos	cymoxanil	27	8 oz. 50WDG

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.