



PENNSYLVANIA WEEKLY VEGETABLE DISEASE UPDATE

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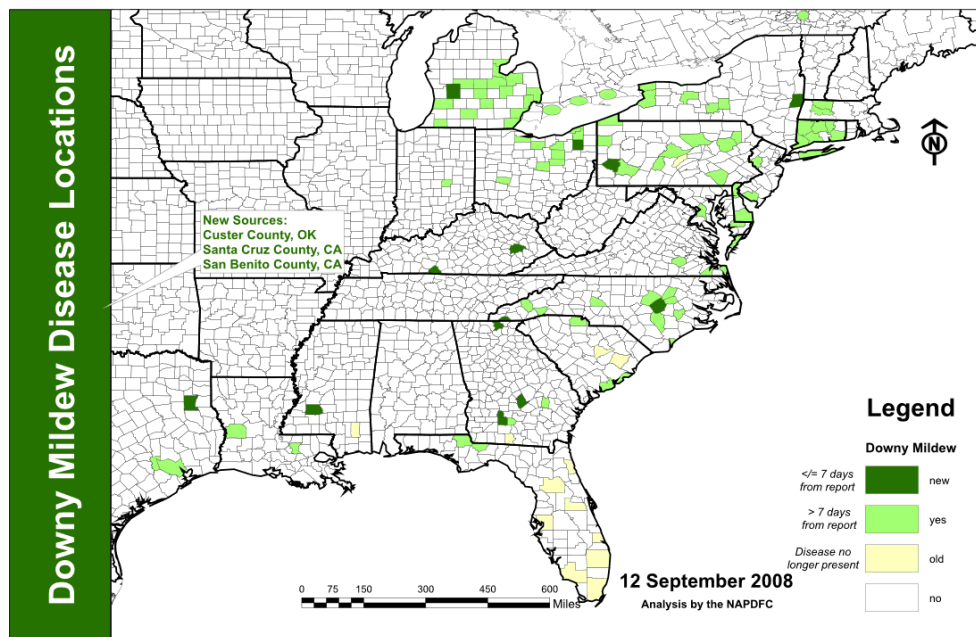
PENN STATE VEGETABLE PATHOLOGIST



NOTE: This is the twelfth in a series of weekly disease updates that will be made over the remainder of the 2008 growing season. The final update will be distributed next week. 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.

WEEKLY UPDATE ON CUCURBIT DOWNY MILDEW

To my knowledge there are no new reports of downy mildew on pumpkins and winter squash in Pennsylvania however several counties in Delaware, New Jersey, Eastern New York and Massachusetts have reported outbreaks on these hosts in the past week. This past weekend cucurbits were at high risk for both local disease spread around known sources of the pathogen as well as longer range transport of spores from sources in Ohio, Indiana and in addition to the sources in Pennsylvania. Symptoms from infections that took place during this time may become visible later this week into next week. The forecast for this week looks to be less favorable for downy mildew development due to a high pressure system moving into the area. Although the cucurbit season is winding down, downy mildew can still be a concern on pumpkins and severe infections can reduce the integrity of the handle.



This map is from the NCSU downy mildew forecasting website as of 12 Sep 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).

If you haven't done so yet this season, I encourage you to visit the Cucurbit Downy Mildew Forecasting Site at <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.

CUCURBIT VIRUS TESTING....LOOKING TO COLLECT SAMPLES

It is well known that viruses can cause significant losses in cucurbit crops by reducing plant growth and marketable yield. The 80 cucurbit downy mildew sentinel plots located up and down the eastern portion of the US (4 of which are in PA) provide a perfect opportunity to collect samples from a variety of symptomatic cucurbit hosts and in collaboration with Agdia, screen them for the 12 viruses known to infect cucurbits.

In addition to the sentinel plots, we are looking to survey cucurbits from commercial fields as well. **Please contact me** (814-865-7328; bkugino@psu.edu) **if you suspect virus problems in your cucurbit crops and have symptomatic tissue that we can submit to Agdia for testing as part of this survey.** The protocol for conducting and submitting the samples is currently being finalized and I hope to start collecting samples as soon as later next week. Knowledge of the cultivar/variety will be important at the time of sampling. The goal of the survey is to gain a better understanding of the regional viruses that are infecting cucurbits and begin to address the rising concern of samples that are testing negative for the 12 virus cucurbit screen but positive for the general potyvirus test. It is important to have Pennsylvania represented in this survey so we can be a part of larger funded research projects in the future.

CUCURBIT POWDERY MILDEW IS RUNNING RAMPANT

Cucurbit powdery mildew is now a common sight across fields in Pennsylvania and the leaves in many fields are succumbing as a result of severe infections. It is important to gain the upper hand on powdery mildew early in the season when symptoms are first observed in the field typically concurrent with the onset of fruit production. Adequate spray coverage is critical as is the selection of systemic products to suppress powdery mildew development on the underside of the leaves. Fungicide resistance development continues to be a major concern with cucurbit powdery mildew. Below is the powdery mildew management program that Meg McGrath (Cornell University) recommended in 2008 (also published in the July issue of The Vegetable and Small Fruit Gazette and a follow-up article was published in the August issue).

It is important for us to know if you feel you had a powdery mildew control failure this past season despite your best efforts using the currently recommended fungicides. Keep in mind that resistance to QoI fungicides (FRAC code 11) and MBC fungicides (FRAC code 1) has been commonly reported in PA and the northeast region and as a result fungicides in these groups are no longer recommended.

2008 Powdery Mildew Management Program (from Meg McGrath):

1. Grow resistant varieties. Select squash and pumpkin varieties with resistance from both parents when possible. Cantaloupe varieties should have resistance to races 1 and 2. See the 'Resistant Variety' section at <http://vegetablemendonline.ppath.cornell.edu/>.
2. Scout regularly and initiate fungicide applications at disease onset or before. Powdery mildew typically starts to develop early in fruit production, therefore when first fruit appear is a good time to start applications. The action threshold is 1 leaf with symptoms out of 50 older leaves examined.
3. Alternate among at-risk fungicides in different FRAC Groups. Procure and Pristine are recommended at highest label rates (8 and 18.5 oz/A). Quintec remains only labeled for use on melons. Additional crops are anticipated to be labeled in 2009. Quintec and Procure have narrow spectrum activity. Therefore it is important to monitor crops for other diseases.

4. Tank mix fungicides at-risk for resistance with protectant (contact) fungicides (e.g sulfur, chlorothalonil, and oils). Melons are sensitive to sulfur; there are tolerant varieties.
5. Maintain a regular (7-day) application schedule. When maintaining this schedule through the season for at-risk fungicides is not economical, use protectant fungicides alone late in the season rather than compromising application timing early in the season to save money. The powdery mildew pathogen does not require leaf wetness for infection as other fungal foliar pathogens do therefore fungicides are needed under dry conditions.
6. Rate control achieved based on powdery mildew severity on lower surfaces of leaves. Report poor control despite following these guidelines to a local extension specialist.

Now is a good time to assess the efficacy of this year’s disease management strategies not only for powdery mildew in your cucurbits but all crops on the farm. Review your spray logs and make notes as to which products worked most effectively and what you would change next year while it is fresh in your mind. Now is also a good time to make disease maps for your fields so you can take these locations into consideration when you’re developing/adjusting your crop rotation plans for next year. This recommendation also applies to weeds and some insects.

TOMATO AND POTATO DISEASE UPDATE

LATE BLIGHT UPDATE

This week there are no new reports of late blight in Pennsylvania or in the surrounding region.

Below are the recommended spray schedules for managing LATE BLIGHT as determined on September 16th 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. With the continued rainfall statewide this past week, all 19 locations are on a 5-day spray schedule for late blight so if a fungicide spray has not been applied since September 11th then one is warranted.

This past week, some discrepancies between the in 7-day rainfall total reported in this update and what was being seen on the farm were brought to my attention. Some of those discrepancies were the result of a transcriptional error on my part and I apologize. I corrected the error several weeks ago and should have mentioned it then. Others are the result of the difficulty in using interpolation routines from several weather stations to simulate rainfall amounts under high variable rainfall conditions. This was the case for the highly variable rainfall totals that occurred in a 30 mile band from tropical storm Fay passed over Lancaster Co. on 6 Sep. The rainfall total for 2 to 9 Sep for Leola was 0.13 versus 3.81 for Mt. Joy, PA. Please let me know if you have any questions.

Town	County	7-day rainfall total (9 Sep to 16 Sep)	Blightcast spray message*
Fairview	Erie	0.84	Spray if none
Corry	Erie	2.06	since.....
Sweden Valley	Potter	1.17	Sep 11
Butler	Butler	1.08	Sep 11
Finleyville	Washington	1.47	Sep 11
Loretto	Cambria	1.54	Sep 11
Rock Springs	Centre	1.36	Sep 11

Town	County	7-day rainfall total (9 Sep to 16 Sep)	Blightcast spray message*
Jersey Shore	Lycoming	1.10	Sep 11
Montandon	Northumberland	0.63	Sep 11
Clarks Summit	Lackawanna	0.02	Sep 11
Wyoming Valley	Luzerne	0.25	Sep 11
Germansville	Lehigh	0.55	Sep 11
Kutztown	Berks	2.90	Sep 11
Ringtown	Schuylkill	1.07	Sep 11
Gratz	Dauphin	1.49	Sep 11
Maddensville	Huntingdon	1.47	Sep 11
Waynesboro	Franklin	1.57	Sep 11
Leola	Lancaster	0.50	Sep 11
Mt. Joy	Lancaster	0.62	Sep 11

*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

Conditions have been more favorable for the development of early blight this past week and as a result fungicide spray intervals have been reduced in several locations. The early blight forecaster, FAST, continues to keep locations similar to Germansville, PA in Lehigh Co. on a shorter 5-day spray interval while locations similar to Finleyville in Washington, Co., Rock Springs in Centre Co., Montandon in Northumberland Co. and Mt. Joy in Lancaster Co. are on a 7 to 10-day spray schedule.

Early blight continues to be a common site in tomato fields so maintaining a regular fungicide spray program is advisable in fields with ripening fruit. Disease development is favored by warm, humid weather with heavy dews or rain. If you had trouble with early blight this year, make sure to rotate away from potatoes and tomatoes for at least 2 years and implement practices that reduce leaf wetness and minimize soil splashing.

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	FAST spray message*
Fairview	Erie	Spray if none Sep 3
Corry	Erie	since..... Aug 1
Sweden Valley	Potter	Aug 5
Butler	Butler	July 16
Finleyville	Washington	Sep 7

Town	County	FAST spray message*
Loretto	Cambria	July 30
Rock Springs	Centre	Sep 8
Jersey Shore	Lycoming	July 27
Montandon	Northumberland	Sep 8
Clarks Summit	Lackawanna	July 22
Wyoming Valley	Luzerne	July 20
Germansville	Lehigh	Sep 11
Kutztown	Berks	July 30
Ringtown	Schuylkill	July 28
Gratz	Dauphin	July 30
Maddensville	Huntingdon	Sep 4
Waynesboro	Franklin	Aug 24
Leola	Lancaster	Aug 2
Mt. Joy	Lancaster	Sep 6

*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.