



# PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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## *Pennsylvania Vegetable IPM Weekly Update*

June 29, 2022

*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.*

### **Pest Watch Report**

*Karly Regan, Penn State Extension Educator*

#### **MOTH CATCH STEADY THROUGH PENNSYLVANIA**



*Fig 1. Corn earworm begin feeding at the ear tip and leave moist frass behind.*

There was not much increase in corn earworm numbers this week and some sites even caught fewer than last week. Sites in Franklin and Mifflin counties are experiencing catches per night of 6-7 moths per night which means a spray interval of 4-5 days would be suggested for corn that's tasseling or silking in those areas. As a reminder, corn that is tasseling or silking is very attractive to corn earworm, as eggs are laid on silks, and control must be achieved while larvae are recently hatched before they've entered the ear.

Once the spray threshold is reached, you can consider products from the pyrethroid class, diamide class, or spinosyn class for effective control. We tend to see the best efficacy from non-pyrethroid products such as Coragen, Blackhawk, and Radiant, as pyrethroid resistance has increased in migrating corn earworm populations. However, we tend to see more

resistance later in the season than now, as moths migrate from further south in the United States up to our region. Diamides and spinosyns do not provide effective control of other pests such as sap beetles, brown marmorated stink bug, Japanese beetles, or adult corn rootworms. If you're seeing these pests as you scout your corn, consider adding a pyrethroid, or the premix Besiege to control those.

We're still seeing very few fall armyworm caught for this season in Pennsylvania, though one site in Lycoming County averaged 0.8 moths caught per night this week. By managing for corn earworm, fall armyworm should be adequately controlled, as well.

*THRESHOLDS Reproductive (tassel/silk) and late vegetative corn attract moths. Shorten spray schedules when populations increase.*

Threshold based on CEW	Catch per week	Spray Frequency
Almost Absent	1-13	7+
Very low	14-35	5-6
Low	36-70	4-5
Moderate	71-349	3-4
High	>350	2-3

Average weekly catch – 7-day moving average. The average catch per night (total catch, divided by the number of nights trapping), divided by the number of nights where data exist, multiplied by 7. If no data exist for that week, null is reported.

County	Site	CEW			FAW		
		June 13	June 21	June 27	June 13	June 21	June 27
Blair	Curryville	1.7	7	0.9	0	0	0
Blair	Sinking Valley	0.9	2.1	2.9	0	0	0
Bucks	Doylestown	0	0.6	0.4	0	0	0
Centre	State College	0.3	2	6	0	0	0
Centre	Rock Springs	0.7	2.8	2.8	0	0	0
Clinton	Loganton	Null	0.3	0.3	Null	0	0
Franklin	Shippensburg	0.3	9.1	7	Null	0.1	0
Franklin	Waynesboro	8	8.7	5	0	0	0
Indiana	Indiana	Null	2.7	0.5	Null	0	0
Lancaster	Landisville	0.1	0.7	0.4	0	Null	0
Lancaster	New Danville	0	0.6	0.1	0	Null	0
Lancaster	Neffsville	Null	0.4	0.6	Null	Null	0
Lehigh	Germansville	Null	5.8	Null	Null	0	Null
Lycoming	Linden	Null	Null	2	Null	Null	0
Lycoming	Montoursville	Null	Null	0.9	Null	Null	0.9
Mifflin	Belleville	Null	7.1	6	Null	0	0
Washington	Venetia	Null	5.4	2.3	Null	Null	0
York	York	0.3	0	1	0	0	0

## **Vegetable Disease Updates**

*Beth Gugino, Penn State Extension Vegetable Pathologist*

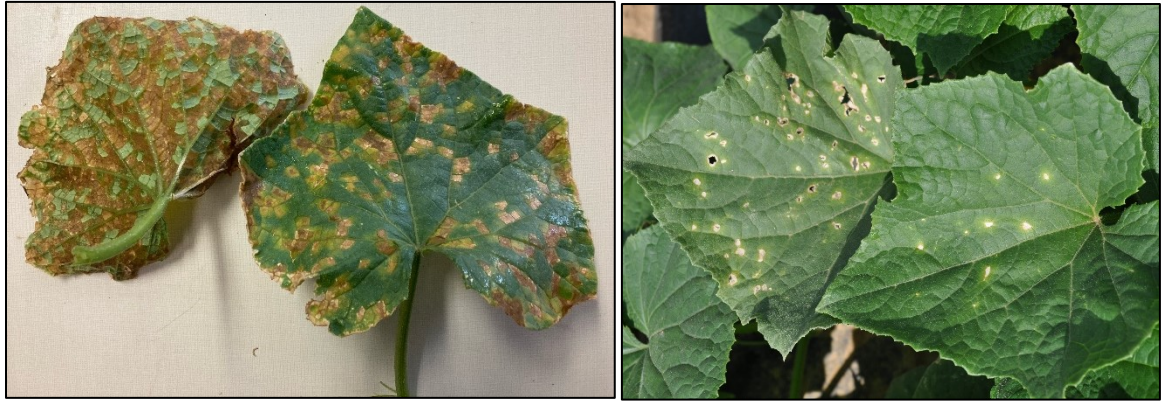
### **GENERAL UPDATES:**

- Currently there continue to be **no reports of late blight** on tomato or potato in the region. If you suspect late blight on your farm, please let me know either by email at [bkgugino@psu.edu](mailto:bkgugino@psu.edu) or by phone at 814-865-7328 or contact your local Extension Office.
- So far there have also been no reports of **powdery mildew in commercial pumpkin fields**. In central Pennsylvania on pumpkin, I tend to first see it on susceptible cultivars towards the end of July in crops seeded in early June. Powdery mildew is best managed with the first onset of symptoms (one white circular lesion on 50 scouted leaves). Initial symptoms are typically on the underside of the leaves especially if a protectant fungicide program is being used.

### **DOWNY MILDEW CONFIRMED ON CUCUMBER IN LANCASTER Co., PA**

Last Friday June 24<sup>th</sup>, downy mildew was on a farm in Lancaster County. Symptoms were severe so the initial infection likely occurred a couple weeks ago. It typically takes a week between when the pathogen infects the plant and for visible symptoms to develop. With the unsettled weather in the forecast this weekend, it is important that cucumber and cantaloupe crops are protected with downy mildew specific fungicides. Some of the products effective include Ranman, Previcur Flex, Orondis Opti, Orondis Ultra, Zampro (see the [2022-23 Mid-Atlantic Commercial Vegetable Recommendations](#) for the complete list). These are more effective than protectants because they are specific to oomycete pathogens like downy mildew and they have translaminar activity meaning that product applied to the upper leaf surface will move through the leaf and manage sporulation on the underside of the leaf. If only using a protectant fungicide like chlorothalonil or mancozeb then complete coverage of both the upper and lower leaf surface is needed. These products only work where they were originally applied.

When scouting your fields look for angular yellow lesions on the upper leaf surface. If early in the morning, there will be water soaking on the corresponding lower leaf surface and then more purple sporulation as the morning dew dries. A hand-lens can be helpful if



*Range of downy mildew symptoms on a severely infected cucumber leaves (left) and angular leaf spot with shot holes symptoms (right) (Photo credits: Jeff Stoltzfus, Penn State Extension and Beth Gugino, respectively).*

there is not a lot of sporulation. More advanced leaves will turn tan in color and new lesions will eventually cover the entire leaf. Downy mildew does not directly affect the fruit but rather reducing the photosynthetic capacity of the leaves that reduces fruit quality. On cucumber, the closest look alike is angular leaf spot. Since this is a bacterial disease, purple sporulation will not develop on the lower leaf surface. It is also more common for the centers to fall out of more advanced lesions giving the leaves a shot hole appearance.

If you suspect cucurbit downy mildew on your farm, please let me know either by email at [bkgugino@psu.edu](mailto:bkgugino@psu.edu) or by phone at 814-865-7328 or contact your local Extension Office. For the latest reports and forecasts check out <https://cdm.ipmpipe.org/>.

## Clinic Corner: Findings from the Penn State Plant Disease Clinic

**Jennie Mazzone Penn State Research Technologist and Assistant Diagnostician**  
**TOMATO PITH NECROSIS**

One of the research greenhouses at Penn State submitted a tomato sample to the [Penn State Plant Disease Clinic](#) in May. The plant had yellow, wilted leaves and brown/black stem and petiole lesions. Cutting the stem lesions longitudinally revealed pith discoloration and laddering (chambered, ladder-like appearance of pith). Severely affected pith tissue was hollow. Affected stems showed large numbers of adventitious roots. Fruits were brown/black with a greasy, water-soaked appearance. An Agdia ImmunoStrip test was negative for the bacterial canker pathogen *Clavibacter michiganensis* subspecies *michiganensis* (Cmm). By ruling out bacterial canker, confirming the symptoms described, and culture isolations, we were able to diagnose the sample as tomato pith necrosis. This disease is caused by several bacterial species, most commonly soil-borne *Pseudomonads*.

Tomato pith necrosis symptoms often develop when the first fruit set is close to mature green. This disease can be easily confused with bacterial canker since their foliar symptoms are similar. Finding laddering in the pith can help distinguish pith necrosis from other tomato diseases but this symptom can also be caused by other factors, such as lightning damage. The best way to diagnose pith necrosis, or rule it out, is to submit a symptomatic plant sample to the [Penn State Plant Disease Clinic](#).



*Brown lesion and adventitious roots on tomato stem (top left). Longitudinal tomato stem section showing discolored, hollow, and ladder-like appearance in the pith (top right). Discolored tomato fruit with water-soaked appearance (bottom). (Photo credits: Jennie Mazzone).*

Pith necrosis is associated with low night temperatures, high nitrogen fertility, and high humidity. This disease can be problematic on high tunnel tomatoes that are planted early. To manage pith necrosis, avoid using high nitrogen fertilizer rates, increase ventilation and remove all plant residue. The bacteria survive in the soil and may also be seed-borne. More information on this disease and its management is available in this [University of Massachusetts Amherst article](#).

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