



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

July 27, 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 INCREASING IN SOME AREAS THIS WEEK



Fig 1. A larval corn earworm Photo credit: Karly Regan

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.

Corn earworm numbers caught in traps reporting data this week were quite low in most areas but increasing at some sites. Sites in Bedford, Centre, Franklin, Lancaster, and Mifflin Counties experienced average catch per night of 2-5 moths which means a spray interval of 5-6 days would be suggested for corn that's tasseling or silking. Lehigh County experienced average catch per night of 10 moths, which means a spray interval of 3-4 days would be suggested. All other sites could reduce spray intervals to every 7 days, based on moth catch. 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



Fig. 2. A larval fall armyworm on an ear of corn Photo credit: Karly Regan

Fall armyworm catch picked up at one site this week, catching 3.1 per night in Bedford County and 1-2 over the week period at sites in Juniata, Lycoming, and Mifflin Counties. By managing for corn earworm, fall armyworm should be adequately controlled, as well. Fall armyworm damage can occur on the ear, as well as on the foliage. Foliage feeding will leave ragged edges and waste that resembles sawdust.

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		
		July 11	July 18	July 25	July 11	July 18	July 25
Bedford	Curryville	0.2	2	2.9	0	0	3.1
Blair	Sinking Valley	1	2.1	Null	0	0	0
Bucks	Doylestown	0.8	2.1	1.9	0	0	0
Butler	Cabot	1.4	0	Null	0	0	0
Centre	State College	6	1.5	3.7	0	0	0
Centre	Rock Springs	1	1	2.1	6	0	0
Clinton	Loganton	0	0	0.9	1.3	0	0
Franklin	Shippensburg	1.8	3.9	4.3	0	0	0
Franklin	Waynesboro	3.6	1.1	0.9	0	0	0
Indiana	Indiana	0.9	2	1.6	0	0	0
Juniata	Port Royal	3.1	1	0.7	0	0.3	0.3
Lancaster	Landisville	0.7	2.1	4.4	0	0	0
Lancaster	New Danville	0.5	0.4	0.7	0	0	0
Lancaster	Neffsville	0.7	0.3	1.9	0	0	0
Lehigh	Germansville	1.2	1.1	10.3	0	0	0
Lycoming	Linden	2.8	1.7	1	0	0	0.3
Lycoming	Montoursville	2.1	0.3	0.6	0	0.3	0.3
Mifflin	Belleville	Null	0.7	3.4	0	0	0.1
Montgomery	Souderton	Null	3	3.4	Null	0	0
Northampton	Easton	Null	Null	0	Null	Null	0
Washington	Venetia	4	8.3	Null	0	0	0
York	York	0.3	0.3	Null	0	0	0

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

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

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

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 or by phone at 814-865-7328 or contact your local Extension Office.
- Reports of **downy mildew on cucumber** have continued to expand over the past week with confirmations in MI, OH, VA, NY, NC, and MD. In PA it has been confirmed in Snyder, Mifflin, Dauphin, Juniata, Lancaster, Berks and Bucks Co. and is suspected in Union and Clinton Co. This aligns with the parts of the state that have been at highest risk for CDM. However, now most parts of PA experienced moderate to high-risk conditions for infection and disease development over the past 4 to 5 days as a result of potential inoculum moving east from MI and OH. Reports remain primarily on cucumber with a couple on cantaloupe in DE and MA. Downy mildew management should continue to focus on cucumber and cantaloupe crops. If you suspect cucurbit downy mildew on your farm, please let me know either by email at 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/>.
- There have been several questions regarding **Gummy stem blight and black rot of cucurbits** over the past couple of weeks. Gummy stem blight is more prevalent on melons and watermelon and slightly less so on other cucurbit hosts. The fruit rot phase is called black rot. Lesions on the leaves quickly become very large blighting the whole leaf. Tan water-soaked lesions develop on the stems with very small black specks which are the fruiting bodies of the pathogen). Stem cankers are woodier and often produces reddish brown exudate on cantaloupe and watermelon hence the name gummy stem blight. Moisture is more important than temperature, so the disease is often active at night with dews/rains and temperatures in the mid-70's F. Under favorable conditions, fungicides will help prevent fruit loss. When the spores land on developing fruit it can lead to black rot. Black rot symptoms vary depending on cucurbit type but is most distinct on butternut squash often described as resembling petrified wood. Black rot can be challenging because symptoms might not develop until post-harvest. Managing the foliar and stem phase of the disease will reduce fruit rot losses. Due to resistance, FRAC code 11 fungicides are not recommended. Pre-mixed products containing a FRAC 11 active ingredient should be tank mixed with a protectant. Under high disease pressure, alternate chlorothalonil with FRAC 3 fungicides such as Proline, Rhyme or tebuconazole or a FRAC 3 containing fungicide such as Luna Experience, Inspire Super and Aprovia Top. Other options include Switch and Miravis Prime. Keep in mind that wounding during harvest can negate the benefit of the in-season fungicide program for managing black rot.



Foliar and stem symptoms of gummy stem blight on watermelon and distinct fruit symptoms of black rot on butternut squash (Photos: D. Langston, Virginia Tech (top) R. Melanson, Mississippi State (middle) and Gerald Holmes, Cal Poly San Luis Obispo (bottom) – all bugwood.org).

Clinic Corner: Findings from the Penn State Plant Disease Clinic

Jennie Mazzone Penn State Research Technologist and Assistant Diagnostician

The [Penn State Plant Disease Clinic](#) received a tomato sample in July from a commercial greenhouse in Perry County, PA that was positive for **bacterial canker** caused by the bacterium *Clavibacter michiganensis* subspecies *michiganensis* (Cmm) using Agdia's Immunostrip test. The sample had symptoms of foliar blight and stem necrosis. Early-stage foliar symptoms included necrotic/chlorotic lesions originating on leaf margins whereas late-stage foliar symptoms showed completely necrotic foliage and necrotic, water-soaked stem lesions. Internal necrosis of the vascular tissue and pith was present. The entire plant was wilting due to the bacteria colonizing these internal tissues. Other symptoms that may form with this disease are stem cankers and small, brown, raised spots with white halos on fruit.

The initial introduction of this pathogen onto a farm typically occurs from contaminated seeds or seedlings. The bacteria enter plants through natural openings or wounds and can quickly spread via water splash, workers, or contaminated equipment. The pathogen can survive for 2-3 years in crop debris so rotating out of tomato or pepper for a minimum of 3 years is recommended. Weeds can also harbor the pathogen so thorough weed management is also recommended. Purchasing certified seed or transplants or [hot water treating seed](#) is important. Be careful to follow all the instructions when hot water treating. Improper equipment calibration, temperature or treatment duration can compromise the efficacy of the treatment. Sanitize equipment using disinfectant. Remove symptomatic plants where bacterial canker has been confirmed. Please refer to the [2022-23 Mid-Atlantic Commercial Vegetable Recommendations](#) for additional management recommendations.



Early-stage bacterial canker foliar symptoms (upper left) show large areas of necrosis and chlorosis on the leaves compared to late-stage foliar symptoms (upper right), which show completely necrotic foliage and necrotic, water-soaked stem lesions. Cutting the tomato stem longitudinally can reveal internal stem discoloration (Photos: Jennie Mazzone).