PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

August 16, 2023

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.

PA Vegetable and Berry Current Issues for August 15, 2023

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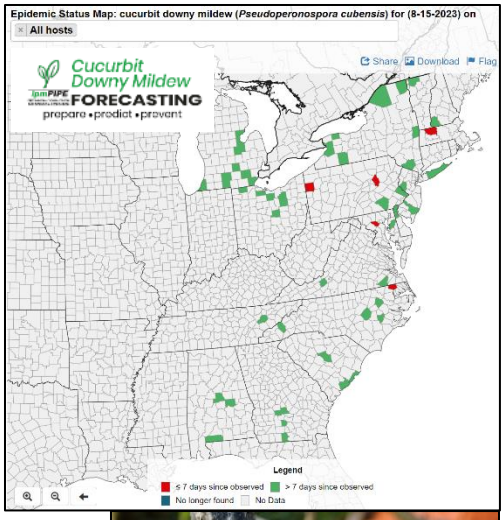

FIELD/HIGH TUNNEL PRODUCTION

Downy mildew was reported on cucumber in Mercer and Columbia Counties this past week along with new reports in Michigan, Maryland, and Massachusetts. There was a new report on jack-o-lantern pumpkin in northeastern North Carolina along with a previous report in northwestern Ohio. These are the closest reports on the hosts that are primarily affected by Clade 1 of the pathogen. Protectant fungicides such as chlorothalonil being applied to help manage powdery mildew will also help protect against downy mildew. Since the pathogen is dead once the plant tissue is dead, consider disking down or burning down fields with an herbicide once harvest is finished to reduce spread to other fields.

Powdery mildew is a common sight on cucurbit crops. It is important to rotate among fungicides with different FRAC codes to help manage for fungicide resistance as well as to direct the application of fungicides into the canopy to protect the handles of pumpkins being marketed for the fall harvest season.

Powdery mildew on a pumpkin handle will eventually cause it to shrivel and turn brown. (Photo: Beth K. Gugino)

There have been reports of **yellowing and wilting pumpkins**. This could be due to a soilborne pathogen that is restricting root growth and/or clogging the vascular system reducing the ability of the plant to take up water. It is important to try to get an accurate diagnosis so that you can plan for next year. There are some fungicides like Proline or Rhyme that could be applied through the drip irrigation for diseases caused by Fusarium while Verticillium wilt is much more difficult to manage and has a much wider host range including eggplant, pepper, potato, etc. Pythium crown and root rot may also be the problem. Keep in mind that sometimes the yellowing can be due to environmental issues such as too much water or nutritional deficiencies. This is a good time to remind you to flush your irrigation lines after fertilizing to prevent clogged emitters.

Anthracnose has also been reported on watermelon. This disease can affect other cucurbit crops with cantaloupe and other melons being most susceptible. It favors the warm wet conditions that have dominated the weather. Strobilurin (FRAC 11) fungicides can be effective but should be rotated with other chemistries.

Foliar and fruit symptoms of anthracnose on watermelon. (Photo: T.E. Elkner, Penn State Extension)

Stink bug damage is being reported in field tomatoes. Stink bug damage on tomato fruit resembles a small yellow starburst directly under the skin.

There were several reports of **Harlequin bugs** as well as **cabbage white caterpillars on brassicas**.

A severe outbreak of **Botrytis neck rot was reported in onions** harvested from one field. This species of Botrytis is specific to onion and other allium crops. The plants are infected in the field towards the end of the season and then symptoms develop in storage. Fortunately, it does not spread in storage. Thoroughly drying the necks at harvest is the best way to prevent Botrytis neck rot from developing during storage. When possible, field dry the plants for several days before topping and placing them in bins. Fans can further facilitate the drying process post-harvest. The application of fungicides is not an effective management tool.

External and internal symptoms of Botrytis neck rot on an onion bulb. (Photo: Beth K. Gugino)

BERRY CROPS

Spotted wing drosophila is the main pest of concern right now, as numbers are high especially in plantings where sprays are not being applied routinely. Blackberries, elderberries, fall-bearing raspberries, and day-neutral strawberries are likely to come under significant attack for the remainder of the season. Use all cultural controls that you can, including frequent and clean harvests, removal of cull fruit, using landscape fabric to make cleanup of fallen fruit easier and reduce humidity in the planting, and keeping plantings weeded and rows narrowed back. Information on ratings of pesticide efficacy and allowable uses is available here, along with further information on how the ratings were developed: https://extension.psu.edu/spotted-wing-drosophila-insecticide-efficacy

With warm wet weather, **fruit anthracnose** on field-grown day-neutral strawberries is being seen. Recommendations for anthracnose control in day-neutral strawberries are the same as for June-bearing strawberries as outlined in this article: https://extension.psu.edu/strategies-for-effective-management-of-botrytis-and-anthracnose-fruit-rot-in-strawberries.

There is some concern that the same virulent strain of **Neopestalotiopsis** that caused major problems in 2020 and 2021 is still around and may pop up on certain farms as new plantings of plasticulture strawberry plants are being established. This disease is difficult if not impossible to eradicate. Watch for symptoms, and if you see them in your plants, please let your local extension educator know or send an email with photos to Kathy Demchak at efz@psu.edu .

Neopestalotiopsis on 'Galletta' strawberry, which is resistant to this disease, but not immune. (Photo: K. Demchak)

Other problems being seen on strawberry include **powdery mildew**, which causes leaves to curl inward and a purple blotchiness to the leaves. Usually treatment is not needed for foliar symptoms alone in the fall, but if fruit is being affected, specific powdery mildew fungicides may be needed. This includes products in categories 3 (Rally, Orbit, etc.), 11, and 13 (Quintec). Resistance to all of these products exists, so if control is poor, you may have resistance in the strains on your plants. Day-neutral varieties are especially susceptible.

Powdery mildew on 'Seascape' strawberry causing purple blotches and inward leaf curling. The yellowing of leaves is being caused by potato leafhopper. (Photo: K. Demchak)

Watch for **strawberry rootworm** – this beetle pest chews small oval-shaped holes in the leaves, and lays its eggs on lower leaves near the base of the plant during late spring and early summer. The larvae then feed on the roots and can weaken plants. Adults are active at night, so any sprays should be applied in the evening.

Holes in leaves caused by strawberry rootworm adult feeding. (Photo: K. Demchak)

PestWatch Report – August 16

MOTH CATCH SUBSTANTIALLY INCREASES ACROSS PENNSYLVANIA

Glen Bupp and Leah Fronk, Penn State Extension

Corn earworm numbers caught in traps reporting data this week substantially increased at many sites around Pennsylvania this week. Rutgers also reported an increase in corn earworm for New Jersey, so activity has sharply increased in the upper Mid-Atlantic. Sites in Bucks, Butler, Lancaster, Washington, and York counties have experienced weekly catch thresholds for spray intervals of 3-4days. Some northern counties and mountainous areas are experiencing lower catch numbers and are still on a 5 day or more suggested spray interval.

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.

Fig 1. A larval corn earworm feeding on corn

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, Verimark, Blackhawk, and Radiant, as pyrethroid resistance has increased in migrating corn earworm populations. Particularly, we tend to see more resistance later in the season, 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, stink bugs, 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.

Fall armyworm catch remains low. A total of 2 moths were caught around Pennsylvania in counties reporting this week. 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 for corn ear worm:

Location	30-Jul	6-Aug	13-Aug	Location	30-Jul	6-Aug	13-Aug	Location	30-Jul	6-Aug	13-Aug
Bedford, Pennsylvania				**Franklin, Pennsylvania**				**Luzerne, Pennsylvania**			
Peach Hill Orchard	3	17	55	Waynesboro	1	39	41	Burger's Farm			
Blair, Pennsylvania				**Indiana, Pennsylvania**				Drums	6	7	35
Hillview Farms	11	20	26	Brush Valley	4	2	30	**Lycoming, Pennsylvania**			
Bucks, Pennsylvania				Yarnick's Farm	8	8	60	Shirey Farm			
Delaware Valley U	25	21	204	**Juniata, Pennsylvania**				Snyder Farm	2		
Butler, Pennsylvania				Port Royal	8	8	56	**Mifflin, Pennsylvania**			
Renfrew	6	15	72	**Lackawanna, Pennsylvania**				Belleville	28	8	
Centre, Pennsylvania				Eckel	3			**Montgomery, Pennsylvania**			
PSU Research Farm	3	5.5		Eckel 2				Souderton	4	20	17
State College	0	0		**Lancaster, Pennsylvania**				**Susquehanna, Pennsylvania**			
Clinton, Pennsylvania				Landisville	12	10	74	LaRue's Montrose	1		
Loganton	5	2.5		Neffsville	10	34	118	**Washington, Pennsylvania**			
Erie, Pennsylvania				New Danville	18	25	81	Peters Township	44	35	110
Lake City Nursery Rd	5	2	3	**Lehigh, Pennsylvania**				**York, Pennsylvania**			
Lake City Rt 5	0	2	0	Germansville, PA	10			York	17	16	94

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

Fig. 2. Fall armyworm feeding damage on corn