



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

July 19, 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 – July 18

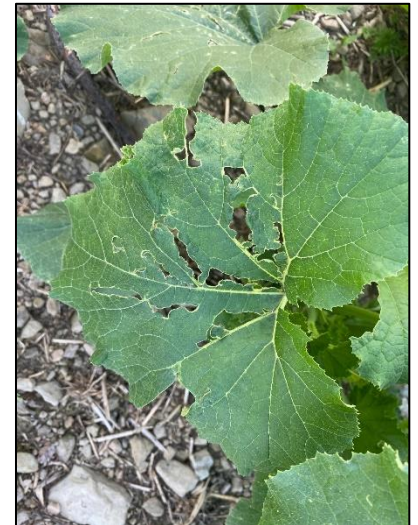
Beth Gugino and Kathy Demchak, Penn State University

General conditions: According to the [Northeast Regional Climate Center](#), the first half of July resulted in excessive rainfall across interior New England, northern New Jersey and eastern Pennsylvania. Severe flooding resulted from both excessive rainfall as well as flooding from streams and rivers. Remember produce in fields that were flooded as a result of overflow from streams and rivers is not marketable; however, flooding and ponding due to rainwater does not introduce the same food safety risk and produce can still be marketed. Unfortunately, this trend in the increase in number and intensity of extreme rainfall events will likely continue into the future in the Northeast region. Longer term investments in improving soil health and resiliency will become increasingly important.

FIELD PRODUCTION

Reports of **downy mildew on cucumber** are increasing with another report in southern New Jersey, several more reports in Quebec, Canada as well as an unconfirmed report in Montgomery, Co. PA. There was also another report on butternut squash in central South Carolina. This is the closest report of the strain that affects pumpkin, summer and winter squashes and watermelon. Continue to regularly scout cucurbit crops and maintain a regular spray program on cucumbers and cantaloupe. Any broad-spectrum protectants being tank mixed for powdery mildew or management of other diseases will also help protect the crop from downy mildew.

Hail and storm damage is also being observed in cucurbit fields. It can cause tattering of the leaves. As the plants continue to grow, the new growth should be damage free. **Cucumber beetles** and **powdery mildew** are continuing to be observed on vine crops. For powdery mildew, programs with products representing at least three FRAC codes are recommended. FRAC 3 fungicides such as Proline, Rhyme, or Procure are recommended along with Vivando (FRAC U8) and FRAC 3 + 7 fungicides Aprovia Top and Luna Experience. The efficacy of Torino and Quintec has been more variable on a regional level, but based on recent trials in PA can be effective if included with some of the



Tattered pumpkin leaf due to hail and severe storm damage. Photo credit: Sara Hricko, Penn State Extension.



Female squash bug laying eggs on a pumpkin leaf. Photo credit: Beth Gugino.

previously mentioned products. Read the label to determine the number of applications of a product that can be made in a season.

Spider mites are being observed in some watermelon fields in western PA. Also be on the lookout for **squash bug nymphs** hatching out of the characteristic bronze eggs laid in a diamond pattern on the underside of the leaf. The youngest nymph stages are the most sensitive to insecticide applications.

Phytophthora blight continues to be a problem in fields that have experienced heavy rains and ponding in the field. Consider holding onto cucurbit fruit harvested from these fields for a few days to avoid taking infected but asymptomatic fruit to market. The fruit rot phase of the disease will continue to progress post-harvest.

Blackleg and soft rot are being observed in some potato fields. This is a bacterial disease that can be caused by several different types of bacteria that are often associated with the seed lot and is favored by cooler, wet conditions. Early in the season it can manifest itself as poor seed emergence and later in the season as blackening of the stem pith and vascular system under wet conditions. The leaves then become yellow and curl upward. It also causes a soft rot of potato tubers since the bacteria are able to degrade or feed on the pectate found in the cell walls causing them to break open and leak their cell contents.

Due to the hot weather and severe storms, many **sweet onion fields** have been harvested and are being dried down. Thoroughly drying down the necks will help limit potential movement of bacteria from the neck into the bulb of the onion. Also try to minimize fluctuations in moisture and humidity to minimize the development of black mold on the surface of the onion bulbs.

Growers are also reporting issues with **Japanese beetles in many crops**. **Spongy moths** are also being caught in corn earworm traps that are closer to wooded borders. Spongy moths can be easily distinguished from other moths by their feathery antenna.

BERRY CROPS

After harvest and renovation is the time to treat June-bearing strawberries with products such as Ridomil or Orondis Gold if the diseases categorized as “water molds” (*Pythium*, *Phytophthora*, etc.) are known or strongly suspected to be present, such as when strawberries are grown in wet fields. That might be a lot of our fields given the recent deluges the state has been experiencing. ‘Flavorfest’ was found to be susceptible to several of these species, but no variety is resistant to them all.

As you are working on getting new fields ready for plantings of **plasticulture strawberries**, given the root and crown rots that we’ve found in the past (and mentioned above), be sure to choose fields that have been out of strawberry production for as long as possible to minimize disease pressure.

Spotted wing drosophila is present very consistently in different berry crops now. Watch for juice stains on raspberry receptacles, or berries that have a reduced shelf-life, as this is a sign that SWD may be present. Harvest raspberries every day if possible to keep populations low. Refrigerate fruit as close to 32 degrees as possible right away – this kills eggs and recently-hatched larvae. Keep plantings weeded and rows narrowed back to allow sprays to infiltrate the row. Remove cull fruit from the planting completely and bag it. For brambles, effective products with a 1-day PHI on brambles include Mustang Maxx, Verdepryn, Exirel, and Delegate. These products are also labeled for blueberries, but on highbush blueberries Exirel and Delegate have a 3-day PHI (unless specific directions for Delegate are followed for blueberry to allow a 1-day PHI). If using broad-spectrum insecticides, keep watch for flare-ups of two-spotted spider mites. Mustang Maxx is a restricted-use insecticide.



Post-harvest development of Phytophthora on watermelon.
Photo credit: Jeff Stoltzfus, Penn State Extension.

Parasitoid wasps were found to be emerging from **SWD pupae** collected from wild bush honeysuckle fruit within the last week, though the species of wasp has not yet been identified. Whether parasitoids will provide significant control of SWD or not won't be known for several years, but this is an encouraging finding.

Cane blight and/or **spur blight** is being seen on raspberries. Often the problem isn't obvious until the canes collapse during the stress of fruiting when in reality the infections likely took place last year. Remove old fruiting canes after harvest and make sure to remove pruning stubs in the spring as this is where the inoculum resides. Keep in mind that cane death may also simply be due to winter injury.

Raspberry cane borer is very common this year, perhaps due to higher survival of larvae with mild winter temperatures. Insecticides have no effect on the eggs or larvae since they are inside the stem. Watch for wilted tips on new raspberry or blackberry canes, and check for two lines of punctures encircling the stem. Cut out infested canes starting near the tip, and if a hole in the cane is found, keep cutting lower until the cane is solid.

Thrips are still around and are causing a bronzing on bramble fruit, just like with strawberries. Their presence alone is enough to discourage fruit sales. Sprays for SWD will assist in their control.

PestWatch Report – July 19

MOTH CATCH STABLE THIS WEEK

Glen Bupp and Leah Fronk, Penn State Extension

Corn earworm numbers caught in traps reporting data this week were low in most areas and slightly decreased at some sites. One site in Indiana county experienced a weekly catch of 96 moths which means a spray interval every 3-4 days would be suggested for corn that's tasseling or silking. One site in Erie County experienced a weekly catch of 56 moths which would mean they are on a spray interval of 4-5 days. All other sites could reduce spray intervals to every 7 days or so, 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.

If you're monitoring for corn earworm and live in an area where spongy moth (*Lymantria dispar*) occurs, be sure that you are correctly identifying the moths you catch, as spongy moth males have been detected in corn earworm traps and can be mistaken for corn earworm at first glance. The easiest way to differentiate the two species is that corn earworm will have slender antennae whereas spongy moth will have bushy antennae. Spongy moth is typically a forest pest rather than vegetable pest but has been documented to feed on vegetables when populations are very high.

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.



Leaf and cane symptoms of spur blight. Infections start in leaf tissue but travel to the node where the leaf was attached. Photo: K. Demchak.



Lines of punctures made by raspberry cane borer on red raspberry, causing tip of cane to wilt. Photo: K. Demchak.



Left: A larval corn earworm that has eaten the silks and is now feeding on the ear tip
 Right: Adult male spongy moth, Photo Credit: Tom Butzler

We're still not seeing many fall armyworm caught for this season in Pennsylvania, with only one site catching 2 moths over a 7-day period. By managing for corn earworm, fall armyworm should be adequately controlled, as well.

Corn Earworm 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	SITENAME	12-Jul	19-Jul	COUNTY	SITENAME	12-Jul	19-Jul
Bucks	Delaware Valley University	17	7	Lancaster	Landisville	10	6
Butler	Renfrew	9	8	Lancaster	Neffsville	40	28
Centre	PSU Research Farm	9	11	Lancaster	New Danville	36	17
Clinton	Loganton	1	12	Lehigh	Germansville	1	17
Centre	State College	6	3	Luzerne	Drums	15	12
Erie	Lake City Fairplain Rd	45	56	Lycoming	Snyder Farm	63	10
Erie	Lake City Rt 5	23	13	Montgomery	Souderton	--	6
Franklin	Waynesboro	69	23	Washington	Peters Township	41	24
Indiana	Brush Valley	1	2	York	York	6	6
Indiana	Indiana	60	95				

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