PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

July 5, 2023

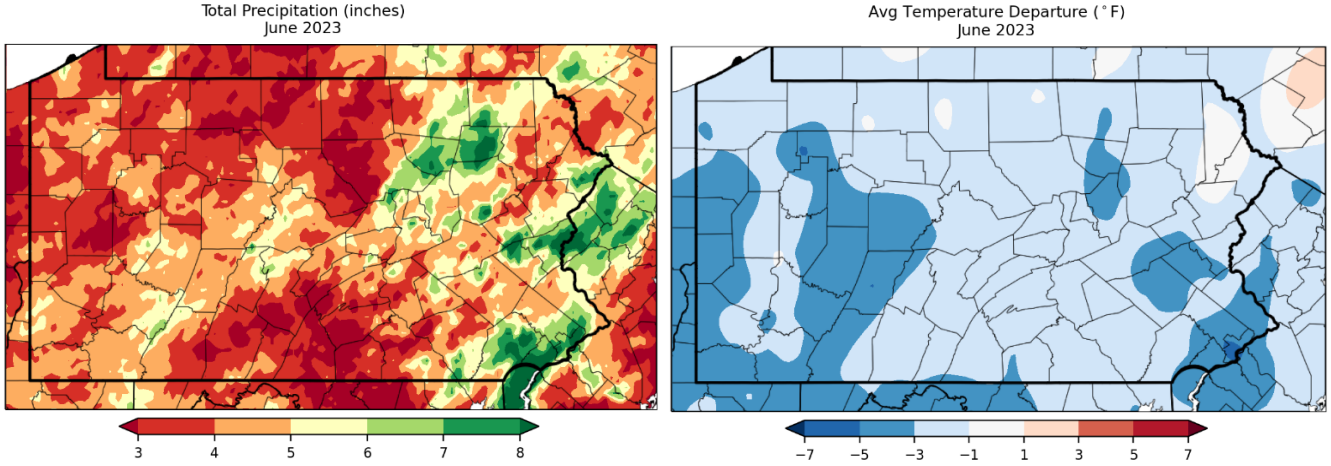
These are cooperative projects involving Penn State University researchers, Penn State Cooperative Extension educators, growers, the Pennsylvania Department of Agriculture, the Pennsylvania Vegetable Marketing and Research Program and the Pennsylvania Vegetable Growers Association.

PA Vegetable and Berry Current Issues

Beth Gugino and Kathy Demchak

GENERAL CONDITIONS

Recent rains and warmer temperatures are bringing relief and improved crop growth to much of the state. However, the warm wet conditions also mean that disease and weed pressure is likely to increase rapidly, so don't be caught off-guard. If you are wondering just how unusual our June 2023 weather was, see the temperature and precipitation maps below, as this helps to explain the slow start to the season on many of our farms.



Source: https://www.nrcc.cornell.edu/regional/monthly/monthly.html

FIELD PRODUCTION

Be on the lookout for **cucurbit downy mildew** on cucumber and cantaloupe. It was again confirmed on cucumber in southern New Jersey on 1 July. The storms and high relative humidity are ideal conditions for the spread of downy mildew. Last week there were two new reports in cucumber in Quebec, Canada just north of the New York/Vermont northern border and also a report on cucumber in eastern North Carolina. The closest report of the strain that affects pumpkin and butternut squash is in southeastern South Carolina and was reported yesterday. The recent storms have created conditions that are favorable for pathogen spread and disease development. 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. This disease is best managed on an areawide scale, so it is important to know where potential sources of the

pathogen are present. If you suspect downy mildew on your farm, please let me (B. Gugino) know at 814-865-7328 or contact your local Extension Office. **Cucumber beetles** and **powdery mildew** are also being observed on vine crops. Cucumber and cantaloupe fields with poor early season cucumber beetle management over the past several weeks are now developing symptoms of **bacterial wilt**. **Phytophthora blight** will likely be on the increase with the heavy rains this past week that left standing water in the field. Proactive water management can help reduce disease pressure. For example, trenching perpendicularly to the rows to facilitate water drainage out of row middles can be helpful.

Trenching perpendicular to the rows to facilitate drainage in a watermelon field. Photo: T. Butzler, Penn State Extension.

Onion harvest has started in some fields. When topping, leave at least 2.5 inches of neck. Necks that are cut too short will take longer to dry and increase the chances of any **bacterial diseases** progressing into the bulb. If you observe a lot of bacterial disease in the field, consider harvesting sooner rather than later.

Flea beetles are being reported on young brassica transplants. Some growers are continuing to struggle with managing **wildlife damage** from deer, groundhogs, racoons, rabbits and turkeys on their crops. More adult Japanese beetles are being seen in fields, and numbers are likely to increase from this point onward.

HIGH TUNNEL/GREENHOUSE PRODUCTION

Many of the usual suspects are being reported including **leaf mold** and **timber rot on tomato**. As timber rot advances the pathogen will produce sclerotia which will enable the pathogen to survive in the soil in the absence of a host for an extended period of time. Be careful when roguing out plants with timber rot to prevent the sclerotia from falling to the soil.

Aphids, mites, thrips, and whiteflies are also a common sight in many high tunnels and greenhouses on both vegetable and berry crops.

BERRY CROPS

Strawberry renovation season is ongoing or coming up for those carrying over matted-row or plasticulture plantings. This is one of the critical times to treat for **cyclamen mites**, which have been common this year. They've caused either bronzing and cracking of fruit as noted in the last update, and/or compressed plants with disfigured new leaves. These mites are very tiny. The photo to the right is of a new leaf that emerged from a strawberry crown and is about 3/16th of an inch wide at its base, i.e., already greatly magnified. There is a peach-colored speck in the center of the oval that is an adult cyclamen mite – nymphs are even smaller and clear in color. Several miticides are fairly effective if they can contact the mites, and therein lies the problem - it is extremely difficult to get the miticide into the crown. For this reason, a high-volume spray directed to the crown is needed at renovation after the old leaves are mowed off and just as the new ones are beginning to grow back. Agri-Mek and Portal have both shown good effectiveness in lab tests where they were in contact with the mites, but Agri-Mek has translaminar activity, so it can move into the plant tissue better while Portal must directly contact the mites.

Magnified petiole of leaf just emerging from the strawberry crown with an adult cyclamen mite barely visible in the oval. Photo: K. Demchak.

Powdery mildew on 'Galletta' strawberry. Photo: K. Demchak.

Powdery mildew had been noticed in some strawberry fields, but if the plants are being mowed for renovation, it is not worth treating right now. It is a different case with day-neutral strawberries, as fruit could be affected in addition to leaves, which develop purple splotches mainly around the edges and curl inwards. Fungicides that are effective on powdery mildew are different from the ones typically used to control other leaf spots and fruit-rotting disease, and are mostly in category 3 (Rally, Procure, Orbit, Tilt, etc.) or are specific powdery mildew fungicides like Quintec.

Spotted wing drosophila is out and about in PA now, and is ready to attack any ripening raspberries or blackberries - or any other small fruit crops, though brambles are its favorites. Use all cultural controls that you can, which means keeping fruit picked every day or every other day if possible, and removing any cull fruit from the field and bagging it so it doesn't become a breeding ground for more SWD. Refrigerate fruit as close to 32 degrees as possible right after picking. For brambles, effective materials that have a 1-day PHI are Delegate (group 5), Mustang Maxx (group 3A), and Exirel or Verdepryn (both in group 28). Keep in mind that Mustang Maxx is a restricted-use insecticide. There are more options labeled for use on blueberries, and longer PHI's are less of an issue since they need to be harvested less frequently. More information on ratings of insecticides for spotted wing drosophila management can be found here: https://swdmanagement.org/wp-content/uploads/2021/05/SWD-rankings-document-2021.pdf. On a positive note, releases of Ganaspis brasilienses, a tiny wasp parasitoid for spotted wing drosophila management, are continuing, and last year, a second tiny parasitoid of SWD was found in many states including PA and appears to be establishing widely on its own.

Parasitoid wasp inside of SWD pupal case just before emerging. The wasp emerges instead of an SWD fruit fly and will then attack other SWD larvae. Photo: K. Demchak.

Thrips are still around and have moved to bramble crops after causing problems in strawberries. They can cause a bronzing on bramble fruit, just like with strawberries. Sprays for SWD will assist in their control.

Warm wet conditions are likely to result in increasing **anthracnose fruit rot** disease pressure on day-neutral strawberries, so some protectant sprays of captan may be needed prior to rain events to keep this disease at bay.

One spotted lanternfly (SLF) nymph was found on blackberries in one location. This is the only report of SLF on blackberries in the state so far, perhaps because insecticides are often already being applied for SWD that would control SLF also. SLF is not expected to be a significant pest on berry crops; however, if more are seen in berries, please let your local extension educator know, or email K. Demchak at efz@psu.edu . For more info on identification of spotted lanternfly nymphs, see https://extension.psu.edu/spotted-lanternfly-what-to-look-for .

PestWatch Report – July 5, 2023

MOTH CATCH VARIABLE AS WE ENTER JULY

Glen Bupp and Leah Fronk, Penn State Extension

Reported data was sparse and inconsistent for Pennsylvania this week. Corn earworm numbers caught in traps reporting data this week actually decreased in some counties and went up only slightly in others. Franklin and Mifflin Counties continue to be on a 4-5 day spray interval. All other sites that reported data 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.

Fig 1. Corn earworm adult moth caught in monitoring trap

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.

No fall armyworm was caught in Pennsylvania this week. By managing for corn earworm, fall armyworm should be adequately controlled, as well.

***Average Weekly Catch**. The average catch per night. If no data exist for that week, null is reported.*

COUNTY	SITENAME	CEW			COUNTY	SITENAME	CEW	
		28-Jun	4-Jul				28-Jun	4-Jul
Blair	Hillview Farms	--	3		**Indiana**	Indiana	--	22
Bucks	Doylestown	7	0		**Juniata**	Port Royal	12	17
Butler	Bill Huffman	10	--		**Lancaster**	New Danville	57	--
Centre	State College	2	--		**Lancaster**	Landisville	9	17
Centre	Loganton	3	--		**Lancaster**	Neffsville	5	9
Centre	Rock Springs	1	--		**Luzerne**	Drums	5	4
Erie	Lake City	27	--		**Mifflin**	Belleville	39	42
Erie	Lake City	1	--		**Susquehanna**	Montrose	1	--
Franklin	Waynesboro	68	42		**Washington**	Venetia	11	8
Indiana	Brush Valley	--	1		**York**	York	6	14

***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