



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

August 7, 2019

The information supplied in these Updates is from Penn State Extension Specialists and Educators.

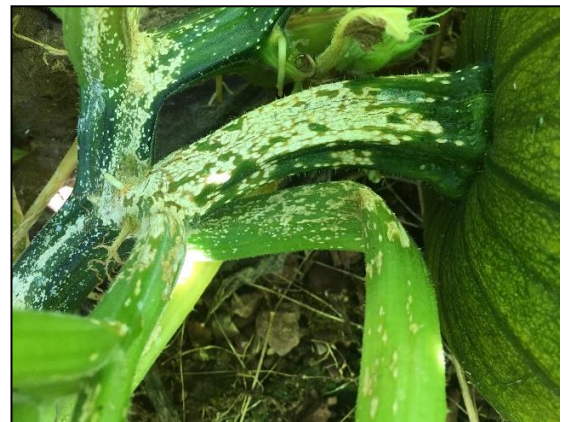
These Updates are a service of the Pennsylvania Vegetable Marketing and Research Program which, in cooperation with the Pennsylvania Vegetable Growers Association, supports vegetable research at Penn State University and other institutions.

VEGETABLE DISEASE UPDATES

Dr. Beth Gugino, Extension Vegetable Pathologist, Penn State University

GENERAL UPDATES:

- No new reports of late blight on either tomato or potato.
- **Basil downy mildew** was confirmed in a small planting in Centre Co., PA.
- **Plectosporium blight** was confirmed in one pumpkin field. This disease only affects the stems, petioles and larger leaf veins on the underside of the leaves. It is most common on pumpkin and summer squash. Although not typically associated with yield loss, it will damage the stems and fruit reducing their marketability. Good coverage of fungicides such as chlorothalonil alternated with Quadris Top (FRAC 3 + 11), Cabrio (FRAC 11) or Flint (FRAC 11) will help manage the disease and should be initiated when symptoms are first observed.



Symptoms of Plectosporium blight on a pumpkin stem. Photo: John Esslinger, Penn State Extension.

DOWNY MILDEW CONFIRMED ON PUMPKIN, WINTER SQUASH, CUCUMBER AND CANTALOUPE IN PENNSYLVANIA

Within the past 24 hours, downy mildew has been confirmed on multiple cucurbit hosts in Lancaster and Chester Counties. It is also suspected but not confirmed on butternut squash in Montgomery County. The hosts in Lancaster and/or Chester Counties include jack-o-lantern pumpkin (true pumpkin), winter squash, cucumber and cantaloupe. This is not surprising given the number of favorable weather periods which have placed this part of the state a moderate to high risk. Disease incidence and severity were high in several of the pumpkin fields indicating that they were not likely on any type of fungicide program.



Downy and powdery mildew sporulation on the underside of a cucumber leaf. Photo: Beth K. Gugino.

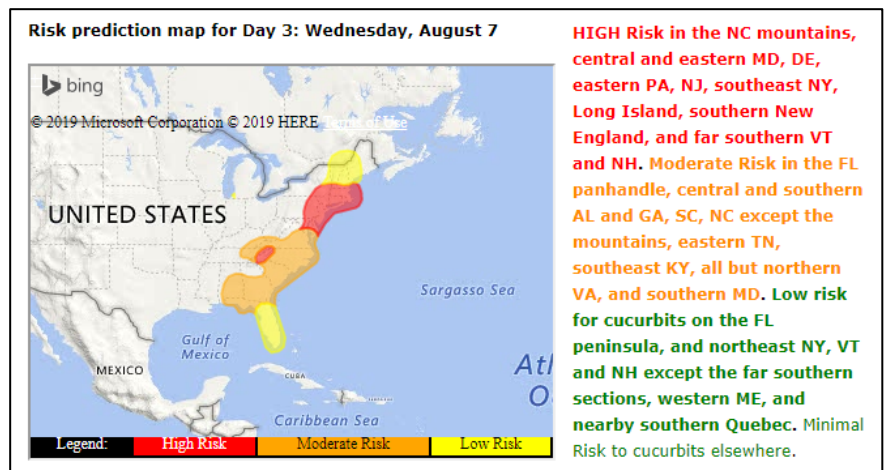
The unconfirmed reports in pumpkin fields in Clinton County mentioned in the 2 Aug disease alert were confirmed to be powdery mildew. Powdery mildew symptoms were primarily on the underside of the leaves and yellowish spots were observed on the corresponding upper leaf surface resembling downy mildew. The growers had been using a protectant fungicide which was controlling the powdery mildew on the upper leaf surface but not the lower leaf surface.



Upward curling of pumpkin leaves as a result of severe downy mildew. Severe powdery mildew can result in similar symptoms, so an accurate diagnosis is needed to make management decisions. Photo: Tom Butzler, Penn State Extension.

Symptoms were severe and consisted of small angular chlorotic/yellow lesions on the upper surface of the leaf and then purplish-gray sporulation was observed on the corresponding surface on the underside of the leaf. It is highly likely that there are unreported outbreaks of downy mildew on cucumber and possibly other cucurbit crops across the eastern third of Pennsylvania. This portion of the state has been at moderate to high risk of downy mildew infection several times this season from inoculum sources moving upward along the east coast. This includes today with portions on Adams, Cumberland, Dauphin, Lebanon, Schuylkill, Berks, Chester, Lehigh and Montgomery being at highest risk and counties north and east being a moderate risk.

It is recommended that all cucurbit fields be scouting regularly. Due to slight differences in pathogen populations, the downy mildew on pumpkin will most likely spread to other pumpkin, squash and watermelon crops while downy mildew on cucumber will spread to other cucumber and cantaloupe crops. Inclusion of downy mildew specific fungicides is highly recommended, and effort should be made to manage for resistance by tank mixing with a protectant fungicide and rotating FRAC groups. Several fungicides including Ranman (FRAC 21), Orondis Opti (FRAC 49 + M5), Orondis Ultra (FRAC 49 + 40) and Zampro (FRAC 45 + 40) have a 0-day pre-harvest interval. Additional options include Elumin (FRAC 22; 2-day PHI), and Previcur Flex (FRAC 28; 2-day PHI). See the [2019 Mid-Atlantic Commercial Vegetable Production Recommendations](#) and [2018 Cucurbit Downy and Powdery Mildew Efficacy Table](#) for additional recommendations. Be sure to read the pesticide label prior to application.



Source: CDM ipmPIPE website.

When done harvesting earlier maturing crops such as cucumber, cantaloupe and summer squash, disk under or apply a herbicide to the crop to kill the plant tissue as a measure to reduce potential spread of the disease on and between farms and especially successive plantings. The pathogen does not survive in soil so once the plant tissue is dead so is the pathogen.

We are actively monitoring for this disease so please either contact me via email at bkgugino@psu.edu, by phone at 814-865-7328 or contact your local Extension office for confirmation. All reports aid in our ability to successfully forecast disease risk. Check the [CDM ipmPIPE website](#) for the latest reports and forecasts that are updated three times per week.

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SWEET CORN INSECT PET MONITORING

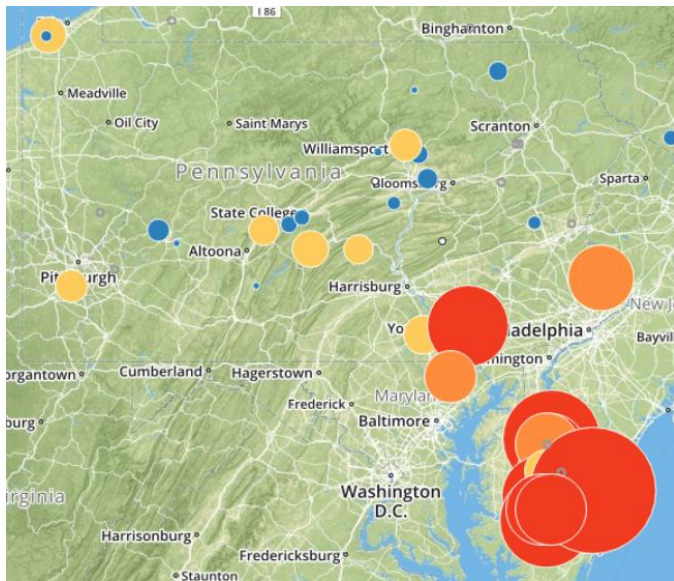
Dr. Shelby Fleischer, Extension Vegetable Entomologist, Penn State University

Corn earworm (CEW) captures stayed high in the southeast but moderated elsewhere. Data are coming from sites where sprays are applied which may have reduced counts at those sites that were high last week. Within the last 2 weeks, 12 of 32 reporting sites exceeded spray thresholds. Most suggest a 5-6 day interval, but a site in Lancaster county suggest a 3-4 day interval. Pyrethroid resistance in CEW can reduce efficacy when solely relying on pyrethroids for CEW control. Damage has also occurred from **sap beetles**. Sap beetles (also called picnic beetles) build up populations in farms with ripe or over-ripe fruit nearby. Relying on “worm” materials (Coragen, Blackhawk, Radiant) is not expected to control sap beetles. Adding a pyrethroid, or the premix Besiege, should help with sap beetles.

European corn borer (ECB) counts are low. Sprays targeting CEW will control ECB.

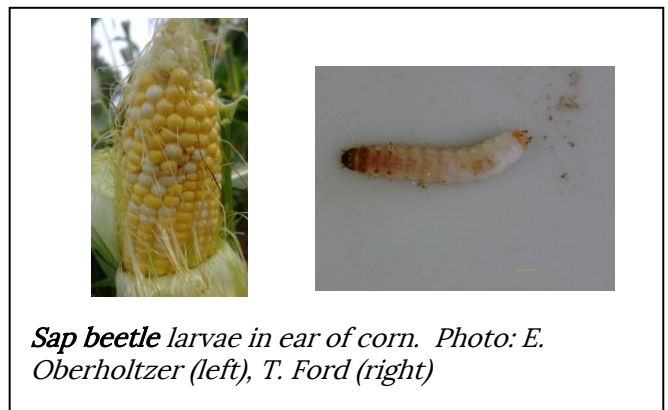
Fall armyworm (FAW) captures are low but are now showing up at multiple sites. Positive counts were recorded in 8 sites.

Current Trap Counts Corn Earworm

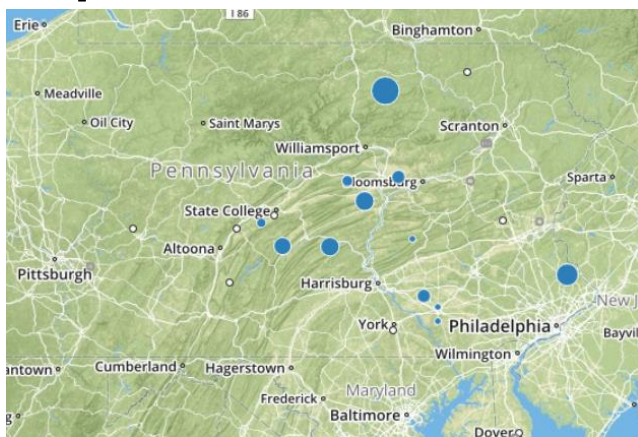


Catch Per Week	Spray Frequency (Days)
1-13	7-9
14-35	5-6
36-70	4-5
71-349	3-4
> 350	2-3

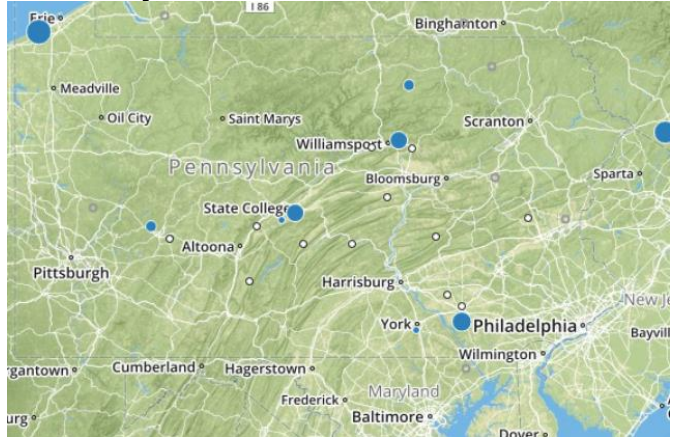
Weekly thresholds based on spraying recommendations for corn earworm.



European Corn Borer



Fall Armyworm



Average weekly catch – a moving average for the last 7 days. The average catch per night (catch, divided by the number of nights trapping), divided by the number of nights where data exist, multiplied by 7. Weeks where all the average-catch-per-night values are nulls are treated as if no data exist for that week.

County	Town/Farm	CEW			ECB			FAW		
		24-Jul	31-Jul	7-Aug	24-Jul	31-Jul	7-Aug	24-Jul	31-Jul	7-Aug
Blair	Curryville	3	null	1	0	null	0	0	null	0
Blair	Tyrone	6	null	15	0	null	0	0	null	0
Bradford	Sechrist Farm	null	8	1	null	16	13	null	1	2
Bucks	Bedminster	null	10	null						
Bucks	Buckingham	20	14	70	10	11	8			
Butler	Cabot	3	5	null				null	0	null
Centre	State College	2	5	4	27	26	0	2	4	5
Centre	Rock Springs	2.7	6.3	4.6	6.5	1	1.5	1.5	0	1
Clinton	Loganton	1.1	0.9	0	14.5	8.8	2			
Erie	Fairview	53	12	21				1	1	0
Erie	Lake City	26	81	2				15	13	10
Indiana	Brush Valley	0	1	1				0	0	0
Indiana	Creekside	61.3	16.8	8	null	0.5	0	1.8	2.8	2
Juniata	Port Royal	null	4.2	14	null	null	5.8	null	0	0
Lackawanna	Ransom	null	null	null	null	null	null			
Lancaster	Landisville	18	1	null	1	1	3	0	0	0
Lancaster	Neffsville	3	19	11	3	0	1	0	0	0
Lancaster	New Danville	17	42	106	3	2	0	0	0	6
Lehigh	Germansville	0	1.8	3	3	0	null	0	0	0
Luzerne	Drums	7	4	null	20	6	null	null	null	null
Luzerne	Plains	0	0	null	0	0	5			
Lycoming	Linden	null	0	null				null	0	null
Lycoming	Montoursville	null	4.7	17				null	0	5
Lycoming	Muncy	null	3.9	6				null	0	0
Mifflin	Belleville	32.5	115	22				0.5	0	0
Montour	Washingtonville	null	0	7	null	1	3			
Northampton	Nazareth	0	0	null	0.5	1	null	0	0	null
Schuylkill	Tower City	0	null	0	0	null	.5	0	null	0
Susquehanna	Montrose	null	4	6	null	8	0	null	.5	null
Union	New Berlin	9	1	3	null	1.5	6	0	0	0
Washington	Venetia	60	33	17						
Westmoreland	Jeannette	22.9	null	null	0	null	null			
York	York	1	9	24	4	0	0	3	1	1

THRESHOLDS

CEW Threshold			ECB Thresholds		
	Catch Per Week	Spray Frequency		Catch Per Week	Spray Frequency
Almost absent	1-13	7+			
Very low	14-35	5-6	Almost absent	< 14	7+
Low	36-70	4-5	Very low	15-35	6
Moderate	71-349	3-4	Low	36-70	5
High	> 350	2-3	Moderate	> 70	4

Reproductive (tassel/silk) and late vegetative corn attracts moths. Shorten spray schedules when populations increase. If CEW is not a problem, then consider ECB.