



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

September 8, 2021

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.

Sweet Corn Insect Pest Monitoring

Shelby Fleisher, Extension Vegetable Entomologist, Penn State University



Corn earworm (Photo H. Fescmeyer)



Fall armyworm (Photo R. Bessin)



CEW (left) has a light-colored head capsule. FAW (right) has a prominent upside-down 'Y' on the head capsule, due to the light band on the edges of chitinous plates. Image: G. Dively, U. of MD

Corn earworm (CEW) catches came from fewer sites. The most recent counts suggest a 3, 4, or 5-day spray interval in 7 of 10 sites. This is like last week, but from fewer sites.

Fall armyworm (FAW) moderated as compared to recent weeks. But we continue hearing reports of defoliation in turf and landscapes from FAW. Possibly this reflects strong immigration events that happened in recent weeks, which we started reporting on July 21, and continuing into August, and the offspring from that are now in larval stages. At this time of year FAW larvae bore rapidly into the ear, from the base, side or tip.

Pyrethroid resistance is important for both CEW and FAW late in the season. Other options include spinosyns (IRAC group 5: Blackhawk, Radiant), diamides (IRAC group 28: Coragen, Vantacor), or premixes that include pyrethroids and diamides (Beseige, Elevest). Diamides have low bee toxicity. Pyrethroids are needed in the mix if you need to also control sap beetles, silk-clipping beetles adult Western corn rootworm), or stink bugs.

If you are finding larvae in your corn, you can distinguish if it is CEW or FAW. CEW come in many color morphs but are usually lighter in color than FAW. A definitive character comes from looking closely at the chitinous plates that make up the head capsule. CEW will be light greenish or yellow/tan in color, with no strong band along the edge of the plates. FAW have a strong color band on the edge of the plates, resulting in an upside-down 'Y' pattern on their head.

European corn borer (ECB) is low, and has been low all year and at almost all sites in recent years. Bt field corn has been acting as a trap for ECB, and high adoption rates occurring over multiple years has dramatically suppressed ECB populations. It may not be useful to continue to monitor for ECB, at least if and until we see resistance causing a resurgence of ECB in the future. Time saved could be used to invest more effort into monitoring for CEW, FAW, or other pests in sweet corn and other vegetable crops. Sprays for CEW or FAW work against ECB.

Average weekly catch –moving average for the last 7 days.

County	Trap Name	CEW			ECB			FAW		
		24-Aug	31-Aug	7-Sep	24-Aug	31-Aug	7-Sep	24-Aug	31-Aug	7-Sep
Blair	Tyrone	90	88		10	0		15	52	
Bedford	Martinsburg	215	248		0	5		182	276	
Bucks	Bedminster	330	237	40						
Butler	Cabot	86	15							
Centre	State College	323	167	81	2	8	0	476	50	19
Centre	Rock Springs	132	44	23				301	130	13
Clinton	Loganton	2		0	0		4			
Erie	Fairview	194						414		
Erie	Lake City	385						765		
Indiana	Brush Valley	38		9				109		31
Indiana	Creekside	12	12					228	34	
Juniata	Port Royal	100	50					1	1	
Juniata	Greenbar	112								
Lancaster	Landisville	259	96		1	1		129	7	
Lancaster	Neffsville	131	81		0	0		21	1	
Lancaster	New Danville	142	59		0	0		37	5	
Lehigh	Germansville	89	138	53	6	1	0	24	47	0
Lycoming	Montoursville	135						3		
Lycoming	Muncy	110	83	93				0	0	0
Mifflin	Belleville	150	75		2	1		25	59	
Montour	Washingtonville	98			4					
Schuylkill	Tower City	0			4					
Susquehanna	Montrose	9	6	4	12	10	2	24	9	2
Union	Winfield	151	145		8	5				
Washington	Venetia	247	52	27						
York	York	51	73	117	0	0	0	50	15	13

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

	CEW		ECB	
	Catch/Week	Spray Frequency (days)	Catch/Week	Spray Frequency (days)
Almost Absent	≤13	7 or more	<15	7 or more
Very low	14-35	5-6	15-35	6
Low	36-70	4-5	36-70	5
Moderate	71-349	3-4	>70	4
High	>350	2-3		

Vegetable Disease Updates

Beth Gugino, Extension Vegetable Pathologist, Penn State Univ.

GENERAL UPDATES:

- **No reports of late blight** on tomato or potato in the mid-Atlantic region or elsewhere this past week. 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. Additional information about late blight can be found on the USAblight website (<https://usablight.org>).
- Last week, **downy mildew was confirmed on pumpkin in New Jersey** and this past week it was confirmed on **acorn/summer squash (*Cucurbita pepo*) in central Ohio** and on **butternut squash in Massachusetts**. This means that Clade I strain of the pathogen is in the extended region which places pumpkins, squash, and watermelon at risk. Clade II affecting cucumber and cantaloupe is still considered widespread across the region. Downy mildew is less a concern on crops that are close to harvest and especially on plants that have reduced foliage due to powdery mildew. Downy mildew does not directly blemish or affect the fruit or handles in the case pumpkins and gourds. If you suspect 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. Knowing where the disease is an important component for area-wide management. See <https://cdm.ipmpipe.org> for the latest reports and disease risk forecasts.
- There continue to be reports of **post-harvest cucurbit fruit rots**. Although the fruit harvested appeared healthy, they were infected prior to harvest then symptoms developed post-harvest in the bins. When rushed to get fruit out of the field in advance of unfavorable weather, it is important to harvest mature fruit and focus on minimizing injury. For pumpkins make sure the fruit are uniform in color and shape (based on characteristics for that cultivar) and skin is resistant to puncturing with a thumbnail. Fruit harvested due to plant decline rather than maturity will have a reduced storage life. If the temperatures are warm enough consider curing harvested pumpkins and winter squash in the shade at 80 to 85°F for 7 to 10 days. This will help the skin harden. If there are fruit rot issues this will also allow them to be detected before going to market. For longer term storage, pumpkins and winter squash are best stored between 50 and 55°F with 50 to 75% relative humidity. **Powdery mildew** can still threaten pumpkin handle quality late in the season therefore it is important to continue to manage for powdery mildew up until harvest. Direct sprays towards the stems continuing to rotate between FRAC codes and tank mix with chlorothalonil or switch to a chlorothalonil-based program if you can get good spray coverage. Pay attention to pre-harvest intervals (PHIs), maximum application numbers, and total amounts of active ingredient per year so that you do not exceed legal limits on the pesticide label. If you observe **fruit rot occurring in the field**, take steps to identify the cause so that can be factored into your crop rotation and subsequent management. Different fruit rotting pathogens have different host ranges so crop rotation can be one strategy for reduce disease pressure in the future. For example, gummy stem blight/black rot only affects cucurbit crops so rotating affected fields to crops such as sweet corn, cauliflower, and tomato (different crop families) before coming back in with butternut squash would be recommended. Also remember that it is very easy for secondary soft rotting bacteria and fungi to infect damaged fruit and lead to additional losses. When done with harvest, disk under the crop to facilitate decomposition of the crop residue.



Downy mildew on watermelon is the most challenging to identify. The foliar lesions become darker brown in color and sporulation can be sparse on the underside of the leaves (Photo: Beth K. Gugino)



Fusarium starts as small water-soaked spots on the bottom of the fruit that enlarge and under wet conditions will develop dense pinkish colored fungal growth (mycelium). (Photo: Beth K. Gugino)

THIS WILL BE THE LAST REGULAR IPM WEEKLY UPDATE FOR THE 2021 SEASON.