



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

July 24, 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 Guginio, Extension Vegetable Pathologist, Penn State University

LATE BLIGHT CONFIRMED ON POTATO IN ERIE CO, PA: FIRST REPORT IN THE REGION

Late last week, late blight was confirmed on one commercial farm in two potato fields planted with the cultivar Snowden in Erie Co., PA. It is also suspected but unconfirmed in a potato field in Cambria Co. Samples from Erie Co. were promptly collected and the genotype determined to be US-23. US-23 has been the predominant genotype on both tomato and potato over the past five years across the region. It is characterized as being equally aggressive on both tomato and potato, is the A2 mating type and sensitive to mefenoxam although, there have been some reports of intermediate sensitivity. This outbreak likely either originated from infected potato seed or spread from a nearby cull pile.

Tomato and potato are both susceptible at any growth stage. It is characterized by lesions that are irregular in shape and initially water-soaked and pale-green before turning more gray-brown in color. Under humid conditions, the lesions on the underside of the leaves will sporulate giving them a white fuzzy appearance. On tomato, the lesions will tend to develop on the upper to middle part of the plant as opposed to early blight and Septoria leaf spot that start on the lower leaves and progress up the plant. Foliar blight caused by *Phytophthora nicotianae* will cause lesions very similar to late blight however, the sporulation will not be visible on the underside of the leaf even if conditions are favorable or after being incubated in a plastic bag or other container.



White sporulation visible on the underside of a late blight lesion on potato leaves (Photo credit: Beth Guginio).

There are a number of conventional fungicides that are very effective for managing late blight if managed preventatively. On tomato, chlorothalonil can even be effective if applied on a weekly schedule preventatively and good coverage is obtained. Keep in mind that late blight will not progress when temperatures reach above 90°F however, the high temperature will not kill the pathogen, so the disease will continue to progress when the temperature drops in the evening and the leaves are wet as a result of dew.

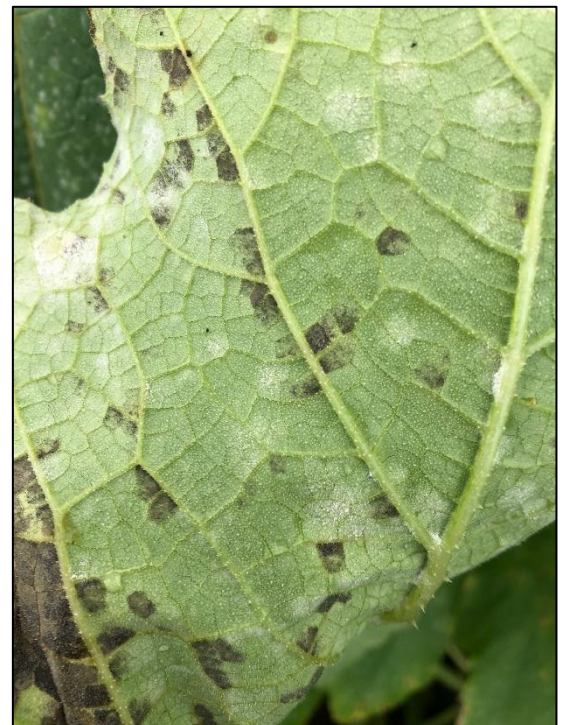
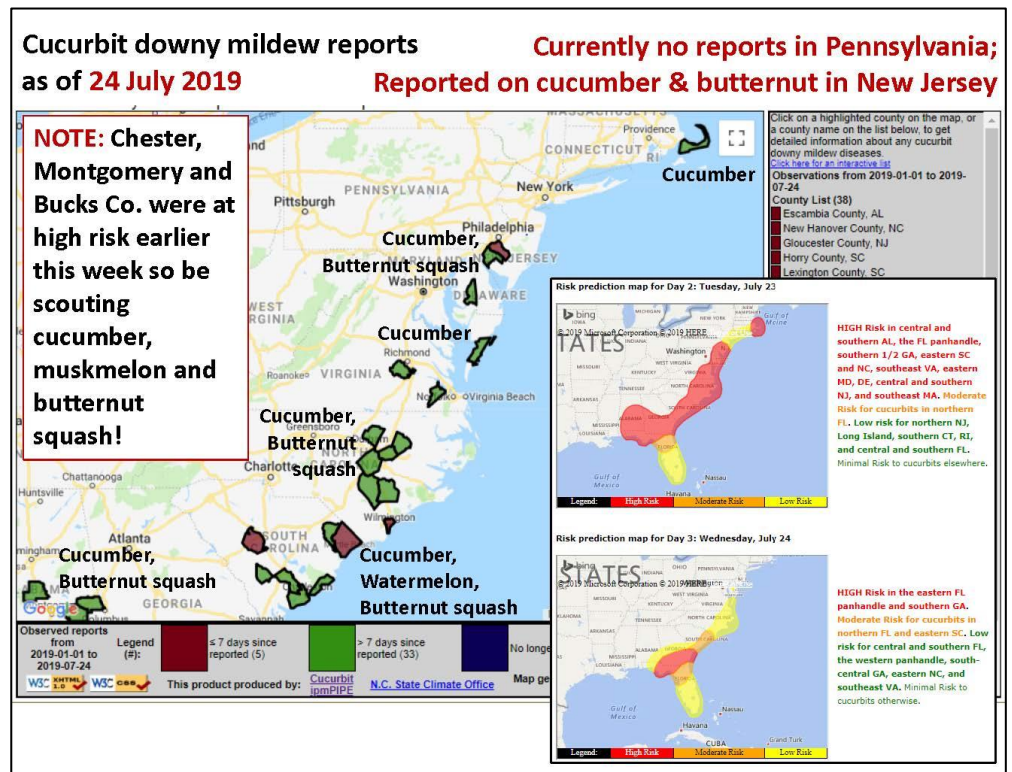
Late blight specific fungicides would include products such as but not limited to, Previcur Flex (FRAC 28), Ranman (21), Zampro (45+40) or Orondis Opti (U15+M5). See the [2019 Mid-Atlantic Commercial Vegetable Production Recommendations](#) and [2019 Fungicide Resistance Management Guidelines for Vegetable Crops](#) for additional recommendations on both tomato and potato. These products should be tank mixed with a protectant for fungicide

resistance management and alternated/rotated between different FRAC codes. For organic growers, copper-based programs tend to be most effective. Another possible option would be to alternate between Regalia and Actinovate both tank mixed with a copper-based fungicide. These products are most effective when applied preventatively and regularly when conditions favor disease. Good spray coverage is essential.

If you suspect late blight on your farm, please contact your local Penn State Extension Office or let Beth Gugino know via email at bkgugino@psu.edu or by phone at 814-865-7328. We are interested in collecting samples so we can better understand how the pathogen population is changing both within and across growing seasons. Also for the information regarding where the latest confirmed outbreaks have been reported and to receive email or text alerts about when late blight has been confirmed with a personally defined radius from your location visit <http://usablight.org>.

CUCURBIT DOWNY MILDEW

Within the past week **cucurbit downy mildew** was confirmed on **butternut squash** in southern New Jersey. This is in addition to the previous report cucumber earlier this month. Weather conditions the past few days have placed the very southeast corner of PA at high risk for infection again. Growers in Chester, Montgomery, and Bucks Counties should be scouting cucumbers, muskmelons and now butternut squash, pumpkin and other winter squashes carefully and vigilantly. This part of the state has been at high risk multiple times this season and crops not protected by fungicides are at high risk for the development of downy mildew. At the very least, growers in southeastern PA should be using a protectant spray program. 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](http://CDM.ipmPIPE) for the latest reports and forecasts that are updated three times per week.



Both powdery mildew (circular white spots) and downy mildew (angular purplish spots) on the underside of a pumpkin/winter squash leaf (Photo credit: Beth Gugino).

SWEET CORN INSECT PEST MONITORING

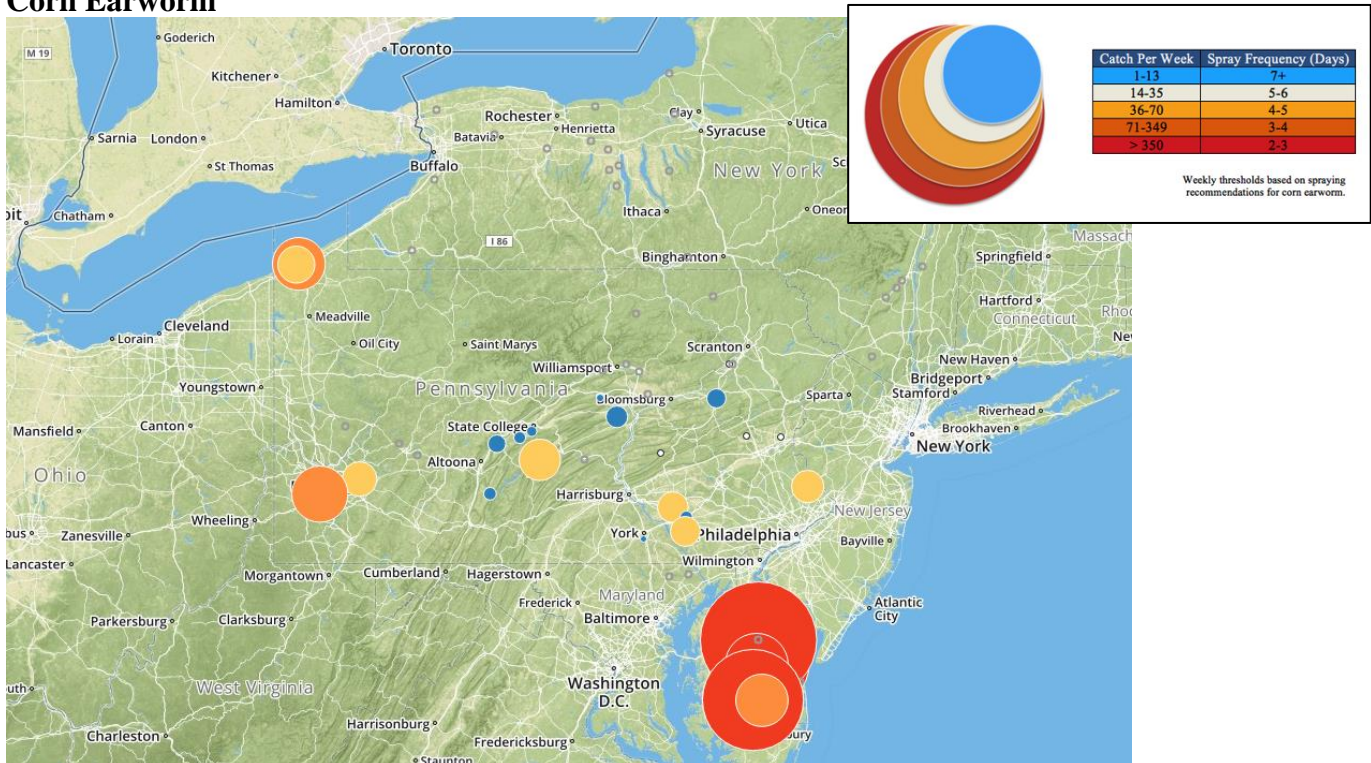
Corn earworm (CEW) captures are exceeding spray thresholds across the southern and western areas of the state. Approximately 2/3 of >30 reporting sites exceeded spray thresholds in the last 2 weeks. Sites above threshold occurred in Bucks, Erie, Lancaster, Mifflin, Washington, and Westmoreland counties. Some sites suggest a 5-6 day spray interval, and some a 4-5 day spray interval, but growers have reported earworm damage even though trap counts were low. This may have been due to pyrethroid resistance. Populations migrating in from southern locations have been reported to carry pyrethroid resistance and counts in Delaware continue to be high. Our highest counts are currently in the west (Erie and Washington counties), and these might also carry pyrethroid resistance that originated from the mid-south part of the US.

European corn borer (ECB) counts are showing a 2nd generation flight in central PA (Clinton and Luzern counties).

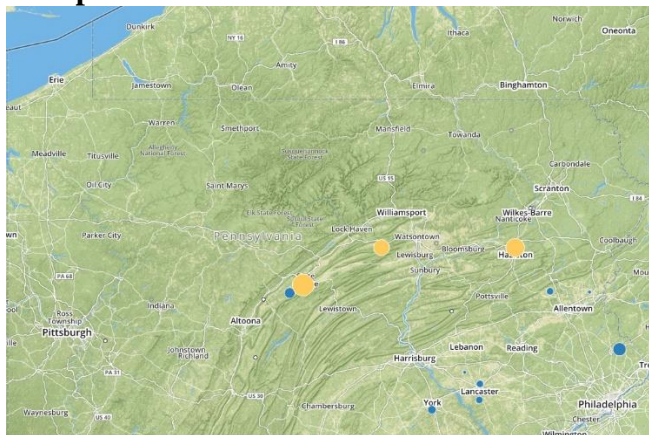
Fall armyworm (FAW) counts are rising in Erie. Immigration of this species west of the Appalachians often comes from the central part of the US, moving up from Texas, into the MidWest, and tracking airflow patterns coming from the west.

Current Trap Counts

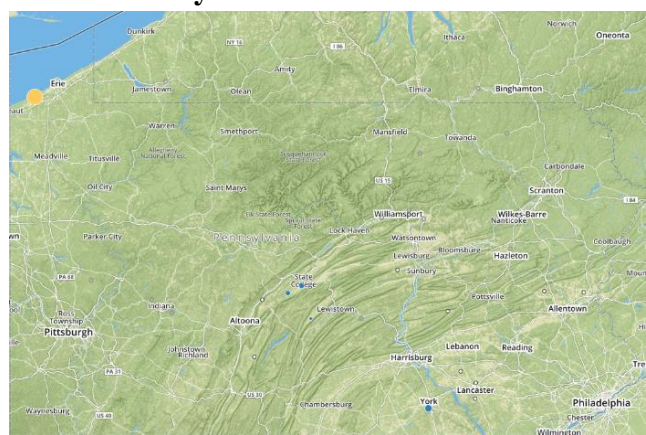
Corn Earworm



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		
		10-Jul	17-Jul	24-Jul	10-Jul	17-Jul	24-Jul	10-Jul	17-Jul	24-Jul
Blair	Curryville	3	3	3	0	0	0	0	0	0
Blair	Tyrone	4	1	6	0	0	0	0	0	0
Bradford	Sechrist Farm	10.5	0	null	1.2	2	null	0	0	null
Bucks	Buckingham	null	6	20	null	8	10			
Butler	Cabot	null	null	null				0	null	null
Centre	State College	1.2	0.9	2	2.3	0.9	27	1.2	0	2
Centre	Rock Springs	3.3	0.9	2.7	1.8	0	6.5	0	1.3	1.5
Clinton	Loganton	1	null	1.1	0	null	14.5			
Erie	Fairview	null	null	53				null	null	1
Erie	Lake City	null	14	26				null	1	15
Indiana	Brush Valley	0	0	null				0	0	null
Indiana	Creekside	11	2	null	0	0	null	0	0	null
Juniata	Millersville	3.5	6	null				0	0	null
Lackawanna	Ransom	null	0	null	null	0	null			
Lancaster	Landisville	2	11	18	2	4	1	0	0	0
Lancaster	Neffsville	4	10	3	3	5	3	0	0	0
Lancaster	New Danville	1	15	17	0	0	3	0	0	0
Lehigh	Germansville	0	1	0	0	1	3	0	0	0
Luzerne	Drums	0	0	7	0	1	20	null	0	null
Luzerne	Plains	0	0	0	0	1	0			
Lycoming	Linden	1	0.5	null				0	0	null
Lycoming	Montoursville	20	12.9	null				0	0	null
Lycoming	Muncy	2	2.8	null				1	0.5	null
Mifflin	Belleville	18	null	32.5				1	null	0.5
Montour	Washingtonville	null	2	null	0	2	null			
Northampton	Nazareth	null	null	0	null	null	0.5	null	null	0
Schuylkill	Tower City	0	null	0	0	null	0	0	null	0
Susquehanna	Montrose	1	0	null	8	7	null	0	0	null
Union	New Berlin	null	null	9				null	null	0
Washington	Venetia	21	14	60						
Westmoreland	Jeannette	null	null	22.9	0	null	0			
York	York	3	2	1	0	1	4	0	0	3

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.