



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

June 24, 2020

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.

Vegetable Disease Updates

Beth Gugino, Extension Vegetable Pathologist, Penn State University

GENERAL UPDATES:

- There continue to be **no reports of late blight** on tomato or potato in the region. 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.
- Be on the lookout for **Septoria leaf spot in field planted tomatoes** (pictured right). This disease is easily splashed dispersed during rain events with symptoms typically starting on the lower leaves and then spreading upward from the oldest to the youngest leaves. Although it does not directly cause damage to the fruit, it can quickly defoliate the plant if left unmanaged. Protectant fungicides containing chlorothalonil and mancozeb can be rotated with strobilurin (FRAC 11) fungicides as well as difenoconazole (FRAC 3) containing fungicides such as Aprovia Top (FRAC 3 + 7), Revus Top (FRAC 3 + 40), etc. These fungicides will also help manage early blight and the protectants will help if late blight becomes a concern.



CUCURBIT DOWNY MILDEW UPDATE: TIME TO PREPARE

Although downy mildew has not been confirmed in Pennsylvania yet, this past week there were a number of new reports in North and South Carolina and a first report on cucumber in southwest Michigan. Depending on the prevailing weather pattern the pathogen can move from sources up the east coast or from the west as there are increasing reports of the disease in the Great Lakes region. The majority of reports have been on cucumber although there have been a couple of reports also on cantaloupe and most recently watermelon in South Carolina.

Downy mildew is caused by the oomycete pathogen, *Pseudoperonospora cubensis*. Over the past several years differential disease susceptibility between cucurbit hosts as well as differential efficacy of targeted fungicides depending on the cucurbit host have been observed and has led to dividing

the pathogen into two clades. Pathogen isolates in one of the clades primarily affects cucumber and cantaloupe while isolates from the other clade infect pumpkin, squash, and watermelon. For example Presidio



Early symptoms of downy mildew on cucumber. Purplish gray sporulation will also be present on the underside of the leaves (Photo credit: Beth Gugino).

(fluopicolide, FRAC code 43) is considered less effective at managing downy mildew on cucumber and cantaloupe than in other cucurbit crops.

Since fungicides are the primary management tool for downy mildew, it is important to have thought through a fungicide program that rotates among different FRAC codes for fungicide resistance management as well as tank mixes with protectant fungicides that contain chlorothalonil (FRAC M05) and mancozeb (FRAC M03) if not already in the premix. Downy mildew targeted fungicides include but are not limited to, Orondis Opti (FRAC 49 + M05), Ranman (FRAC 21), Elumin (FRAC 22), Zampro (FRAC 40 + 45), etc. See the 2020-21 Mid-Atlantic Commercial Vegetable Production Recommendations for a more complete list of fungicide recommendation. Remember that fungicides that specific target downy mildew will not manage powdery mildew.

In Pennsylvania Presido (FRAC 43) has not been effective at managing downy mildew on cucumber and Previcur Flex (FRAC 28) has shown variable efficacy depending on the year; in 2017 it was not effective but in 2018 it was.

Other foliar diseases that could be confused with downy mildew when scouting include angular leaf spot, anthracnose, Alternaria leaf blight and powdery mildew.



Angular leaf spot on cucumber (A); anthracnose on cucumber (B); Alternaria leaf blight on cantaloupe (C); and powdery mildew on pumpkin (D). (Photo credit A, B, and D: Beth Gugino; C: Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org).



If you want to receive automatic alerts via text or email from the CDM ipmPIPE monitoring website you will need to [sign-up or re sign-up](#) if you were signed up before due to a change in the IT platform hosting the website. For emails, EDDMapS Alert will now be the subject line from alerts@cdm.ipmpipe.org.

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Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.

Sweet Corn Insect Pest Monitoring

Shelby Fleischer, Extension Vegetable Entomologist, Penn State University

Interactive Maps with Google style view at <http://www.pestwatch.psu.edu/sweetcorn/tool/index.html>

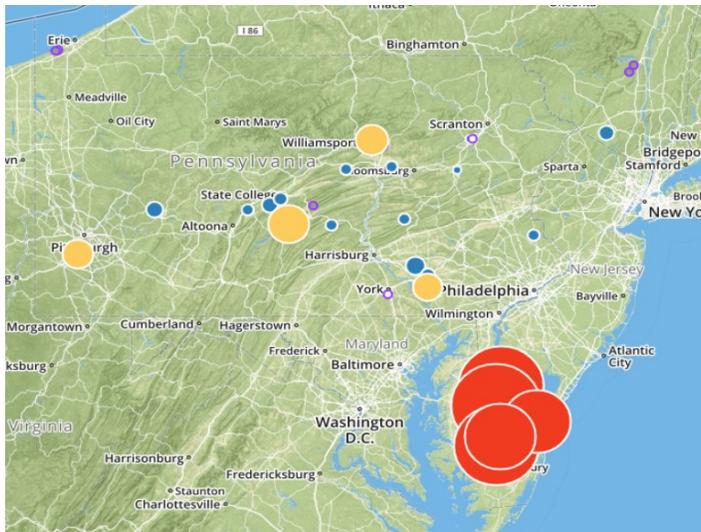


Corn Earworm

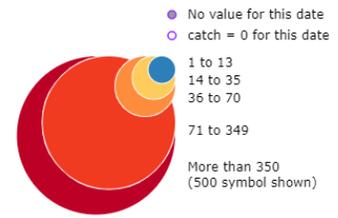
Corn earworm (CEW) catch reached spray thresholds in Erie, Lancaster, Lycoming, Mifflin, and Washington counties. Tasseling and silking corn will be very attractive. Moths will also lay eggs on many host when corn is not available. Tomatoes and hemp make good hosts (CEW is also known as tomato fruitworm).



ECB feeding

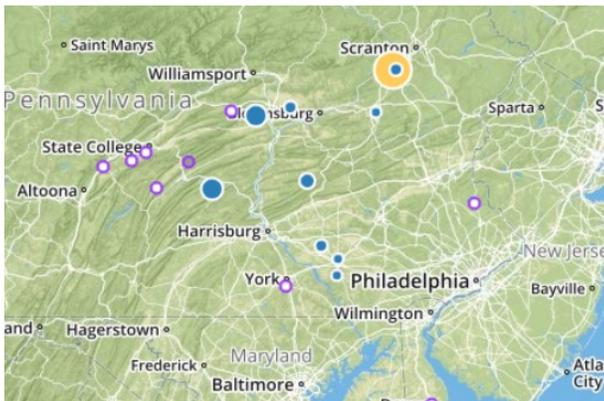


CEW counts continue to be high in DE reached spray thresholds in 5 counties.

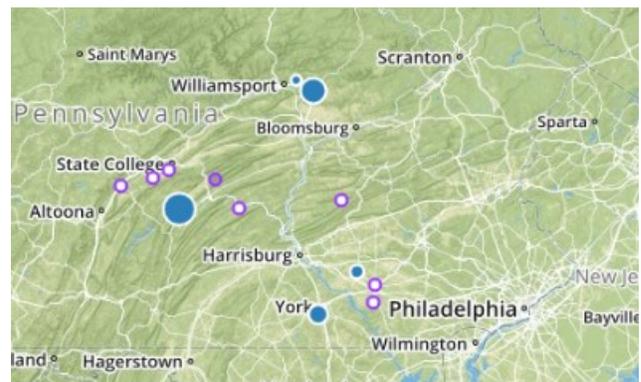


Circle color aligns with CEW thresholds; size is proportional to catch.

European corn borer (ECB) adults from overwintered pupae are active. Counts are low except for a few hotspots, notably in Union, Luzern and Juniata counties. Scout for feeding damage and shothole patterns.



ECB hot spot in central PA. Open circles are zero counts.



FAW are being detected at low levels in PA. Open circles are zero counts.

Fall armyworm (FAW) counts are low, except for sites in Lycoming and Mifflin counties. Captures this time of year may be the non-target wheathead armyworm, which is not a pest. See <https://ento.psu.edu/extension/factsheets/armyworm-pheromone-captures>.



ECB shot hole pattern from tunneling through leaf prior to leaf unrolling.

TRAP COUNTS: Moving average for the last 7 days. The catch/number of nights trapping, divided by the number of nights with data, times 7. Weeks where all the average-catch-per-night values are nulls are treated as if no data exist for that week. Shaded cells indicate no trap for that site.

| County | Trap Name | CEW | | | ECB | | | FAW | | |
|------------|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 10-Jun | 17-Jun | 24-Jun | 10-Jun | 17-Jun | 24-Jun | 10-Jun | 17-Jun | 24-Jun |
| Blair | Tyrone | --- | 1 | 3 | --- | 0 | 0 | --- | 0 | 0 |
| Bucks | Bedminster | 3 | 2 | 3 | 0 | 0 | 0 | | | |
| Centre | State College | --- | --- | 4 | --- | --- | 0 | --- | --- | 0 |
| Centre | Rock Springs | 0 | 3 | 5.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clinton | Loganton | --- | 0 | 3 | --- | 1.3 | 0 | | | |
| Erie | Fairview | --- | 3.5 | --- | | | | --- | 0 | --- |
| Erie | Lake City | --- | 16.3 | --- | | | | --- | 0 | --- |
| Indiana | Creekside | --- | 11.7 | 6 | --- | 0 | 0 | --- | 0 | 0 |
| Juniata | Port Royal | --- | 1.3 | 3 | --- | 8.9 | 6 | --- | 0 | 0 |
| Lackawanna | Ransom | --- | 0 | 0 | --- | 0 | 2 | | | |
| Lancaster | Landisville | 0.6 | 1 | 8 | 1.2 | 0 | 2 | 0 | 3 | 2 |
| Lancaster | Neffsville | 1.2 | 4 | 4 | 2.3 | 0 | 1 | 0 | 1 | 0 |
| Lancaster | New Danville | 0 | 7 | 18 | 0 | 0 | 1 | 0 | 0 | 0 |
| Luzerne | Drums | --- | 0.8 | 1 | --- | 6.9 | 1 | | | |
| Luzerne | Plains | --- | --- | 1 | --- | --- | 17 | | | |
| Lycoming | Montoursville | --- | --- | 22.2 | | | | --- | --- | 1.2 |
| Lycoming | Muncy | --- | --- | 0 | | | | --- | --- | 7 |
| Mifflin | Belleville | --- | --- | 35 | --- | --- | 0 | --- | --- | 11 |
| Montour | Washingtonville | --- | 1.2 | 3 | --- | 6.3 | 2 | | | |
| Schuylkill | Tower City | --- | 3 | 3 | --- | 1 | 3 | --- | 0 | 0 |
| Union | Lewisburg | | | | --- | 18.7 | 6 | | | |
| Washington | Venetia | --- | 35 | 20 | | | | | | |
| York | York | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |

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 | | Catch/Week | Spray Frequency |
| Very very low | 1-13 | 7 – or no spray | | <15 | 7 – or no spray |
| 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 | | | |