



PENNSYLVANIA VEGETABLE MARKETING & RESEARCH PROGRAM

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Pennsylvania Vegetable IPM Weekly Update

August 11, 2021

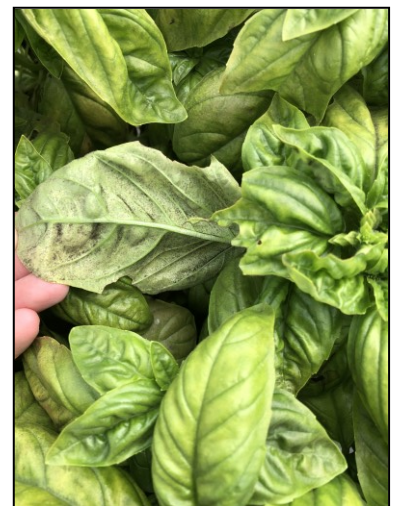
These are cooperative projects involving Penn State University researchers, Penn State Cooperative Extension educators, growers, the Pennsylvania Department of Agriculture, the Pennsylvania Vegetable Marketing and Research Program and the Pennsylvania Vegetable Growers Association.

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 mid-Atlantic region. This week there were two confirmed reports on potato in Aroostook County, ME. The previous reports on potato in Wisconsin and tomato in northern Georgia have been determined to be caused by the US-23 genotype. This has been the predominant genotype on both tomato and potato over the past 10 years. 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>).
- Reports of **downy mildew on cucumber and cantaloupe** continue to increase across the region. In Pennsylvania, it has been confirmed in Centre, Huntingdon, Mifflin, Juniata, Luzerne, Lehigh, Bucks, Lancaster, and Chester Counties and this week also in Lackawanna County. The closest reports on jack-o-lantern pumpkin, acorn, and summer squash is in three counties in Kentucky, one county in Tennessee and two counties in South Carolina. The eastern U.S. is under a fairly active summer weather pattern with epidemic spread likely. It is important to maintain a regular fungicide program on cucumbers and cantaloupes. As you finish with a planting, burning down the crop will reduce spread other succession plantings. Once the plant tissue is dead, the pathogen is dead. 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.
- In the past two weeks, **basil downy mildew** has been confirmed in Dauphin and Lancaster Counties in addition to Buck County in back mid-July. Similar to other downy mildews, this one, caused by *Peronospora belbahrii*, is also host specific. Symptoms include yellowing or chlorosis of the foliage which looks very similar to a nutrient deficiency. However, when conditions are cool (50 to 78°F) and wet (> 85% relative humidity) purplish-gray to black sporulation can be visible on the underside of the leaf (similar in appearance to cucurbit downy mildew). The pathogen does not survive in the absence of a plant host and therefore does not survive overwinter in field production (or home garden) situations. Management primarily focuses on planting pathogen-free seed, selecting less susceptible



Characteristic yellowing on the upper leaf surface and purplish dark sporulation on the lower leaf surface caused by downy mildew on basil. Photo credit: Beth Gugino.

cultivars and applying fungicides. Conventional fungicides including Ranman (FRAC 21), Revus (FRAC 40), Quadris (FRAC 11), Armicarb (FRAC NC) and phosphorous acid (FRAC 33) fungicides are registered for basil downy mildew. A number of OMRI-approved products are also labelled for basil downy mildew including but not limited to Procidic, Actinovate, Double Nickel, MilStop, Regalia, Cueva, Trilogy and OxiDate. Practices that minimize leaf wetness and reduce humidity will also help manage disease. Once done with harvest, disk under or burn down the crop with an herbicide to eliminate potential sources of inoculum for other plantings.

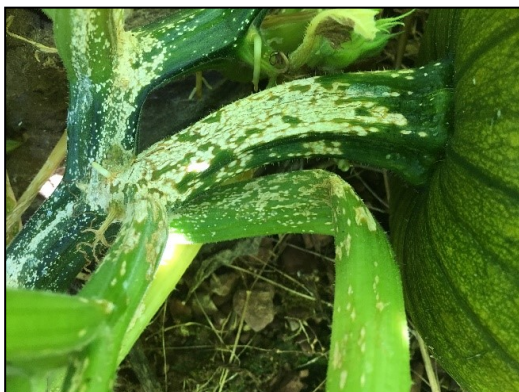


Gummy stem blight foliar (left) and stem lesions (right) on watermelon and black rot fruit symptoms on cantaloupe (bottom). Photos: D. Langston, Virginia Tech (left), R. Melanson, Mississippi State (right), and Bruce Watt, Univ. of Maine (bottom) bugwood.org.



- Be on the lookout for **gummy stem blight** which is a fungal disease that primarily affects cantaloupe/muskmelon, cucumber, and watermelon but it can affect other cucurbit crops like pumpkin and squash as well. When symptoms from the same pathogen develop on the fruit then the disease is also referred to as **black rot**. The disease is favored by high humidity, moisture, and warm temperatures. Foliar lesions are initially water-soaked and circular before becoming irregular and tan to dark brown in color. Small black dots (pycnidia) will develop in the center and produce spores that enable the disease to spread. The oblong stem lesions are a bit more distinct and will often crack and produce a gummy brown exudate/ooze. The fruit will initially develop water-soaked spots that become larger brown spots that eventually turn black. The fungus survives season to season in crop debris so crop rotation is important as is managing for other diseases and pests such as powdery mildew and cucumber beetle that can further predispose the crop to gummy stem blight.

In season fungicides to manage anthracnose will also help with gummy stem blight and include chlorothalonil alternated with FRAC 3 fungicides such as Proline and Rhyme or those pre-mixed with FRAC 7 or 9 including Luna Experience, Aprovia Top or Inspire Super. Additional product such as Merivon, Switch, and Miravis Prime are also recommended. Additional management recommendations can be found in the [2020-21 Mid-Atlantic Commercial Vegetable Production Recommendations](#).



- When scouting also be checking for symptoms of **Plectosporium blight** on pumpkin and squash. This fungal disease causes very distinct small diamond-shaped lesions on the vines, petioles, and veins on the underside of the leaves but no symptoms on the upper leaf surface. Small white lesions can also develop on the fruit. Under moist conditions and moderate temperatures, the lesions can coalesce together rendering the handle of the pumpkin reducing the marketability of the fruit. Fungicides can reduce disease severity however good coverage that penetrated the plant canopy is necessary. Chlorothalonil alternated with a strobilurin-type fungicide such as Quadris Top (FRAC 3+11), Cabrio (11), Flint (11) or Pristine (7+11). Last year there were multiple reports of the disease affecting pumpkins throughout the mid-Atlantic region.

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

Sweet Corn Insect Pest Monitoring

Shelby Fleisher, Extension Vegetable Entomologist, Penn State University

Corn earworm (CEW) catch in PA continue to trend lower. Historically, these are low counts for this time of year, and suggest an opportunity to cut back on sprays. Only 5 of 21 sites were above thresholds, all the widest (5-6 day) suggested interval except for one site in Bucks Co. suggesting a 4-5-day interval. CEW has resistance to pyrethroids. Other options include spinosyns (IRAC group 5: Blackhawk, Radiant) and diamides (IRAC group 28: Coragen, Vantacor). Diamides have low bee toxicity. These also control ECB and FAW, but not sap beetles, silk-clipping beetles (adult Western corn rootworm), or stink bugs. Pyrethroids or premixes that include pyrethroids and diamides (Beseige, Elevest) are then needed.



Corn earworm (Photo H. Fescmeyer)

Fall armyworm (FAW) continues to have significant captures in Bedford, Erie, Lycoming and Mifflin counties, although counts have dropped since last week in Bedford, Erie and Mifflin. Concerns about pyrethroid resistance is exasperated with FAW, which has a history of resistance. FAW does not undergo diapause, so it's overwintering is limited to very far south (southern FL, southern TX, perhaps the Gulf Coast). Migratory behavior and nighttime wind currents result in populations arriving here, several generations after the New Year starts. Although larvae feed on vegetative corn, when it gets into tasseling or silking corn then the larvae bore rapidly into the ear, from the base, side or tip.



Fall armyworm (Photo R. Bessin)

European corn borer (ECB) continued to be low. Sprays for CEW or FAW work against ECB.

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

County	Trap Name	CEW			ECB			FAW		
		27-Jul	3-Aug	10-Aug	27-Jul	3-Aug	10-Aug	27-Jul	3-Aug	10-Aug
Blair	Tyrone	40	8	6	15	6	4	3	4	4
Bedford	Martinsburg	26	6	10	12	4	0	30	96	10
Bucks	Bedminster	17	27	47	0	0	0	0	0	0
Centre	State College	12		6	0		2	0		0
Centre	Rock Springs	4		0	0		0	0		5
Clinton	Loganton	9	5		3	3				
Erie	Fairview	5	7	3				39	6	1
Erie	Lake City	15	22	3				151	79	94
Indiana	Brush Valley	2	2	5				6	0	2
Indiana	Creekside	8	1	5				12	0	2
Juniata	Port Royal		12	24					0	1
Juniata	Greenbar		3	12						
Lancaster	Landisville	10	5	7	2	1	1	2	1	
Lancaster	Neffsville	1	2	8	0	0	0	0	4	0
Lancaster	New Danville	2	8	3	0	0	0	0	0	0
Lehigh	Germansville	4	7	2	0	0	0	1	6	2
Lycoming	Linden		1						5	
Lycoming	Montoursville	16	12					1	46	
Lycoming	Muncy	20	0	4				0	1	0
Mifflin	Belleville	50	15	15	30	42	0	75	48	7
Montour	Washingtonville	10	7	6	7	3	0			
Northampton	Nazareth	10	4		1	0		0	0	
schuylkill	Tower City	2	2		2	0				
Susquehanna	Montrose	0	3	1	3	2	5	7	2	4
Union	Winfield	6		3	1		3			
Washington	Venetia	60	17	16						
York	York	9	4		0	0	0	1	9	

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		