

WEEKLY CROP UPDATE



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Vegetable Crops

Vegetable Crop Insect Scouting

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Sweet Corn

Continue scouting for Fall Armyworm in whorl stage sweet corn. Reports of larger worms came in earlier this week. Fall armyworm does 80% of its feeding during the last 3 days of larval development, so if you are seeing large holes in whorls, make sure that the worms are still present and are not fully grown. By the time a field is treated, they may have left or done most of that 80% feeding. Also, when they are deep in whorls, they are hard to kill. The final instar will be between 0.6 and 1.3 inches long. If you are seeing mid-sized worms or smaller in tassels as they get pushed out, or if you see their egg masses, you may need to spray the field to prevent them from going to the ear prior to silking. As a reminder, sweet corn thresholds are 15% early and late whorl infestation.

Corn earworm moth counts in traps were high on Monday but then decreased a bit in Thursday's traps. I am concerned that this is the beginning of an upward trend. If so, this would be a few days earlier than last year. Between now and the end of July, trap counts sometimes bounce around. Also, now that our weather pattern is consistently in the high 80's to low 90's, spray schedules should be tightened a day to account for faster egg hatch at warmer temperatures. This is the time of year generally when moth resistance levels begin to increase in vial

testing. To be on the safe side, use a tighter spray schedule following a pyrethroid. I think an extra day can be granted following a Besiege or Elevest application.

Thursday trap counts are as follows:

Trap Location	BLT CEW	Pheromone CEW
	<i>3 nights total catch</i>	
Dover	1	47
Harrington	1	25
Milford/Canterbury	0	53
Rising Sun	0	25
Wyoming	0	0
Bridgeville/Redden	0	9
Concord	1	0
Georgetown	0	10
Woodenhawk	0	5
Laurel	1	58
Lewes	-	1
Middletown	-	2

Cucurbits

Continue scouting for striped cucumber beetle and, MORE IMPORTANTLY, rind feeding injury. Rind damage can also be caused by one of about a half dozen species of Lepidopteran. Cucumber beetle feeding is going to look 'dirty', splotchy, and uneven. Lep feeding is going to generally be a smooth, single color. Acetamiprid is our best striped cucumber beetle product but does not have any impact on the Leps. Harvanta is one of our best Lep materials and does have some cucumber beetle efficacy (though not as good as Assail).

Spider mites remain active. Even in wet weather, mites are hard to dislodge from vegetables such as watermelon and tomato. Do not let your guard down on them in these crops.

Squash bugs are very active right now. The threshold is 1 egg mass per plant. You may need to spray twice to clean them up, about 10 days apart. Eggs are almost impossible to kill with insecticides. The pyrethroids, Assail, and Sivanto Prime all do a good job on squash bugs.

Scout for aphids. Aphid populations tend to increase as we approach August. Aphids can be flared up by frequent pyrethroid application.

Tomatoes and Eggplant

This time of year the main tomato threats are from spider mites and stink bugs. Spider mite thresholds are 4 mites per upper canopy leaflet for tomato and 4-8 mites per leaf for eggplant. Although a little early, we may start seeing fruit worms starting in tomato. We performed a spray trial a few years ago looking at various worm products in the Recommendation Guide, applied at weekly intervals for 3 weeks and had no significant differences in worm damaged tomatoes.

Continue scouting eggplant for Colorado potato beetle defoliation, Japanese beetle defoliation, and spider mites.

temperatures are typically above 80°F through the third week of August. For both transplant and direct seeded production, primed seed can help reduce the risk of thermal dormancy. When starting transplants, trays can be kept in a shaded location, a cool building or germination chamber until seedlings emerge. After germination, grow out transplants in a cool location, such as a porch or other partially shaded area.

In [2012 I conducted lettuce trials](#) with two spring and two fall planting dates. Forty-three varieties were tested. The fall harvest transplanting dates were July 27, which is earlier than the recommended window, and August 15, which is within the recommended window. Even when planted within the recommended planting window (August 15), 83% of the varieties fully or partially bolted. Therefore, Delaware growers should use heat tolerant lettuce varieties for fall plantings. (As a side note, nearly all the varieties I tested produced marketable heads when transplanted on March 30).

The varieties that performed well in the 2012 fall trials, which are still available are: Skyphos and Starfighter. This year I am testing fourteen lettuce varieties (all with reported heat tolerance) in two summer trials on white mulch with shade. On July 17 we completed harvest of the first planting, which was transplanted on June 5. The varieties with no bolting and bitter flavor in that trial were: Muir, Nevada, Skyphos, Jericho and Sunland.

Heat Tolerant Lettuce Varieties and Preparing for Fall Lettuce Planting

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Head lettuce for fall harvest can be direct seeded in Delaware from August 1 through August 20 and transplanted from August 10 through August 30. Getting good lettuce germination for either transplants or direct seeded plantings can be challenging when temperatures are high. The optimum soil temperature range for lettuce germination is 60-68°F and high soil temperatures can induce thermal dormancy which prevents germination. In southern Delaware, average daily soil



Lettuce varieties that have shown heat tolerance in Delaware trials.

Flooding, Waterlogged Soils and Effects on Vegetables with Special Consideration for Plasticulture Vegetables

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Current weather patterns have brought heavy rains to Delmarva and has flooded vegetable fields. Climate scientists predict that extreme weather events will become more common on Delmarva over the next several decades. This will present additional challenges for vegetable growers related to flooding, wet weather diseases, nutrient losses, ability to do timely harvests, field compaction, other wet soil issues, and resulting crop losses.

In flooded soils, the oxygen concentration drops to near zero within 24 hours because water replaces most of the air in the soil pore space. Oxygen diffuses much more slowly in water filled pores than in open pores. Roots need oxygen to respire and have normal cell activity. When any remaining oxygen is used up by the roots in flooded or waterlogged soils, they will cease to function normally. Therefore, mineral nutrient uptake and water uptake are reduced or stopped in flooded conditions (plants will often wilt in flooded conditions because roots have shut down). There is also a buildup of ethylene in flooded soils, the plant hormone that in excess amounts can cause leaf drop and premature senescence.

In general, if flooding or waterlogging lasts for less than 48 hours, most vegetable crops can recover. Longer periods will lead to more root death and lower chances of recovery.

While there is limited research on flooding effects on vegetables, the following are some physiological effects that have been documented:

- Oxygen starvation to vegetable roots will cause roots to cease to function resulting in plant collapse with limited recovery potential.
- Oxygen starvation in root crops such as potatoes will lead to cell death in tubers and storage roots. This will appear as dark or discolored areas in the tubers or roots. In carrots and other crops where the tap root is harvested, the tap root will often die leading to the formation of unmarketable fibrous roots.
- Ethylene buildup in saturated soil conditions can cause leaf drop, flower drop, fruit drop, or early plant decline in many vegetable crops.
- Leaching and denitrification losses of nitrogen and limited nitrogen uptake in

flooded soils, will lead to nitrogen deficiencies across most vegetable crops.

- In bean crops, flooding or waterlogging has shown to decrease flower production and increase flower and young fruit abscission or abortion.
- Lack of root function and movement of water and calcium in the plant can lead to calcium related disorders in plants. There is a potential for higher incidence of blossom end rot in tomatoes, peppers, watermelons, and other susceptible crops when fruits are forming and soils are saturated.

Low lying areas of fields are most affected by excess rainfall. However, cropping practices can also increase water standing. In vegetables, field compaction will reduce water infiltration leading to increased crop losses in wet weather.

Plasticulture Concerns in Wet Weather

In plasticulture, water can accumulate and persist between rows of plastic mulch because of the impervious surface of the mulch. Because much of the rainfall runs off the plastic, water pooling can be a serious problem in plastic mulched fields, especially where row middles have become compacted. Vining crops that fruit into the row middles can have vines and fruits sitting in water and this produces ideal conditions for diseases of wet conditions to develop. A prime example is *Phytophthora capsici* (a water mold) that needs saturated soils or standing water to infect plants (fruits). *Phytophthora capsici* grows at 10 to 36 °C (50 to 97 °F), with optimal temperatures of 24 to 33 °C (75-91 °F).

When water overflows the bed tops of plastic mulched crops, whole beds become saturated as water enters the planting holes. This often leads to plant losses as beds take a very long time to dry once saturated in this way and oxygen is very limited in the root zone.

To avoid water accumulation between plastic mulched beds, tilling with a deep shank or a subsoiler in row middles can help improve drainage. Cut drainage channels at row ends to reduce blockage (dams) that can back up water. Where practical, section plasticulture fields and install cross drains to remove extra water to improve drainage and reduce water damage potential. Growers may also choose not to plant lower areas in the field prone to water damage where plastic is laid.

In some crops, such as peppers and strawberries, high raised beds will improve drainage significantly and can reduce losses to water standing between plastic rows. Another option in watermelons (and other strongly vining crops) grown on plastic is to reduce plastic bed width and increase distance between rows to limit impervious surfaces.



Compaction between mulched beds can lead to increased ponding.

In some crops in our region (plasticulture strawberries for example), cover crops such as ryegrass are being grown between beds to reduce erosion. Research on row middle management will be a priority for the future.



When water goes over the top of beds, they become saturated for long periods leading to plant losses. In this case the water just missed going over the bed (note the trash line).

Identifying Poorly Drained Areas for *Phytophthora capsici* Management

Growers with crops susceptible to *Phytophthora capsici* (*P. cap*) are encouraged to evaluate fields with susceptible crops (all vine crops, tomatoes, peppers, lima beans) for drainage issues where this disease can proliferate. The primary keys to *P. cap* management are limiting standing water, the potential for saturated soils, and water movement across the crop.



Row middles with ponding due to a field depression.

Recovering from Flooding or Waterlogging

One option to aid in vegetable crop recovery after floods or waterlogging is to aerate the soil by cultivating (in crops that can be cultivated) as soon as you can get back into the field. This allows oxygen to enter the soil more rapidly. To address nitrogen leaching and denitrification losses, sidedress with 40-50 lbs. of N where possible depending on the crop and crop stage.

In vegetable fields that remain wet, consider foliar applications of nutrients. Since nitrogen is the key nutrient to supply, spraying with urea ammonium nitrate (28 % N solution) alone can be

helpful. These can be sprayed by aerial or ground application. Use 5 to 20 gallons of water per acre. The higher gallons per acre provides better coverage. As with all foliar applications, keep total salt concentrations to less than 3% solutions to avoid foliage burn.

Future Considerations

To address excess water challenges in the future, vegetable growers will need to invest in and plan for drainage in every field. Solutions including land levelling, surface drainage, tiles (tile wells, patterned tiling), and pumping may all need to be considered. [See this article by James Adkins on drainage basics.](#)

Managing Phytophthora in Watermelons

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Current weather patterns and heavy rains have set up conditions for the development of Phytophthora blight in watermelons.

Phytophthora blight caused by *Phytophthora capsici* (P. cap) is a major limiting disease in watermelons. P. cap is not a fungus - it belongs to a group of organisms called Oomycetes which are more closely related to algae than fungi. Oomycete specific fungicides help control this disease in other crops such as pickling cucumbers and lima beans. However, due to the nature of the plasticulture growing systems used in watermelons, with much of a field in impervious plastic, water collecting between the rows allows for the disease to proliferate and spread rapidly when multiple inch rainfalls occur.

Watermelon fruit can become infected at any stage of maturity, either from direct contact with the soil or from splashing rain. Initially, symptoms will appear as small water-soaked areas that quickly enlarge and can become covered in sporangia in high humidity. Sporangia-covered lesions will have a gray to white appearance. The rot will develop rapidly until the fruit is completely collapsed.

P. capsici has two mating types (called A1 and A2) that are genetically distinct. When both mating types are present in one field, they mate to produce survival structures called oospores. Oospores can survive in the soil for many years and provide the initial inoculum for disease initiation when conditions become favorable. The asexual stage of *P. capsici*, which is responsible for initiating infection, depends on water for infecting and moving between plants. Disease will almost always begin in low spots of fields or in areas that do not drain readily, such as row middles. When contaminated soils are saturated for several hours and temperatures are relatively warm, *P. capsici* will form structures called sporangia. Sporangia can directly germinate to cause disease; however, they also contain asexual, swimming zoospores that are released into the saturated soil in wet conditions. Zoospores are attracted to living plant parts in the soil and on the soil surface and swim toward them. Once they find a host plant, zoospores can germinate and infect any plant part, but in the case of watermelons, fruits readily become infected.

Oospores are spread from field to field in infested soil adhering to machinery or humans. Zoospores are spread primarily by splashing water from rain, or water running through fields during rain events. If contaminated field runoff drains into an irrigation pond, that irrigation pond may become a source of inoculum and spread the pathogen throughout the crop or onto other fields.

As stated before, Oomycete specific chemicals will not fully control P. cap in watermelons. This is because once the fruit sets on the ground, the chemicals cannot reach that part of the fruit. Research has also shown that applications through the drip system are not effective at controlling the fruit rot phase of the disease. Continue foliar applications and start at first fruit set.

On a positive note, resistance to P. cap has been found in watermelon germplasm and breeding lines have been released from the USDA research

program in Charleston S.C. (see <https://cuccap.org/breeding/watermelon/#phytophthora>) However, it will take several years to get this resistance into commercial varieties.

Current chemical control recommendations are shown below:

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply one of the following fungicides and tank mix with fixed copper at labeled rates when conditions favor disease development (for suppression only). Materials with different modes of action (FRAC codes) should always be alternated to reduce the chances for fungicide resistance development:						
49 + 40	Orondis Ultra 2.33SC	5.5 to 8.0 fl oz/A	oxathiapiprolin + mandipropamid	0	4	--
49+M05	Orondis Opti ¹	1.75 to 2.5 pt/A	oxathiapiprolin + chlorothalonil	0	12	--
40	Revus 2.08F	8.0 fl oz/A	mandipropamid	0	4	--
40 + 45	Zampro 525SC	14.0 fl oz/A	dimethomorph + ametoctradin	0	12	--
43	Presidio 45C ²	4.0 fl oz/A	fluopicolide	2	12	L
M03+22	Gavel 75DF	1.5 to 2.0 lb/A	mancozeb + zoxamide (note: some cultivars are sensitive to mancozeb)	5	48	--
21	Ranman 400SC	2.75 fl oz/A (Do not apply with copper, see label for details) ³	cyazofamid	0	12	L
40	Forum 4.17SC	6.0 fl oz/A	dimethomorph	0	12	N
22	Ehumin 45C	8 fl oz/A	ethaboxam	2	12	--
M05+22	Zing! 4.98C ¹	36.0 fl oz/A	chlorothalonil + zoxamide	0	12	N

¹Tank mixes of additives, adjuvants, and/or other products may result in crop injury.

²Presidio may also be applied through the drip irrigation (see supplemental label).

³Ranman should be tank mixed with an organosilicone surfactant when disease is severe, or a non-ionic surfactant or blend of organosilicone and non-ionic surfactant disease is moderate or light.

Growers must also use cultural controls to manage this disease. The following are guidelines for cultural control of Phytophthora blight in watermelons:

1) Practice long rotations in fields with a history of P. cap infections. Plant non-host crops such as corn, small grains, soybeans, or brassicas in these fields for at least 3 years (4-5 years would be ideal). Remember that P. cap also infects tomato, pepper, eggplant, cucumbers, squash, pumpkins, melons, lima beans, snap beans, and a number of weeds such as purslane, black nightshade, and Carolina geranium.

2) Avoid introducing Phytophthora into uninfected fields. After working in Phytophthora-infested soil, wash soil from equipment. Always work in clean fields before working in infested fields.

3) Water management: Phytophthora requires saturated soils for infection. Use the following methods to encourage drainage and avoid prolonged soil saturation.

- Be careful to not overwater and check irrigation system regularly for leaks and fix them.

- Break up hardpan and encourage drainage by using a V-ripper or other sub-soiling tool in row middles. Do this pre-planting and as needed during the season.
- Avoid soil compaction. Use farm machinery as little as possible throughout the season and never work in fields when the soil is wet.
- Make sure water can flow out of the field. Create breaks in raised beds and clear away soil at the ends of rows to prevent damming.
- Leave windbreak stubble between each row to reduce splash dispersal of inoculum. Inoculum can move rapidly across plastic mulch and bare soil.
- Shape row middles in a V pattern so that water drains to the middle.

4) Limit impervious surfaces (plastic mulch covered area)

- Use narrow width plastic mulch in high, dome-shaped raised beds of at least 9 inches.
- Increase row width. Avoid 6-7' rows and switch to 8-10' row widths.

5) Consider systems that leave plant residue or cover in the row middles

- Consider mulch based no-till systems for later plantings that do not use plastic mulch.
- Use every row rye windbreaks that are planted early to give the most mulch after rolling in the growing season.
- Consider living mulch row middles. We are experimenting with ladino clover row middles that stay throughout the season.



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P. cap infected watermelon

Part of this article was adapted from <https://ag.umass.edu/vegetable/factsheets/phytophthora-blight>

Leafhopper Damage Found on Fruit and Vegetables

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Potato leafhoppers *Empoasca fabae*, started showing up early in the season in our area in unexpected numbers and now they are showing up again in vegetables (eggplant, beans) fruit crops (raspberries) and hops where they are causing some problems (Figures 1,2, and 3). Unlike earlier in the season when most of the leafhoppers were adults, most of the ones found now are nymphs (Figure 4). Potato leafhoppers (PLH) prefer warm, dry conditions and are commonplace in southern states where they overwinter; leafhoppers do not overwinter in our area, but the milder the winter the better able they can overwinter close to us. PLH are generally first seen in late April or early May but are arriving on average 7-10 days earlier in our area than just 20-30 years ago. Females lay 2-4 eggs per day in the leaf stems or veins of plants. In 7 to 10 days nymphs emerge. Nymphs undergo five instars and reach maturity in about 2 weeks. Leafhoppers are capable of very rapid population increases so scouting is important to control the

pest to avoid damage to crops. Alfalfa and a few other forage legumes are the primary hosts for the potato leafhopper and once the first cutting of the forage is done, PLH will move into other susceptible crops.

Damage: The most obvious symptom of potato leafhopper feeding is hopper burn. Hopper burn is the yellowing of the leaf margin (Figures 1-3). This damage is followed by leaf curling and necrosis (Figure 5). Hopper burn occurs because potato leafhoppers feed by sucking the juices out of leaf veins and blocking the veins with a toxin in their saliva. Once hopper-burn is seen the plant has been damaged, which will either reduce yield or the quality of fruit.

Monitoring and Management: Because potato leafhoppers can have very rapid population surges, it is important to scout and control them before major damage can occur. While there is no agreed upon threshold for leafhoppers in several of our crops such as eggplant, raspberry or hops, most recommendations have a threshold at 2-3 PLH per leaf. Fields should be scouted weekly by checking the undersides of 5-10 leaves per 10-20 plants. If the average number of leafhoppers per leaf is at or above the threshold, then a control is needed. Because hops are a newer crop in our area states may differ in what they allow to be used, so be sure to check the label to see what your state will allow to be used on hops for PLH control. In general, neonicotinoids, pyrethroids, or spinosyns could be used. Organic growers could use spinosad or pyrethrins that are OMRI approved for potato leafhopper management. If PLH are more of a consistent problem for you one suggestion is to plant red clover in drive rows (do not mow) as potato leafhoppers prefer to feed on the red clover than most of our vegetables.

Fig. 1 Hopper burn on eggplant.



Fig. 2 Hopper burn on raspberries.

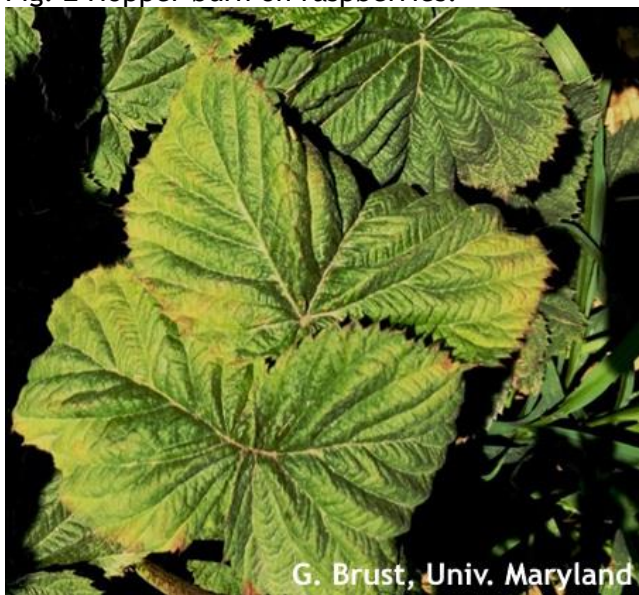


Fig. 3 Hopper burn on hops.



Fig. 4 Potato leaf hopper nymphs.

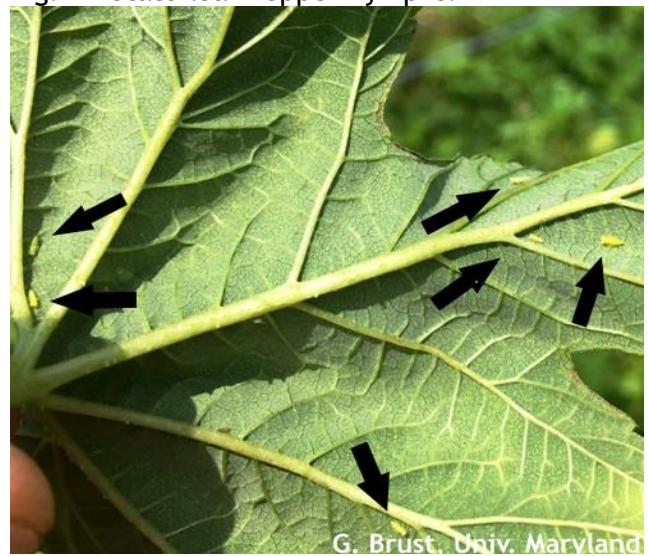


Fig. 5 Heavy potato leaf hopper feeding damage



Avoiding Plectosporium Blight in Cucurbit Fields in 2023

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This article originally appeared in the [Rutgers Plant and Pest Advisory](#).

Plectosporium blight, also known as Microdochium blight or White speck, caused significant problems in some pumpkin fields the last few summers in New Jersey. The soil-borne fungal pathogen, although somewhat uncommon, can unexpectedly show up in some years and cause significant losses if left uncontrolled. The fungus survives in the soil on decaying plant debris where it can remain saprophytic by surviving off organic matter. Infection is characterized by the production of numerous light tan to “bleached” spindle shaped lesions that develop on vines and the undersides of infected leaves. Heavily infected vines and leaves can die leading to premature defoliation and subsequent sunscald on fruit. In cases of heavy disease pressure, spores that are produced on the bottom sides of leaves fall and infect the topsides of fruit laying beneath the canopy. Infection of stems leads to premature browning and drying reduce their longevity. Fruit infection, in most cases, remain mostly cosmetic in nature reducing fruit quality and may predispose fruit to other opportunistic fruit rots. Plectosporium blight often shows up during periods of prolonged wet weather where the soil remains wet for extended periods. “Hot spots” typically appear in fields before the pathogen is further spread by driving rains and wind.

From a production standpoint, stay away from fields with known history of the disease for as long as possible; provide adequate spacing between plants in- and between rows (i.e., avoid the overcrowding of plants); avoid over (pre-plant) fertilization that can lead to thick, dense canopies; avoid overhead irrigation (if possible); avoid planting in area of a field that remains heavily shaded where soils tend to dry too slow.

Controlling Plectosporium blight begins with regular scouting, recognizing symptoms, and identifying “hot spots” in the field. Protectant fungicides, such as chlorothalonil, as well as those used in weekly maintenance spray

programs for cucurbit powdery mildew control will help control Plectosporium blight as long they applied on a weekly schedule with a high volume of water with thorough coverage. To help improve control on the undersides of leaves, a FRAC code 11 fungicide such as Quadris Top or Pristine, can be added to the tank mix. Remember, FRAC code 11 fungicides have translaminar activity and will move from the top surface of the leaf to the bottom. Growers who grow powdery mildew resistant varieties need to remember to scout their fields regularly even if cucurbit powdery mildew has not been detected on the farm or if regular maintenance sprays haven’t begun.



White speck lesions covering the surface of immature and mature pumpkin fruit. White speck will only cause cosmetic injury to fruit.



White speck on vine and stem of infected pumpkin plant. Note the numerous small, white diamond shaped lesions.

Controlling Anthracnose and Alternaria Leaf Blights in Cucurbit Crops

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This article originally appeared in the [Rutgers Plant and Pest Advisory](#).

Anthrachnose and Alternaria leaf blight can become problematic in cucurbit crops during long periods of wet, humid weather. Both can cause significant losses if not controlled properly. With the production season in full swing, now is a good time to review a few of these important diseases.



Symptoms of anthracnose on infected cucumber leaf.



Alternaria leaf blight on cantaloupe (NCSU - G. Holmes)

Anthrachnose, caused by *Collectotrichum orbiculare*, and Alternaria leaf blight (*Alternaria cucumerina*) produce distinct spots on infected leaves, and in most cases, symptoms begin on

the older leaves. With Alternaria, diagnostic concentric black rings will develop within the spots on infected leaves, often there is a chlorotic (yellow) halo around margins. With Anthracnose, spots always develop on veins on the underside of infected leaves. Often, black setae (hair-like projections) will develop on the veins of infected tissue. These symptoms make for easily diagnosing which disease might be present.

Both pathogens can overwinter on infected plant tissue in the soil for 1 to 2 years, thus extended crop rotations are important. Conidia (spores) develop from dormant mycelium in the soil and are splashed into the canopy causing primary infections during prolonged periods of humid, wet weather causing extended leaf wetness. Secondary infections and spread of both diseases can occur during the production season under favorable conditions for disease development.

Deep plowing debris or the removing of plant debris after harvesting, avoiding overhead irrigation during the production season, and most importantly, choosing cucurbit varieties with resistance are important cultural practices all conventional and organic growers should consider.

Anthrachnose and Alternaria are easily controlled with weekly protectant fungicides such as chlorothalonil and mancozeb as long as they are applied prior to the arrival of the pathogen and on a regular basis during favorable disease development. Organic growers can apply copper and other labeled products to help suppress development of these diseases. Complete foliar coverage is critically important for the control of these diseases.

For more information on the control of anthracnose and Alternaria leaf blight in cucurbit crops please see the 2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendations Guide.

Additional Resources:

University of Florida:
<https://plantpath.ifas.ufl.edu/u-scout/cucurbit/alternaria-leaf-spot.html> - Images of Alternaria

University of Florida:

<https://www.growingproduce.com/vegetables/a-im-to-keep-anthracnose-out-of-your-cucurbit-crops/> - Additional information on anthracnose

University of MN:

<https://extension.umn.edu/diseases/anthracnose-cucurbits> - Additional information on anthracnose of cucurbits

Fruit Crops

Fruit Crop Scouting Report

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We started trapping for brown marmorated stink bug in apple orchards about a week and a half ago. We have traps in three locations, one of those this week hit a cumulative trap count threshold of 5 BMSB. Asiatic garden beetle activity is high right now. They may cause significant defoliation of young cherry trees.

Fruit Cracking

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We recently have had wet weather in many parts of Delmarva, and we are seeing fruit cracking in plums, peaches, and nectarines.

Of the fruit crops, sweet cherries and certain plums are the most sensitive to excess moisture. Cracking due to excess moisture is a major reason that we have problems growing sweet cherries on Delmarva. It is not the uptake of water through the plant root system that causes the cracking; it is the absorption of water through the fruit cuticle that causes the fruit splitting. The theory is that as a cherry or plum ripens and accumulates sugars, fruit exposed to extended periods of wetness from rain, dew, or high humidity conditions will absorb water through the fruit skin and swell until the fruit cracks. Some cherry and plum varieties are more susceptible to cracking than others.

Growers of sweet cherries in the east often lose large portions of their crop due to fruit cracking.

In the past, the major tool to physically remove water from cherry fruit surfaces was using helicopters or blower sprayers. Use of calcium chloride sprays prior to rain events act to reduce the osmotic potential of rainwater. Chemical barriers have also been tried to prevent water movement into the fruit with varying success. There has been great interest in the use of high tunnels with dwarf sweet cherries to control cracking by eliminating wetness on fruit surfaces with these plastic covers.

Similar skin cracking can occur in nectarines and peaches. Nectarines are more susceptible to cracking due to the smooth skin. If the skin is russeted (scarred) by copper phytotoxicity, insect feeding or had bacterial spot, the cracking may be accentuated. When the skin of these fruits stays wet for an extended period near ripening, the fruit can absorb so much moisture that it cracks. This is a problem for growers that do “tree ripe” fruit. Earlier harvest and ripening off the tree can help control this problem.

Some blueberry varieties are also susceptible to fruit cracking at ripening. Research has shown that both fruit absorption of water and internal water accumulation from root uptake cause this cracking.



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Japanese plum variety highly susceptible to fruit cracking in wet weather.

Agronomic Crops

Agronomic Crop Scouting Report

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Corn

Western corn rootworm adults are active and worth scouting for if planting corn in the same field as this year's, and especially in western Kent or New Castle County where the ground is heavier. Threshold for next year management (Bt variety with rootworm traits or soil insecticide application) is 1 beetle per plant. I was asked recently what I thought of insecticides tank mixed with a fungicide application. The threshold for stink bugs is 10 bugs per 100 plants for tassel push or tasseling plants but go up to 28 bugs per 100 plants during the early silk stages. Most stink bugs in corn tend to be brown stink bugs which are difficult to kill with pyrethroids. Of them, bifenthrin does the best job, but is also a bit more expensive. In the absence of scouting, a prophylactic tank mix may be of some benefit around edges only, but I don't see it as paying for itself in field interiors. Of course, this is difficult to manage if a field is being treated by plane.

Soybean

Now that full season bean fields are entering early pod stages, begin paying special attention to stink bugs, podworm, and defoliation. Generally, podworm are not an issue in full season bean fields but come the 3rd week of August can be a major threat to double crop bean fields. I will post the NCSU earworm threshold calculator now through August for soybean as a general reminder about this handy tool: <https://www.ces.ncsu.edu/wp-content/uploads/2017/08/CEW-calculator-v0.006.html>.

Stink bug thresholds are 5 bugs per 15 sweeps. There is some thought in Mid-Western states that this might be a bit high in R4 soybean. I think a lower threshold is justified in Plenish soybean on account of their higher value and need for higher quality. Soybean grown for seed the thresholds

are 2 - 2.5 stink bugs per 15 sweeps. Pay attention to which species are in a field. Brown stink bugs should be treated with bifenthrin or an organophosphate such as Orthene, while green stink bugs are susceptible to all of the pyrethroids.

Soybean Disease Updates

Alyssa Koehler, *Extension Field Crops Pathologist*; akoehler@udel.edu

Full season soybeans across the area are approaching or at R3. Overall, soybean disease pressure has been low across the region. I have been seeing a bit of low canopy Septoria Brown Spot. Leaf symptoms begin as small brown spots that can have a yellow halo around them, as spots coalesce the leaf may turn yellow (Figure 1). This disease usually stays to the bottom of the plant, limiting yield impact. Fungicide applications in soybean are most economical when disease is present and fungicides are applied during R1-R6 growth stages, with R3 being the most common timing. If you have disease present, and are considering a fungicide application, it is important to scout fields and monitor the weather. Most soybean diseases are favored by humid, wet conditions. With the recent rain it may increase foliar disease pressure. The [2023 National Fungicide Efficacy Recommendations](#) for Foliar Diseases of Soybean provides an overview of product ratings based on trials conducted by Extension specialists across the country (Figure 2).



A. Koehler, University of Delaware

Figure 1. Low canopy Septoria brown spot



Fungicide mode of action groups:

- Group 11 QoI Strobilurins
- Group 3 DMI Triazoles
- Group 1 MBC Thiophanates
- Group 7 SDHI Carboxamides
- Group 29 2,6-Dinitro-anilines
- Group BM-01 Plant Extracts

Efficacy categories:

P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent;
 NL=Not Labeled for use against this disease; NR=Not Recommended;
 U=Unknown efficacy or insufficient data to rank product

Table continued from previous page

Fungicide Efficacy for Control of Soybean Foliar Diseases Table (05/2023)

Active Ingredient (%)	Product/Trade name	Rate/A (fl oz)	Aerial web blight	Brown spot ²	Cercospora leaf blight ³	Frogeye leaf spot ⁴	Diaporthe (pod and stem blight)	Soybean rust	Target spot	White mold ⁵
11 Trifloxystrobin 13.7%	Delaro 325 SC	8.0 – 11.0	VG	VG	U	G-VG	U	U	NL	F
3 Prothioconazole 16.0%										
7 Fluopyram 10.9%	Delaro Complete 3.83 SC	8.0 – 11.0	U	VG	U	U	U	U	NL	U
3 Prothioconazole 14.9%										
7 Pydiflumetofen 6.9%	Miravis Top 1.67 SC	13.7	VG	VG	F-G	G-VG	G	NL	F-G	U
3 Difenoconazole 11.5%										
7 Pydiflumetofen 7.0%	Miravis Neo 2.5 SC	13.7 – 20.8	U	U	U	G-VG	U	U	U	P
11 Azoxystrobin 9.3%										
3 Propiconazole 11.6%										
11 Pyraclostrobin 28.58%	Priaxor 4.17 SC	4.0 – 8.0	E	G-VG	P-G	P-F	U	VG-E	F-G	P
7 Fluxapyroxad 14.33%										
7 Fluxapyroxad 14.33%	Priaxor D 4.17 SC, 1.9 SC	4.0 each component	VG	VG	P-G	F-G	G	VG-E	F-G	P
11 Pyraclostrobin 28.58%										
3 Tetraconazole 20.50%										
11 Trifloxystrobin 32.3%	Stratego YLD 4.18 SC ⁷	4.0 – 4.65	VG	G	F	F-G	U	VG	P	NL
3 Prothioconazole 10.8%										
11 Azoxystrobin 9.35%	Affiance 1.5 SC	10.0 – 14.0	U	VG	F	F-G	U	U	U	U
3 Tetraconazole 7.48%										
11 Fluoxastrobin 17.76%	Zolera FX 3.34 SC	4.4 – 6.8	U	U	U	F-G	U	U	U	U
3 Tetraconazole 17.76%										
1 Thiophanate-methyl 21.27%	Acropolis	20.0 – 23.0	NL	U	U	G-VG	U	VG-E	U	U
3 Tetraconazole 4.20%										
7 Fluxapyroxad 7.74%	Revytek	8.0 – 15.0	VG	VG	F-VG	G-VG	U	VG-E	F-VG	P
11 Pyraclostrobin 15.49%										
3 Mefentrifluconazole 11.61%										
11 Pyraclostrobin 17.56%	Veltyma	7.0 – 10.0	U	U	U	G-VG	U	U	U	NL
3 Mefentrifluconazole 17.56%										
BM-01 Tea Tree Oil 20.4%	Regev HBX	4.0 – 8.5	U	U	U	G-VG	U	U	U	U
3 Difencconazole 20.4%										

¹Multiple fungicides are labeled for soybean rust only, powdery mildew, and Alternaria leaf spot, including tebuconazole (multiple products) and myclobutanil (Laredo). Contact fungicides such as chlorothalonil may also be labeled for use. ²In areas where QoI-fungicide resistant isolates of the brown spot pathogen are present, QoI fungicides may result in poor disease control. ³Cercospora leaf blight efficacy relies on accurate application timing, and standard R3 application timings may not provide adequate disease control. Fungicide efficacy may improve with earlier or later applications; however, efficacy has been inconsistent with some products. Fungicides with a solo or mixed QoI or MBC mode of action may not be effective in areas where QoI or MBC resistance has been detected in the fungal population that causes Cercospora leaf blight. ⁴In areas where QoI-fungicide resistant isolates of the frogeye leaf spot pathogen are not present, QoI fungicides may be more effective than indicated in this table. ⁵White mold efficacy is based on R1-R2 application timing, and lower efficacy is obtained at R3 or later application timings, or if disease symptoms are already present at the time of application. ⁶Proline has a supplemental label (Zee) for white mold in NY. ⁷Stratego YLD has a supplemental label (Zee) for white mold on soybean only in IL, IN, IA, MI, MN, NE, ND, OH, SD, WI. ⁸Rating is based on two applications of a 9 fl oz/A rate of Approach at R1 and R3.

Many products have specific use restrictions about the amount of active ingredient that can be applied within a period of time or the amount of sequential applications that can occur. Please read and follow all specific use restrictions prior to fungicide use and follow all harvest restrictions provided on the label. This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Reference to products in this publication is not intended to be an endorsement to the exclusion of others that may be similar. Persons using such products assume responsibility for their use in accordance with current directions of the manufacturer. Members or participants in the NCERA-137 group assume no liability resulting from the use of these products.



This article is published by the Crop Protection Network with funding provided by U.S. soybean farmers through the United Soybean Board, the United States Department of Agriculture – National Institute of Food and Agriculture, and the Grain Farmers of Ontario through the Canadian Agricultural Partnership (CAP), a federal-provincial territorial initiative.”

Figure 2: 2023 Fungicide Efficacy Ratings for foliar diseases of soybean (<https://cropprotectionnetwork.org/publications/fungicide-efficacy-for-control-of-soybean-foliar-diseases>)

General

Guess the Pest! July 14

David Owens, Extension Entomologist,
owensd@udel.edu

I apologize for not updating the Guess The Pest form last week and will re-run last week's challenge.

This week, we began transplanting a late tomato trial for worms. We made nice large planting holes, transplanted on not an excessively hot day, and watered the plants right after transplant. A few days later we came out to find a significant number of plants with stem lesions. Some had died, others had fallen but looked like they were trying to regrow. What could be going on with my plants?



D. Owens, University of Delaware

Click on the link to log your answer!

<https://forms.gle/AjQxxk9QzhegzCw48>



Announcements

Delaware Grain Marketing Club

Wednesday, August 2, 2023 6:00-8:00 p.m.

University of Delaware

Paradee Center

69 Transportation Road, Dover, DE

The first Delaware Grain Marketing Club meeting will be on August 2nd at the Kent County Extension Office from 6:00-8:00 PM. Discussions will consist of a market outlook / recap and grain option basics and how to incorporate them within marketing plan. Light dinner will be provided to registrants. Space is limited.

To register, please contact Karen Adams.

E: adams@udel.edu

P: 302-856-2585 ext 540

Please contact Nate Bruce nsbruce@udel.edu with any questions.

Survey of Italian Ryegrass in Delaware and Maryland

The number of questions about Italian ryegrass increase every year and it seems as if Italian ryegrass is in many more fields this year than in the past. Therefore, we are interested in investigating what is going on, by gathering seeds from as many fields as possible for some greenhouse testing to see if populations are responding differently to herbicides. We are looking for some help in collecting seeds.



M. VanGessel, University of Delaware

Italian Ryegrass Seedhead. If seedheads are smaller than shown-here, then increase the number collected.

How can you help?

1. Collect 50 ryegrass seedheads from the field (only seedheads are needed).
2. You do not need to wait for the seedheads to dry down.
3. Put in paper bag or paper envelope (do not use plastic bags).
4. Write the nearest crossroads on bag or envelope.
5. Write the crop on the bag/envelope.
6. Note if any of the following herbicides were sprayed since last fall:
 - glyphosate (Roundup)
 - Axial
 - PowerFlex
 - Osprey
 - Select
 - Assure II
7. Store in dry area.
8. Deliver to nearest county extension office

OR

Contact Mark VanGessel or Kurt Vollmer for collection or pickup.

Mark VanGessel 302-542-8160
 Kurt Vollmer 443-446-4260

Specific farms or individuals will not be identified in any reports or summary.

Seeking Soils with Acidic pH (<5.8) for soil pH and Lime Requirement Research

The University of Delaware Soil Testing Program and the Penn State Agricultural Analytical Services Laboratory are seeking soil samples for a research project related to improving soil pH measurements and lime recommendations. Specifically, we need approximately 30 low pH soils collected from across Pennsylvania and the Delmarva to represent a variety of soil types and cropping systems.

What do we need?

A 5-gallon bucket of topsoil collected from the top 6-inches of the soil from agricultural fields, with documented soil pH of 6.0. or lower that has not received lime in at least two years (>3 years preferred).

The sample can be collected from a single location in the field (no need to take a random sample).

Please remove plant residues from the sample.

Please collect the soil when it is relatively dry.

Please provide the latitude and longitude from the sample location (or a precise address) so that we can obtain soil series information. Exact locations of the samples collected will not be shared beyond the project team.

When do we need it?

Preferably by late July 2023. We need to receive soils early enough that we can dry and homogenize them prior to starting the research in Fall 2023.

Where do we bring the soil samples?

You can drop off the samples at any UD Extension office or the UD Soil Testing Lab. When dropping off a sample, please label the bucket with the following: "UD Soil pH Study c/o Amy Shober", your name, where the sample was collected, and a contact number (or email).

For individuals located farther from a UD Extension Office or Newark main campus, we will arrange a sample pick up or have the samples shipped to Newark at no cost to you.

Who do I contact to arrange sample pick up or if I have additional questions?

Delmarva - Amy Shober (ashober@udel.edu)

Pennsylvania - John Spargo (jts29@psu.edu)

Hydroponic Produce Food Safety Webinar

Thursday, August, 17, 2023 12:00 – 1:00 p.m.

Rutgers University is hosting a free webinar on produce food safety in hydroponic systems.

Here is the link for additional information.

<https://plant-pest-advisory.rutgers.edu/webinar-managing-food-safety-risks-in-hydroponic-operations/>

Join a GROW Farmer Forum on Cover Crop Seeding

GROW will be hosting a Farmer Forum on July 18th, 2023, at 2 p.m. ET. The forum's presenters will explore everything to do with cover crop seeding, including species selection, cover crop mixes, seed sourcing, seeding rates, seeding methods and timing.

Listen in — and bring your questions — as a panel of farmers from Texas, New York and Delaware discuss their long and varied experience with seeding cover crops! CCA-CEU credits will be available.

Speakers:

- Jay Baxter, Baxter Farms, Georgetown, DE
- Donn Branton, Branton Farms, Le Roy, NY
- Matt Ensor, Thorndale, TX

Moderator: Jodie McVane, Conservation Agronomist, Texas A&M

Registration is Free! Sign up here.

<https://docs.google.com/forms/d/e/1FAIpQLSehnQQqRlTR9bJ2cfiu9E3JBodWcv53Gd6Oo0VEMZs5fNMIQ/viewform>

Details on how to join the Forum on July 18:

Zoom link:

<https://virginiatech.zoom.us/j/88338778900?pwd=OUtxRk9zMXoxNEszdFF4UEVKMy84dz09>

Meeting ID: 883 3877 8900

Passcode: 150333

Invited Listening Session on the Financial Needs of Farm and Ranch Families

Members of the Cooperative Extension System and the Consumer Financial Protection Bureau (CFPB) want your input on the financial needs and priorities of farm and ranch families. Better understanding the experiences of farm and ranch families will help both the CFPB and Cooperative Extension work on behalf of consumers in farming and ranching communities with respect to financial and credit issues you may face. We are co-sponsoring two listening sessions and we invite you to participate. Registration is limited so please sign up soon. Your input will be invaluable. Below is more information.

About the CFPB and Cooperative Extension

- The CFPB is a federal agency dedicated to making sure people are treated fairly by banks, lenders, and other financial institutions. Learn more at consumerfinance.gov.
- The Cooperative Extension System is operated through the nation's land grant universities. It empowers farmers, ranchers, and communities of all sizes to meet the challenges they face, including by protecting their money and accessing financial products and services they need. Learn more at extension.org.

Two listening sessions are available. Choose the one that works best for you:

- **Wednesday, August 9, 6:30-8:00 pm Eastern / 5:30-7:30 pm Central.** This session is timed to work well for people in the Eastern and Central time zones, but participants from any time zone may join. This session will use a virtual whiteboard technology, so a computer and internet access are required.
- **Thursday, August 10, 8:30-10:00 pm Eastern / 6:30-8:00 pm Mountain / 5:30-7:00 pm Pacific.** This session is timed to work well for people in the Mountain and Pacific time zones, but participants from any time zone may join. This session will be on Zoom and participants will be able to join by phone. Internet access is not required.

[Click here to register today!](#) No preparation is needed. You will be asked to share your observations and experiences related to accessing credit and other financial services. Space is limited, so registrants will be confirmed on a first-come, first-served basis. The deadline for registration is **Thursday, July 31.**

After you register, you will receive an email confirmation with additional information about the event.

Please feel free to forward this invitation to others who may be interested in participating. We hope you will be able to join us and share your experiences.

Sincerely,

Maria Pippidis
Extension Educator, Health and Wellbeing

Participate in Research, Earn Money and Nutrient Management Credits

Are you a corn grower who wants to earn some money and an extra DE Nutrient Management CEU? Then join us before the Carvel field tour at 2:30 pm in the Carvel meeting room #2 to participate in our research study about In-Season Nitrogen Modeling. Participants will engage in an activity where they will be asked to make in-season N management decisions for a simulated corn crop. Participants will receive 1 Delaware Nutrient Management credit and be paid \$50 (as a Walmart or Amazon gift card), with the opportunity to earn up to an additional \$90 (as a gift card). Participants should expect to spend 30-45 minutes engaged in this activity prior to boarding the wagons for the field tour beginning at 3:30 pm. Advanced registration is required as space is limited. Please call Hilary Gibson at 302-735-8137 or email nutrient-management@udel.edu

Farmland Preservation Program Tuesday, August 22nd, 2023

6:00-8:00 p.m.

Delaware Department of Agriculture Building at
the State Fairgrounds
18500 S Dupont Hwy, Harrington, DE 19952

Delaware's Farmland Preservation Program received \$20 million for farm preservation this past year, the highest state funding in the program's history. This program will explain how the Delaware Department of Agriculture's Farmland Preservation program works and discuss the tax implications of preserving farmland. Light dinner will be provided to registrants. Space is limited.

To register, please contact Karen Adams.

E: adams@udel.edu

P: 302-856-2585 ext 540

Please contact Nate Bruce nsbruce@udel.edu with any questions.

Farmland Preservation Program Thursday, August 24th, 2023

6:00-8:00 p.m.

University of Delaware
Paradee Center
69 Transportation Circle, Dover, DE

Delaware's Farmland Preservation Program received \$20 million for farm preservation this past year, the highest state funding in the program's history. This program will explain how the Delaware Department of Agriculture's Farmland Preservation program works and discuss the tax implications of preserving farmland. Light dinner will be provided to registrants. Space is limited.

To register, please contact Karen Adams.

E: adams@udel.edu

P: 302-856-2585 ext 540

Please contact Nate Bruce nsbruce@udel.edu with any questions.

Small Grain Grower Meeting
September 5th
Carvel from 6:30-8:30 pm.

Weed, disease, insect management, fertility, and crop budgets. Also, there will be malted barley updates by Proximity Malt.

Carvel Field Crop Tour
Wednesday August 9, 2023
University of Delaware
Carvel Research & Education Center
16483 County Seat Highway, Georgetown
Delaware 19947

Please mark your calendars to join us for the 2023 Carvel Field Crop Tour at the University of Delaware Carvel Research and Education Center in Georgetown on August 9th.

The Tour will take place at the Thurman Adams Jr. Agricultural Research Farm located on County Seat Highway west of Georgetown at 3:30 p.m. and end at 5:30 p.m., culminating with a BBQ dinner. Highlights of the wagon tours will include the latest research on vegetables, fruit, and agronomic crops.

Delaware Pesticide and Nutrient Management credits will be available.

Please **RSVP BY Friday**, August 4 for attendance and meal planning by calling **302-831-3328**

Farmland Rental Rate Study

Nate Bruce, Farm Business Management Specialist, nsbruce@udel.edu

University of Delaware Cooperative Extension is conducting a farmland rental rate survey. The purpose of this project is to evaluate various farmland rental rates and how they impact a farming operations ability to cash flow. You must fill out the survey for each farm that is rented. Land that is owned, does not need to be included in the survey. Your local county agent can assist you in filling out the survey. Your response to the survey is greatly appreciated. Each individual response to this survey will not be shared to anyone in the public and kept private. If you have any questions about this project or survey, feel free to contact Nate Bruce at nsbruce@gmail.com. Below is a URL link and QR code to the survey.

Survey URL:

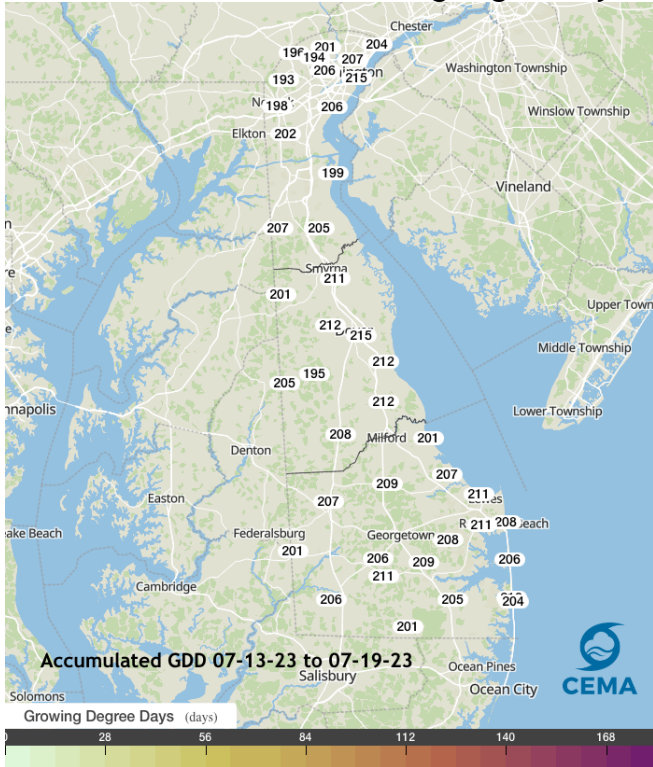
<https://survey123.arcgis.com/share/c5fa508a182044359393b2a5e5251c47>

Survey QR Code:

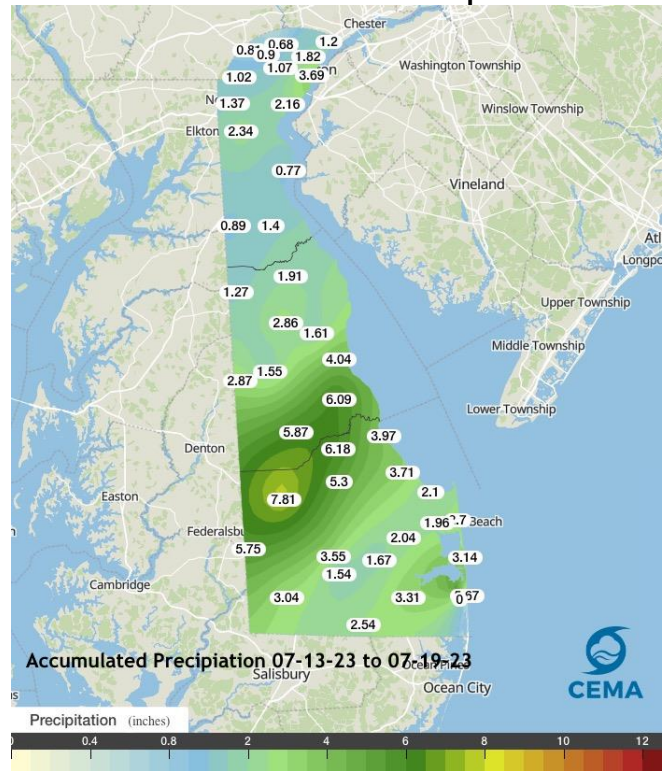


Weather Summary

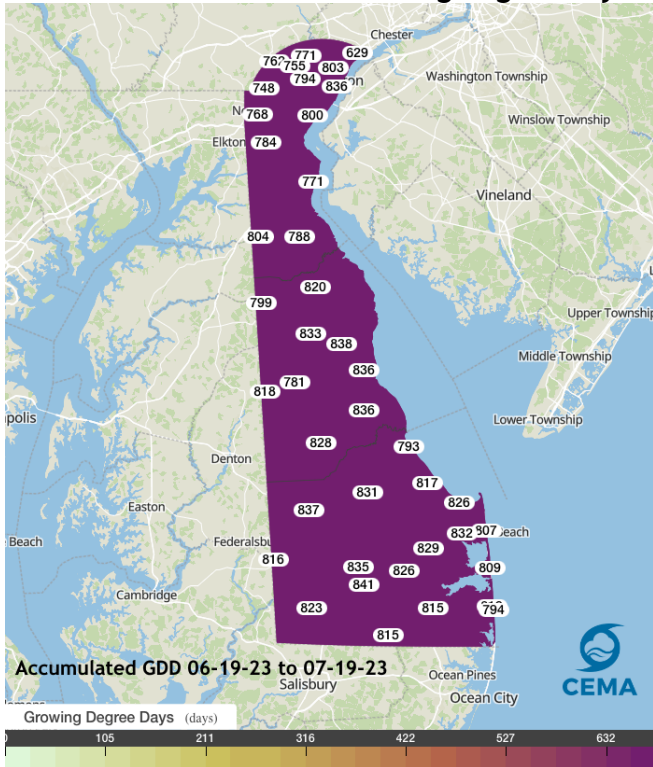
1 Week Accumulated Growing Degree Days



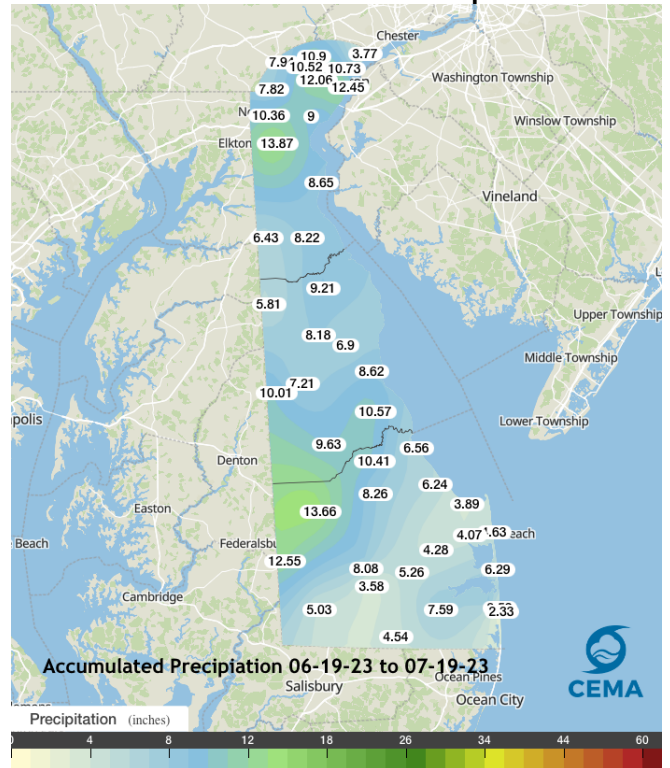
1 Week Accumulated Precipitation



1 Month Accumulated Growing Degree Days



1 Month Accumulated Precipitation



These weather maps are generated from DEOS weather station data and are part of a new Ag Weather website that is under development: <http://deos.udel.edu/almanac/>
Your feedback is welcome!

***Weekly Crop Update is compiled and edited
by Emmalea Ernest, Scientist - Vegetable
Crops and Drew Harris - Kent Co. Ag Agent***

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