



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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## Vegetable Crops

**Vegetable Crop Insect Scouting** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)

### Asparagus

Continue checking asparagus for beetles and eggs on emerging spears. A treatment may be recommended if 2% of spears are infested with eggs. Eggs will appear as small, black cylinders attached at a 90 degree angle to the spear.

### Cole Crops

Continue scouting fields for imported cabbageworm and diamondback larvae. A treatment in the early stages of growth may be recommended if 5% of plants are infested. There are a large number of effective modes of action for worms. Pyrethroids and organophosphates should be saved until much later in the fall in order to preserve beneficial wasps. Wasps can destroy up to 70% of diamondback moth larvae and a large percentage of looper eggs. Over the course of the season, this can be a significant population moderator.

### Melons

If watermelons are being moved outside to harden off, be sure to check them for aphids. If 20% of plants are infested with at least 5 aphids per leaf and beneficial insects are not actively working on the aphids, a treatment may be necessary. The easiest way to do treat is to treat the transplant tray with a neonic. Be sure to watch your rates, they are much lower than a field application. While checking plants for

aphids, be sure to also check for stippling characteristic of spider mite infestation.

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**Foliar Fertilization for Vegetable Crops** - Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

Growers will apply most (>90%) of their plant nutrients for vegetable crops as soil applications (preplant, sidedressed, fertigated) based on soil tests and crop nitrogen needs.

To monitor vegetable nutrient status during the growing season, tissue testing is recommended just prior to critical growth stages. Growers can then add fertilizers to maintain adequate nutrient levels during the growing season or correct nutrient levels that are deficient or dropping.

Foliar fertilization is one tool to maintain or enhance plant nutritional status during the growing season. Often quick effects are seen and deficiencies can be corrected before yield or quality losses occur. Foliar fertilization also allows for multiple application timings post planting. In addition, there is reduced concern for nutrient loss, tie up, or fixation when compared to soil applications.

However, foliar fertilization has limitations. There is the potential to injure plants with fertilizer salts, application amounts are limited (only small amounts can be taken up through leaves at one time), multiple applications are often necessary (increasing application costs) and foliar applications are not always effective,

depending on the nutrient targeted and plant growth stage.

Where foliar fertilization does have a good fit is for deficiency prevention or correction, particularly when root system function is impaired. This commonly occurs when there is extended rainy weather and soils are waterlogged. Foliar fertilization is also necessary when soil conditions, such as low pH, causes the tie up of nutrients so that soil uptake is limited. Foliar fertilization can also be used to target growth stages for improved vegetable nutrition thus improving color, appearance, quality, and yield.

Foliar fertilizers are applied as liquid solutions of water and the dissolved fertilizers in ion or small molecule form. Foliar nutrient entrance is mostly through the waxy cuticle, the protective layer that covers the epidermal cells of leaves. Research has shown that there is limited entrance through the stomata. While the waxy cuticle serves to control water loss from leaf surfaces, it does contain very small pores that allows some water and small solute molecules to enter into the underlying leaf cells. These pores are lined with negative charges. Fertilizer nutrients in cation form or with neutral charges enter most readily through these channels: this includes ammonium, potassium, magnesium, and urea ( $\text{NH}_4^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{++}$ ,  $\text{CH}_4\text{N}_2\text{O}$  respectively). In contrast, negatively charged nutrients (phosphate-P, sulfate-S, molybdate-Mo) are much slower to move through the cuticle (they must be paired with a cation). Movement through the cuticle is also dependent on molecular size, nutrient concentration, time the nutrient is in solution on the leaf, whether the nutrient is in ionic or chelated form (complexed with an organic molecule), and the thickness of the leaf cuticle.

Another factor in foliar fertilizer effectiveness is what happens once the nutrient enters into the leaf area. Some smaller molecules or those with less of a charge are readily transported in the vascular system to other areas of the plant ( $\text{NH}_4^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{++}$ , Urea). Other larger molecules and more strongly positive charged nutrients stay near where they enter because they bind to the walls of cells in intercellular areas that contain negative charges. Tightly held nutrients

include Calcium, Manganese, Iron, Zinc, and Copper ( $\text{Ca}^{++}$ ,  $\text{Mn}^{++}$ ,  $\text{Fe}^{++}$ ,  $\text{Zn}^{++}$ ,  $\text{Cu}^{++}$ ).

Therefore, when applied as foliar fertilizer, calcium does not move much once it enters plant tissue, the negatively charged nutrients such as phosphorus and sulfur are very slow to enter the plant, and iron, manganese, copper, and zinc are slow entering and do not mobilize once in the plant.

The following is a list of the major plant nutrients that are effective as foliar applications, fertilizer forms best used for foliar applications, and recommended rates;

Foliar applications of nitrogen (N) can benefit most vegetables if the plant is low in N. Urea forms of N are the most effective; methylene ureas and triazones are effective with less injury potential; and ammonium sulfate is also effective. Recommended rates are 1-10 lbs per acre.

Foliar potassium (K) is used on fruiting vegetables such as tomatoes and melons. Best sources are potassium sulfate or potassium nitrate. Recommended rate is 4 lbs/a of K.

Foliar magnesium (Mg) is used on tomatoes, melons, and beans commonly. The best source is magnesium sulfate and recommended rates are 0.5-2 lbs/a of Mg.

Foliar calcium is often recommended, but because it moves very little, it must be applied at proper growth stages to be effective. For example, for reducing blossom end rot in tomato or pepper fruits, foliar calcium must be applied when fruits are very small. Best sources for foliar calcium are calcium nitrate (10-15 lbs/a), calcium chloride (5-8 lbs/a) and some chelated Ca products (manufacturers recommendations).

Iron (Fe), manganese (Mn), or zinc (Zn) are best applied foliarly as sulfate or chelated forms. Rates are: Fe, Mn, 1-2 lbs/a, and Zn ¼ lb/a. While these metal micronutrients are not mobile, foliar applications are very effective at correcting local deficiencies in leaves.

The other micronutrient that can be effective as a foliar application is boron. Boron in the Solubor form is often recommended at 0.1 to 0.25 lbs/a for mustard family crops such as cabbage as a foliar application. Boron is very

toxic to plants if applied in excess so applying at correct rates is critical.

For foliar fertilizers to be most effective they should remain on leaves or other targeted plant tissue in liquid form as long as possible. Urea and ammonium nitrogen forms, potassium, and magnesium are normally absorbed within 12 hours. All other nutrients may take several days of wetting and rewetting to be absorbed. Therefore, it is recommended that foliar fertilizers be applied at dusk or early evening when dew is on the leaves, in high volume water, and using smaller droplets to cover more of the leaf. Applications should also be made when temperatures are moderate and wind is low. While foliar fertilizers are sometimes applied with pesticides, for best effectiveness and reduced phytotoxicity potential it is recommended that they be applied alone. Use only soluble grade fertilizers for foliar applications (many are already provided in liquid form) and adjust water pH so it is slightly acidic.

Foliar fertilizers are most effective when applied to younger leaves and fruits. Research has shown that as leaves or fruits age, cuticles thicken, and these thicker cuticles absorb significantly lower amounts of nutrients such as potassium. However, younger plant tissue is also the most susceptible to potential fertilizer burn.

Because foliar fertilizers are in salt forms they can damage plant tissue if applied at rates that are too high. Generally a 0.5-2% fertilizer solution is recommended. Certain vegetables are more sensitive to fertilizer salt injury than others. Vegetables with large leaves with thinner cuticles (such as muskmelons) have greater risk of salt injury when compared to crops, such as cabbage, that have thick cuticles. Apply foliar fertilizers at recommended rates and dilutions for each specific vegetable crop.

In addition, some fertilizer sources are much more likely to cause injury than others. In the past this was given as the salt index for a fertilizer, the lower the salt index the less osmotic stress the fertilizer would place on the plant tissue. A better index would be the osmolality values for the fertilizer material. For foliar nitrogen materials, osmolality values (mmol/kg) for common N sources are as follows:

Urea = 1018, UAN-28 = 1439, Ammonium sulfate = 2314, Potassium nitrate = 3434. This shows that potassium nitrate has over 3x the osmotic stress potential compared to urea when applied as a foliar fertilizer. This means that potassium nitrate has much more potential to cause salt injury to plants than urea and must be used at lower rates.



Magnesium deficiencies are common in tomatoes. Foliar applications of magnesium are effective in correcting this problem.

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**Allium Leaf Miner - Again - Really** - Jerry Brust, IPM Vegetable Specialist, University of Maryland; [jbrust@umd.edu](mailto:jbrust@umd.edu)

I know, I know I wrote one of these just a few weeks ago and here it is again. Why a second article about this pest? I am writing now because I was a bit amazed and alarmed by some field observations in the last 2 weeks. I was on a farm in western Howard county on April 17<sup>th</sup> in a fairly recently planted onion field with the grower (keeping a safe social distance) looking for tell-tale signs of Allium leaf miner. Allium leaf miner *Phytomyza gymnostoma* tell-tale marks consist of several small round white dots in a row that appear on the middle towards the end of leaf blades (Fig. 1) of their preferred hosts of leeks, onions, garlic and other Allium species. The grower and I did not see any signs of the Allium leaf miner on our inspection of this field. This did not surprise me as the grower rotates their field of onions each year, no Allium fields have been found with the leaf miner in this county or any neighboring counties so far and these



transplants were clean to begin with. Less than a week later on April 23<sup>rd</sup> I was in this same field and was amazed to find the tell-tale marks throughout the field. The infestation was not heavy, but the oviposition marks could be found from one end of the field through the middle section and down to the other end of the field (around a quarter of an acre of onions). And this happened in less than 1 week. So I am a bit alarmed about this sudden appearance of the fly in this field of onions. The grower did the right thing and closely watched this new planting of onions, I just did not expect to see such a rapid infestation. This fly must have been present and active in the area before the onions went out. It is important therefore that growers in northern/central Maryland watch their onion fields closely for this pest. One possible reason for the high activity of the Allium leafminer this season is the below average temperatures we have had throughout April. This pest prefers cooler temperatures to remain active.

I just received word of another grower in central Montgomery Co. that also has found them on their onions, leeks and garlic in the last few days. So this pest is spreading rapidly and needs to be watched for.

To go over recommendations for this pest again: New transplants or seedlings of onions, leeks or garlic should be watched closely for the tell-tale signs of the fly's damage which are made by the female's ovipositor. When eggs hatch the larvae at first mine leaves (Fig. 2) and then move down to the bulbs and leaf sheathes (Fig. 3) where they feed and eventually pupate. Pupae will undergo a summer aestivation (type of hibernation, temperatures are too warm for them to be active) and only emerge again in late September. Penn State has good information about the new pest which can be found at: [Penn State Allium Leafminer Pest Alert page](#). You can cover any just-transplanted Allium planting with a row cover (but don't wait too long after transplanting) to keep the flies off, or, if needed, treat with insecticides. Penn State has found efficacy using neonicotinoids (Scorpion, Assail), diamides (Exirel), spinosyns (Entrust, which is OMRI-labelled), and pyrethroids. A spreader-sticker is recommended when applying insecticides to any Allium crop.



Figure 1. Characteristic Allium leaf miner marks on onion leaf

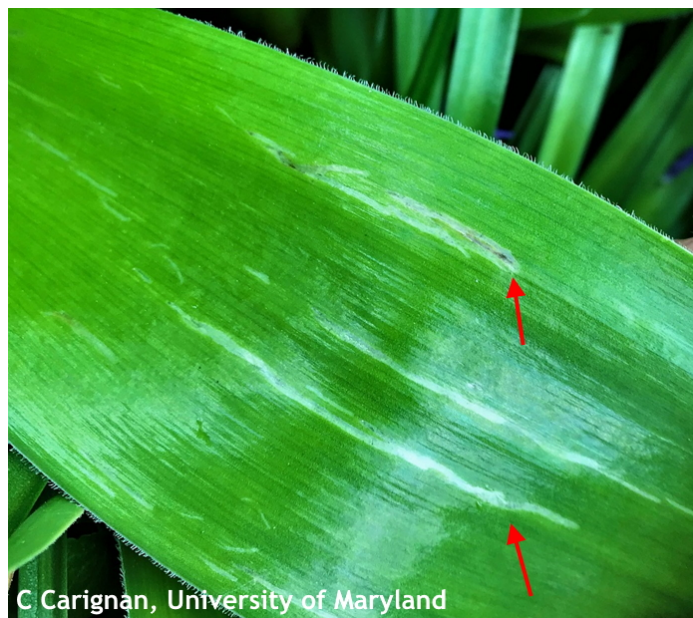


Figure 2. Allium leaf miner mines (arrows) on Allium plant

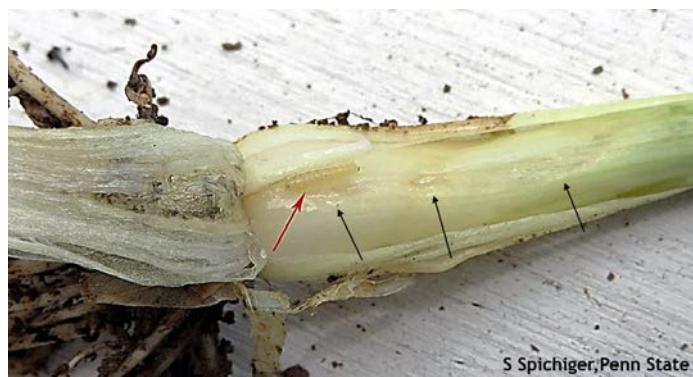


Figure 3. Allium leafminer larva (red arrow) and feeding damage (black arrows) in onion.



**Cold Damage to High Tunnel and Greenhouse Vegetables** - Jerry Brust, IPM Vegetable Specialist, University of Maryland; [jbrust@umd.edu](mailto:jbrust@umd.edu)

Last week Gordon Johnson had an article talking about [cold damage to peas](#) and there also has been some cold damage and weather induced damage to vegetables in high tunnels and greenhouses. The first was some cold damage to tomatoes going out into a high tunnel. The leaves looked scraped of chlorophyll as the cells in the top leaves of the plant were damaged (Fig. 1). This particular cold damage looks similar to heavy mite or thrips feeding, but without either of the pests present. The grower, Liz Whitehurst of Owl's Nest Farm, said that the damage probably occurred when they were hardening the tomatoes off before being transplanted to the high tunnel and temperatures dropped to freezing. These plants should recover and grow normally but will be a bit behind the others.

The second example is not so much a cold damage one, but more of a strange environment/weather one. Watermelon transplants, along with some other vegetables, were being grown in a greenhouse when the grower noticed dark pitted lesions on their plants (Fig. 2). The marks look bad and alarmed the county agent and me as to what was going on. There were some indications that the damage was abiotic, (i.e., it was not caused by a disease or insect pest or any living organism). The first was that only the cotyledon leaves were damaged, all true leaves were clean. The cotyledon leaves tend to be more sensitive to any possible phytotoxic sprays that may be applied. The second was that the damage to the cotyledons was only top-sided. The top side of the leaf had the dark spots, but the underside of the same leaf just had some pitting caused by the damage on the top side of the leaf (Fig. 3). When this condition is seen it is usually caused by some spray that was applied to the plants. The third indication was that tomato seedlings in the greenhouse also developed similar necrotic spotting as the watermelon around the same time (Fig. 4). The grower had applied a spray treatment recently that they had applied for years without any problems, but the

environmental conditions at the time of this recent application resulted in a phytotoxic response from the plants. Although we had these 3 indicators that it was very unlikely something such as fruit blotch or some other bacterial disease that was the cause of the problem we still went ahead and had them tested by Karen Rane, Director of the UMD Diagnostic clinic. No fruit blotch or any disease was found. But we all agreed we'd rather be safe than sorry.



Figure 1. Cold damage to tomato plants



Figure 2. Watermelon cotyledon leaves with brown lesions



Figure 3. Left picture is top-side of cotyledon leaf with brown lesions, to right is the underside of same cotyledon leaf with no brown lesions

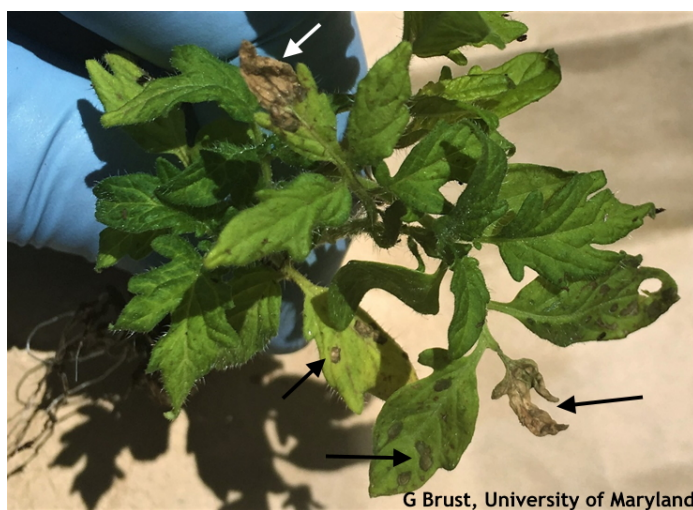


Figure 4. Tomato transplant with brown lesions similar to watermelon lesions

## Fruit Crops

**Fruit Crop Insect Scouting** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)

Between April 14 and 21, we captured our first San Jose Scale in an apple orchard near Bridgeville using pheromone traps but have not captured any since. Typically, male scales emerge around petal fall, and crawlers are active in June. Where we have our traps, the apples have not yet reached the petal fall stage.

During the growing season, the crawler stage is the best time to hit scales if you are going to use an insecticide, based on scouting and recent history or blemishes on last year's fruit. You can scout for crawlers starting around 300 degree days (base 51 °F) after male emergence by using a piece of black electrical tape wrapped around a limb with the sticky side up. Around 380 degree days, crawlers should begin to appear, and around 600 - 700 degree days crawlers will be at their peak. University of Kentucky has a good San Jose Scale fact sheet with the information above:

<https://entomology.ca.uky.edu/ef204>. If we intercept more scales in our traps, I will post that information here.

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**Rethink Rainsheltering** - Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu) and Emmalea Ernest, Associate Scientist - Vegetable Crops; [emmalea@udel.edu](mailto:emmalea@udel.edu)

As the climate is expected to become wetter with more extreme rainfall events, losses of fruit crops to excess rain will become more of a concern.

A high tunnel structure may be used as a rain shelter to cover plants during fruit formation and development. Multi-bay "European" style tunnels are most commonly used as rain shelters covering from ½ acre to several acres. Rain shelters are used extensively in high rainfall areas around the world to protect rainfall sensitive crops such as strawberries. Covers may be used for the whole season or just for the fruiting period.

Rainshelters are also use for other fruits, such as cherries, which are susceptible to cracking. Some fruits crack from absorbing water through the skin of the fruit when they are ripe or near ripe, others crack with excess water in the root zone, and there can be a combination of the two processes. Rainshelters control both types of fruit cracking. Rain shelters also reduce foliar wetting and rain splash and therefore can reduce fungal and bacterial diseases considerably if left on for the whole growing cycle.

While a high tunnel will serve as a rain shelter, less expensive low-tunnel structures can also be



used that have a plastic cover over hoops from 2 to 6 feet tall.

Rain shelters are also useful for fruit crops such as cherries, strawberries, brambles, grapes, and blueberries. Specialty melons prone to cracking will also benefit from the use of rainshelters.

The [Tunnel Berries Website](https://www.tunnelberries.org/) (<https://www.tunnelberries.org/>) has information on materials and suppliers for high and low tunnel structures that can be used as rain shelters.



Rain cracking usually occurs where water accumulates and remains on cherries. Cracks typically appear at the pedicel (3 left columns), the suture (4th column) and the stylar end (last 2 columns) where droplets of water hang on fruit (from California Agriculture 51(5):35-40)



C Smith, T.S. Smith & Sons

Dwarf cherries being grown under a rain shelter.



K Lewers, USDA Beltsville

Low tunnels can also serve as rain shelters.



Fruit from tunnels.

And NO FUNGICIDES!



This is Botrytis fruit rot. We did NOT see Botrytis in the tunnel fruit, even after storage.

K Lewers, USDA Beltsville

Low tunnels protect strawberries from disease.

## Agronomic Crops

**Agronomic Crop Insect Scouting** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)

### Small Grain

Continue scouting for cereal leaf beetle eggs or larvae. Thresholds are 25 per 100 tillers. Although eggs tend to be laid on the upper leaves, some will be laid lower and larvae can also disperse.

So far, armyworm activity has been light, but they are present in some fields along with grass sawfly. Grass sawfly look like green caterpillars but have abdominal prolegs on every segment while armyworm are missing a couple of pairs. Sawflies can be more damaging; thresholds are

0.4 per row-ft (note, this is more than half that of armyworm).

### Early Season Moth Activity

Moth activity continues to be fairly light, probably in part due to a couple of wet, cool nights. Trap counts for the week are as follows, with thanks to Joanne Whalen, Emily Zobel, and Maegan Perdue.

Location	TAW/night	BCW/night
Willards, MD	2	8
Salisbury, MD	0.3	0.7
Laurel	0.7	0.4
Seaford	6.7	9.6
Harrington	6	3.1
Pearson's Corner	6.3	0.4
Sudlersville, MD	0.1	1.1
Smyrna	3.3	---

### Soybean

Watch for early season stand reducers closely. Seedcorn maggot seriously damaged some early April planted beans at the research station last year. Slugs are active, and the cool, cloudy weather has kept them active. Warm soils are important for soybean to emerge quickly and outrun slugs. Last year in the damaged plots, stands were reduced by two thirds and yield was reduced between 15 and 50%, depending on the variety and maturity group. This highlights the ability of soybean to compensate for lighter stands if given good growing conditions.

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### Small Grain Freeze Damage and Current Growing Degree Days - Jarrod O. Miller, Extension Agronomist, [jarrod@udel.edu](mailto:jarrod@udel.edu)

The generally accepted starting date for corn planting in Delaware is April 15<sup>th</sup>, after which our chances of a freeze are supposed to be low. This was not the case this year, as Newark had a low of 28°F while Georgetown only dropped to 30°F on April 17<sup>th</sup>. This small difference can be important. We have still not observed much damage to wheat and barley fields in Georgetown, while fields in the northern end of the state may eventually have bleached, dead kernels due to the 28°F temperatures. We have

not been able to observe any fields north of Georgetown to determine their conditions.

It is also recommended to plant corn when temperatures are greater than 50°F, which has been the case over the past two weeks. However, the temperature has barely risen above 50°F, slowing the accumulation of growing degree days (GDD) and limiting germination. Anyone who planted on April 15<sup>th</sup> has only accumulated 2.3 (New Castle), 10.8 (Kent), or 25.1 (Sussex) GDD over a two-week period. Corn emergence requires about 120 GDD to emerge, so not even Sussex County should be that close. To match the April 2019 emergence timing of 10 days, we would need 12 GDD per day, which no part of the state is observing. If you have waited to plant your fields, it was probably a good idea. Warmer temperatures are in the forecast, and planting at this time would probably see us reaching the 7-10 day emergence window, particularly in Sussex County. Corn planted last week has germinated, and we do expect it to emerge soon. If you have observed fields emerge over the last two weeks, let me know, so we better understand how emergence may occur in cooler springs.

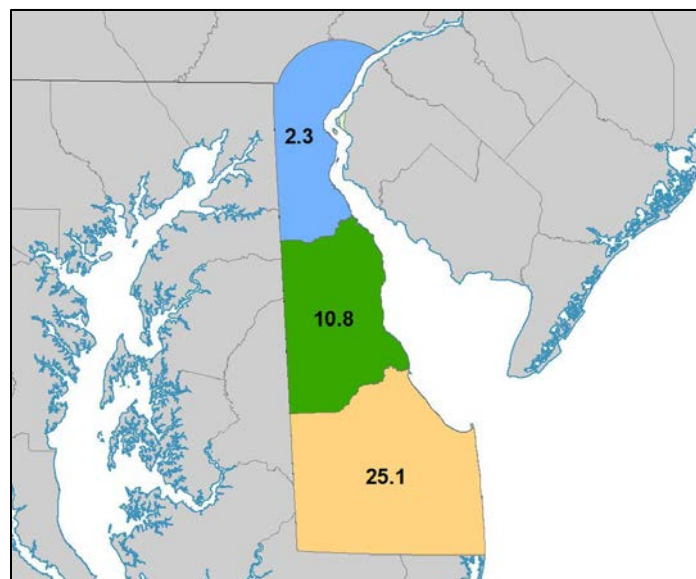


Figure 1. Growing degree days accumulated across Delaware since April 15<sup>th</sup>.



**Small Grains Disease Update** - Alyssa Koehler, *Extension Field Crops Pathologist*; [akoehler@udel.edu](mailto:akoehler@udel.edu)

Across much of the region, wheat is now at the 10.0-10.4 growth stage with heading well underway. Last week when many plants were in boot stage, we were hit with multiple cold nights that caused leaf discoloration and resulted in some heads not emerging properly (Figure 1).



Figure 1. A normal emerging head (left). Head trapped in the boot due to freeze at the boot stage (center). Head that was trapped and did not emerge properly (right).

Foliar diseases including tan spot and glume blotch (*Parastagonospora nodorum*) have begun to show up this week. Glume blotch, also called *Septoria nodorum* blotch when on foliage, has symptoms of small brown lesions with a yellow halo; as the lesion expands this is often in “cat eye” shape (Figure 2). Since leaf blotch precedes glume blotch, lesions high in the canopy and on the flag leaf can indicate an elevated risk for glume blotch. Tan spot also has brown lesions with a yellow halo, but these tend to have more of a diamond shape. A fungicide application to control FHB at flowering will often help control many of these foliar diseases. With the recent rains and more in the forecast, FHB risk has increased to a moderate/high level across the state and eastern shore (Figure 3). If applying fungicides for FHB, these should be targeted when at least 50% of heads across the field are flowering and showing yellow anthers (Figure 4).



Figure 2. Lesions of glume blotch (*Septoria nodorum* blotch) on wheat

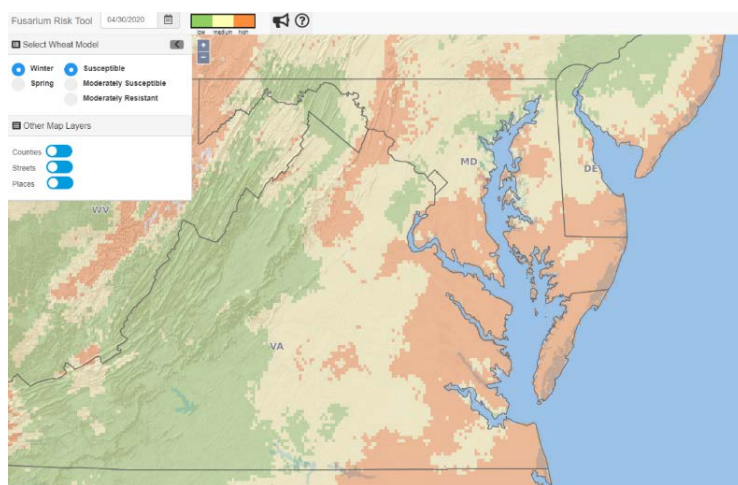


Figure 3. FHB Risk Model for April 30, 2020 ([wheatscab.psu.edu](http://wheatscab.psu.edu))



A Koehler, University of Delaware

Figure 4. Wheat at beginning flowering (Feekes 10.5.1) with yellow anthers at the center of the head

## General

### Submission Procedures for Plant Diagnostic Clinic Samples - Jill Pollok, Extension Plant Diagnostician; [jillp@udel.edu](mailto:jillp@udel.edu)

The Plant Diagnostic Clinic is open and receiving samples, with modified protocols at this time

All plant diagnostic samples must be first submitted digitally by image, sent to county Extension offices, see instructions below.

**How to Submit Digital Images** (modified from VT's Plant Clinic protocol)

- All digital images of plant problems for disease diagnosis should be submitted through the local county Extension agent or other designated Extension office personnel. Find the local

contact info here:

<http://www.udel.edu/007334>.

- Submit three to four well-focused, quality images that show the pattern of the problem in the location, the overall symptoms on the whole plant, and a close-up image of the symptoms.
- If a root problem is suspected, dig up and rinse off some roots to photograph.
- The client or Extension agent must fill out the diagnostic form (<http://www.udel.edu/007333>) as completely as possible. We have a fillable PDF available that can be saved and emailed.
- Diagnostic reports will be routed to the submitting Extension agent.

### For Commercial Samples (growers, arborists, etc.)

If we are unable to diagnose by image, these are the options at this time for in-person diagnostics:

1. **Mail:** Samples may be sent by mail to the address below, which is checked daily during weekdays. Contact [jillp@udel.edu](mailto:jillp@udel.edu) if a sample is mailed.

UD Plant Diagnostics Lab  
PO Box 9089  
Newark, DE 19714

2. **Drop-off:** There is a blue cooler chained behind a pillar in the front of Townsend Hall where samples can be left, location shown with an "x" in the image below. Contact [jillp@udel.edu](mailto:jillp@udel.edu) if a sample is dropped off.

Townsend Hall  
531 S College Ave  
Newark, DE 19716





3. **On-site visits** to commercial production operations are an option if necessary.

4. **Virtual consultation** through zoom is available if you want to set up a video diagnostic call.

#### **Non-commercial Production Samples (home gardens, etc.):**

Non-commercial samples will unfortunately only be accepted digitally at this time.

#### **Guide for Sample Collection and Shipping/Drop-Off**

##### **Collecting the Sample**

- Collect a fresh sample on the day you are going to ship or drop off. If that isn't possible, **refrigerate the sample until shipment.**
- Whole plant samples are ideal, especially with a vegetable or field crop where a whole plant can be collected; roots and soil included, especially if a root/soil problem is suspected (wilting leaves or stem discoloration/lesions).
- If the plant is too large and root-rot is suspected, collect a trowel-full of roots from a good section (if possible) and a bad section.
- Collect a specimen that has diseased AND healthy tissue. Collect a sample that is in the process of declining.
- Do not send a completely dead plant. If we receive a completely dead plant, there are too many secondary organisms that make it difficult to accurately diagnose the problem.
- If leafspot diseases are suspected, a branch or stem samples is adequate, the whole plant is not necessary. If sending leaves, keep them on the branch/stem, otherwise they can dry out.

##### **Packaging the Sample**

- When sending a whole plant: place the root ball in a plastic bag leaving some soil attached, and tie it so the soil doesn't contaminate the foliage. We understand this isn't possible for very large samples, and in that case, only include roots/soil if a root problem is suspected; dig up a portion of roots using a trowel.

- Place the plant in a Ziploc or plastic bag. Do NOT add wet paper towels to the bag, which could cause the sample to rot in shipment. Holes do not need to be poked in the bag.
- If the sample is delicate (most fruit samples), pack the shipment with newspaper or dry paper towels so it doesn't get smashed.



##### **Sending the Sample**

- Send to:  
UD Plant Diagnostics Lab  
PO Box 9089  
Newark, DE 19714
- Notify [jillp@udel.edu](mailto:jillp@udel.edu) when the sample was shipped.
- If the sample cannot be shipped or dropped off on the day of collection, keep it refrigerated until shipping.
- Mail will be checked daily during weekdays.
- If possible, overnight the sample or ship early in the week. If at all possible, do not ship samples on a Friday. They will sit over the weekend and that greatly increases the chance of decaying.

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#### **New FMC Insecticide ELEVEST - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)**

FMC is launching a new insecticide, ELEVEST, and is in the process of securing state registrations. It is unknown if or how much will be available for 2020. This product is a premix of chlorantraniliprole (g28) + bifenthrin (g3); this is similar chemistry to Besiege. It will be labeled

for corn, soybean, sweet corn, peas and beans, and potatoes.

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**Guess the Pest! Week 4 Answer: Bulbous Oatgrass** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)

Congratulations to John Swaine for correctly identifying the weed in question as bulbous oatgrass, *Arrhenatherum elatius* var. *bulbosa*. John will be entered for an end of season prize.

This from Mark VanGessel:  
Bulbous Oatgrass is a perennial grass that emerges in the fall, flowers in the spring and senesces by summer. The stems are round, without auricles. The leaves are long (up to 12 inches in length) with few if any hairs on them. Seed heads are narrow and shiny; often with a faint purplish color. The root system includes distinctive corms that form short chains of 3 to 6 corms. These corms allow for vegetative reproduction of the plant.



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**Guess the Pest! Week 5** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)

This spotting was observed near a field edge. What is causing this? Click on the Guess the Pest logo to enter your name, email, and your



answer. The winner and answer will be revealed next week.

[https://docs.google.com/forms/d/e/1FAIpQLSfUPYLZnTRsol46hXmgqj8fvt5f8-JI0eEUHb3QJaNDLG\\_4kg/viewform?c=0&w=1](https://docs.google.com/forms/d/e/1FAIpQLSfUPYLZnTRsol46hXmgqj8fvt5f8-JI0eEUHb3QJaNDLG_4kg/viewform?c=0&w=1)



A Koehler, University of Delaware



**The CARES Act and Your Credit - Protecting Your Good Name** - Maria Pippidis,  
Extension Educator Family & Consumer Sciences;  
[pippidis@udel.edu](mailto:pippidis@udel.edu)

Did you know that the CARES Act requires lenders to report to credit bureaus that

consumers are current on their loans if consumers have sought relief from their lenders due to the pandemic? This will help protect your good credit name. But even so, it is important to review your credit report. To access your credit report for free you'll need to go through the [annualcreditreport.com website](https://annualcreditreport.com). This will be helpful if you are considering taking on additional debt to keep your business going during this time.

Credit reports may affect your mortgage rates, credit card approvals, apartment requests, or even your job application. Reviewing credit reports helps you catch signs of identity theft early. It also gives you the opportunity to catch mistakes and update your information. If you find mistakes, you can contact the bureau directly in writing to update these mistakes and question information that doesn't look correct. By law, they have 30 days to investigate and get back to you. For more information about checking your credit report during the pandemic go to:

<https://www.consumerfinance.gov/about-us/blog/protecting-your-credit-during-coronavirus-pandemic/>

## Announcements

### Upcoming Webinars on H-2A Workers

#### Pennsylvania

Thursday, May 7, 2020 6:30-8:00 p.m.

Additional information and registration at <https://extension.psu.edu/h-2a-agricultural-workers-in-times-of-uncertainty-webinar>

#### Maryland

Thursday, May 14, 2020 12:00-1:00 p.m.

Additional Information and Registration at <http://umaglaw.org/event/h2-a-visa-worker-program-covid-19-what-md-employers-need-to-know/>

## **Hemp Growers Training: Part I**

Monday, May 11, 2020

9:00 a.m. - 2:00 p.m. (Via Zoom)

Maryland Department of Agriculture and University of Maryland Extension present: Hemp Production 101.

This session is for beginner growers only. Part II (Hemp Production 201) will be open to advanced growers and those who have already taken Part I

Topics will include:

- Soils and soil testing
- Plant nutrition and management
- Phytochemical analysis
- Laws, regulations, and economics of hemp production
- And more!

Cost: \$20.00

Cost is for Part 1 of the Program only and includes a digital copy of all slides and references with registration. This meeting will also be recorded for those who register but wish to view at a later time.

*For additional details, speaker list, and registration, visit:*

<https://beginnerhempgrowers.eventbrite.com>

*Meeting access link will be provided via email in the days prior to the event to those who registered.*

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stormwater and open space management. SCD, UDCE and DNREC will provide technical resources to aid in the management and enhancement of your community. Each workshop will address seasonal issues many property owners and communities encounter.

[June 18, 2020](#) - Preventative maintenance, irrigation management and water conservation practices.

[Aug. 13, 2020](#) - Water quality, invasive species management and stormwater facility winterization tips.

*For more information or to register, visit [www.sussexconservation.org/events](http://www.sussexconservation.org/events) or call Siobhan Kelley, communications and outreach specialist at SCD, 302-856-2105 ext. 122.*

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## **Stormwater Workshop Series**

Carvel Research and Education Center

16483 County Seat Hwy

Georgetown, DE

The public is invited to participate in a free stormwater workshop series. This series is made possible by the Sussex Conservation District (SCD), University of Delaware Cooperative Extension (UDCE), and the Delaware Department of Natural Resources and Environmental Control (DNREC).

The workshops are designed to present property owners, homeowner associations and property maintenance companies a holistic approach to



# Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 23 to April 29, 2020

## Rainfall:

0.32 inch: April 23  
0.95 inch: April 24  
0.15 inch: April 25  
0.16 inch: April 26  
0.05 inch: April 27

## Air Temperature:

Highs ranged from 72°F on April 29 to 55°F on April 27.

Lows ranged from 50°F on April 29 to 38°F on April 23.

## Soil Temperature:

56.1°F average

Additional Delaware weather data is available at  
<http://www.deos.udel.edu/data/>

*Weekly Crop Update is compiled and edited by  
Emmalea Ernest, Associate Scientist - Vegetable  
Crops*

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