



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

Potato

Colorado potato beetle are becoming active. Adults cannot fly in temperatures below 80 °F, this is why beetles are concentrated on edges of fields right now, but that may change with the current warmth. It has also been close to 8 weeks since planting, about the time that neonicotinoids start wearing off. When scouting, look at 5 stems from 10 locations in the field. Do not concentrate sampling just on the edges unless you intend to only make a border application. Treatment is generally advised if finding 50 adults, 75 large larvae, or 200 small larvae per 50 stems. There are a lot of rotational partners that can be used for beetle management, including products from 10 different mode of actions. If you used a neonic at planting, do not follow up with a neonic (and it might be best to avoid the Group 4 products entirely, even those in a different subclass like 4D). Likewise if you used Verimark at planting.

Cucurbits

Striped cucumber beetles are now active. I am in need of large numbers of beetles from multiple sites. If you have beetles, PLEASE let me know before you kill them so that I might take some beetles out of your field.

Any planted cucurbit needs to be scouted for beetle aggregations. Overwintering adult males

release an aggregation pheromone in their feces that acts like a beacon to draw in members of both sex to the field. This behavior contributes to the transmission of bacterial wilt to susceptible cucurbits. Watermelon is not susceptible. Winter squash is susceptible until it has two true leaves, while cucumber and musk melons are very susceptible to wilt. Summer squashes are also susceptible to wilt. Squash seeds treated with Farmore DI-400 should be protected for close to 2 weeks which should be long enough for winter squash to be large enough to withstand the pathogen. For young transplants, the threshold is 2 beetles per plant. If chemigating, be sure to read the labels carefully! There should be charts on the labels designating how much product should be injected per x feet of drip tape. The amount of product that a bed receives is quite a bit more than the amount of product that would fall on the bed if broadcast foliarly. There are also two diamides labeled for cucumber beetles: cyantraniliprole (Exirel) and cyclaniliprole (Harvanta). Diamides do not kill beetles quickly, but beetles do stop feeding very rapidly. If using either product, do not be alarmed if you see live beetles after application. Check for signs of fresh feeding. Later in the season, the easiest way to check for fresh feeding is by examining flowers.

Sweet Corn

Blacklight and pheromone trapping data is uploaded by Tuesday and Friday mornings and can be found here:

<http://agdev.anr.udel.edu/trap/trap.php>. Many thanks to Richard Monaco and Joseph

Deidesheimer for checking traps and uploading data. Threshold information can be found here: <https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/insect-trapping/ecb-cew-moth/>.

Curiously, the blacklights are currently outperforming the pheromone traps, and in some locations are indicating a spray schedule of about 4 days on silking sweet corn. Trap counts are as follows:

Trap Location	BLT - CEW	Pheromone CEW
	3 nights total catch	
Dover	1	0
Harrington	0	0
Milford	0	0
Rising Sun	0	0
Wyoming	2	1
Bridgeville	1	0
Concord	0	2
Georgetown	0	0
Greenwood	0	--
Laurel	2	0
Seaford	4	0
Trap Pond	--	--
Lewes	--	--

Vegetable Transplant Stunting - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

Growers are reporting problems with stunted transplants. In some cases, plants appear to have abnormal growth with compressed internodes, "twisted" stems, or abnormally shaped leaves. In other cases, plants are not putting on any new growth.

Transplant stunting can be caused by several factors during greenhouse production, during shipping and handling, during planting, and post planting.

Problems with Greenhouse Media

Each year there are some problems that arise with vegetable transplants related to issues with

the growing medium. This is often seen as poor growth, yellow plants, or stunted plants. Greenhouse media manufacturers have good quality control measures in place but things can go wrong on occasion - inadequate mixing, critical components missing or in the wrong proportions (i.e. wetting agents, fertilizers, lime), or defective, poor quality components. Media can also be affected by poor storage and handling. Most commonly this occurs when it is stored outside and bales or bags get wet. In addition, media has a certain shelf life - old media often dries out and is hard to get rewetted.

When growers start filling trays, any media that does not handle well should be viewed as suspect and should not be used. Contact your supplier and have them inspect and run tests on the suspect media. Avoid using overly dry or caked media, media that is hard to loosen, media with a bad smell, water soaked media or media that is hard to wet.

Most media (but not all) will come with a starter lime and fertilizer charge. The fertilizer is designed to give about 2-3 week of nutrients. If the fertilizer is missing or improperly mixed or in the wrong proportion, seeds will germinate but seedlings will not grow much and will remain stunted. In this case, liquid fertilizer applications will need to be started soon after plant emergence.

Peat based media are acidic in nature and we generally can grow at lower pHs than soil. Plants will perform well from 5.4 to 6.4. Lime is added to peat based media and reacts over time after first wetting so pH will rise over time. Above 6.4 we often see iron deficiencies in transplants. This also occurs if irrigation water is alkaline (has high carbonates) causing pH to rise too high over time.

In high pH situations, to get transplant growth back to normal, use an acidifying fertilizer (high ammonium content) for liquid feeds. Use of iron products, such as chelated iron, as a foliar application on transplants can help them to green up prior to the pH drop with the acid fertilizer. In severe cases with very high media pH, use of iron sulfate solutions may be needed to more rapidly drop the pH. Acid additions to

greenhouse irrigation water may also be considered for where water is alkaline.

If lime is missing or inadequate, and pH is below 5.2, plants may have calcium and magnesium deficiencies or may have iron or manganese toxicities. This also occurs in media that has been saturated for long periods of time. To correct this situation, apply a liquid lime solution to the media and water it in well. Calcium deficiencies will lead to damage to growing points and stunted and distorted plants.

Media that does not wet properly may not have enough wetting agent or the wetting agent may have deteriorated. They will be difficult to water and will not hold water well thus stressing plants. Application of additional greenhouse grade wetting agent may be needed.

If the initial media fertilizer charge is too high, or if too high of concentration of liquid fertilizer feed is used, or if incorporated slow release fertilizer "dumps" nutrients, high salt concentrations can build up and stunt or damage plants. Leaf edge burn, "plant burn", or plant desiccation will be the symptoms. Test the media for electrical conductivity (EC) to see if salt levels are high. The acceptable EC will depend on the type of test used (saturated paste, pour through, 1:1, 1:2) so the interpretation from the lab will be important. If salts are high, then leaching the media with water will be required.

Problems with Transplants in Small Cell Sizes
More and more transplants are being grown in small tray cell sizes. These small size transplant plugs can become extremely root bound and may not put on new roots after transplanting. Another issue is when small cell transplants become waterlogged by overwatering. There will be limited oxygen to roots in this situation and plants may turn yellow and remain stunted. This is very common in peppers.

Problems Related to Transplant Height Control and Greenhouse Conditions

Growers use a range of techniques to manage transplant height in the greenhouse. This includes limiting phosphorus (P) fertilization, minimizing day-night temperature differentials, brushing plants, limiting water, and using plant growth regulators (limited for vegetable

transplants). Each of these if not properly managed can cause long term stunting. Most growth regulators labelled for floral crops are not labelled for vegetables. Plants exposed to limited P may have a severe deficiency that will take several weeks to grow out of. Warm season transplants exposed to cold air can become yellow and be stunted because roots stop growing. This is particularly a problem near vent inlets and in hardening off areas. Plants that are overly water stressed drop leaves and take a long time to recover. Plants exposed to damage from heaters that are improperly venting exhausts into the greenhouse may suffer severe damage and show yellowing, distorted growth, and leaf drop. Diseases of roots, Pythium in particular, can be an issue, particularly when plants are placed directly on the ground (even if landscape fabric is in place). This can be a major source of plant stunting and transplant losses.

Herbicide Use in and Around Greenhouses

Transplant deformities and stunting can also occur when herbicides have been used to kill weeds in and around greenhouses. In the enclosed environment of a greenhouse, volatilization is enhanced and severe damage can occur from many common herbicides. Greenhouse vents and fans can draw in herbicides applied nearby also causing severe damage.

Problems During Shipping and Handling

With the bad weather, many growers received boxed transplants from southern sources but could not plant immediately. Plants that are shipped without trays (already pulled) or that are bare rooted that are packed tightly in boxes must be planted quickly. Delays will lead to plant deterioration, leaf loss, and potential disease buildup. Once transplanted, some of these plants may now grow out.

Planting and Plant Stunting

Transplants that are planted in extended cloudy periods may not grow well in the field, especially if plants have come out of the greenhouse after an overcast period. In years with cold, cloudy, windy weather after transplanting, we have had large losses of transplants in the field. It is critical to have warm soil conditions after transplanting to allow roots to grow out into the bed quickly. In cold,

cloudy conditions, plants shut down physiologically, little root growth occurs, and the existing roots on the transplant do not function well. If there is any wind, plants lose more water than they can take up and they die due to desiccation. This is accelerated when the sun does come out - the first sunny day after an extended cold, cloudy period will often result in extensive losses of weakened transplants. Extra caution should be taken to minimize root injury during transplanting, particularly with seedless watermelons. When transplanting, make sure that there is good root to soil contact and there are few air pockets around roots. Plant stunting can also occur with improper application of chemicals or fertilizers in the transplant water (phytotoxicity, salt damage)

Post Planting

We have already seen severe damage to transplants this year with seed corn maggots and root maggots post planting. Currently cucumber beetle feeding is a major problem that can lead to poor plant performance. Cloudy weather after planting is also limiting transplant growth this year.

Correcting Nutrient Deficiencies in

Vegetable Crops - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

As the season progresses, growers and consultants will use tissue tests to determine the nutrient status of vegetable crops and take corrective actions if necessary. As a rule, if levels are in the adequate range or are high no corrective action is needed. If levels have dropped to near deficient levels or are in the deficient category then additional mineral nutrients will need to be added. Critical tissue test values for many vegetables can be found in the Mid-Atlantic Commercial Vegetable Recommendations. The following are some guidelines for correcting low or deficient levels from tissue tests in vegetables.

Nitrogen

If tissue results are low or deficient for Nitrogen (N) apply additional nitrogen as a sidedressing or through fertigation:

Watermelon, muskmelons, mixed melons: 40 lbs/a N
Cucumbers, squash: 20 lbs/a N
Tomatoes, peppers: 40-60 lbs/a N
Eggplant: 30 lbs/a N
White potato: 40 lbs/a N before tubers start to size
Cole crops, greens: 30-40 lbs/a N
Sweet corn: 40-80 lbs/a N
Beans: 20 lbs/a N

Additional nitrogen may be needed for extended harvest in some crops such as watermelons. Use non-acidic forms of nitrogen for blossom end rot sensitive vegetables such as tomato or pepper (calcium or potassium nitrate is recommended).

Foliar applications of 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 N in sufficient water to have less than 2% salt solution. Multiple applications will be necessary to correct deficiencies, or combine with a soil application.

Potassium

If tissue test results are low or deficient for potassium (K) apply additional K as a sidedressing or through fertigation. Note that fruiting vegetables often have low K levels in tissue tests if fruit loads are heavy and first harvest often brings them back in balance.

Watermelon, muskmelons, mixed melons: 40 lbs/a K
Cucumbers, squash: 20 lbs/a K
Tomatoes, peppers: 40-80 lbs/a K
Eggplant: 40 lbs/a K
White potato: 40 lbs/a K
Cole crops, greens: 30-40 lbs/a K
Sweet corn: 40-80 lbs/a K
Beans: 40-80 lbs/a K

Foliar sprays of potassium nitrate or sulfate (4 lbs/a K foliar) may be useful on tomatoes and melons.

Phosphorus

If tissue test results are low or deficient for Phosphorus (P), apply an additional 20-40 lbs/a P for all crops as a sidedressing or through

fertigation. Note that areas with high levels of calcium or magnesium in irrigation water can have problem with P precipitates clogging drip irrigation emitters and water may need to be acidified to prevent this.

Magnesium

If tissue test results are low or deficient for magnesium (Mg) apply 15-25 lbs of Mg as a sidedressing or through fertigation. Another option is to apply 2-3 applications foliarly (2-4 lb Mg/A) for sensitive crops such as tomatoes or melons.

Calcium

For vegetable crops low or deficient in calcium (Ca), foliar applications of 2-4 lb Ca/A. Calcium chloride at the rate of 5-10 lb per 100 gallons per acre or calcium nitrate at the rate of 10-15 lb per 100 gallons per acre is recommended for fruiting vegetables (tomatoes, peppers, eggplant). Calcium chelates are also available. For potatoes, sidedress gypsum (calcium sulfate) at a rate of 500 lbs/a.

Sulfur

For vegetables low or deficient in sulfur (S) apply 20-30 lbs/A S as a sidedressing or through fertigation.

Ammonium sulfate and ammonium thiosulfate are effective ways to add both N and S at the same time. Gypsum is an inexpensive material to use to provide S.

Micronutrients

For micronutrient metals (Iron - Fe, Manganese - Mn, Zinc - Zn) foliar application is often the most effective way to correct low or deficient levels. Suggested rates are: Fe, Mn, 1-2 lbs/a, and Zn ¼ lb/a.

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. Do not use boron on bean crops.

White Rot of Onion and Garlic - Jerry Brust, *IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu and Karen Rane, *Plant Diagnostician, University of Maryland* rane@umd.edu

The weather we have had for the last month and a half has been great for seed maggots and for some soil diseases. One very serious soil disease that affects *Allium* species, especially onion and garlic, is white rot, caused by the fungus *Stromatinia cepivorum* (syn. *Sclerotium cepivorum* (Fig. 1)), which was found just this past week in Maryland. White rot is NOT the same as white mold, which is caused by *Sclerotinia sclerotiorum*, which has a very large host range (tomatoes, peppers and 170 other plant species); white rot only infects *Allium* species.

Leaves of *Allium* plants with white rot exhibit yellowing, dieback, and wilting. Under ideal weather conditions, white mycelial growth can develop on the bulb. As the disease progresses, the mycelium becomes more compacted with numerous small, spherical black bodies (sclerotia) forming on this white mat (Fig. 2). These sclerotia are the overwintering structures of the pathogen and are approximately the size of a pin head. As the disease progresses, these sclerotia are eventually released into the soil. Infected plant roots will rot, making the plant easily pulled from the soil. Disease development is favored by cool, moist soil conditions (just what we have had for many weeks this season). The soil temperature range for infection is 50° - 75°F, with an optimum of 60° - 65°F. At soil temperatures above 78°F, the disease is greatly inhibited. Soil moisture conditions that are favorable for onion and garlic growth are also best for white rot development.

An increase of white rot in a field that has had several *Allium* crops may go unnoticed for a time as sclerotia numbers increase and disperse. One sclerotium per 20 pounds of soil will cause disease and results in measurable crop loss. The sclerotia will lay dormant until root exudates, exclusively from an *Allium* species, stimulate germination. Root exudates from non-*Allium* species will not stimulate the germination of white rot sclerotia. Cool weather is needed for

both sclerotia germination and mycelia growth. Mycelia will grow through the soil until they encounter an Allium root at which time the fungus initiates infection. Mycelia can grow from one plant to a nearby plant, allowing the pathogen to move between plants.



K Rane, University of Maryland

Figure 1. White rot on garlic plant

Management of white rot should focus on disease avoidance by not introducing the pathogen into a field. Sclerotia can spread throughout a field, or from field to field, through the movement of soil, equipment, or plant material (especially garlic cloves). Sanitation is important to prevent sclerotia from moving from an infested field to a clean field. Plant only clean stock from known origins that has no history of white rot. Always clean soil off of equipment and sanitize with quaternary ammonia before moving to another

field. The Allium crops from an infested field should not be used as seed. Rotation alone will not control white rot because sclerotia can survive in the soil for 20-40 years. If the disease is found, reducing or eliminating irrigation will reduce the damage to the current crop but will not stop the spread of the disease.



G Brust, University of Maryland

Figure 2. Sclerotia of white rot fungus on garlic

Because the fungus is vulnerable to temperatures above 115°F, dipping seed garlic in hot water is a possible preventive measure that will reduce the amount of pathogen but will not completely eliminate it. Temperature control is important when using this method because temperatures above 120°F may kill the garlic. There are other cultural and organic practices that a grower might try to fight this disease and these can be found at:

https://rvpadmin.cce.cornell.edu/uploads/doc_479.pdf

Chemical applications can be made for white rot management and include for onion tebuconazole applied in a 4-6 inch band over or into the furrow at planting or via chemigation. For garlic an in-furrow at-planting application using iprodione or tebuconazole or fludioxonil can reduce disease incidence, however there are crop rotation restrictions with the use of these chemicals so be sure to check the [Mid-Atlantic Commercial Production Recommendations](#) guide for more details.

Gummy Stem Blight in Cantaloupe – Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu and Karen Rane, Plant Diagnostician, University of Maryland rane@umd.edu

Gummy stem blight (GSB) was found in an Eastern shore muskmelon field this past week. It is a cucurbit disease caused by the fungal pathogen *Didymella bryoniae*. This fungus is favored by cool to warm, rainy weather. It can infect a host at any stage of growth and affects almost all parts of the plant including leaves, stems and fruits. The earliest symptom of gummy stem blight is usually an odd-shaped lesion on the leaf (Fig. 1). Often, these lesions are first observed on the vines or on leaf parts that are shaded or that collect moisture for long periods. Lesions on muskmelon leaves are usually a light brown to tan (Fig. 1), while lesions on watermelon leaves tend to be a darker brown. Infected stems at first show water-soaked lesions (Fig. 2) that later appear tan. Older stems, particularly of muskmelon, show pycnidia (tiny black dots) within the infected tissue (Fig. 2). These stem lesions often exude a gummy, reddish-brown liquid (Fig. 2). Gummy stem blight may become established in the transplant greenhouse from contaminated seed or transplants, or from poor sanitation. A short time after some of these transplants go to the field they can unexpectedly wilt and die (Fig. 3).

D. bryoniae survives in seeds, on surrounding weeds, or on organic debris from previously infected cucurbits. Without a host, the pathogen is able to overwinter and survive for over a year as hardened masses of hyphae. The pathogen is moved from infected hosts to other plants via ascospores carried by the wind and by conidia that are spread by water splash. Temperature and moisture are both important for infection and symptom development, but moisture causing a leaf wetness of 1 to 10 hours has the greatest influence. The optimal temperature for the disease to establish itself in a plant varies; for watermelon and cucumber it is 75-77° F but for muskmelon it is only 65° F. The optimal temperature for muskmelon is thought to be lower because the plant's resistance increases as temperatures increase. Therefore, it is important to closely watch for GSB development

in cooler weather in muskmelon. Physical wounding by mishandling or by striped cucumber beetle or aphid feeding can predispose plants to infection.

Best preventative chemical management includes: Chlorothalonil that is mixed with another product such as prothioconazole or tebuconazole. Another good option is mixing chlorothalonil with Luna Experience, which has tebuconazole and fluopyram. You also can check other spray options for muskmelon and other cucurbit crops in the Mid-Atlantic Commercial Vegetable Production Recommendations guide.



Figure 1. Water soaked lesions on stems (red arrows) and tan lesions with necrotic areas on leaves (yellow arrows)

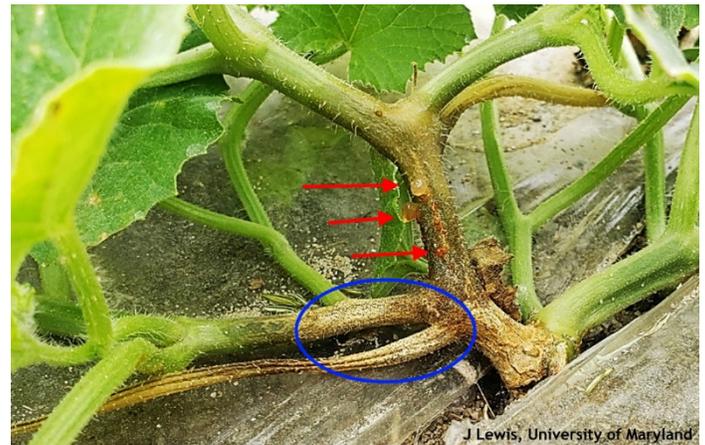


Figure 2. Base of plant with tan lesions on stem with tiny black dots (pycnidia, blue circle) and brown and red ooze from an infected stem (red arrows)



Figure 3. Wilted cantaloupe plant with tan GSB lesion at base of stem

Agronomic Crops

Agronomic Crop Insect Scouting - David Owens, Extension Entomologist, owensd@udel.edu

Corn

Slugs continue to cause the most feeding injury to young corn. Although recent warm weather has been favorable to corn growth, foggy mornings have helped keep slugs moist and happy. Wireworm injury is also apparent now on V3-4 corn, often as a bright yellow stripe on one side of the leaf blade. This is different from nutrient deficiency which often appears as several interveinal stripes. There have also been reports of sporadic cutworm activity. In addition to the black cutworm, which is migratory, there are a few species that overwinter in the state. We have also hit the necessary degree days for a 'significant' (although small) black cutworm flight that occurred in the Seaford area in April to result in larvae large enough to cut plants. Thresholds and treatment information can be found here:

https://www.udel.edu/content/dam/udelImage/canr/pdfs/extension/sustainable-agriculture/pest-management/Insect_Management_In_Field_Corn_-2020.pdf. Mid-size armyworms are also sporadically showing up in light numbers in fields planted into late cover crops. Thresholds for armyworm are 25% plants infested.

A significant revision has been made to the North Carolina stink bug threshold in corn. You can see Dr. Dominic Reisig's post here:

<https://corn.ces.ncsu.edu/2020/05/important-changes-for-stink-bug-thresholds-in-corn-for-2020/>. Essentially, the threshold has been lowered by about half for corn V14 to R2. This is based on recently completed, multiple year studies in North Carolina and in Virginia caging stink bugs for 1 to 3 weeks at various plant developmental stages.

Soybean

Continue scouting for slugs between planting and bean emergence. In [last week's post](#), I borrowed from Galen Dively's observations and recommendations regarding Deadline bait. There is another product that was registered last year in DE - Ferroxx AQ. The active ingredient is iron phosphate. An older product containing the active ingredient is Sluggo. The new formulation is as, if not a little bit more, weather resistant than Deadline. In some trial work in 2018 its efficacy was no different than Deadline. One advantage to Ferroxx AQ is lower mammalian toxicity. Labeled rate ranges between 4 and 25 pounds per acre.

Bean leaf beetles are starting to become active, but so far, no significant feeding has been observed. Seedling stage thresholds are pretty high - 40% defoliation with 2 to 3 beetles per plant. Even these thresholds are conservative, recent work from Mississippi demonstrated leaf feeding as high as 60% on seedlings did not reduce yield.

Nutrient Management Considerations as We Near Sidedress Time for Corn - Amy Shober, Extension Nutrient Management and Environmental Quality Specialist; ashober@udel.edu and Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

Early February warmth once again gave way to cool, wet conditions that persisted well into May. Luckily, it looks like the warmer weather may be here to stay, which means corn growth should start to take off. As some corn nears V3/V4, it is a good time to evaluate your crop in anticipation of sidedressing.

Cool, wet conditions this spring have likely resulted in slower mineralization of soil organic matter or manures. It would not be surprising to see nitrogen (N), sulfur (S), or even manganese (Mn) deficiencies on early growth, especially on sandy, manured ground. Scouting crops now can help growers make decisions about what fertilizer sources to use at sidedress. Nitrogen deficiencies will manifest in the older tissue because N is mobile in plant tissue; look for yellowing (chlorosis) or browning of the oldest leaves on the plant. In contrast, S and Mn deficiency will be evident in the new growth, showing up as yellow interveinal striping on the youngest plant leaves (see photo). In fact, we have already seen S deficiency on Delaware corn at V4.

If you see evidence yellowing on new growth, you can do some sleuthing to determine if the cause is due to S or Mn deficiency. Manganese deficiency is most common when soil pH is neutral to alkaline (>6.5). Check the results of your most recent soil test to determine if Mn might be a problem. In addition to pH, you can look for the Mn availability index value (included on your soil test report if you use the UD Soil testing laboratory). Alternatively, the Mn availability index can be calculated based on results from your commercial testing lab (see the UD nutrient recommendations for [grain corn](#) for more information).

Tissue testing, while useful to confirm S deficiency later in the season, will not be of much help this early in the season. However, if you can rule out Mn deficiency based on soil test results, then it is likely that S is a problem. Corn growing on manured soils will likely grow out of a S deficiency as warmer temperatures fuel microbial activity and break down of manure. Similarly, corn grown on silt loam soils will be able to tap into subsoil S stores as roots expand. If a field has a history of S deficiency, sidedressing with liquid ammonium sulfate or ammonium thiosulfate can also correct early season S deficiency, while also adding N right before the period of rapid corn N uptake. Apply 30-40 lb/ac of elemental S to correct early season S deficiencies. Make sure to account for the N in these fertilizers when making sidedress N decisions.

For fields managed with commercial fertilizers (no manure history), plan to apply N at the rate based on your realistic yield goal minus any N you applied pre-plant or at-plant. For example, if your realistic yield goal is 275 bu/ac and you applied pre-plant N at a rate of 30 lb/ac, you can plan to apply up to 245 lb/ac of N at sidedress (or less if you plan to fertigate).



J Miller, University of Delaware

Yellowing of new growth on corn due to S deficiency.

We strongly urge growers to get a pre-sidedress nitrate test (PSNT) for corn fields that received manure and less than 50 lb/ac of pre-plant N from commercial sources this spring. Growers who use a PSNT can save time and money and

reduce the potential for N losses to the environment. Collect a composite PSNT soil sample to a depth of 12 inches from 15 to 20 locations within a field (max 20 acres per composite) when corn is at V5-V6 (10-12 inches tall). Mix soil thoroughly and submit a dry subsample (1-2 cups) to your soil testing laboratory for analysis. Results of the PSNT can be used to adjust the sidedress N application as outlined in the UD factsheet, [Nitrogen Management for Corn in Delaware: The Pre-sidedress Nitrate Test](#).

Using a Drone for Crop Scouting This Year -

Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu; Cory Whaley, Sussex Co. Extension Ag Agent, whaley@udel.edu; James Adkins, Irrigation Engineer, adkins@udel.edu and Jake Jones, Extension Agriculture Agent, Kent County, jjones@udel.edu

While drones are hailed as the future of precision agriculture, their best use in farming is still as a scouting tool. A drone can be a useful tool for both farmers and consultants, and they do not need to be very expensive to be effective.

Through a grant funded by the Delaware Soybean Board (<https://desoybeans.org/>), we explored their usefulness over the 2019 season. Early in the season, scouting was still best done by foot or 4-wheeler, unless you fly the drone slow and low (Figure 1). We found the maximum usefulness to occur as beans canopy and become difficult to walk through. Larger patterns emerge, whether insect, disease, or nutrient, once the canopy begins to cover the soil (Figure 1). A drone also took an average of 7 minutes to cover the field but could take longer depending on the user. A drone can also be useful to scout for irrigation patterns and equipment issues. With a little time and skill, a remote pilot can go from watching irrigation field patterns (Figure 2a) to hovering over equipment (Figure 2b). In most cases the drone will help find issues faster, but it is still recommended to use diagnostic tests (disease/nutrient) to uncover the actual issue.

When looking to purchase a drone, we recommend making sure it has the following:

- A camera
- Connects to your cellphone/tablet
- Safety features : “Return to Home” Function or Obstacle avoidance
- Good signal range for your field size

To read the full report, go to:

https://www.researchgate.net/publication/339850677_Crop_Scouting_Using_Drone_Imagery_in_Delaware_Soybean_Fields.

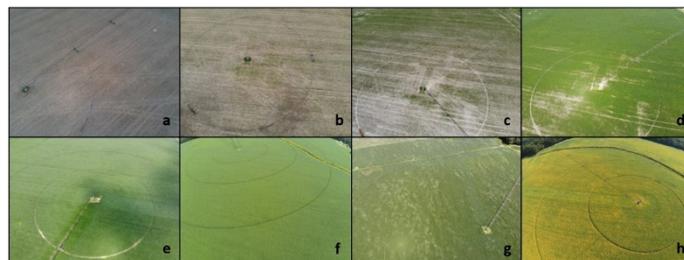


Figure 1. Automated (pre-planned) flight from June 4 (a), June 19 (b), July 2 (c), July 17 (d), Aug 1 (e), Aug 21 (f), Sept 9 (g), and Sept 26 (h) in a soybean field at 200 feet AGL.



Figure 2. Scouting irrigation (a) and checking on irrigation equipment (b)

Small Grains Disease Update - Alyssa Koehler, Extension Field Crops Pathologist; akoehler@udel.edu

We are now about 3 weeks past flowering in wheat and symptoms of Fusarium Head Blight (FHB) are becoming visible (Figure 1). At this point, symptoms have been at very low incidence across the region. It is possible for cool weather to delay symptom development, so continue to scout as fields approach 3-4 weeks past flowering. We had rainfall throughout flowering that kept the region at high risk, but temperatures were below optimum for spore development. The major concern of FHB is the

accumulation of deoxynivalenol (DON). A challenging aspect of cool weather is that plants can have reduced symptoms, but may still accumulate elevated levels of DON. While you cannot scout for DON, you can scout for visual symptoms following the steps introduced in the May 15 WCU

<https://sites.udel.edu/weeklycropupdate/?p=14901>. When assessing FHB incidence, remember to select heads randomly to not bias your sample. If you have high levels of FHB in your field, or in part of a field, you may want to consider harvesting as early as possible. Increasing the fan speed at harvest can help to remove lightweight, diseased grain with chaff. This technique is feasible when the rest of the grain is of good quality; the goal is to blow the lightweight, diseased kernels with high DON without blowing out heavier high quality kernels. It is also best to dry grain to at least 15%, and store grain with FHB issues separate from cleaner grain.



A Koehler, University of Delaware

Figure 1. Wheat head with bleaching and orange sporulation due to Fusarium Head Blight

I have observed a few varieties, particularly in barley, where grain fill was impacted by frost events. Injury and premature death can favor black head molds. Multiple fungi can cause these molds that give tissue a “dirty” or weathered appearance (Figure 2). Review notes of which fields may have had frost damage to aid in scouting.



A Koehler, University of Delaware

Figure 2. Barley heads that did not fill grain due to frost damage now covered with black head molds

General

Guess the Pest! Week 8 Answer: Rodent! -

David Owens, Extension Entomologist,
owensd@udel.edu

This week's shout outs go to Bob Rouse for explaining personal observations of most mammals and birds that usually attack seedlings and to Sylvie Childress for guessing a related rodent. Bob, I had a raccoon dig up every single pepper transplant out of treatment 2 and 5, rep 3 and 4 in 2018.

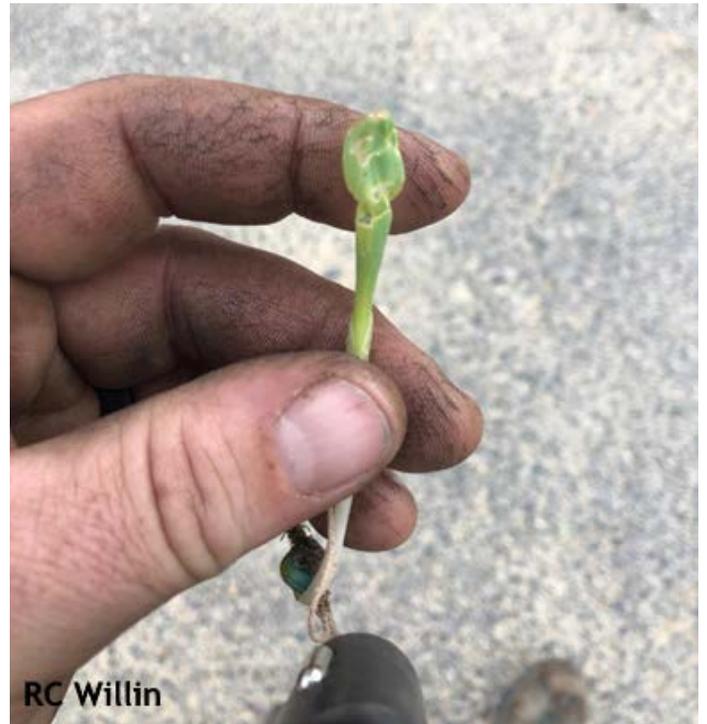


D Owens, University of Delaware



D Owens, University of Delaware

In the corn field in question, I found the ROUS hole a couple of yards away from the missing plants.



RC Willin

Bird damage has been observed in some fields recently and looks very similar. Often they will discard the leaves. Sometimes, a corn plant is rooted well enough to not resist being pulled out, and you may see beak injury like in this photo:

Guess the Pest! Week 9 - *David Owens, Extension Entomologist, owensd@udel.edu*

What is happening to this cabbage leaf?



J Pollok, University of Delaware

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/1FAIpQLSfU PYLZnTRsol46hXmqgj8fvt5f8-JI0eEUHb3QJaNDLG_4kq/viewform?c=0&w=1



FINPACK Financial Analysis Coming Soon -
Laurie Wolinski, Extension Agent; lqw@udel.edu

Laurie Wolinski will begin offering FINPACK® (financial software for ag and farm management) analysis for Delaware farmers and their operations beginning mid-June. FINPACK® is farm analysis software that can help a farm identify its strengths and weaknesses and also look at different long-range scenarios to assist in deciding what changes could be made to the operation to help cash flow, or if the time is right for expansion.

FINPACK® analysis is typically done in a confidential face to face setting. We are working on a way to securely share files so, that in the midst of COVID-19, we can safely work together electronically.

More information will be shared in the coming weeks. In the meantime, please email Laurie Wolinski with questions: Lqw@udel.edu

Matters of Money - Maria Pippidis, Extension Educator Family & Consumer Sciences; pippidis@udel.edu

You may not know this but UD Extension in partnership with the Delaware Money School and the DE Division of Libraries have been offering programming topics related to financial management and consumer education. You can see the list at the [Delaware Money School Class Schedule](#).

Coming up next week on June 2 from 3-4pm is a program entitled *Love & Money*. This program discusses how love for others can affect your

financial stability. We will discuss emotional triggers and how to avoid them as well as talk about mind mapping what is it and how it can help you. The presenter will be Beverly Ward. To register, [click here](#) and you will be sent a zoom link in an email the day before.

On June 16, from 3-4pm we have a program entitled *Gigging - How to Bring in Additional Income*. This program will offer you ideas for ways to bring in additional income to your household, things to think about when choosing a gig, and ways to protect yourself while gigging. [Click here to register](#) and you will be sent a zoom link in an email the day before.

Communicating About Stress with Those Around You - Maria Pippidis, Extension Educator Family & Consumer Sciences, pippidis@udel.edu; Jesse Ketterman, Family and Consumer Sciences Educator, University of Maryland, jketterm@umd.edu and Sarah Bercaw, Extension Agent Family & Consumer Sciences, sbercaw@udel.edu

It is a stressful time for many of us whether we are farmers, family members or those who support farms and their families. The stress has been extraordinary - so much uncertainty and juggling home life, farm life and trying to meet demands from our communities. University of Delaware and University of Maryland Cooperative Extensions have teamed up to offer Communicating with Farmers Under Stress.

This program is designed for those who work with or support farming operations or family members who are concerned about loved ones. No matter how you interact with farming audiences, this program will be for you. In this session we'll focus on signs of stressors, how to communicate with farm audiences and lastly, how to recognize and respond when you suspect a farmer or farm family member might need help. This program is free and will be held on June 4 from 10am-12pm. You can register [here](#).

Learning how to talk to people about their stressors can help you as well as those around you. We are all in this together and together we can improve our outcomes in the future.

Announcements

Online Sheep and Goat FAMACHA Certification Webinar

June 10 6:00-8:00 p.m.
Online

Learn Integrated Parasite Control and Get Certified in FAMACHA

Internal parasites are a major health problem affecting sheep and goats. This workshop is designed to help producers learn the basics of selective internal parasite control and covers topics such as types and kinds of parasites, dewormers, the role of pasture management, the 5 Point Check[®], FAMACHA[®] and FEC. Join us as we provide training to certify producers in the use of the FAMACHA[®] score card and an integrated approach to parasite control in small ruminants.

Cost \$15.00 (to cover the cost of the FAMACHA card). Registration is required.

To register visit: <https://www.pcsreg.com/learn-integrated-parasite-control-and-get-certified-in-famacha> Once registered you will receive an email link to access the Zoom training. After completing the webinar, producers will be required to pass a short web based quiz and submit a short video clip demonstrating their proficiency in the FAMACHA[®] push-pull-pop eyelid technique in order to complete their certification requirements. For questions please contact a member of the Delaware Cooperative Extension Small Ruminant Team- Susan Garey truehart@udel.edu, Dr. Kwame Matthews, PhD kmatthews@desu.edu or Dan Severson severson@udel.edu

Sponsored by Delaware Cooperative Extension - a joint effort between Delaware State University and the University of Delaware

Communicating with Farmers Under Stress

Thursday, June 4, 2020 10:00 a.m.-12:00 p.m.
Online

Purpose

Numerous factors cause stress for farmers and their families including financial problems, price and marketing uncertainties, farm transfer issues,

production challenges and more. Especially during this time.

You want to help, but maybe are not sure what to say or do. Or maybe you find yourself having to deliver difficult news to farmers. This workshop will help you recognize and respond when you suspect a farmer or farm family member might need help.

Objectives

- Build awareness around potentially stressful conditions affecting some farmers.
- Learn stress triggers, identify signs of stress and review helpful techniques for responding.
- Learn techniques for identifying, approaching and working with farmers who may not cope with stress effectively.
- Learn where to go for additional help.

This program is free. For more information contact Maria Pippidis at pippidis@udel.edu. Registration required by June 2. You can register online [here](#).

Webinar Preparing Small Farms for Current Market Demands, Use Alternative Marketing Strategies, Farmers Markets & Farmers Health During Covid-19 Health Crisis

Wednesday, June 3, 2020 12:00 noon – 1:30 p.m.
Online

This webinar meeting is intended to provide information to small farmers (and extension agents working with small farmers) to use available resources to market their products, reach out consumers, and use alternative marketing strategies (potentials) to sustain and grow their businesses and use online business opportunities for farm sales during and after Covid-19 health crisis. We aim to provide glimpse of what small farmers can do and what is available to them and what strategies may work for their farms. Webinar also includes linking farm vitality and health with a focus on how the success of your farming operation depends on paying attention to one's own health,

accessing/using the health care system and health insurance options. This webinar provides information and resources to minimize obstacles that block success in production agriculture or agriculture-related occupations targeting farmers and workers who are limited by a physical or cognitive disability, illness or injury that make it difficult to perform agricultural tasks. By sharing information and discussing solutions, we will extend ideas around the region. A brief updates on farmers market protocols for Delaware will be provided by DDA. During the Q&A session, we will identify common problems most farmers are facing, what they are planning to do, why the plan works/or doesn't, how will they stay in business and grow, and how extension programs can assist the farmers to go through this difficult time.

Agenda

12:00–12:25 p.m.

Buy Local - Demand Potential in a Challenged Food System

Dr. Gordon Johnson, Assistant Professor & Extension Specialist Fruits and Vegetables, Department of Plant & Soil Sciences, University of Delaware.

12:25-12:50 p.m.

Linking Farm Vitality & Health

Ms. Maria Pippidis, AFC FFC, County Director & Extension Educator, FCS, University of Delaware Cooperative Extension

12:50-1:15 p.m.

Emergency Preparedness for Farm & Family

Ms. Inetta Fluharty, WV AgrAbility Program Specialist, West Virginia Extension Service, Farmers Health & Business

1:15-1:30 p.m.

Brief Update on the Farmers Market Protocol for Delaware

Ms. Kathy Jackson, Communications & Marketing Specialist II, Delaware Department of Agriculture, Farmers' Market

Please register at the following link & zoom link to webinar will be e-mailed to all registered attendees!
https://docs.google.com/forms/d/10xCfXREXfHA_KoklhGPAfZlAyqr4WuehH6LdHI9Vs68/edit

This webinar is organized by Delaware State University Cooperative Extension (contact Dr.

Gulnihal Ozbay - gozbay@desu.edu) & sponsored by the Northeast Climate HUB.

<h2>Weather Summary</h2>	
Carvel Research and Education Center Georgetown, DE	
Week of May 21 to May 27, 2020	
Rainfall:	0.49 inch: May 22 0.58 inch: May 23 0.01 inch: May 25 0.05 inch: May 27
Air Temperature:	Highs ranged from 81°F on May 23 to 61°F on May 24. Lows ranged from 57°F on May 27 to 49°F on May 14.
Soil Temperature:	21 65.6°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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