



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

Peppers

Continue scouting peppers for beet armyworm defoliation. Earworm sprays may be necessary soon as trap captures in some areas are approaching Virginia Tech's rule of thumb of 20 per night. Also look under leaves for aphids. Pyrethroids will not provide reliable control for earworm, and they do not control beet armyworm. Frequent pyrethroid applications are the primary reason for aphid outbreaks, and this is the time of the year when aphid populations begin increasing in vegetables. Thresholds are 5 aphids per leaf.

Sweet Corn

Fall armyworm continue to be active in both whorl stage and silking corn. On sweet corn pushing tassel or just prior to first silk, be looking for signs of feeding from small or large worms on the husk leaves, especially where the silks will emerge. If you see signs of feeding (window paning, small light brown frass pellets) start your silk sprays.

Moth pressure is moderate, and is very similar to Monday. We tested 40 moths this week and had 40% survivorship. This is also not quite as high as last year, in which we peaked over 60% before settling between 40 and 50% for the month of August. Aphid populations are on the increase, so be sure to scout fresh market sweet corn.

Should you need to treat for aphids, recommended products include Lannate, Assail, and Sivanto. Both Sivanto and Assail are rated as having moderate bee toxicity.

Trap counts for Thursday are as follows:

Trap Location	BLT - CEW	Pheromone CEW
	3 nights total catch	
Dover	1	58
Harrington	2	97
Milford	3	62
Rising Sun	1	78
Wyoming	0	14
Bridgeville	2	4
Concord	1	41
Georgetown	1	15
Greenwood	1	
Laurel	2	71
Seaford	3	67
Lewes	7	18
Millsboro	10	7

Tomatoes

Spider mites and thrips are active, and you need to be thinking of worm protection with earworm catches increasing. A suggested worm threshold is one egg on 10 plants or 3% fruit damage. Thrips injury will show up as dimples on the fruit and dirty silvery streaks on the underside of leaves. In our area, in addition to what is in the [Commercial Veggie Recs](#), Beleaf is labeled and is excellent on thrips.

Melons

Spider mites continue to be stubborn, and our weather pattern hasn't helped any. Rotate among products so that you don't hit the mites with the same product twice. Pay attention to pre harvest intervals.

Fruit Set Problems and Pollination

Disorders in Fruiting Vegetables- Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu and Emmalea Ernest, *Associate Scientist - Vegetable Crops*; emmalea@udel.edu

Vegetable harvest is peaking on Delmarva. Unfortunately, we often see pollination problems in fruiting vegetables when weather conditions are unfavorable and 2020 is no exception.

Signs of incomplete pollination in cucurbits include bottlenecked fruit or fruit with a pinched end, crooked or lopsided fruit, fruit small in size or nub-like; and fruits with prominent lobes or that are triangular in shape. Causes of incomplete pollination may be inadequate pollen transfer by pollinating insects; inadequate pollen sources (pollenizers); or hot, dry weather that reduces pollen viability or that desiccates flower parts during pollination. Research has shown that a minimum of 1,000 grains of pollen are required to be distributed over the three lobes of the stigma of the female flower of a watermelon to produce a uniformly shaped fruit.

Hollow cavities in fruit and vacant seed cavities are related to lack of seed formation, again traced back to poor pollination. Fruit tissue separation, such as hollow heart in watermelon, has also been linked to inadequate pollination and may be worsened by rapid fluctuation in environmental conditions affecting fruit development.

Each year we see pumpkin fields with poor fruit set or fruit carry. Remember that in larger pumpkin sizes, each plant will only carry 1-2 fruits. The large vining plants also need considerable space - 25 to 50 square feet per plant. While planting Jack-o-lantern types at higher densities might at first seem to be a way to achieve higher yields, interplant competition

will increase and you can decrease fruit carry because of this competition.

Too much available nitrogen can also delay pumpkin fruit set so that many of the pumpkins that are produced do not reach maturity in time. Pumpkins do not normally need more than 80 lbs/acre N to grow a crop. Anything above 100 lbs/acre N will cause the pumpkins to put on excessive vine growth and limit fruiting.

A major reason for poor fruit set in some years is high temperatures during flowering in July. Day temperatures in the 90s or night temperatures in the high 70s will cause flower and small fruit abortion. For pumpkin growers that do wholesale and start shipping right after Labor Day, this will limit early pumpkin availability. Varieties vary considerably in their ability to tolerate heat and to set under hot conditions. Inadequate irrigation and excessive water stress can also reduce fruit set, increase abortions, and reduce fruit carry. High temperatures and water stress reduce photosynthesis and the ability of the plant to carry fruits. Drought can also cause a higher than normal male/female flower ratio, thus affecting the number of fruits per plant.

Sweet corn growers often see quality problems related to poor pollination as a result of high temperatures. This problem is more severe in less stress tolerant varieties and where irrigation is inadequate.

In corn silk elongation begins 7 to 10 days prior to silk emergence from the husk. Every potential kernel (ovule) on an ear develops its own silk that must be pollinated in order for the ovary to be fertilized and develop into a kernel. The silks from near the base of the ear emerge first and those from the tip appear last. Under good conditions, all silks for an ear will emerge and be ready for pollination within a span of 3 to 5 days and this usually provides adequate time for all silks to be pollinated before pollen shed ceases.

Pollen grains are borne in anthers, each of which contains a large number of pollen grains. The anthers open and the pollen grains pour out after dew has dried off the tassels. Pollen is light and can be carried considerable distances (up to 600 feet) by the wind. However, most of it settles within 20 to 50 feet. Pollen shed is not

a continuous process. It stops when the tassel is too wet or too dry and begins again when temperature conditions are favorable.

Under favorable conditions, a pollen grain upon landing on a receptive silk will develop a pollen tube containing the male genetic material, develop and grow inside the silk, and fertilize the female ovary within 24 hours. The amount of pollen is rarely a cause of poor kernel set. Each tassel contains from 2 to 5 million pollen grains, which translates to 2,000 to 5,000 pollen grains produced for each silk of the ear shoot.

Poor seed set is often associated with poor timing of pollen shed with silk emergence (silks emerging after pollen shed). Shortages of pollen are usually only a problem under conditions of extreme heat and drought. Extreme heat and desiccating winds can affect pollen germination on silks or pollen tube development leading to poor seed set. Insects that clip silks during pollination can cause similar problems.

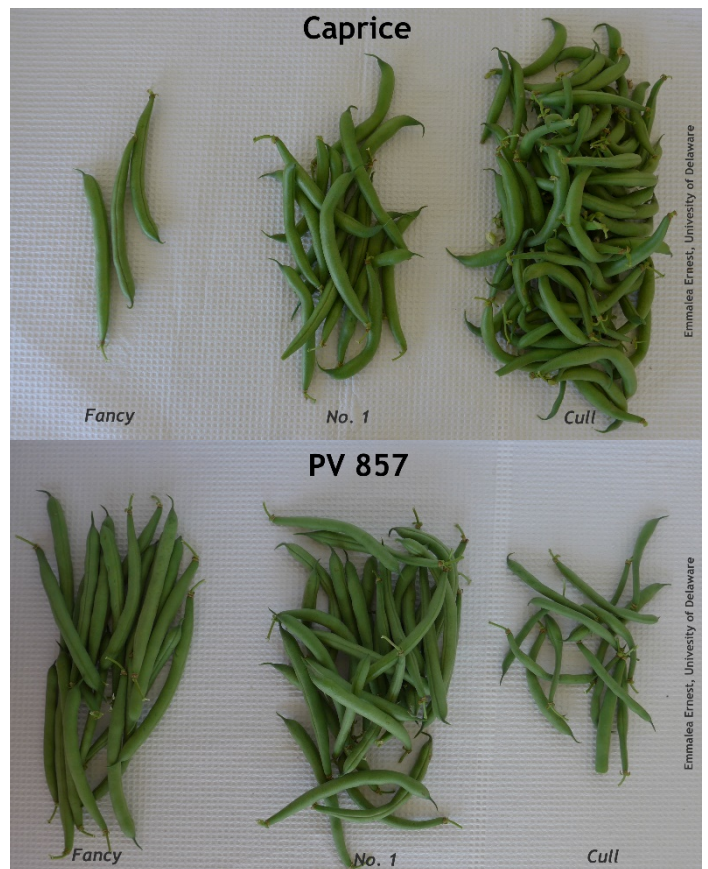
In **tomatoes**, day temperatures over 95°F and/or night temperatures in excess of 80°F can cause pollination problems due to reduced pollen production, reduced pollen viability, or reduced pollen germination or pollen tube production. This can lead to flower drop, smaller fruit, misshapen fruit, or reduced gel formation inside the fruit producing hollow areas. Temperatures of 75°F or above along with high humidity can lead to tomato pollen clumping and incomplete pollination. To manage these pollination related problems in tomatoes use “hot-set” type tomatoes bred for better production under heat conditions.

In **snap beans** and **lima beans**, plantings that flower and set pods during summer conditions when day and night temperatures are high will be susceptible to reduced sets and yields, split sets, small pods, and misshapen pods. Most of our currently grown lima bean varieties and many commercial snap bean varieties are susceptible to heat stress related yield losses due to reduced pollen production when nighttime temperatures are high before and during flowering. This is why bean crops are planted in certain periods to avoid pollination related losses (snap beans planted for spring and

fall crops but avoiding summer crops, lima beans planted in June and early July for fall harvest).



Short and misshapen snap bean pods resulting from heat stress during flowering and pod set.



Grade distribution of 300 g of Caprice and PV 857 pods from a heat stressed trial. Heat susceptible Caprice has majority of pods graded cull; heat tolerant PV 857 has majority of pods in Fancy and No. 1 grades.

Extreme Weather Events Could Compromise One of Our Best Disease Management Tools in Vegetables - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

This article is going to be a follow-up to the one Gordon Johnson did a couple of weeks ago about how [flooding and waterlogged soils can create extra challenges in our vegetable crops](#). An example of an extreme weather event is a downpour of 4-10 inches of rain in a matter of hours, which results in flooded fields and standing water, possibly for days. This is occurring and is predicted to occur more frequently not only in our area but throughout the Midwest. Gordon's article explains some of the physiological effects on plants that occur in a field when there is standing water for any length of time. But there are other problems that could occur when growers use grafted plants to protect their crop from certain soil diseases.

Grafting vegetable crops has increased dramatically in the last 10 years to the point where most growers are producing at least one grafted vegetable crop. Most grafting is done to manage a soil disease problem such as Fusarium wilt, Fusarium crown and root rot, southern wilt, corky root rot or root knot nematodes. There are even root stocks that can be selected to help the crop tolerate a flooding episode. In the past when growers were faced with a soil disease problem they would fumigate with methyl bromide (MBR). When MBR was removed growers turned to grafting preferred scions such as an heirloom tomato variety that has no Fusarium wilt resistance onto root stocks with resistance to that disease. The problem is, and it has become yearly that I see it, when we have one of these extreme rain events and the field floods and the flood waters become high enough (or plants are too low in the plant hole) to over-ride the graft on the plants and the scion can become infected with the disease the root stock is resistant to (Fig. 1). Another potential problem is when flood waters sit in the field for 48-72+ hrs. and various root rots caused by *Rhizoctonia* or *Pythium* species infect the grafted root system which is not resistant to these pathogens. At other times when a tomato plant sits in

water-logged soil for days it starts to put out adventitious roots and these roots can develop from the base of the scion when grafted to some rootstocks. These adventitious roots could come into contact with the soil and introduce soil-borne pathogens into the scion, which can result in loss of resistance.



Figure 1. Row of grafted heirloom tomatoes wilting due to a soil disease from a flooded field

The frustrating part for growers in all of this is that this little 2-3 hour event in the 5-month or more production cycle of this crop could disrupt much of the work the grower has put into managing the crop. Bottom line is that grafting is a great way of managing some soil-borne diseases for our vegetable crops and has become very common place as a tool growers can utilize. However, even if growers use grafted tomato or cucurbit plants, they need to understand that they may not be "home-free" from these soil diseases and need to include some cultural practices that help alleviate the possibility of flooding or standing water in a field (see [Gordon's previous article](#)). One possible cultural practice that helps with soil disease management is using crop rotations. Unfortunately, this practice is usually not possible for most growers especially in the mid-

Atlantic because of the price of land and development encroachment; growers simply do not have enough land to do the rotations for the needed amount of time.

Ozone Damage to Cucurbit and Tomato Plants - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

I have been seeing some ozone damage to cucurbits and, oddly, to tomatoes over the last 2 weeks or so, which is not unusual with the hot hazy conditions we are having. Ozone is the most common air pollutant in the eastern United States. On watermelon, the vegetable that is more susceptible than other crops, the damage starts off as small white spots or tiny asymmetrically shaped flecks that eventually become bleached areas (Fig. 1). Flecks can be dark or light in color. These symptoms usually occur between the veins on the upper leaf surface of older and sometimes middle-aged leaves. Leaves later develop brown or black spots with white patches (Fig. 1). The crown leaves of watermelon can look pretty ragged at this time of year, especially when fruits are maturing and plants are under stress. In muskmelons the upper surface of leaves turns from a chlorotic yellow to a bleached white (Fig. 2). Due to the tissue collapse produced by ozone, leaves are prone to infection by pathogens such as *Alternaria* sp. and generally will senesce more readily than non-damaged leaves.



Figure 1. Ozone damage to watermelon crown leaves



Figure 2. Ozone damage to cantaloupe leaves



Figure 3. Ozone damage to tomato leaves

Agronomic Crops

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

Soybean

Continue scouting for defoliators and for spider mites. I have a spider mite plot at Carvel that is now defoliated. If battling spider mites with Lorsban, Bifenthrin, or Dimethoate, you may need a follow up spray about a week later.

August is worm month, and we are picking up low numbers of earworm, loopers, and armyworm. With earworm counts increasing in pheromone traps, be sure to start scouting for them in reproductive stage soybean. There is a handy threshold calculator on NCSU's website: <https://www.ces.ncsu.edu/wp-content/uploads/2017/08/CEW-calculator-v0.006.html>.

Corn

If you have corn-on-corn and are planning to put the field into corn next year, be sure to scout for western corn rootworm now. Adults will be concentrated around the ear zone and are easily disturbed and fast moving. They have black stripes on the wings and a yellow-green abdomen. Sometimes the stripes merge into each other resulting in more of a black patch than a stripe. If you have more than 1 beetle per plant, consider either rotating out of corn next season or using a beetle trait for next year. You can use the handy Bt trait table to easily determine what seed package has rootworm traits in it: https://agrilife.org/lubbock/files/2020/02/BtTraitTable_FEB_2020.pdf.

Alfalfa

Continue sweeping for potato leafhopper and in flowering alfalfa, blister beetles.

Sorghum

Be sure to scout for corn earworm in the heads. Earworms generally have a 'bumpy' appearance, and in sorghum, a darker striping pattern. The head is orange. Fall armyworm may also be present in heads, and is generally considered to be equally damaging. Prior to heading, armyworm thresholds in sorghum are very high,



Figure 4. Bacterial spot on tomato leaves

I usually do not see much in the way of tomato with ozone damage, but a few fields have shown the symptoms of irregular dry-looking dark or light brown flecks usually starting on lower leaves (Fig. 3). These flecks at times can look similar to bacterial spot (Fig. 4). But bacterial spot lesions are dark brown to black and initially circular in shape and appear 'greasy', while ozone damage appears as dry flecks or damaged areas of the leaf. Bacterial spot lesions also are often surrounded by a yellow halo, ozone damaged areas will not have this yellowing appearance. Numerous bacterial spot lesions can coalesce causing a general yellowing of leaves (Fig. 4).

Trying to estimate yield loss due to air pollutants in the field is difficult and only approximations can be made. In a California study, ozone damage to crops caused the greatest yield losses (10-30%) in watermelon, cantaloupe, grape, onion, and bean. Other research has shown that when average daily ozone concentrations are moderate to high, yields of vegetables can be reduced by 5-15%.

near 75% infested plants. Fall armyworm are usually gray, although lighter greenish color morphs can be found. Lighter color morphs usually have a dark spot on the side behind the thoracic true legs. The head has an inverted Y faint line and the last abdominal segment has 4 'dots' arranged in a square pattern.

There is a very good threshold calculator available from Texas A&M <https://agrillife.org/extensionento/sorghum-headworm-calculator/>. This calculator lets you estimate control cost given your insecticide and application method of choice, grain value, and plant population. Note, large larvae are more difficult to kill and some products may not work as well on them. Other worms present include fall armyworm (difficult to kill with pyrethroids), yellow striped armyworm and true armyworm (easiest to control).

Using Foliar Manganese Applications to Correct Deficiencies in Double-Cropped Soybean

- Amy Shober, *Extension Nutrient Management and Environmental Quality Specialist*, ashober@udel.edu; Jarrod O. Miller, *Extension Agronomist*, jarrod@udel.edu; Mark Reiter, *Associate Professor and Extension Specialist, Soils and Nutrient Management, Virginia Tech*, mreiter@vt.edu

Soybean is susceptible to manganese (Mn) deficiency, especially when grown on sandy, low organic matter soils like we have in Delaware. Soil Mn availability is a function of both Mn concentration and soil pH. Soil Mn converts to unavailable forms as soil pH increases. So when soil pH starts creeping above 6.2, we can start to see Mn deficiency symptoms. While Mn deficiency can be widespread across the field, we can also see Mn deficiency symptoms in small pockets in a field, often occurring after liming. Deficiency symptoms can be prevalent in areas where lime applications overlapped or where the soil is sandier than the general field; thereby changing pH more quickly and becoming higher than soils with more clay, loam, and/or organic matter. Manganese deficiencies may also reveal themselves with dry soil conditions like we have seen this summer (especially when soils were tilled soils) because soil Mn also becomes less

available to plants. Interestingly, Mn deficiencies are less likely in areas of the field that stay wetter (e.g., compacted wheel tracks, field ditches) as wetter soils are less oxygenated, promoting plant available forms of Mn (as seen in the photo below).

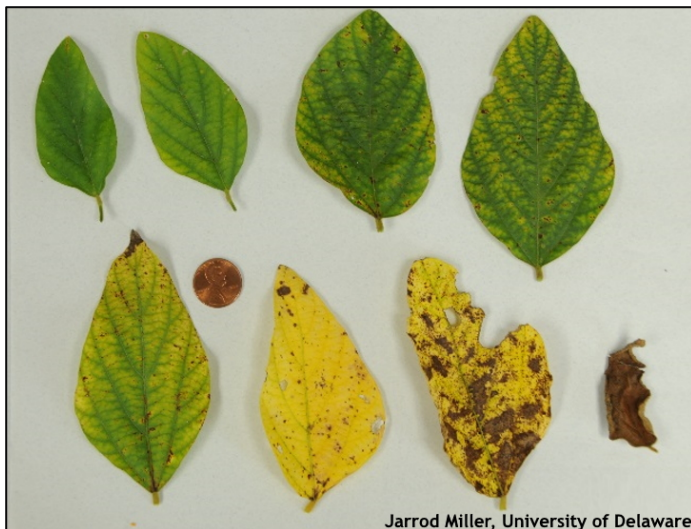


Jarrod Miller, University of Delaware
This image shows areas of the field where the soybeans that were growing in a field ditch (yellow arrow) showing less Mn deficiency symptoms than areas that have better tilth.

Before planting, the likelihood of soil Mn deficiency can be predicted based on the Mehlich 3 soil test Mn concentration and the soil pH. These values are used to calculate the soil Mn availability index (MnAI); soil test results from the University of Delaware Soil Testing Program will include the MnAI value. If you use a commercial laboratory that doesn't report MnAI, you can calculate the index. If your MnAI is > 35, Mn deficiency is unlikely. In contrast, if the MnAI is <25, Mn deficiency is likely and your crop would likely benefit from a prophylactic application of Mn. However, if the MnAI falls

between 25 and 35, you might want to scout fields now to look for signs of Mn deficiency to check for hidden hunger (i.e. no visual symptoms) using a tissue test.

Manganese is an immobile plant nutrient, meaning that plants cannot move Mn to new growth. As a result, Mn deficiency appears on the newest growth. The most common symptom of Mn deficiency is interveinal chlorosis (i.e., yellowing), the same symptom that may present with other issues, like zinc or iron deficiency or soybean cyst nematode. Therefore, it is prudent to look for multiple pieces of evidence before declaring Mn deficiency. Inspect the root systems to rule out nematode problems or herbicide injury from previous crops. Look for shortened and rosetted stems, which are indicative of zinc deficiency. Also, look for the presence of necrotic spots -- another symptom of Mn deficiency. Ultimately, Mn deficiency is best confirmed with results of a tissue test. A tissue test can even identify a hidden Mn deficiency in fields with a history of Mn deficiency or with borderline MnAI values. Even if you determine there is a Mn deficiency by sight, taking a tissue sample can confirm your suspicions and help you plan for future crops.



Jarrod Miller, University of Delaware

Manganese deficiency will present as interveinal chlorosis on new leaves, sometimes with necrotic spots.

Should you identify a Mn deficiency, there is still time to apply Mn to correct the deficiency in double-cropped beans. Foliar applications are the most beneficial, since the nutrient is taken

up more quickly through the plant tissue. Also, if the soil pH is too high, any soil applications of Mn will likely not help your plants. Apply 0.5 to 1 lb chelated Mn (elemental basis) or 1 to 2 lb of inorganic Mn oxide or Mn sulfate (elemental basis) per acre foliarly prior to flowering. More than one application may be required to correct a severe deficiency. Many Mn products may recommend lower rates of Mn, but lower rates are meant for maintenance and not to correct deficiencies. Choose EDTA chelated Mn formulations when mixing with glyphosate, as use of Mn oxide or Mn sulfate may reduce the efficacy of glyphosate. As always, check compatibility of your Mn products with any other pesticide that you may add to the tank mix.

Note that we only recommend foliar applications if there is evidence of a Mn deficiency (e.g., soil test results, tissue analysis, or visual symptoms). Manganese is needed in small amounts by the plant, so over application (e.g., spraying higher rates or applying Mn when soil pH is below 5.9) can lead to Mn toxicity problems.

Soybean Disease Update - Alyssa Koehler,
Extension Field Crops Pathologist;
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Full season soybeans across the area are approaching R1-R3. Overall, the heat of the past few weeks has kept disease pressure low across the region. There have been a few reports of low canopy Septoria Brown Spot (Figure 1), which does typically effect yield. There have also been a few cases of Anthracnose caused by *Colletotrichum truncatum* and other *Colletotrichum sp.* This fungal pathogen causes irregular black spots present on the stem, pods, or petioles (Figure 2). If you zoom in on the black zones, you will see acervuli that resemble pincushions with many needle-like or eyelash structures called setae (Figure 3). These structures produce conidia that spread the disease. Another disease, pod and Stem blight, will also have black structures visible on the stem, but these are typically in straight lines and are most visible from R6 to R8. It is possible to have both diseases present on the same plant late in the season.



Figure 1. Low canopy Septoria brown spot



Figure 2. Soybean Anthracnose

Fungicide applications are typically 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. If weather patterns continue to be hot and dry, disease pressure will likely remain low. However, as we have seen in wet years, frequent rainfall can lead to serious late season disease

issues, so continue to monitor rainfall and disease pressure through R6.

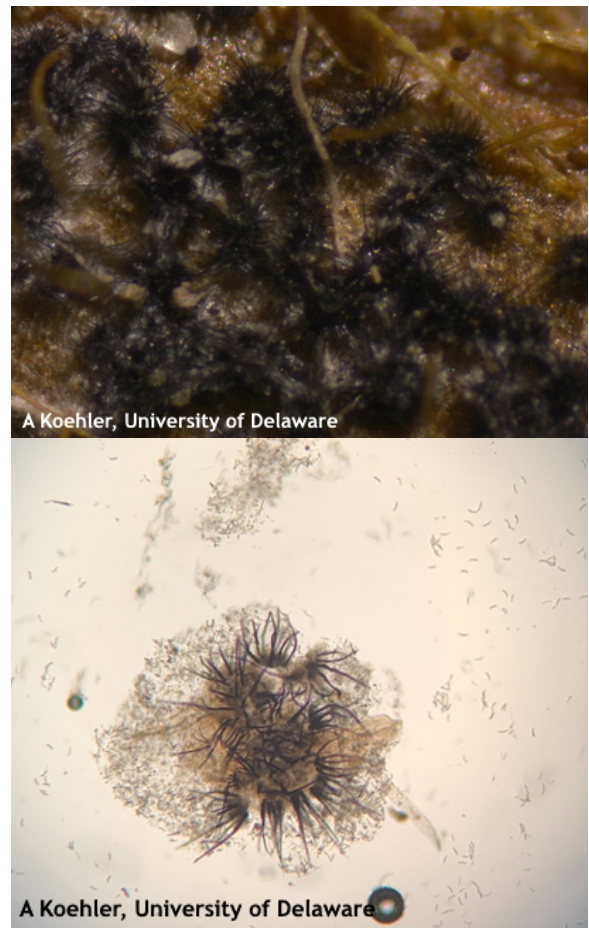


Figure 3. Anthracnose Setae: top, zoomed in view of acervuli with needle-like setae; bottom, setae under the magnification of a microscope

The 2020 National Fungicide Efficacy Recommendations for Foliar Diseases of Soybean can be found at <https://crop-protection-network.s3.amazonaws.com/publications/fungicide-efficacy-for-control-of-soybean-foliar-diseases-filename-2020-03-18-150123.pdf>. In 2019, a soybean foliar fungicide efficacy trial was conducted at the Carvel Research and Education Center. Disease pressure remained low in 2019 and there were no ratable levels of foliar pathogens present. Results are included here and can also be found at <https://sites.udel.edu/canr-koehlerlab/research/soybeans/2019-soybean-fungicide-efficacy-trial-results/>.

Carvel Research and Education Center Georgetown, DE 2019 Soybean Fungicide Trial

Variety: CZ 4105LL treated with Poncho/VoTiVo + Ilevo
Plant Population: 180,000 sd/a

Planting Date: 6/5/19
Harvest Date: 10/18/19

Treatment ^z	NIS	% Green Stems 10/7/19 ^y x	% Green Stems at Harvest	Test Weight	Moisture	Yield ^w	Avg. Purple Seed Stain ^v
Topguard EQ(R3) 5 oz/a	0.5% v/v Cide Winder	29.5 cd	6.5 a	55.7 a	13.1 a	38.5 a	0.3 a
Lucento (R3) 5 oz/a	0.5% v/v Cide Winder	22.0 cde	7.8 a	53.7 a	13.0 a	35.9 a	0.2 a
Affiance (R3) 10 oz/a	0.25% v/v Induce	30.3 bcd	12.6 a	54.6 a	13.1 a	37.6 a	0.3 a
Domark (R3) 4 oz/a	0.25% v/v Induce	30.3 bcd	11.2 a	54.7 a	12.9 a	39.5 a	0.5 a
Priaxor (R3) 4 oz/a	0.25% v/v Induce	16.1 e	6.3 a	52.6 a	13.0 a	33.0 a	1.4 a
Veltyma (R3) 7 oz/a	0.25% v/v Induce	47.4 a	15.8 a	55.3 a	13.1 a	42.4 a	0.2 a
Revytek (R3) 8 oz/a	0.25% v/v Induce	32.0 bcd	14.5 a	55.8 a	13.2 a	38.8 a	0.0 a
Delaro (R3) 8 oz/a	0.125% v/v Induce	32.5 bcd	9.1 a	54.2 a	13.1 a	37.7 a	0.6 a
Miravis Neo (R3) 13.7 oz/a	0.125% v/v Induce	33.0 bc	11.2 a	53.8 a	12.8 a	35.7 a	0.1 a
Miravis Top (R3) 13.7 oz/a	0.125% v/v Induce	42.8 ab	9.2 a	55.5 a	13.1 a	37.2 a	0.3 a
Quadris Top SBX (R3) 8 oz/a	0.125% v/v Induce	35.0 abc	10.5 a	56.6 a	13.2 a	41.6 a	0.0 a
Trivapro (R3) 13.7 oz/a	0.125% v/v Induce	24.8 cde	9.5 a	54.7 a	12.9 a	39.0 a	0.3 a
Control	--	19.3 de	4.4 a	54.6 a	13.1 a	36.8 a	0.8 a
<i>p</i> -value		13.2	7.7	4.1	0.5	7.4	0.8
LSD ($\alpha=0.05$)		0.0012	0.176	0.917	0.967	0.59	0.083

^zAll treatments applied 8/9/19 using a CO₂ pressurized backpack sprayer equipped with extended range 8002VS flat fan nozzles calibrated to deliver 20 GPA at 60 psi. Plots were set up in a randomized complete block design with five replications.

^y Number of green stems out of total stems in rows 2 and 3 of each plot.

^x Means followed by the same letter are not significantly different based on Fisher's Least Significant Difference (LSD; $\alpha=0.05$).

^w Yield was calculated from the center two rows of each plot and adjusted to 13% moisture.

^v Subsamples from each plot were collected at harvest. The number of seeds per 15g with discoloration from purple seed stain was used to calculate average purple seed stain.

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2020 University of Delaware Small Grains Variety Trial Results -

Victor Green, Associate Scientist;
vmgreen@udel.edu

Results of the 2020 Small Grains Variety Trials are posted online at:

<https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/commercial-crops/field-crop-disease/>

General

Guess the Pest! Week 17 Answer: Pythium or Phytophthora - David Owens, Extension Entomologist, owensd@udel.edu

Congratulations to Chris Leon for identifying one of two possible causal agents of last week's fluffy melon. There are two diseases that can cause this: Pythium and Phytophthora. Apparently, it is really important to bring samples back to the lab to have them identified. I am used to being able to snap a slightly fuzzy picture of a lot of bugs and recognize them. So my apologies to Dr. Kate Everts and Dr. Alyssa Koehler for the low quality sample.



Dr. Kate Everts wrote an extensive article in the WCU 2017 on Phytophthora fruit rot, and can be found here:

<https://sites.udel.edu/weeklycropupdate/?p=10885>.

A UMass article

(<https://ag.umass.edu/vegetable/fact-sheets/pythium-fruit-rot>) states that "Pythium species can survive indefinitely in the soil on various organic substrates or as long-lived, thick-walled oospores. When free moisture is

available, sporangia and zoospores are produced. Fruit infection can be by means of vegetative mycelium, sporangia, zoospores, or oospores. Zoospores are attracted by fruit exudates and swim towards the fruit. The pathogen is capable of direct penetration, but wounds enhance infection." We had a lot of moisture with the tropical storm a couple of weeks ago, and it is possible that the watermelon in question had sunscald which would've made it more susceptible.

Guess the Pest! Week 18 - David Owens, Extension Entomologist, owensd@udel.edu

This week we jump back into corn for one more pest before we visit other crops. August is, after all, worm month and our non-sweet corn-corn is not at risk for economic worms at this point.

What is causing this lodging and leaning in this corn field? 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_4kg/viewform?c=0&w=1



Important to Watch for Spotted Lanternfly

Now - David Owens, Extension Entomologist, owensd@udel.edu

Spotted lanternfly adults are present. This means it is time to be extra vigilant when moving equipment, plants, and even vehicles in and out of the quarantine areas. All of New Castle County is under spotted lanternfly quarantine as of July 1. Residents can use the compliance checklist on DDA's website https://agriculture.delaware.gov/wp-content/uploads/sites/108/2020/06/DDA-Spotted-Lanternfly_Residential-Quarantine-Checklist_6.26.20.pdf. Businesses and government agencies are required to obtain a permit. To do so, someone from your business needs to go through an online training and pass a test through the Delaware Learning Center: https://stateofdelaware.csod.com/LMS/catalog/Welcome.aspx?tab_page_id=67&tab_id=20000767. They then are to train the

rest of the employees of your business. You will need to inspect vehicles and equipment for lanternfly and egg masses.

If you think you have a spotted lanternfly, take a picture and report the sighting along with the photo to hitchhikerbug@delaware.gov.

Mid Atlantic Crop Management School Going Virtual - Amy Shober, Extension Nutrient Management and Environmental Quality Specialist; ashober@udel.edu and Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

The 2020 Mid Atlantic Crop Management School will be held virtually this year. Mark your calendars for the week of November 16-20th. Sessions will be held online daily from 8:30 am to 12:30 pm with each session offering one continuing education credit in the areas of Nutrient Management, Pest Management, Crop Management, and Soil and Water Management. Credits will also be available for various regional nutrient management and pesticide programs. Paid registrants will receive access to recordings for all sessions for viewing outside the scheduled session times. Registration will open in early September with early-bird pricing, our full list of speakers, and regional credit availability.

Farm Succession Planning - A Process Worth 100 Acres or More... - Laurie Wolinski, Extension Agent, lgw@udel.edu; Dan Severson, New Castle Co. Ag Agent, severson@udel.edu and Maria Pippidis, Extension Educator Family & Consumer Sciences, pippidis@udel.edu

Are you thinking about it? Are you talking about it? Are you making mental notes about it?

Regardless your response, there is no time like the present to begin or continue the conversation on Succession Planning.

Communication is a necessary step, and an important first step in the succession planning process. And yes, it is a process. But don't shy away from that. Often times, "eating that elephant one bite at a time" is the way to make a

process seem less overwhelming. It also allows for a well thought out process. In regard to communication, sharing thoughts, concerns, and ideas among family members to preserve the land and legacy can provide an opportunity for reflection and understanding.

Consider the following example: Mom and Dad have 3 young adult sons, all of whom have some level of interest in farming, and all of whom have a college education related to agriculture. Son 1 has a degree in Ag Engineering and works on the family farm; Son 2 has a degree in Ag Education and works off the farm as a school teacher, but on the farm in summertime; Son 3 has a degree in Animal Science and works for a local poultry company. But the family has never discussed transferring the farm. The boys each, however, have had some “pipe dream” side bar conversations among each other in regard to the future of the farm. Do Mom and Dad even want the family farm to continue or do they want to sell the farm? Do they think any of the boys will be ready when the time comes for them to enter retirement? Can Mom and Dad afford to retire?

One way to begin this conversation is to [Open the Lines of Communication](#). Each member of the family likely has a different view of what the future of the farm looks like. Consider using technology to help get some thoughts, feelings and ideas “on paper”. We would suggest initially focusing on one topic per week. For example, what is your favorite job on the farm, or what is favorite learning memory on the farm? Eventually the questions get a bit more substantive, for example, where do you see yourself in 10 years? Or, how many families do you think the farm should support?

- Consider the use of shared documents (*Google Docs*, for example), where each family member has access to share ideas in a document that automatically saves when someone adds or edits. Each document is saved with a topic title.
- Mom using her texting skills to text a question out to the family to gather input. Mom records all of these responses and shares the information.

This may be a simple technique to get a conversation started. There are many other steps involved in the communication process, for example learning about the individual and family goals for the future of the farm. Eventually, a successor will be decided. This all happens over time, so be prepared to be patient. This is why the succession planning process should begin early. There are personal feelings, finances, expectations, and relationships that need to be considered. For more information, please go the Farm [Succession Planning Checklist](#) on the UDCES website.

Free Investing in Your Farm’s Future Online Series - *Maria Pippidis, Extension Educator Family & Consumer Sciences;* pippidis@udel.edu

A free, online series entitled “Investing in Your Farm’s Future” will begin on Thursday, August 6 and will run for four consecutive Thursdays from 6:00 to 7:30PM. Topics include “Retirement Planning” (August 6), “Health Insurance in Later Years” (August 13), “Business Planning and Communications” (August 20), and “Legal Topics, Planning Tools and Finding the Right Team” (August 27). The series is free but registration is required. You may register for any or all of the sessions offered. To register, visit <https://go.umd.edu/5Qv>. This series is a collaborative effort between University of Maryland Extension, College of AGNR, Maryland Department of Agriculture, University of Delaware Cooperative Extension and UMD Agriculture Law Education Initiative.

University programs, activities, and facilities are available to all without regard to race, color, sex, gender identity or expression, sexual orientation, marital status, age, national origin, political affiliation, physical or mental disability, religion, protected veteran status, genetic information, personal appearance or other legally protected class.

Coronavirus and Our Finances: Resources from the Consumer Financial Protection Bureau - Maria Pippidis, Extension Educator Family & Consumer Sciences; pippidis@udel.edu

Our farm and family financial wellness is important and changes are happening regarding available resources and the moratorium on deferment regarding paying mortgage and student loan debt. The CFPB provides up-to-date information and resources to protect and manage your finances during this difficult time: <https://www.consumerfinance.gov/coronavirus/>

Announcements

Succession Planning Workshops: Investing in Your Farm's Future

Thursdays, August 6, 13, 20, 27, 2020 6:00-7:30 p.m.
Online

Each year, the average age of principal farm operators continues to get just a little bit older. Many of these principal operators may not have developed a retirement plan, considered how to handle health care issues as they age, developed a succession plan, or even developed an estate plan. Join specialists from the University of Delaware Extension and the University of Maryland Extension as they help prepare you for this process.

A four-part series for farm families planning for the next generation.

Session 1: Introduction of the topics and retirement planning.

Session 2: Health insurance in later years.

Session 3: Business planning and communications.

Session 4: Legal topics, planning tools, and finding the right team.

More information and registration is available here: <https://go.umd.edu/5Qv>

Weed Management in Pastures Webinar

Wednesday August 5, 2020 7:00-9:00 pm
Online by Zoom

Join Dr. Mark VanGessel, University of Delaware Extension Weed Specialist for another program in our Webinar Wednesday forage series. Managing weeds in pasture is a common question among horse owners and livestock producers. In this webinar you will learn about these plants we call weeds; why they are a concern for many owners and producers and what strategies you can use to control them. We will discuss both cultural and chemical methods for weed control and also briefly touch on the topic of toxic weeds.

To register: <https://www.pcsreg.com/weed-management-in-pastures>

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

Climate Adaptation Fellows Program for Vegetable and Fruit Growers and Ag Advisors

Climate change is bringing challenges for vegetable and small fruit growers.

For farmers to reduce their risk, they need to adapt. To address this increasing need, the Climate Adaptation Fellowship was created. The program provides a peer-to-peer curriculum for farmers and advisors. Its framework is designed to integrate climate science with a land manager's knowledge.

Participants in the vegetable and fruit program will enhance their knowledge of climate impacts to vegetable and fruit farms in the Northeast. Accepted fellows will complete the program in pairs (farmers and advisors) to develop personalized farm adaptation plans and outreach materials to share with peers.

The Northeast Climate Adaptation Fellowship is open to commercial farmers in the Northeast U.S. (Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, New York, Pennsylvania, New Jersey, **Delaware**, West Virginia, Maryland, Washington D.C) who grow vegetables and/or small fruit and to agricultural advisors who work with vegetable/small fruit farms in this region.

For more information go to:

<https://www.adaptationfellows.net/news/vegetable-fruit-program-now-accepting-applications>

Extension302 Podcast

To listen, go to:

<https://www.udel.edu/academics/colleges/canr/cooperative-extension/about/podcast/>



USDA-FSA Office Visits by Appointment

USDA-Farm Service Agency offices in Delaware are open for in-office visits by appointment only. Please call your local office to make an appointment:

New Castle and Kent Counties – 302-741-2600, ext. 2

Sussex County – 302-856-3990, ext. 2



Stormwater Workshop Series Webinar

Thursday, August 13 10:00 a.m.-noon
Online

The public is invited to attend this free stormwater webinar. Topics covered include stormwater emergency preparedness, algae control, and invasive species identification and control.

“We encourage communities and property owners to become informed so they can identify problems early, before they become costly to repair,” says Jessica Watson, sediment and stormwater program manager at SCD.

“If you are new to Delaware, we want you to learn how your actions on private land, at home and in community open space affects water quality for all in Sussex County,” says Tracy Wootten, horticulture agent at UDCE.

Delaware nutrient management and pesticide applicator credits are pending.

An additional workshop has been scheduled for Thursday, Oct. 8, 2020.

Registered attendees will receive the webinar link one day prior to the event.

To register go to:

<https://www.sussexconservation.org/events/ssw-workshop-4.html>

This event is presented by the Sussex Conservation District (SCD), University of Delaware Cooperative Extension (UDCE) and the Delaware Department of Natural Resources and Environmental Control.

Soil Health Solutions

Monday, August 17, 1-4 PM
Online via Zoom

Please join us for an interactive webinar to address soil health challenges on all types of farms. Shannon Zezula, Indiana State Resource Conservationist will present about the process of finding soil health solutions based on individual farming situations. Participants will also have discussions about specific farming scenarios and find ways to improve soil health and productivity.

Please contact Jason Challandes at jchallandes@desu.edu or 302-388-2241 to register and you will receive a link to join.

Presented by Northeast SARE, Delaware Soil Health Partnership, Delaware State University and University of Delaware

Farmer Panelists Discuss Soil Health – Virtually

Tuesday, August 11, 2020 12:30-1:30 p.m.

A virtual farmer panel will discuss a soil health with Steve Groff, owner of Cover Crop Coaching, as moderator. Panelists include Blaine Hitchens, a Sussex County farmer and National Association of Conservation District Soil Health Champion from Laurel, Del., Steve Kraszewski, of Mason's Heritage in Queen Anne, Md. and Aaron Thompson, Thompson Family Farm in Hartly, Del. This event is free and preregistration is required.

“Due to COVID-19 we were unable to hold the annual soil health field day. However, we are very excited to offer this virtual event to allow farmers the opportunity to discuss topics related to soil health,” said Debbie Absher, director of agricultural programs at Sussex Conservation District.

Registered attendees will receive the webinar registration link one day prior to the event.

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

This event is presented by the Sussex Conservation District, Delaware Soil Health Partnership, Delaware State University, Northeast Sustainable Agriculture Research and Education program and the U.S. Department of Agriculture Natural Resource Conservation Service.

Week of July 23 to July 29, 2020	
Rainfall:	0.02 inch: July 24 0.07 inch: July 28 0.01 inch: July 29
Air Temperature:	Highs ranged from 94°F on July 26, July 27 and July 28 to 85°F on July 24. Lows ranged from 75°F on July 28 to 71°F on July 25.
Soil Temperature:	85.0°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. Aisha Hoggard assists with web posting.

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Weather Summary

Carvel Research and Education Center Georgetown, DE