# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

**Volume 32, Issue 27** **September 13, 2024**


## Vegetable Crops

### Vegetable Crop Insect Scouting


*David Owens, Extension Entomologist,*
owensd@udel.edu

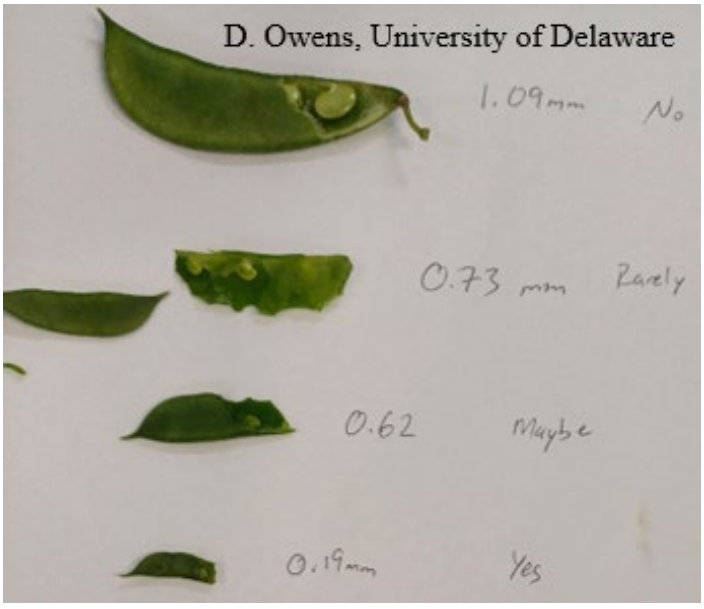

**Sweet Corn**

Moth trap captures have declined due to a combination of cool nights and decreasing attractive resources near our pheromone traps. This is a general reminder that the most effective trap is going to be right next to silking sweet corn; our traps are by and large placed in a static location. Case in point is Concord and Milton traps which are right next to silking sweet corn right now. Also please note that the blacklight traps are still by and large indicating a 3 day spray schedule, although we may be on the cusp of a 4 day spray schedule. With warmer nights, day activity could increase quickly. Thursday trap counts are as follows:

| Location | Blacklight Trap | Pheromone Trap |
|---|---|---|
| Dover | 2 | 25 |
| Harrington | 2 | 12 |
| Milford | 6 | 25 |
| Rising Sun | 2 | 26 |
| Wyoming | --- | 31 |
| Bridgeville | 2 | 7 |
| Concord | 7 | 83 |
| Georgetown | --- | --- |
| Greenwood | 4 | 22 |
| Laurel | 10 | 41 |
| Milton | --- | 29 (2 nights) |

**Lima Beans**

A question came this week: when are lima beans safe from tarnished plant bug? There is very little research to draw on for this pest system. Dr. Galen Dively, Entomology Professor Emeritus, at University of Maryland had a student a while back ask this question and they found tarnished plant bugs strongly preferred blossoms and pin pods. Esquivel published a paper in 2015 in the Journal of Economic Entomology after measuring the penetration length of tarnished plant bug mouthparts. They can penetrate a mean of 584 ± 5.1 micrometers (range from 317 to 912 micrometers). We measured pod thickness for various stages of pods. See image below.




Essentially, we confirmed that pin pods are the largest size pod that tarnished plant bug can

penetrate and damage the developing seed. There's a chance they can get slightly larger, 1-inch pods, but I suspect they would ignore those and focus their attention on the smaller pods and the blossoms.

**Cole Crops**

If your cole crops are developing heads, this may be an excellent time to put in a long lasting or translaminar product for worm protection. Heads can be difficult to protect with contact only materials or even contact materials that need to be ingested. *If using BT, please note BT and Copper are not compatible!*

Be sure to identify your worm complex! Cabbage loopers are less susceptible to Torac. Diamondback moth, beet armyworm, corn earworm, and fall armyworm are less or hardly susceptible to pyrethroids. Corn earworms and the armyworms tend to 'sit' on the growing point and completely consume it.

## Fusarium Wilt in Basil

*Jerry Brust, IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

Usually when anyone talks about basil problems, they talk about basil downy mildew, but there are unfortunately other disease problems with basil that are important and need to be managed. One basil disease that is usually found in the field is Fusarium wilt, caused by the fungus *Fusarium oxysporum* f. sp. *basilicum*. It was first found in the U.S. in North Carolina thirty years ago and has now spread throughout North America.

Basil plants (sweet basil only) infected with Fusarium wilt usually grow without any symptoms until they are about 8-12 inches tall, at which point they become stunted and begin to wilt. Initial symptoms usually include brown streaks starting on the lower areas of stems and discoloration of the internal stem tissue (Figure 1). Leaves become yellow and malformed and may curl. Wilted plants can develop a shepherd's crook and plants can suddenly lose their leaves. A pink-orange layer of mold may cover stems when it is very moist. The disease is spread by air or soil and can be seedborne. Once a field has become infested with the fusarium wilt pathogen, infective propagules may persist in the soil for 8-12 years.

The best management practices include planting disease free basil seed. If you can't get tested seed, soak your seed in cold water for 4-hours and then transfer the seed to a heat treatment of 20 minutes in 133-136° F water. The hot water treatment causes a sticky layer to develop on the outer surface of the seed making it very slippery and this treatment will reduce germination. There are now Fusarium resistant sweet basil cultivars available such as Aroma-2, Prospera and Obsession as well as others. If Fusarium wilt is introduced into the field growers should not grow any sweet basil or members of the mint family in that field for at least 2-3 years. Mint plants will not show any symptoms of fusarium wilt, but they will act as hosts for the disease. Some of the specialty basils, such as lemon or purple basil, show resistance to the disease. A few biologicals that have demonstrated some reduction in disease incidence are Actinovate as a soil drench at planting and Rootshield as an in-furrow spray.


**Figure 1**. Sweet basil infected with Fusarium wilt

# Fruit Crops

## Fruit Crop Insect Scouting

*David Owens, Extension Entomologist,*
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Dead spotted lanternfly was found by a vineyard this week as well as in our sweet corn pheromone traps! This is the time of the year they are moving far and wide. They seem to have established populations county wide, especially in areas that have tree of heaven. The good news is they are quite susceptible to your typical true bug insecticides: neonicotinoids, carbamates, pyrethroids.

Scout orchards for stink bug. We have a stink bug pheromone trap at one location that recorded a significant increase in BMSB activity this week. Stink bug populations are going to peak soon, if you have stink bugs and still need to protect late fruit, a border spray along the orchard edge, and especially near wood lines, may be sufficient.

# Agronomic Crops

## Agronomic Crop Insect Scouting

*David Owens, Extension Entomologist,*
owensd@udel.edu

**Soybeans**

Corn earworm should have largely moved out of soybeans by now. You may still see some stragglers, particularly in late beans. Any double crop beans that have not been treated and are particularly late should still be scouted for CEW. Keep scouting those double crop beans for stink bugs. If a field has both, add up the proportion of each population relative to its threshold. For instance, if I have 1 corn earworm in my net, that would be about 30% threshold. If I have 2 stink bugs, that's 40% of the stink bug threshold and the field is at 70% threshold for pod feeders.

If you have fields with Dectes stem borer, prioritize them for as timely a harvest as possible.

**Small Grains**

The wooly worm weather predictor has not failed me yet. This is the first I've seen this month, and it is predicting a cool start to the fall followed by a mild winter. Make sure you have an aphid management plan. At the end of the month, I will post threshold reminders. If a field does not have an insecticide seed treatment, scout the field through the beginning of December and if it reaches threshold, (especially if it is highly susceptible to BYDV) a pyrethroid or, for barley, Endigo, will do a good job. If a field is at threshold in the fall and you are planning to treat it with herbicide, that is a good time to take out aphids.

## Soil Sampling for Nematodes in Soybeans

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

This summer has had many stressful conditions for soybeans. This stress along with the transition into September we often begin to see areas of the field that are dropping leaves early. Often these patches may have Soybean Cyst or Root-knot nematodes present. Soybean Cyst Nematode consistently ranks as the most yield limiting pathogen of soybeans across the US, with root-knot nematodes not far behind in the southern to mid-Atlantic regions of the US. Soybean cyst, root-knot, and other nematodes are often silent yield robbers, being present in the field without noticeable aboveground symptoms through most of the season. If symptoms do occur, they can resemble production challenges like nutrient deficiency, soil compaction, drought stress, or other diseases. Due to the lack of consistent or obvious aboveground symptoms, it is very common for nematodes to go unknown until severe infestation develops. Soybean roots can be scouted for SCN females early in the season (see June 14 article: https://sites.udel.edu/weeklycropupdate/?p=24604) and by this time in the season, root knot nematodes are very notable when root systems are dug from the ground (Figure 1). While females on the roots confirm the presence of SCN and galls confirm RKN, these sightings do not provide information on the level of infestation. Soil samples are the best method to assess overall populations across the field. Soil sampling can be conducted at any time, but fall samples provide a great snapshot of end of season populations and samples can be collected when already out for routine fertility sampling. Today we will discuss the steps to collect soil samples.


**Figure 1**: Soybean plant with significant galling from root-knot nematode

### What type of sampling?

1. **Predictive:** Since nematodes are widespread across the region, if you have never looked for nematodes before, you may have interest knowing nematode estimates within your field. For this type of sampling, you may sub-divide the field into several sections based on soil type, yield pattern, crop rotation etc. Although the objective of detection seems simple, careful sampling is needed for accurate detection, especially when populations are low. A negative result does not necessarily prove absence of nematodes, but it indicates that population levels are below the detection level. The best time for preventative sampling in soybeans is towards the end of the growing season or

immediately after crop harvest when population densities are near their maximum levels. I target most of my soybean sampling late-August through September.

**2. Diagnostic:** If you have a problematic patch or patches within the field showing abnormal symptoms that cannot be explained by other causes, you may want to collect a diagnostic sample. Diagnostic sampling can also be conducted to investigate the cause of observable yield decline over time. When collecting diagnostic samples, soil should be collected near the root. When submitting diagnostic samples, it is helpful to also include soil samples from adjacent, healthy-appearing plants/areas nearest to the most severely affected plants/areas. Numbers of diagnostic samples to be collected vary with field size and type of problem suspected. If the severity of the symptoms varies in the field, include samples representing various severity categories.

**When to sample?**

Nematodes can be sampled in the fall in soybean stubble or the non-host crop that will be planted into soybeans the following season, in spring before the soybean crop, or in season from the soybean crop root zone. Of these options, the optimal time to sample for nematodes in soybean is early fall, usually before harvest in preparation for the following season/crop. When collecting nematode samples the soil should be moist, but not excessively wet or frozen.

**Where to sample?**

For preventive sampling, collect random samples in a zigzag or "w" pattern across the field (Figure 2). For diagnostic sampling, collect samples from problem areas and healthy areas (Figure 3). Soil samples should be collected from the plant root zone, 6-8" deep. If possible, include some roots along with the soil sample. Areas of the field that tend to be higher risk for nematodes include: near a field entrance, areas that have been flooded, areas with pH greater than 7, areas where yield has historically been lower, areas where weed control is not as good.

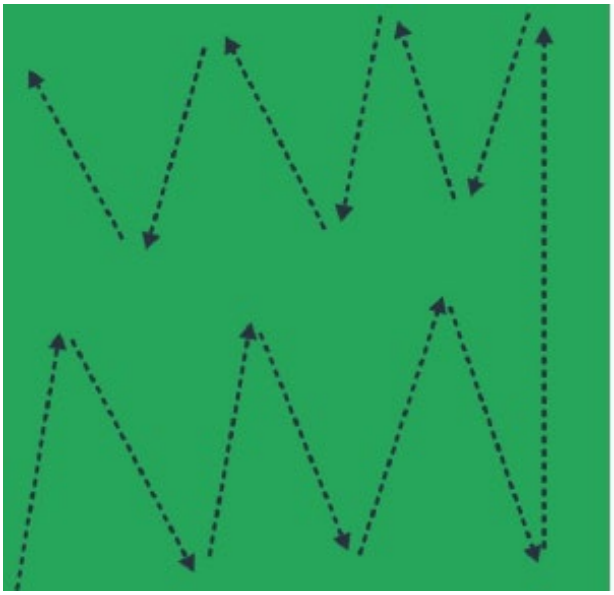


**Figure 2**: Sampling pattern for predictive samples

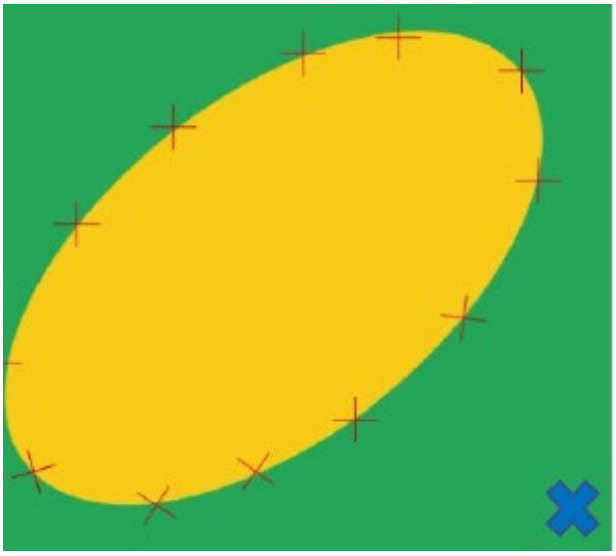


**Figure 3**: Sampling pattern for diagnostic samples; take on the edges of hotspots (red Xs) after taking a separate sample from a nearby healthy area (blue X)

**How to sample?**

A soil probe, trowel, or shovel may be used for sampling. Within each section, collect 10-25 subsamples and mix well to make one representative sample/bag per field. Take the initial sample from a healthy area and then sample symptomatic areas. Clean sampling tools when moving between different symptomatic fields. Use re-sealable, clean, convenient sized plastic bags. I like to use quart-sized bags filling about ¾, so they still comfortably zip. Label

each bag clearly (using your ID system) and provide a log of the ID numbers on a separate form, for reference.

Keep samples in shade (or preferably a cooler) while in the field and during transport. Do **not** expose soil samples to high temperatures/direct sunlight, do not let the samples dry out (make sure bags are sealed tightly); do not leave in a car trunk, or other area that may heat excessively; do not put the soil samples in a freezer; and do **not** add water. During collection, storage, and transportation, samples should be kept cool (ideally, 50 to 55ºF). Nematode samples can be processed at the NCDA&CS Nematode Assay Service or Virginia Tech.

**What to do next?**

If you find out that you have elevated nematode populations, control options include host resistance, crop rotation, and use of seed treatment nematicides. For many years, SCN nematode populations were well managed through a single source of resistance, PI88788. Over the past few decades, we have seen a breakdown in this resistance and SCN are reproducing at far higher rates than they should. While the PI88788 resistance gene still accounts for over 95% of soybean acreage, there are new resistance genes coming out on the market. If high levels of SCN are present, crop rotation is another tool to reduce populations. Corn and wheat are both non-host options for SCN. Root-knot nematode can also be managed by selecting varieties with varying levels of RKN resistance, but host rotation can be more challenging due to the wide host range of RKN. Seed treatments are another control option. We have published a paper highlighting some of the results from seed treatment trials (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10390846/).In our trials and trials across the US, we see that response from seed treatments varies year to year and across field sites. On average, yield increases of 2-5 bu/a may be observed when using seed treatment compared to non-treated seed. If you are interested in learning more about SCN, you can also check out thescncoalition.com to *talk todes*.

## Herbicide-Resistant Italian Ryegrass in the Area

*Mark VanGessel, Extension Weed Specialist, University of Delaware; mjv@udel.edu, Kurt M. Vollmer, Extension Weed Management Specialist, University of Maryland; kvollmer@umd.edu, Caio Brunharo, Assistant Professor of Weed Science, Pennsylvania State University; brunharo@psu.edu, Adrian Veron, Pennsylvania State University; eav5256@psu.edu*

Each year there seems to be more questions about Italian ryegrass control in the region. So last spring, Kurt Vollmer (Univ. of MD, Weed Extension) and I gathered ryegrass seeds across the eastern shore. Big thank you to a number of you who supplied us with samples as well. We had viable seeds from forty-one fields. This was not a systematic survey, but rather a collection of ryegrass plants that were seen growing in small grains, corn fields, or soybean fields as we drove around the countryside. Dr. Bruharo and Adrian Veron tested these samples for potential resistance to glyphosate, PowerFlex, Accent Q, Axial XL, and clethodim (Select).

None of the samples were resistant to glyphosate. However, all were resistant to PowerFlex. Over half were resistant to Accent Q, and five sites were resistant to Axial XL. Finally, none were resistant to clethodim. It is important to know that two widely used herbicides for winter wheat have resistance in the area (PowerFlex and Axial XL); and these herbicides represent two different modes of action. If you have had issues with ryegrass control in your area and are planning on planting winter wheat, it's important that you start clean and use Zidua or Anthem Flex at planting. Using Zidua or Anthem requires that you seed with a drill; do not spin on wheat seed. Axial use should not be the first line of control due to presence of resistance in the region.

## Critical Soybean Irrigation Time

*James Adkins, Extension Engineer,*
*adkins@udel.edu*

Corn should be at black layer for everything but extremely late-planted long-season varieties. UD research has not been able to identify any yield or test weight advantage to irrigation after black layer.

Soybeans are currently using 0.17" per day for both full and double-crop soybeans. Keep applying irrigation through leaf yellowing into leaf drop. Data shows up to 1.6 inches of beneficial water use after the leaves have yellowed. Late-season water availability is critical to bean size and test weight.


# General

## Guess The Pest – September 13th

*David Owens, Extension Entomologist,*
owensd@udel.edu

I've noticed stores already have Halloween junk for sale- spooky! So, in the spirit of spookiness, we have several photos of soybeans with various ailments. What do these remind you of? (Each photo is a different problem, all taken in the same field by Dr. Alyssa Betts).


Enter your guess here: https://docs.google.com/forms/d/1oz5-yCm8xifZtDlvZ-vPbd8a0GR-V6H9ddb9fhAyzzY/edit.


## Guess The Pest – September 6th Answer

*David Owens, Extension Entomologist,*
owensd@udel.edu

According to my random number generator, a hearty congratulations goes to Keith McGowan and everyone who entered Western Bean Cutworm for last week's GTP. WBC began expanding its range eastward about 20 years ago and in 2012 Joanne trapped for it in Delaware and captured a handful. I trapped for it in 2018 and 2019 and caught even fewer than Joanne did. Thus, to find one in a sweet corn field in September seems a bit unusual. Perhaps I will put traps up next year to see if anything has changed in the last 5 years.


# Announcements

### Stormwater Seminar - Stormwater 101

Wednesday, September 18th, 2024, 10:00- 11:30am
Sussex Conservation District & University of Delaware Cooperative Extension
16483 County Seat Hwy, Georgetown, DE 19947

The Sussex Conservation District (SCD) in partnership with the University of Delaware Cooperative Extension (UDCE) is pleased to announce a series of three seminars aimed at improving water quality through effective stormwater management and best management practices (BMP).

The seminars are designed to equip homeowners, homeowner associations, and industry professionals with the knowledge and tools needed to become better environmental stewards. According to the EPA, stormwater runoff from yards, streets, and other areas is one of the most significant sources of waterway contamination, making this education critical for safeguarding Delaware's waterways.

**Stormwater 101 – Seminar 1**
Jessica Watson, SCD sediment and stormwater program manager, will provide an overview of the stormwater program in Delaware, including regulations, types of stormwater systems, required maintenance and enhancement options.
Seating is limited, and preregistration is highly encouraged.
Register here:
https://www.sussexconservation.org/events/ss-01-2024/individual-registration

**Approved: 1 DE NM CEU**

For additional information see link provided below
https://www.sussexconservation.org/events/ss-01-2024

## 2024 Beginning Farmer Program

Wednesdays & Saturdays September-December
University of Delaware, Fischer Greenhouse
533 S. College Ave, Newark, Delaware 19716

The Delaware Beginning Farmer Program is for new and beginner farmers working in small-scale vegetable and/or fruit production. Through hands-on training, demonstrations, workshops, field trips and farm tours, as well as self-study, growers will spend an entire season learning and growing with Delaware Cooperative Extension, and other invited agriculture industry professionals

Although not limited to the following topics, this training will explore the fundamentals of soil fertility and health, basic crop production, integrated pest management, food safety, and business planning and development.

This training will also provide an excellent networking opportunity. Sessions are covered by one affordable registration fee of $75. Sessions are held at the University of Delaware Cooperative Extension office and Fischer Greenhouse on the University of Delaware campus.

Sessions are held at Fischer Greenhouse on the College of Agriculture and Natural Resources' campus in Newark, unless otherwise noted.

- Wednesday, September 11, 6-8 pm
  Course Orientation, Soil Basics
- Saturday, September 14, 9-11 am
  Greenhouse Production/Tour
- Wednesday, September 25, 6-8 pm
  Variety Selection
- Wednesday, October 9, 6-8 pm
  Small Farm Business Planning
- Saturday, October 12, 9-11 am
  Field Trip to Against the Grain Farm at William Penn Farm
- Wednesday, October 23, 6-8 pm
  Weed Identification and Management
- Wednesday, November 6, 6-8 pm
  Integrated Pest Management: Insect and Disease Pests
- Saturday, November 9, 9-11 am
  Plant Diagnostic Clinic, UD Fresh to You
- Wednesday, November 20, 6-8 pm
  Small Animals
- Wednesday, December 4, 6-8 pm
  Delaware Beginning Farmer Resource Panel with DDA, NRCS, Farm Bureau and others

**Register here: http://www.udel.edu/0012105**

***If you have any questions about the program, please reach out to either Carrie Murphy (cjmurphy@udel.edu) or Nick Adams (naadams@udel.edu)***

## Category (03) Ornamental and Turf Pre-Exam Training

October 16, 2024, 8:00 AM to 12:00 PM
Delaware State Fair Grounds, AG Commodities Building
Murphy St. Harrington, DE 19952

The Delaware Department of Agriculture in conjunction with University of Delaware Cooperative Extension is excited to bring to your pre-exam training designed to assist with the content connected to the DDA Ornamental & Turf (Category 03) exam. The pre-training will NOT cover all of the material on the exam. The training will consist of 6 categories of emphasis and will cover identification, control, and various best management practices (BMP's) that applicators need to know or study as part of the category (03) Ornamental & Turf exam. The presenters will be Amanda Strouse (DDA) and John Emerson (UD). Both the training and the exam will be at the AG Commodities Building at the DE State Fairgrounds.

Use the following link to register:

https://www.udel.edu/0012295

## Delaware Grain Marketing Club Meeting

Thursday, October 30th, 2024, 6:00-8:00 p.m.
University of Delaware
Carvel Research and Education Center
16483 County Seat Highway, Georgetown, DE 19947

The last 2024 Grain Marketing Club meeting will be on October 30th at the Carvel Research and Education Center in Georgetown. Jody Lawrence from Strategic Trading Advisors / Helena Agri-Enterprises will discuss markets. Jody provides commentary to a grain marketing letter that is received by 3500 recipients in 31 states. Jody has been working with Helena since 2002 and provides the newsletter to Helena customers and speaks at national meetings. A Mission BBQ dinner will be provided at the event.

***To register, please contact Lisa Collins.***

***E:*** *lcollins@udel.edu*

***P: 302-831-3402***

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

## Credit Opportunity Available for Carvel Field Day
## Online Activity

Recordings of the Agronomic Crop and Fruit and Vegetable Tours held at Carvel on August 7, 2024, are now available along with an opportunity to earn credits by watching the videos.

https://www.udel.edu/academics/colleges/canr/carvel/current-research/2024-field-crop-tours/

Each tour contains five videos representing the stops on each tour. To obtain credit for a full tour, all five videos for that tour must be viewed. Viewers are required to submit the two keywords that appear randomly in each video (a total of 10 keywords per tour). Keywords will appear as closed captions for approximately 10 seconds. **The opportunity to earn credits will expire on December 31, 2024**. Visitors may earn credits for one or both tours. Use the google document from the link above to submit for credits.

Please verify your credits have been received by contacting Karen Adams, adams@udel.edu **after January 3, 2025.**

## Watermelon and Pumpkin Grower Biofumigation Study Survey
Online Activity

Watermelon and pumpkin growers, we are seeking survey responses to evaluate your familiarity with using biofumigation to reduce phytophthora and root-knot nematodes in these crops. We would like to hear about your experiences with this topic. The survey should take no more than five minutes to complete. Here is the link to the survey: https://delaware.ca1.qualtrics.com/jfe/form/SV_02i7KXdpzDhbgsS

*Contact Nate Bruce at nsbruce@udel.edu or 302-362-7616 if you have any questions.*

## Grain Marketing Producer Survey
Online Activity

Grain marketers, the University of Delaware, in collaboration with the Universities of Kentucky and Nebraska Lincoln, seeks your input on how you make grain marketing decisions on your own operation. The survey will help inform us to understand the risks and factors involved in making these decisions. In addition, data will be used to help us refine outreach education on grain marketing. Your individual survey responses will remain confidential as data will be aggregated. The survey will take 10 minutes or less to complete. Below is both a link to the survey and a QR code.

Link to Qualtrics survey:
https://delaware.ca1.qualtrics.com/jfe/form/SV_0JpiRk4gHsN2yHQ

QR Code:

*Contact Nate Bruce at nsbruce@udel.edu or 302-362-7616 if you have any questions.*

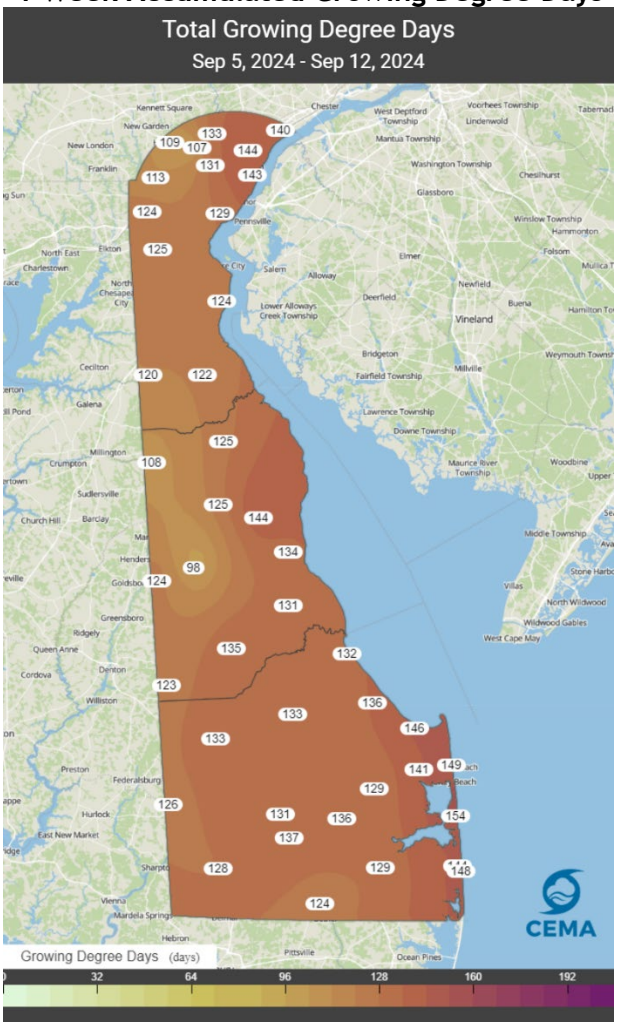
### Maryland Pesticide Disposal Program

Maryland Department of Agriculture Pesticide Regulation Section is sponsoring a Pesticide Disposal Program. Registrations are available now and can be obtained by contacting their office at 410-841-5710 or on the website at https://mda.maryland.gov/plants-pests/Pages/Pesticide-Disposal-Program.aspx.

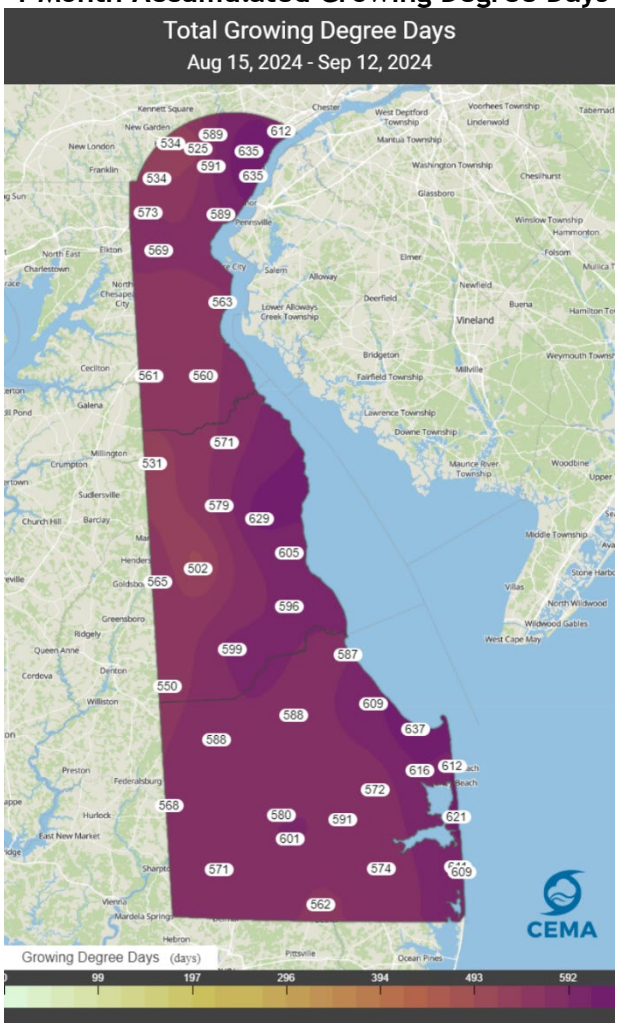
This program is FREE to all ag producers on a first-come, first-served basis. Commercial pest control businesses and applicators, including public agencies generally cannot participate. Limited space may be available.

# Weather Summary

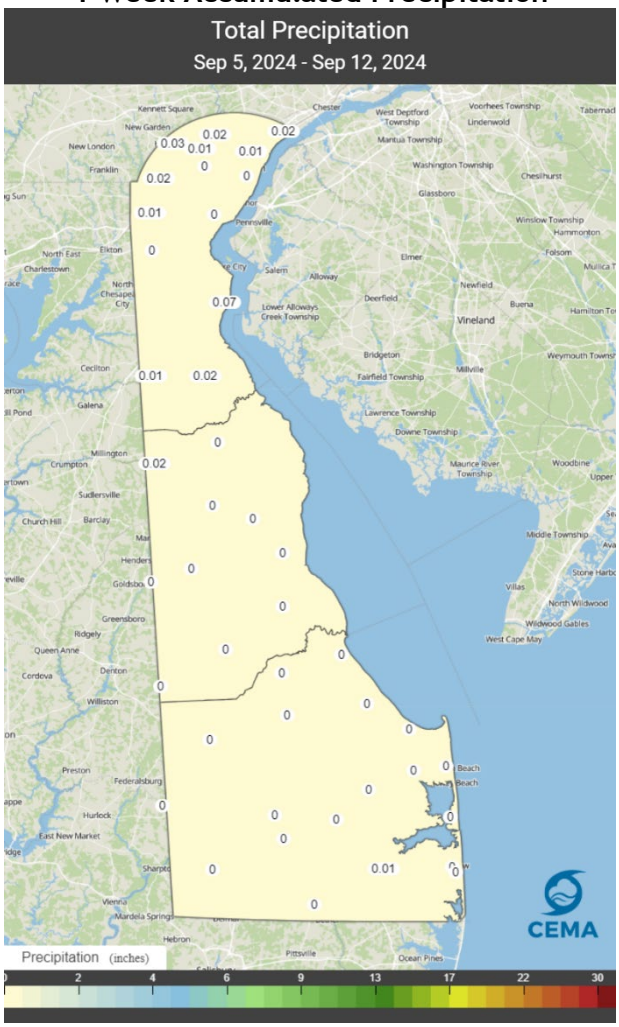
**1 Week Accumulated Growing Degree Days**




**1 Month Accumulated Growing Degree Days**



## 1 Week Accumulated Precipitation

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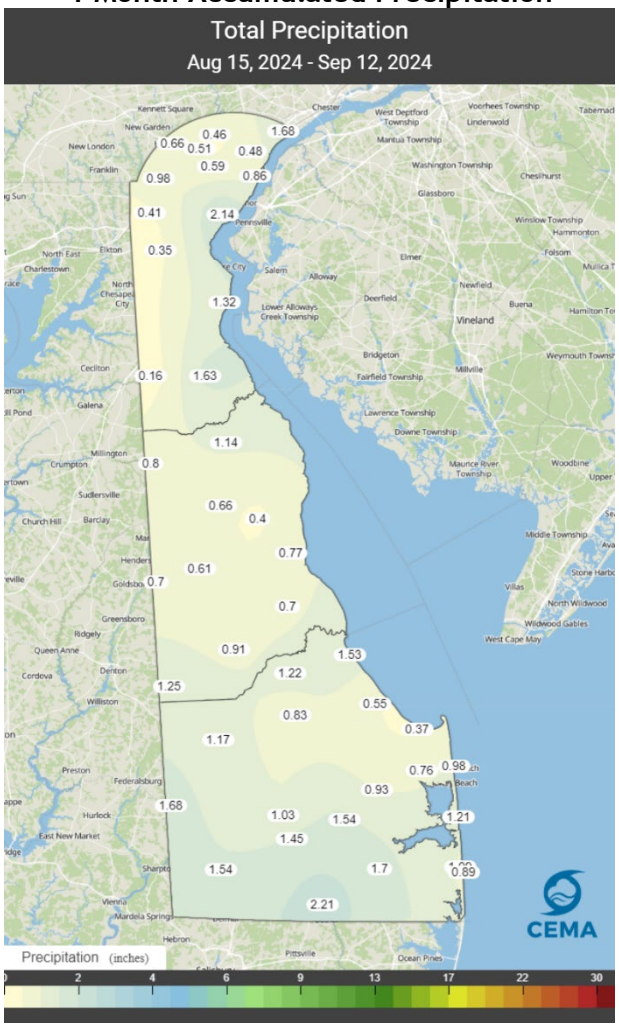

***Weekly Crop Update is compiled and edited by Emmalea Ernest - Extension Fruit & Vegetable Specialist, Drew Harris – Kent Co. Ag Agent and Lyndsie Mikkelsen - Fruit and Vegetable Agent***