

WEEKLY CROP UPDATE



UNIVERSITY OF DELAWARE
COOPERATIVE
EXTENSION

Volume 32, Issue 24

August 23, 2024

Vegetable Crops

Fruit Cracking in Tomato

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Adapted from an article by Gordon Johnson

Rain during tomato fruit ripening can result in increased fruit cracking in field tomatoes causing extensive losses of marketable fruit. Cracking can become more problematic later in the growing season because of other factors that are also reported to increase cracking: low fruit load and increased variability in temperature and humidity.

Cracks in the skin of tomato fruit that expose the internal fruit tissue can appear in several forms. Radial cracks start at the stem end and extend lengthwise down the fruit. Deep radial cracks render fruit unmarketable and increase the likelihood of fruit rot. In cherry tomatoes the split can go the length of the fruit. Concentric cracks circle the tomato around the shoulder of the fruit. Rain checking appears as small cracks arranged concentrically across the shoulders of fruits. In severe cases you can see multiple types of cracking on the same fruit. Tomato cracking occurs when the skin of the fruit does not expand at the same rate as the fruit interior. Cracking is most common after heavy rain events but can also occur with irregular irrigation. *See associated pictures on the next page.*

Fruit cracking is most prevalent when there is a rapid uptake of water into fruit during ripening when the fruit is accumulating solids. The combined pressure of accumulated water and solutes can split fruits in tomato varieties with low skin elasticity. In addition, during heavy rain events, water can enter the fruit at the stem scar or through minute cracks in the skin shoulder, again causing extra pressure and larger cracks.

Elevated fruit temperatures, often caused by loss of leaf cover, can increase the susceptibility of fruit to cracking as can exposure to high light levels.

Varieties that are most susceptible to cracking have low skin elasticity during ripening and skin/underlying skin tissue that is thin. Larger fruits tend to be most susceptible; however, many cherry tomatoes are also prone to cracking - possibly because of their high sugar content.

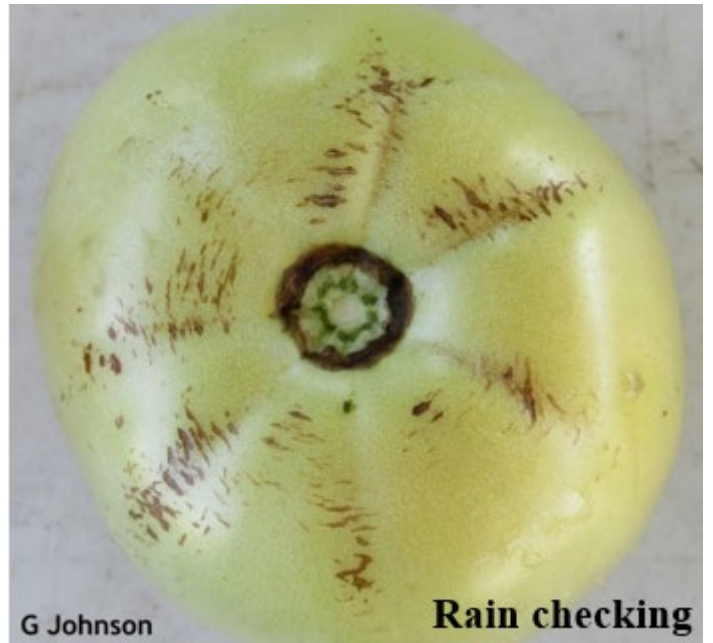
Management of tomato skin cracking starts with selecting crack resistant varieties. Maintain even soil moisture to avoid sudden influx of water into the fruit (but do not over-irrigate). Maintain good fruit cover to keep fruits from overheating and manage fruit load by not over-pruning.

High tunnels and rain shelters are good tools to reduce fruit cracking by controlling plant wetness and soil moisture.



G Johnson

Radial cracks



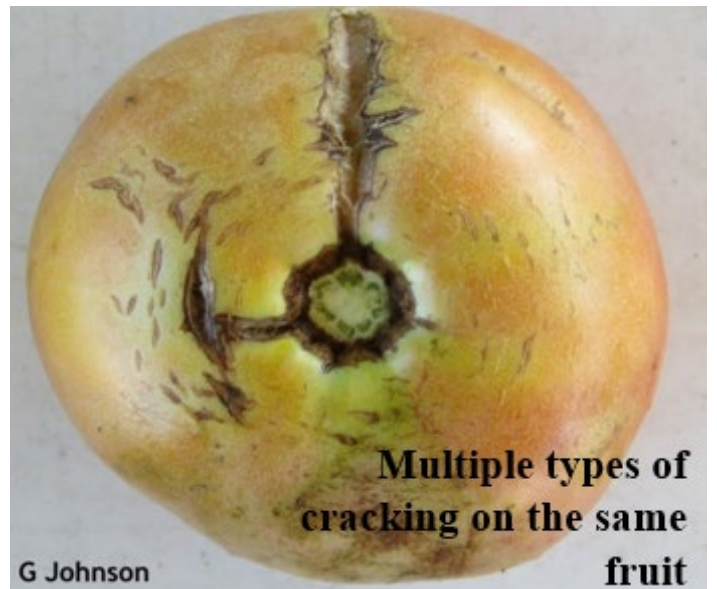
G Johnson

Rain checking



G Johnson

Concentric Crack



G Johnson

**Multiple types of
cracking on the same
fruit**

Vegetable Crop Insect Scouting

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

Cole Crops

Cabbage looper and diamondback moth are extremely more active in Georgetown right now than they have since 2020. Bt is a good worm material early on when plants are small, rotate among modes of action. Save broad spectrum materials such as pyrethroids, organophosphates, and Lannate to the end of the season if possible. A couple of years ago we planted cabbage at a large producer's field, I got excited when diamondback started coming in, we put out our first spray only for parasitoid wasps to destroy every single caterpillar in the field. I got nothing out of the trial and the farmer asked me what my secret recipe was. Be sure to also match up what is present in the field with product selection. Beet armyworm and corn earworm are resistant to pyrethroids. Torac does not get cabbage looper. And Diamondback moths can be a wild card.

Harlequin bug can throw a wrench in softer chemistry IPM plan. Good materials for harlequin bugs include pyrethroids and neonics. The advantage of the neonics is that they will pick up aphids.

Cucurbits

Scout for aphids on pumpkins, particularly if pyrethroids have been used for squash bug or squash vine borer control. There are numerous good aphid materials available, including Harvanta, Minecto Pro, and Exirel which should also provide some protection from late worms and borers. Harvanta will also provide decent cucumber beetle protection. Continue scouting for squash vine borer and their coppery colored egg masses.

Tomatoes

Our late tomatoes are about 1/3rd inch in diameter and with full flowers. This is the stage that is most attractive to corn earworm and worm sprays should be initiated.

Spinach

Beet webworm is active, though numbers do not seem as noticeable at the research station in flowering crops as they were last year. Please note that pyrethroids are not recommended for Hawaiian beet webworm. There are many labeled products for worm management, be sure to match up the right product with other pests that may be present such as aphids.

Sweet Corn

Moth activity over the last few days has been considerably lower, but I expect that will change as warm weather moves back into the region this weekend. Under warm to hot weather conditions, consider moving back onto a 2-day pyrethroid 3-day diamide (Besiege/Elleevest/Vantacor) rotation.

Over the last week, we have tested 161 moths in vial tests. Moth survivorship has averaged 50% in cypermethrin (the old standard), 36% with lambda cyhalothrin, 26% with bifenthrin, and 19% with cyfluthrin. This work has been funded by a multi-state USDA SCRI grant no. 2023-51181-41157/project accession no. 1031455.

Trap counts can be found at <http://agdev.anr.udel.edu/trap/trap.php>, and thresholds can be found at: <https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/insect-trapping/silk-stage-sweet-corn/>.

Thursday trap counts are as follows:

Location	Blacklight Trap	Pheromone Trap
Dover	3	82
Harrington	4	173
Milford	3	88
Rising Sun	4	161
Wyoming	7	93
Bridgeville	1	63
Concord	3	158 (M-W)
Georgetown	---	---
Greenwood	2	84
Laurel	11	57

Agronomic Crops

Small Grains 2024-2025 Enterprise Budgets

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

Small grains budgets for 2024 - 2025 are in the associated excel file found here https://sites.udel.edu/weeklycropupdate/files/2024/08/Small-Grains-2024_25.xlsx

Wheat and malting barley budgets are both given. In addition, double crop soybean budgets are also in the file as well.

The only major difference between the wheat and malting barley double crop budget is projected soybean bushels are higher in the barley budget due to harvest occurring earlier than wheat, resulting in the double crop

soybeans being planted earlier. Each small grain budget has an estimated tab with current expenses and an actual tab that can be altered to enter your farm's own information.

Diseases in Sorghum

Alyssa K. Betts, *Extension Field Crops Pathologist*; akoehler@udel.edu and Adelaide Mullin, *UD Graduate Student*; aemullin@udel.edu

A broad range of diseases can affect sorghum. Over the course of the season, root rots, foliar pathogens, stalk rots, and head molds can all impact yield potential. One of the most common diseases in our area is sorghum Anthracnose caused by *Colletotrichum* species. Symptoms include red to tan lesions on the leaves or stems (Figure 1), stalk rot, or grain infection. Fungal structures resembling pincushions (acervuli with setae) can be observed within the lesion with the aid of a hand lens or other magnification (Figure 2). Anthracnose is favored by warm, wet conditions and susceptibility can vary across variety. In years with favorable weather or in sorghum-on-sorghum fields, disease can move into panicles and grain (Figure 3). Serious yield

loss can be observed in these cases. Resistant hybrids, seed treatments, and fungicides can be used to try to manage this disease. Work from Virginia Tech has shown that fungicides (priaxor or headline) were most effective at protecting yield in diseased fields when applied at flowering. Each percent increase of anthracnose disease severity can account for 0.5-1.25 bu/ac of lost yield potential (<https://apsjournals.apsnet.org/doi/abs/10.1094/PDIS-10-18-1867-RE>).

In recent seasons, additional products have been labeled for use in sorghum. This season we are conducting a trial comparing efficacy of Priaxor, Miravis Neo, and Adastrio at two application timings in two varieties. We will share results later this year once they are available. When considering fungicide application, scouting is important to determine the level of disease prior to flowering. Some studies have shown that the timing of disease onset is just as or more important than final severity, especially in wet, humid years. As a field approaches flowering, if disease is absent or low, a fungicide application is often not profitable for sorghum.

After grain fill, head molds become another concern. Head molds can cause pre- and post-harvest damage, reduce yield, and some of the fungi infecting the grain may form mycotoxins that can lead to quality issues. Chemical control of head mold fungi is typically not effective, insect control may be a better target since head molds are often associated with insect damage. Keeping mature grain from getting wet also helps to reduce head mold issues, but this can be a challenge depending on environmental conditions near the time of harvest. Hybrids are available that vary in susceptibility to anthracnose and head molds. Selecting moderately resistant lines over susceptible or very susceptible lines can help to reduce yield loss and mycotoxin contamination.



A. Betts, University of Delaware

Figure 1. Leaf Lesions from Sorghum Anthracnose



A. Betts, University of Delaware

Figure 2. Sorghum Anthracnose lesion magnified to view fungal structures



A. Betts, University of Delaware

Figure 3. Sorghum head with almost no viable grain due to Sorghum Anthracnose

Agronomic Crop Insect Scouting

David Owens, Extension Entomologist,
owensd@udel.edu

Sorghum

Any sorghum that was shedding pollen in the last 7-10 days or is currently shedding pollen should be scouted for corn earworm. Beat 50 heads into a bucket and count the number of small, medium, and large worms. Compare your findings to the Texas A&M headworm threshold calculator:

<https://extensionentomology.tamu.edu/sorghum-headworm-calculator/>. A good rule of thumb is 1 earworm per head on average can result in about a 5% yield reduction. Also as mentioned last week, FMC now has a 2ee recommendation for using Vantacor at its low rate of 0.9 fl oz/a.

Soybean

Widely scattered reports of near threshold to over threshold corn earworm have been received from southern Kent County, DE and throughout Sussex County in double crop soybean at R2-R3. Full season bean fields are generally at considerably lower risk for a sizeable podworm infestation. Corn earworms like open canopies. The moths look for flowers to fuel up on and lay eggs. We still have a bit of time for moths to continue laying eggs, and thus products with long residual would be best. I use a ballpark of 3 earworms per 15 sweeps field average as a threshold. We have been in many fields where we are near that in some samples but then take many samples with 0-2 in 15 sweeps which puts the field squarely in the 'watch and resample early next week' category. Last week I wrote an update to an article on CEW treatment considerations originally written in 2023. Take a moment to read it:

<https://sites.udel.edu/weeklycropupdate/?p=25130>.

General

Guess The Pest! August 16th Answer

David Owens, Extension Entomologist,
owensd@udel.edu

One person wrote in a potential cause of last week's trickle tape woe is red brown algae. Another one, and is the case in this photo, is excessive iron deposits.

A blurb from Weekly Crop Update Volume 31, Issue 13: Drip Irrigation Woes by *Gordon Johnson, Retired Extension Specialist;*
gcjohn@udel.edu :

A common cause of plugged emitters is water containing high levels of dissolved iron. This can cause a proliferation of iron utilizing bacteria. These bacteria form heavy biofilms on the inside of the drip tube. They also oxidize the iron in the water (as part of their metabolism) and leave behind iron precipitates that can plug emitters. Chlorination of drip lines is needed to control iron bacteria.

When sweeping double crop fields, the sweep net should pass through a full half pendulum arc. For 15" beans, the net should pass through 3 rows.

Soybean looper are also widespread in fairly low numbers, although we ran into pockets of fields where the numbers were 1 per 2-3 sweeps. Field canopy was in excellent shape. If using a broad spectrum material like a pyrethroid or if you are clearing out some old chlorpyrifos, scout to ensure that this pest isn't flared up. If a treatable number of loopers are present in a field (near 1 per sweep).

Periodic treatment before clogging develops can keep the system functioning efficiently. The frequency of treatment depends on the quality of the water source. Generally, two or three treatments per season is adequate. Irrigation water containing high concentrations of iron (greater than 1 ppm) can also result in clogging problems due to types of bacteria that "feed" on dissolved (ferrous) iron. The bacteria secrete a slime called ochre that may combine with other solid particles in the trickle tubing and plug emitters. The precipitated (ferric) form of iron, known commonly as rust, can also physically clog emitters.

Treating water containing iron with chlorine will oxidize the dissolved iron, causing the element to precipitate so that it can be filtered and removed from the system. Chlorine treatment should take place upstream of filters to remove the precipitated iron and microorganisms from the system. Take care when adding chlorine to trickle irrigation systems, however, since concentration at or above 30 ppm can be toxic to growing plants.

Options for treating water with high iron include the following:

For iron treatment:

- Inject liquid sodium hypochlorite continuously at a rate of 1 ppm for each 1 ppm of iron in irrigation water. In most cases, 3 to 5 ppm is sufficient.

For bacteria treatment:

- Inject liquid sodium hypochlorite continuously at a rate of 5 to 10 ppm where the biological load is high or
- Inject 10 to 20 ppm during the last 30 minutes of each irrigation cycle or
- Inject 50 ppm during the last 30 minutes of irrigation cycles one to two times each month or
- Super chlorinate (inject at a rate of 200 to 500 ppm) once per month for the length of time required to fill the entire system with this solution and shut down the system. After 24 hours, open the laterals and flush the lines.

Irrigation or water treatment companies can also install treatment systems to remove iron from irrigation water. This requires a water test to determine the form of iron and the proper system for its removal.

Read the full article here:

<https://sites.udel.edu/weeklycropupdate/?p=22675>

Check your water quality!!



Guess The Pest! August 23rd

David Owens, Extension Entomologist,
owensd@udel.edu

This week, I've got a couple of small worms that showed up in a sweep net. Which one(s) is (are) corn earworm?





Enter your guess here:

<https://docs.google.com/forms/d/1oz5-yCm8xifZtDlvZ-vPbd8a0GR-V6H9ddb9fhAyyzY/edit>

Or

Click on the **Guess The Pest** logo to enter your guess on the google sheet.



Announcements

Marl Pit Farm Tailgate Session

Thursday August 29, 2024, 5:00 -7:00 p.m.
UD Cooperative Extension Research Demonstration Area
617 Marl Pit Road, Middletown DE 19709

Join your fellow producers and the UD Extension team for an in-person discussion of this year's current production issues. Other topics will include nutrient management, pest management and weed management. This session will inform producers of timely topics observed and occurring in 2024.

Please bring a chair as seating is limited.

Pesticide and Nutrient Management Credits will be available.

The meeting is free, and everyone interested in attending is welcome.

To request more information, please call Nick Adams at (302) 476-1136.

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)

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.

Nitrogen Decision Making Simulation

Online Activity

Are you a Corn Farmer in DE, MD, or PA interested in learning more about in-season nitrogen modeling tools? Are you willing to participate in a 30-minute, farmer-friendly computer simulation where you can earn cash (up to \$150) and a Nutrient Management Credit (1 credit for either MD or DE farmers) for using N model outputs to make management decisions on a virtual farm?

The Universities of Delaware, Maryland and Penn State are inviting you to participate today! Visit <https://shorturl.at/DeTMJ> to start your simulation or scan the [QR code on our flyer](#) to start!



After your online participation you will receive an electronic gift card within one week. Your responses are anonymous, and your information will not be shared outside the project team.

Contact Aisha Emory at ahoggard@udel.edu or (302) 831-6243 if you have any question or if you prefer to participate at a in person session.

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

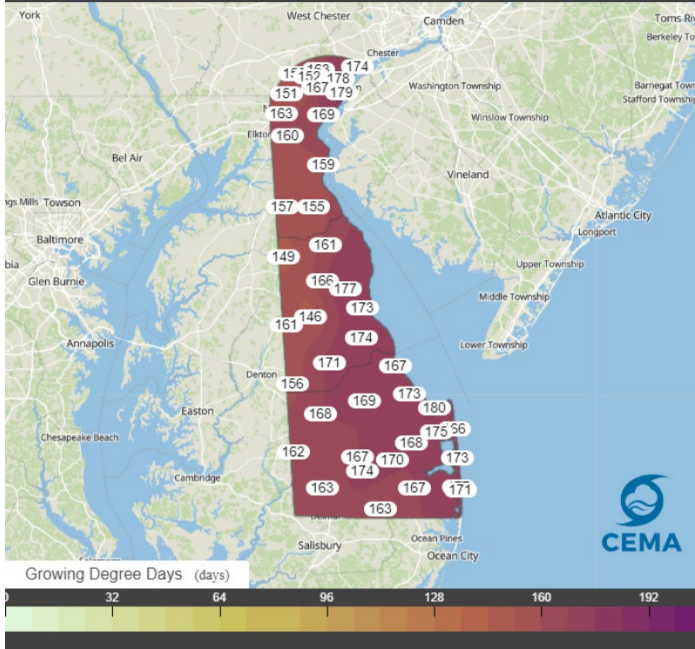
Maryland Department of Agriculture Pesticide Regulation Section is sponsoring a Pesticide Disposal Program. Registrations are available now and can be obtained by contacting their office at 410-841-5710 or on the website at <https://mda.maryland.gov/plants-pests/Pages/Pesticide-Disposal-Program.aspx>.

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

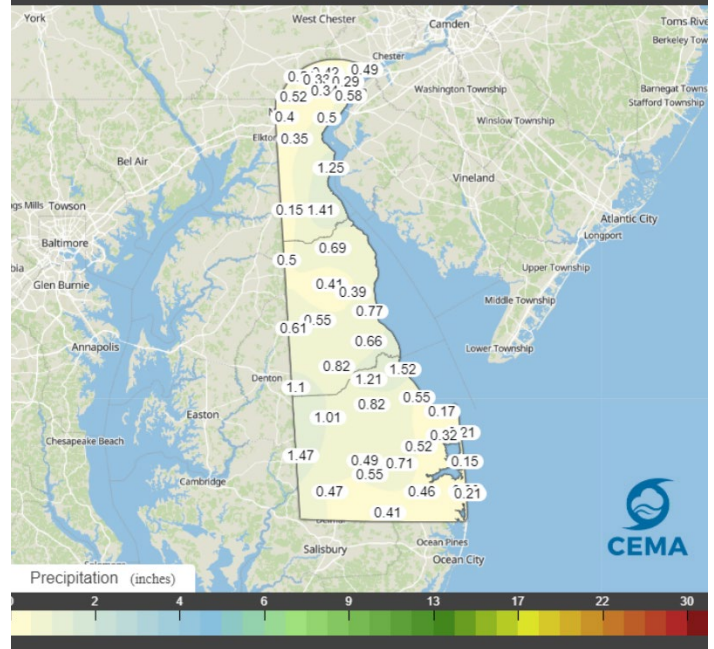
1 Week Accumulated Growing Degree Days

Total Growing Degree Days
Aug 15, 2024 - Aug 22, 2024



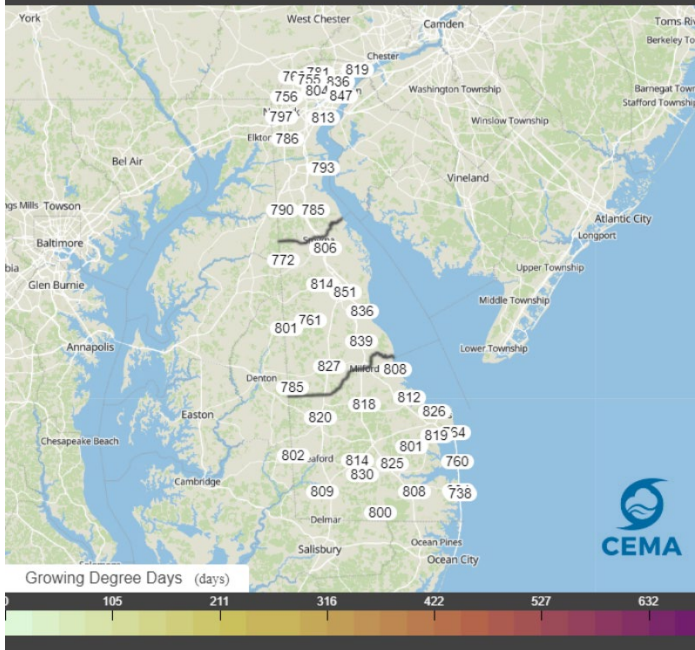
1 Week Accumulated Precipitation

Total Precipitation
Aug 15, 2024 - Aug 22, 2024



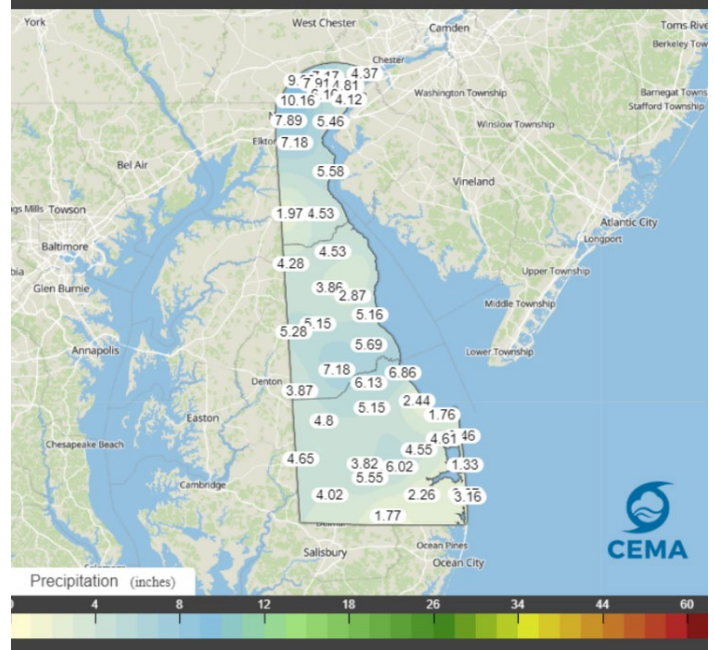
1 Month Accumulated Growing Degree Days

Total Growing Degree Days
Jul 22, 2024 - Aug 21, 2024



1 Month Accumulated Precipitation

Total Precipitation
Jul 22, 2024 - Aug 21, 2024



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

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