

WEEKLY CROP UPDATE



UNIVERSITY OF DELAWARE
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Vegetable Crops

Vegetable Crop Insect Scouting

David Owens, *Extension Entomologist*,
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Potatoes

Scout for Colorado potato beetles. Warm weather during the previous week may allow them to fly into new plantings from further away. The neonics used at planting should provide about 45 days or so of control (some places may have more), we are right on that cusp of having to start thinking about them. Neonics should also provide considerably longer potato leafhopper protection.

Snap Beans

It may be time to begin thinking about potato leafhopper in snap beans. This is about the time of the year they move up into our area, and the recent above average temperatures will help them move. Thresholds are high, at 5 per sweep. I doubt we would see that many for another few weeks at the earliest.

Cucurbits

Striped cucumber beetles are rolling into fields now! This is about a week earlier than usual. Remember to check multiple locations throughout the field and field edges. Thresholds are two beetles per plant (watermelon) and 1-2 beetles per plant for other cucurbits. There are three ways to control them: neonicotinoid application via drip or foliar, carbaryl, or call your Extension entomologist to collect them all out of the field. Carbaryl is going to have a relatively short residual but is very efficacious.

It may be enough though to disrupt the beetles aggregation pheromone and response. If using a neonicotinoid through the drip, remember to check your application rate against the label's rate per 1000 ft row. If your row spacing is not on the label's charts, an easy way to figure out how much material should be put down is to divide 43,560 by your row spacing. Seven ft is common and would give 6,223 row ft of drip. If using a product that has a rate of 10.5 fl oz, then $10.5/6223 = 1.7$ fl oz product per 1000 row ft. The key here is that you use your bed spacing, NOT your bed width. Plot work performed in 2020 suggested that a drip treatment could reduce the emerging summer beetle population from the plants root system by at least 50%.

Sweet Corn

Begin scouting sweet corn for signs of cutworm.

Cole Crops

Scout for worms and for harlequin bugs. While the imported cabbageworm is the most common species (green with a velvety appearance) the other main cole crop pests are also active and can be more challenging to control. To best preserve susceptibility to insecticides in the worm populations, particularly diamondback moth, use a treatment window approach. A treatment window is about a month period of time in which two insecticide modes of action are used, then rotated to a completely different set of MOAs. If using a Bt product, use high gallonage to achieve good coverage. I like Bt early when plants are small and good coverage is attainable. Bt also is not or minimally disruptive toward parasitic wasps that can destroy a large proportion of worms.

2023 Specialty Pumpkin Variety Trial
Emmalea Ernest, Extension Fruit & Vegetable Specialist; emmalea@udel.edu

In 2022 Gordon Johnson and I conducted two consumer surveys on specialty pumpkin preferences in Delaware. Consumer chose from more than 30 specialty pumpkin varieties and the most popular types were warty, blue, striped/mottled, white or flat. The most popular varieties from that survey are reported in [WCU 31:7](#), the article is [Consumer Survey on Specialty Pumpkin Preferences](#).

Although Gordon grew the pumpkins for the 2022 survey, we did not have yield data for the varieties. In 2023 I tested 14 varieties of specialty pumpkins with the consumer preferences in mind. The other theme of the varieties that I chose is that they are all edible (in some way) as well as ornamental.

The trial was direct seeded into raised black plastic mulch beds on June 23. The beds were on 7 ft centers. The five smaller fruited varieties were spaced at 2 ft in the row and the nine larger fruited varieties were spaced at 3 ft.

Among the small-fruited varieties (Table 1, gray), there were no statistically significant differences in yield, except that Orangita produced more fruit than Heart of Gold. The tested varieties were chosen because they had striped/mottled coloration, a flat shape or both of those traits favored in the consumer survey.

Table 1. 2023 Specialty Pumpkin Yields in Fruit per 30 ft Plot

Variety	Fruit/Plot	
Orangita	57.0	a
Orange Peel	54.0	a
Black Kat	53.0	a
Celebration	42.7	ab
Heart of Gold	36.3	b
Millionaire	20.7	c
Kakai	17.3	cd
Lakota	9.7	cd
Naked Bear	9.7	cd
Blue Harvest	8.7	cd
Jarrahdale	7.3	cd
Queensland Blue	6.0	cd
Red October	6.0	cd
Lady Godiva	5.0	d

gray=small-fruited, yellow = spaghetti squash, green = hullless seeds, orange = hubbard-like, blue = blue

Among the large-fruited varieties, Millionaire, a striped spaghetti squash, produced the highest yields. Lakota, an orange and dark green striped squash with a unique angular shape also produced good yields. The red hubbard variety, Red October, did not yield well. These varieties are pictured in Figure 2.



Figure 1. Small-fruited specialty pumpkins tested in 2023



Figure 2. Specialty pumpkins/squash: Millionaire, Lakota and Red October

I tested three varieties that produce edible hullless or “naked” seed (Figure 3). Kaki and Naked Bear produced good yields. Lady Godiva had the lowest yield of all the varieties tested and produced off-types that had unusual shapes and did not have hullless seeds.



Figure 3. Hullless pumpkin varieties

I tested three flat blue varieties which produced similar yields. In my opinion, the variety Jarrahdale produced the most attractive pumpkins of the three (Figure 4).



Figure 4. Flat blue pumpkin varieties

Some of the best performing varieties in the trial, Jarrahdale, Lakota, and Kakai, are open pollinated. Seed for these varieties is less expensive than that of hybrid varieties.

Greenhouse Tomato Pest Problem That Fooled Me

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

Trying to diagnose a grower’s problem from pictures and descriptions can at times be very challenging. It is easy to have blinders on at the first look of a problem. The case in point are pictures from a grower where their greenhouse tomato plants were wilting somewhat and the leaves had darkened dead or dying spots and were curled and drying up (Fig. 1). My line of

reasoning was that it could possibly be something such as nutritional deficiencies, a root disease or water stress. Or it could be a foliar disease possibly late blight (but not at this time of year) or botrytis. I sent my opinion on the possible causes to the grower and Educator with the weaselly explanation of “Sometimes what exactly is the cause of a problem we may not be able to figure out, but send a sample and we will see.” Samples were sent and were in good condition, and as unpredictable as can be, the problem was apparent about 2 minutes after examining the sample. The problem much to my chagrin was russet mites. Never saw such a severe case of these mites on tomatoes at this time of year.

Russet mites are extremely small eriophyid mites that are difficult to see for growers or consultants even with 10x magnification (you can see them at 14x magnification). Adult mites are tapered and wedge shaped with just two pairs of legs at their broader head end (Fig. 2). They are usually translucent or yellowish/tan to pink. Eggs are laid on the undersides of leaves, on leaf petioles and on stems on the lower portion of plants. The two nymphal instars usually do not move far from where they hatched and tend to mass on the edges of leaves. When damage to lower plant parts increases, the mites move up to younger foliage. As plants begin to die, mites may aggregate at the highest parts of the plant at which time they can be easily spread by wind or by people as they work in the greenhouse.

The egg to adult period is less than a week in warm weather. Russet mites are most active and abundant during hot, dry weather. This is what fooled me as I was not expecting to see these mites in a tomato greenhouse crop in late winter-early spring in such severe numbers. The source of infestations could come from other solanaceous crops, nightshades, jimson weed or petunias. The mite feeds primarily on plants in the Solanaceae, such as tomatoes, eggplant, pepper, potato and tomatillo.

Adults and nymphs normally feed on the undersides of lower leaves, petioles or stems, which causes a greasy appearance of the plant tissue (Fig. 1). Damaged leaves can turn yellow or dark, curl, become flaccid, wither, and fall

Fruit Crops

Fruit Crop Insect Scouting

David Owens, *Extension Entomologist*,
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Continue taking control measures to protect stone and pome fruit from plum curculio. Adults leave either round holes or crescent shaped scars on the fruit surface where they have either fed or laid eggs. The adult beetle is a fairly small weevil. If you see them on fruit or on branches, control measures may be necessary.

Strawberry Disease Forecast - May 10

Emmalea Ernest, *Extension Fruit & Vegetable Specialist*; emmalea@udel.edu

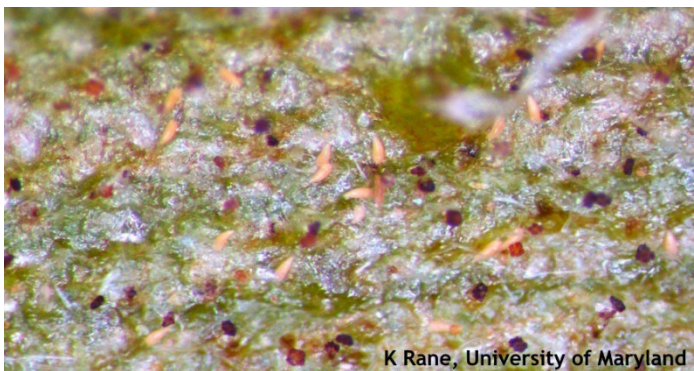
The [strawberry section](#) of the [Mid-Atlantic Commercial Vegetable Production Recommendations](#) includes fungicide recommendations for botrytis and anthracnose. Timing of fungicide sprays should be informed by weather conditions. [NEWA](#) offers a [Strawberry Diseases Model](#) for predicting risk of infection by Anthracnose and Botrytis based on [DEOS](#) weather stations in Delaware. This tool includes risk levels based on the 5-day weather forecast. NEWA Strawberry Diseases Risk Levels for seven Delaware locations are compiled in the table below. After weeks of low disease risk, several days this past week had conditions that were conducive to disease development. Consider applying fungicides for botrytis or anthracnose control if you have not made an application within the last 7-14 days.

from the plant. Mite feeding on fruits can cause longitudinal cracks and bronzing. Damage normally starts at the bottom of plants and moves upward and may be confused with nutritional problems, plant disease or root stress (oh yes!). The mite is usually scouted for by observing the tell-tale damage and then confirming the presence of the mite. My recommendation was that the grower remove via plastic bags the worst damaged (severely infected) plants from the GH and treat the rest with either sulfur or abamectin. The tomato russet mite has become a more frequent problem in greenhouse and even high tunnel tomatoes over the last 5-7 years in the Mid-Atlantic. It will need to be watched for carefully by tomato growers and especially specialists in the coming seasons.



K Rane, University of Maryland

Figure 1. Tomato leaf with a heavy infestation of russet mites.



K Rane, University of Maryland

Figure 2. Magnified (20x) tomato russet mites-tan wedges. Dark dots are tomato trichomes.

Strawberry Anthracnose and Botrytis Infection Risk from NEWA on May 10, 2024

Location	Based on Observed Weather						Based on Forecasted Weather					
	May 4	May 5	May 6	May 7	May 8	May 9	May 10	May 11	May 12	May 13	May 14	May 15
Risk of Anthracnose Infection Low <0.15, Moderate ≥0.15 and <0.50, High ≥ 0.50												
Hockessin	0.03	0.07	0.26	0.11	0.14	0.03	0.03	0.05	0.05	0.05	0	0.08
Newark	0.03	0.08	0.31	0.13	0.19	0.03	0.03	0.04	0.05	0.05	0	0.09
Kenton	0.03	0.05	0.34	0.15	0.34	0.04	0.04	0.04	0.04	0	0	0.19
Harrington	0.03	0.07	0.49	0.23	0.17	0.03	0.03	0.03	0.04	0.03	0	0.19
Greenwood	0.05	0.08	0.64	0.39	0.35	0.2	0.06	0.04	0	0.03	0	0.24
Georgetown	0.05	0.06	0.40	0.26	0.33	0.04	0.05	0.03	0.03	0.03	0	0.16
Delmar	0.03	0.05	0.21	0.28	0.3	0.04	0.05	0.03	0.03	0.03	0	0.09
Risk of Botrytis Infection Low <0.50, Moderate ≥0.50 and <0.70, High ≥ 0.70												
Hockessin	0.03	0.45	0.89	0.36	0.28	0.03	0.04	0.1	0.2	0.1	0	0.2
Newark	0.02	0.60	0.91	0.33	0.36	0.02	0.05	0.07	0.26	0.11	0	0.17
Kenton	0.05	0.14	0.91	0.34	0.66	0.06	0.07	0.06	0.12	0	0	0.49
Harrington	0.04	0.52	0.89	0.44	0.35	0.02	0.04	0.03	0.11	0.04	0	0.42
Greenwood	0.2	0.56	0.93	0.67	0.66	0.43	0.24	0.12	0	0.02	0	0.57
Georgetown	0.2	0.35	0.78	0.51	0.66	0.03	0.16	0.02	0.04	0.04	0	0.41
Delmar	0.04	0.21	0.50	0.51	0.65	0.05	0.12	0.03	0.04	0.03	0	0.17

When risk levels are low (green highlight) fungicides are not needed to control disease. When risk levels are moderate (orange highlight), fungicides should be applied if other factors are present that increase disease risk, such as susceptible varieties or a history of disease in the planting, AND fungicides have not been applied for 7-14 days. When risk levels are high (red highlight) apply a highly effective fungicide as soon as possible if no fungicides have been applied for 7-14 days.

You can get the most recent and relevant strawberry disease risk information by checking the [NEWA model](#) for the DEOS station closest to your field.

Agronomic Crops

Agronomic Crop Insect Scouting

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owensd@udel.edu

Corn

Between April 12 and April 19 we experienced our greatest black cutworm flight of the season in our Harrington trap, enough to kick off a degree day model. Those cutworms should just be large enough now to cut corn according to degree day models (300 degree days following a 'significant' flight). Admittedly, this may be old news to some of you and I apologize for not putting in an alert last week. A report was received just this morning from Kent County

Maryland of cutworm cutting V2 plants. Scouting alerts have also been made in the last couple of days by Iowa and Pennsylvania.

Cutworm moths like weedy fields to lay eggs into. They are not choosy between weeds and green cover crop. If a field was not burned down a couple of weeks before planting, there is a chance there may be cutworm in it. Scout fields for cutworm now! Cutworm are going to leave rows of circular holes in the leaves before they cut plants. Cutworm damage can be confused with bird damage. In moist soil, birds are going to leave round holes with flat sides and be exactly where the seedling was. They will pull seedlings up to consume the seed. Cutworms do not pull plants out of the ground, but will cut plants and sometimes drag them into perfectly

round burrows that can be anywhere in or between rows. Thresholds are 3% cut plants, 10% with leaf feeding, and larvae present. This last point is important, because there are other cutworm species in our area that develop earlier than black cutworm and may cycle out shortly after a field is planted while black cutworm will remain active for a much longer period of time. If a field is deemed to be at risk for cutworm damage, rescue treatments consist of pyrethroids. Apply at the end of the day. Cutworms hide during the daytime in the soil or under loose clods and come back out at night.

Early Season Moth Activity

Many thanks to Joanne Whalen and David Armentrout at UMD for assistance with monitoring pheromone traps. Moth activity continues to be quite low this year. I do not anticipate significant true armyworm activity. Black cutworm is a bit more of an enigma and we DO NOT have thresholds based on pheromone trap.

Location	# of Nights	Total Catch	
		TAW	BCW
Salisbury, MD	7	0	0
Seaford, DE	8	0	17
Sudlersville, MD	7	0	8
Harrington, DE	9	4	16
Smyrna, DE	9	1	2

Soybean

This weekend is going to be critical for soybeans, both in terms of slugs and seedcorn maggot. While flies shouldn't be as active right now as they were, cool, moist weather puts beans at risk in tilled fields. These seeds should have an insecticidal seed treatment. In no-till or minimal-till fields, slugs are the primary threat. Scout emerging beans closely and carefully. If slug feeding looks significant (seedlings permanently bent over, lost cotyledons, perhaps lost growing point) and are beginning to cause stand loss, an application of Deadline (metaldehyde) or the various iron phosphate baits. A 10 pound rate of Deadline should result in about 5 or so pellets per square foot.

Small Grains Disease Updates: Fusarium Head Blight and Strip Rust

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

Wheat is actively flowering and brought some intermittent rain with it. We are currently at medium to high risk for FHB in susceptible varieties (Figure 1). Fungicide applications are in progress across much of the state. Additional details on fungicide application can be found in the [April 5](#) WCU and other recent articles. This year it appears we have an added disease in the region. I confirmed stripe rust in my plots with a susceptible wheat variety earlier this week (Figure 2). So far, I have seen low incidence just a few leaves mostly at the edge of the field with 1-2 stripes per plant. Varieties that are resistant and moderately resistant to stripe rust are at low risk, those rated as susceptible or moderately susceptible should be monitored. FHB products like Miravis Ace, Prosaro, Prosaro Pro, Sphaerex will also have activity on stripe rust. If using fungicides for stripe rust after this window, keep an eye on pre-harvest restrictions. The [Fungicide Efficacy for Control Of Wheat Diseases Table](#) hosted on the Crop Protection Network is a great resource to compare efficacy ratings and review harvest restrictions. Folicur (tebuconazole) has a rating of excellent for stripe rust and a 30-day-pre-harvest restriction.

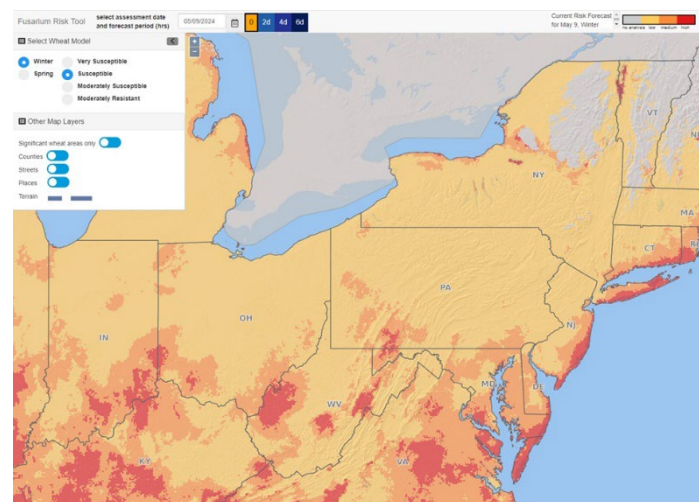


Figure 1. FHB Risk Model for very susceptible wheat on May 9, 2024 (wheatcab.psu.edu)



A. Betts, University of Delaware

Figure 2. Wheat leaf with stripe rust

Guess the Pest! May 10, 2024

David Owens, Extension Entomologist,
owensd@udel.edu

Last week's GTP challenge was *Leptosphaerulina* leaf spot in alfalfa. This week we are back to puzzles. There's a good guide to leaf spot diseases and their management here:

<https://extension.entm.purdue.edu/newsletters/pestandcrop/article/foiar-diseases-of-alfalfa/>.



Leptosphaerulina leaf spot on alfalfa

This week we are back to puzzles, specifically, application safety acronym soup. What do these stand for? Click the Guess the Pest logo to submit your answers.

- a. PPE
- b. REI
- c. PHI
- d. PSNT
- e. MSDS or SDS

General

What Grass is That?

Mark VanGessel, Extension Weed Specialist;
mjv@udel.edu

Grass seedling identification can be difficult but is important for a number of reasons. Identification is important to know when deciding the best method of management. For instance, glyphosate controls a lot of grassy weeds, but some are more difficult for glyphosate to control than others. Here is a video explaining what to look for when identifying the most common grasses in our area (<https://www.youtube.com/watch?v=O-H2QVTcaGY>).



Announcements

UD Weed Science Field Day

Friday, June 28, 2024 9:00-11:00 a.m.

University of Delaware

Carvel Research and Education Center

16483 County Seat Highway, Georgetown, DE

Event will include:

- herbicide evaluations in corn, soybeans, and vegetables
- integrated weed management trials, focusing on cereal rye for weed suppression
- crop safety evaluation from herbicide treatments

There is no fee and is open to all. If you have questions, please contact Mark VanGessel (mjv@udel.edu)

Paraquat Training Webinars

Training is required for anyone who applies, mixes, or handles paraquat. Training certificates need to be updated every three years and since this rule went into effect four years ago, those who participated in training the initial year, need to take it again.

Syngenta is offering webinars for Paraquat Handling certification or re-certification. These sessions are free and are scheduled at 2:00-3:00 p.m. EST on the following dates:

May 13, 2024
May 14, 2024
May 20, 2024
May 21, 2024
May 28, 2024
May 30, 2024

Register online using the link below. Registration requires the following: first and last name, email address, state, and certification license #. This will allow a report to be sent to EPA and to your state for certification credits (if applicable).

[Paraquat Training Webinar Registration](#)

Salinity Affected Lands in Transition (SALT) Conference

June 11 & 12, 2024 8:30 AM - 4:30 PM

Hyatt Regency, Cambridge, MD

Join us for a two day conference discussing the effects of saltwater intrusion on agricultural fields and forests in the Mid-Atlantic. Sessions will include Field and Crop Responses, Landscape Evolution, Water Management, Soils in Transition, Ghost Forests, and Socio-Economic Issues.

The conference is only \$100 (before May 13th), held at the Hyatt in Cambridge, MD.

Register online at:

<https://www.agroecologylab.com/salt-conference-2024>. Registration closes on June 3.

Correspondence with UD Nutrient Management Program

The UD Nutrient Management program recently bid a fond farewell to Hilary Gibson, as she has left UD to pursue a new opportunity. Hilary has been the main point of contact for several years related to nutrient management certification and continuing education questions. As such, we wanted to make our clientele aware that the Nutrient Management Program Coordinator position is currently vacant, and we are currently working to refill this position. **In the meantime, please send all email inquiries related to nutrient management to nutrient-management@udel.edu.** We also ask that you bear with us in the near future as you may experience slight delays while we are short staffed. We will do our best to respond to emails and enter accrued credits in a timely fashion.

Pre-Exam Training for DE Pesticide Applicators Category 03

Wednesday, June 5, 2024 8:00 AM - 3:00 PM

Delaware State Fairgrounds, DDA Building,
Harrington, DE

This event is for anyone wanting to obtain a Category 03 (Ornamentals & Turf) Delaware pesticide applicators license who would like some training prior to taking the exam

Register online at <https://udel.edu/0012032> Contact John Emerson jremer@udel.edu if you have questions.

Are you a Corn Farmer? We Want to Pay You to Earn 1 DE Nutrient Management Credit!

Farmers in DE who grow corn and are interested in learning more about in-season nitrogen modeling tools can participate in a 30-minute, farmer-friendly computer simulation. All participants are paid for participation (up to \$150 in a gift card) and earn 1 DE Nutrient Management Credit (1 MD credit also available) for using N model outputs to make management decisions on a virtual farm. Responses are anonymous and personal information will not be shared outside the project team. If you are interested, please fill out this [form](#) and you will be sent instructions by email to participate.

Chance to Win \$50 Amazon Gift Card by Filling Out a Survey about Mental Well-being

Farmers and ranchers, farm workers, foresters, aquaculture and marine producers and others who live in Delaware Communities and those who work in agriculture related industries are invited to participate in a short survey about mental health and stressors. Your chance of winning the gift card is 1 in 100!

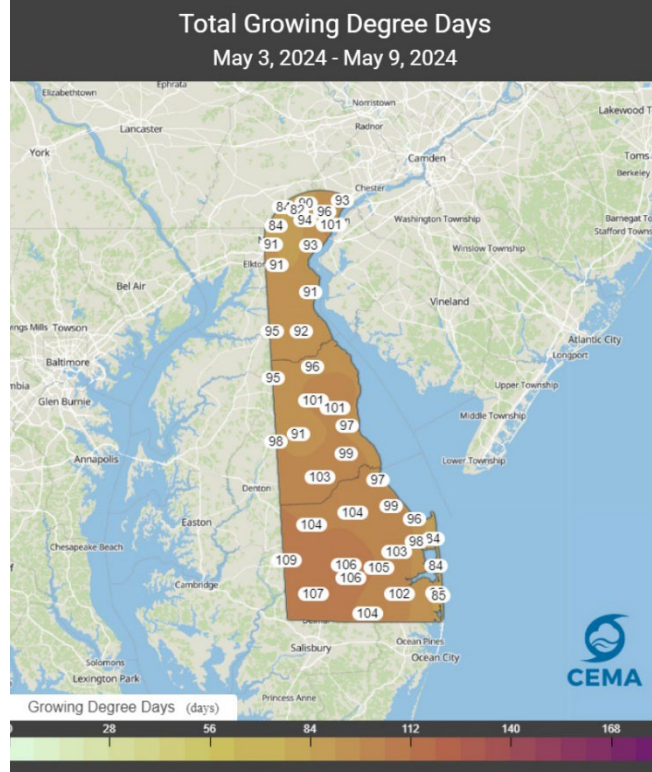
For more information and to participate please visit the anonymous link below. A survey in either English or Spanish is open now through the end of May 2024. <https://bit.ly/Cultivemos>

Participation in this project is anonymous and is entirely voluntary. You may skip any question that you do not wish to answer, and you may discontinue at any time. Please consider participating in this important Northeast region study. Survey results will help extension educators learn more about these barriers to getting help and what ideas can be shared for reducing the stress farmers, ranchers and growers face.

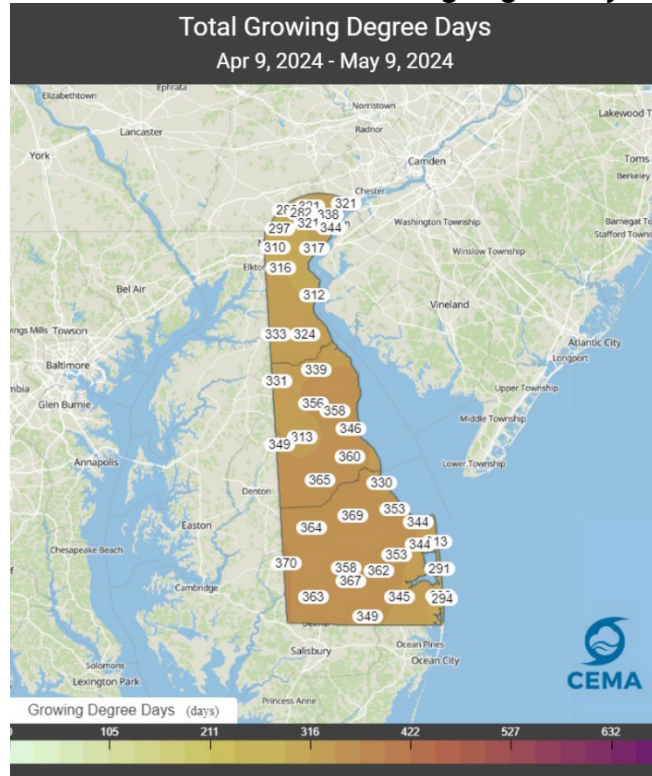
Participants who complete the survey are eligible to be entered in a drawing for a \$50 Amazon gift card. One person will be selected randomly from each state. *If you have questions about this survey, feel free to contact [Maria Pippidis](#)*

Weather Summary

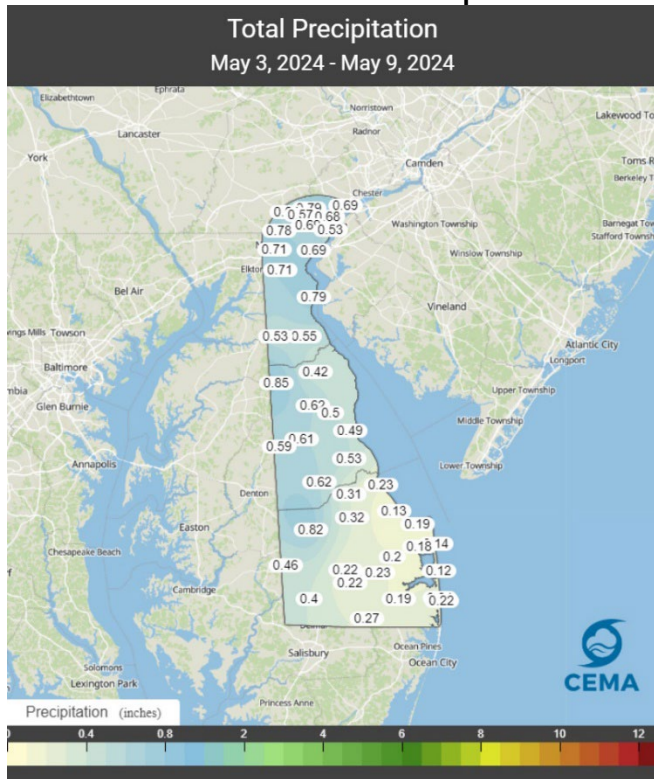
1 Week Accumulated Growing Degree Days



1 Month Accumulated Growing Degree Days



1 Week Accumulated Precipitation



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

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1 Month Accumulated Precipitation

