

WEEKLY CROP UPDATE



UNIVERSITY OF DELAWARE
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Vegetable Crops

Vegetable Crop Insect Scouting

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Asparagus

Continue scouting for asparagus beetle oviposition. Michigan State recommends; 5% of spears with adults and 2% of spears with eggs. Labeled materials include carbaryl, (pay attention to rates pre-harvest) malathion, PyGanic (OMRI) and permethrin. Check multiple locations in the field, adults tend to be more heavily concentrated around field edges.

Snap Bean

Bean leaf beetle are active. Scout for defoliation to seedlings and keep note of any fields that have activity, even if below threshold now. Bean leaf beetle feeding will look like circular to rectangular holes in leaves. Adults exhibit quite a bit of color variation, with a light tan, orange, and red being the most common. They may or may not have black spots on the wings but always have a black triangular mark where the wings join together and just behind the prothorax. If bean leaf beetle remain active at bloom, consider treating for them, they can scar pods. They are very susceptible to pyrethroids.

Cucurbits

Continue scouting for aphids and mites on greenhouse transplants and plants on wagons waiting to be placed. Also begin scouting for cucumber beetles. They typically show up around the middle of May, but recent unusually warm weather may have gotten them out a little

bit early. Pay special attention to early season cantaloupe transplants, as this crop is susceptible to bacterial wilt and a lower threshold than 2 per plant is justified.

Cole Crops

Continue scouting for worm infestation among young transplants. Seedlings and early transplant thresholds are 20%, this rises to 30% as the plants grow. Be careful to identify species present, diamondback moth larvae are small, tend to windowpane, have a bumpy appearance, hold their back prolegs out in a V shape, and wriggle violently when disturbed. Imported cabbageworm is a fuzzy green, just hatched larvae tend to be a bit yellower. Cabbage looper loop. While plants are small, this is good time to use Bt. If using Bt, coverage is especially important. Aziawai strains tend to be a bit more effective than kurstaki strains.

Also, harlequin bugs and flea beetles are active and need to be monitored. Flea beetles can be controlled with diamides and spinosyns which also provide very good worm control.

Peas

It may be worth examining peas for aphid outbreaks. Such outbreaks are not too common, but with the dry weather we have had, they will put additional stress on the crop. Aphids are controlled by wasps and by fungal pathogens, and we haven't had the weather for fungal pathogens. This week the entomology program swept many alfalfa fields and noted significant pea aphid populations.

Irrigating Dry Plastic Mulched Beds

Emmalea Ernest, Extension Fruit & Vegetable Specialist; emmalea@udel.edu and James Adkins, Irrigation Engineer, adkins@udel.edu

It is best to form raised beds and lay plastic mulch when the soil moisture level is at or near field capacity. Field capacity can be simply explained as the point where all of the water from a major rain event has runoff or fully infiltrated beyond the root zone. Sandy soils will reach field capacity about 12 hours after a saturating rain or irrigation; heavier soils can take 2-3 days to reach field capacity after saturation. If plastic mulch is laid onto dry soils, it can be challenging and time consuming to fully wet the soil using only the drip irrigation system. Having dry soil in the bed not only interferes with crop water availability but also reduces heat accumulation in the soil. If possible, avoid these challenges by only laying plastic when the soil contains significant moisture.

If overhead irrigation is not available growers should prepare the soil and wait for adequate rain before pulling the beds. However, if time is tight and plastic must be laid with dry soil, shorter irrigation run times will be more effective in promoting movement of water throughout the mulched bed. On sandier soils and dryer soils, water moves down in the soil profile (and out of the root zone) more quickly. Sandy and dry soils also have less lateral movement of water, which is what makes it challenging to wet the full width of a bed (Figure 1).

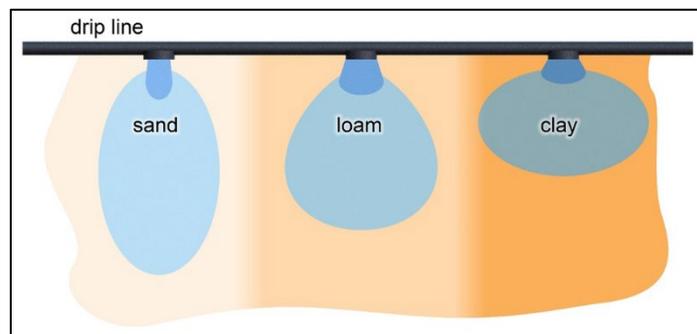


Figure 1. Wetting pattern produced by drip emitters in different soil types.

Below is [Table C-5](#) from the [Mid-Atlantic Commercial Vegetable Production Recommendations](#), which lists maximum run times for drip irrigation on various soil types. There are several things to note about this information that can help you make decisions about maximum run times. On loamy sand soils (green shading), the maximum run time ranges from 1.7 hours for high flow tape to 5.1 hours for low flow tape. However, this recommended runtime assumes that the crop is using water. If the crop has not yet been transplanted or is too small to be using significant amounts of water, cut the maximum run time in half. For the purpose of wetting dry plastic mulch beds early in the season the maximum run times are 50 minutes to 2.5 hours on loamy sand, and 1.6 to 4.9 hours on sandy loam. The time between irrigation runs should be at least two hours.

Table C-5: Maximum Number of Hours per Application for Drip Irrigated Vegetables

Based on a 12-inch deep root zone and irrigation at 50% soil moisture depletion during the day. Cut the maximum run times in half for nighttime irrigation and when active crop water use is not occurring.

Soil Texture	Estimated Wetted Width (in)	Maximum Run Time (hours) by Tape Flow Rate (gpm/100')			
		0.22	0.34	0.45	0.67
Coarse Sand	8	1.5	1.0	0.7	0.5
Fine Sand	10	3.3	2.1	1.6	1.1
Loamy Sand	12	5.1	3.3	2.5	1.7
Sandy Loam	16	9.8	6.4	4.8	3.2
Fine sandy Loam	20	15.1	9.8	7.4	5.0
Loam and Silt Loam	24	22.7	14.7	11.1	7.4
Clay Loam	24	19.3	12.5	9.4	6.3
Silty Clay and Clay	24	17.0	11.0	8.3	5.6

Fruit Crops

Fruit Crop Insect Scouting

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Strawberry

Continue scouting for spider mites and tarnished plant bug in strawberry. Beat 30 flower trusses on plastic to dislodge nymphs. Nymphs look similar to aphids, but will move quickly off the plastic. UMass has a good table explaining sequential sampling where, depending on the number of insects and flower clusters examined, control is either not necessary - stop sampling, necessary - stop sampling, or if in between - keep sampling. This can result in a significant time savings. (<https://ag.umass.edu/fruit/fact-sheets/strawberry-ipm-tarnished-plant-bug>).

You can also use a beat sheet for sampling, black sheets are better for finding nymphs. If beating whole plants, the threshold is 1 bug per 20 plants. There is a plethora of available synthetic insecticide treatments available. Several pyrethroids are labeled, with varying pre harvest intervals. Malathion is also labeled, as is Assail. Newer chemistries include Apta (also has some powdery mildew activity), Transform, and Beleaf. Among these, only Beleaf is rated as having low bee toxicity. Be careful not to spray when bees are active; you do not want to risk having deformed fruit by poor pollination when trying to prevent deformed fruit by TPB. PyGanic and azadirachtin are organic options.

Tree Fruit

Continue scouting for plum curculio. Beat branches or look at fruit for signs of adult feeding (round holes) or oviposition (crescent shaped holes).

Agronomic Crops

Agronomic Crop Insect Scouting

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Early Season Moth Activity

Black cutworm and especially true armyworm activity is much, much lower than last year. Last

year, the Smyrna trap peaked in mid-April with over 1,000 moths captured in a week. As you can see from this week's trap counts, moth activity is comparatively non-existent.

Location	# of Nights	Total Catch	
		TAW	BCW
Salisbury, MD	7	0	7
Seaford, DE	6	0	12
Sudlersville, MD	7	10	27
Harrington, DE	5	57	52
Smyrna, DE	5	0	0
Middletown, DE	4	0	0

Small Grains

I finally found a cereal leaf beetle. In a pasture field. At this time, I see little need or reason to include a pyrethroid in with a wheat fungicide application. As noted above, moth activity is very low, much lower than the last couple of seasons. A generic lambda-cyhalothrin costs about \$1.50 an acre, but those acres add up to a nice dinner date or a tank of gas and bait money to go fishing.

Soybeans

Scout for stand emergence! No-till fields with heavier ground that are retaining moisture may still face slug pressure despite the warm, dry weather we have had. Bean leaf beetle is active, and although it has been a while since we have seen large populations, every now and then they can cause significant defoliation greater than 40%. This level generally requires 1-2 beetles per plant.

Small Grains Disease Update: Fusarium Head Blight and Strip Rust

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Wheat is just approaching or actively flowering. Conditions have been dry, and we are at low to moderate disease risk in very susceptible wheat based on the FHB Risk Model (Figure 1). Rain appears to be moving into the forecast for next week. If we get some of those rain events, risk level will increase (Figure 2). Risk remains low for varieties that are moderately susceptible. If you are planning a wheat fungicide application,

scout frequently and wait to apply when at least 50% of the wheat heads are flowering. You will be looking for bright yellow anthers in the center of the wheat head to signal the start of flowering (Figure 3). Remember, if you spray too early, heads that have not emerged (secondary tillers) will not be protected by the fungicide application. Additional details on fungicide application can be found in the [April 5](#) article.

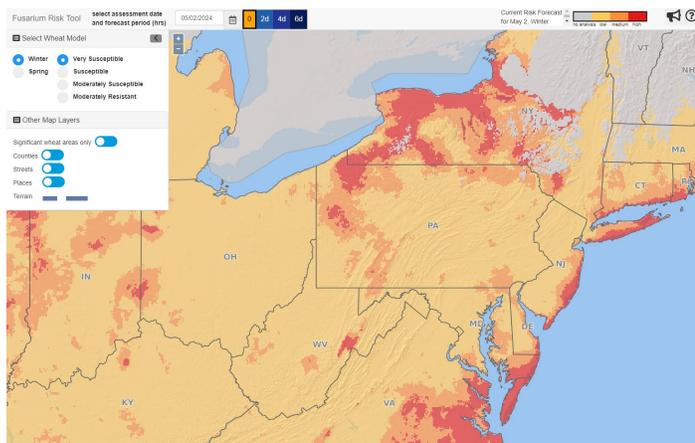


Figure 1. FHB Risk Model for very susceptible wheat on May 2, 2024 (wheatcab.psu.edu)

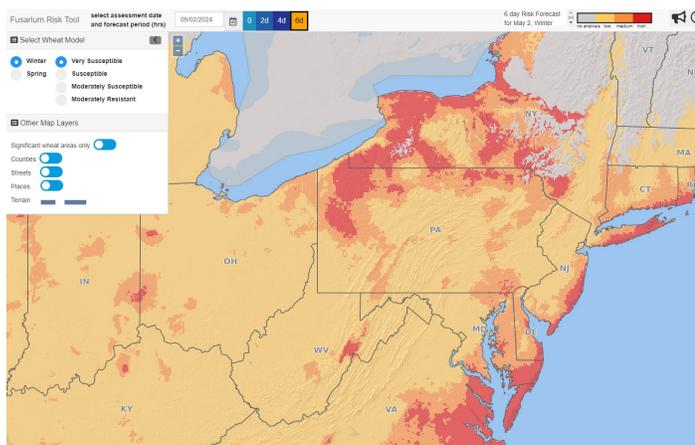


Figure 2. FHB Risk Model 6 day forecast for very susceptible wheat as of May 2, 2024 (wheatcab.psu.edu)



Figure 3. Flowering wheat with yellow anthers visible

Stripe rust appeared in NC on April 17 and was observed at low incidence this week on eastern shore VA. We have not yet seen any stripe rust in DE. Stripe rust gets its name from the yellow to orange pustules found in stripes on the leaf (Figure 4). There is also a leaf rust that we sometimes see late season, but for that one pustules are randomly scattered over the leaves.

Varieties that are resistant and moderately resistant to stripe rust are at low risk, those rated as susceptible or moderately susceptible should be monitored. Early season infections are the most damaging for yield. If stripe rust does show up, hopefully we will be far enough in the season to minimize yield loss. With much of our wheat near flowering, if planning a fungicide application for head scab, this will also have activity on stripe rust.



Figure 4. Wheat leaf with lesions from stripe rust
(<https://cropprotectionnetwork.org/publications/an-overview-of-stripe-rust-of-wheat>)

Delaying Rye Termination Does Not Mean You Have to Delay Soybean Planting

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We have been looking at delaying rye termination to gain more weed control benefits from the cover crop. We have worked mostly with cereal rye cover crops and have seen benefits in terms of fewer weeds emerging and those weeds that do emerge grow slower. Slower weed growth means cereal rye provides a wider window for when weeds are still susceptible to postemergence herbicides. When I began working on cereal rye for weed control a number of years ago, the conventional wisdom was that we needed a dense stand of rye (over 4,000 lbs of dry material) to provide weed control. However, over numerous studies we have found

that even modest levels of rye (1500 to 2500 lbs) are helping us provide better overall weed control. Okay, let us be honest and acknowledge almost no one knows how many pounds of cover crop are in their fields. My point is, even if your stand is nothing to brag about, it is still providing you with weed control benefits. And there are very few situations when rye cover crop is a negative. Negative experiences typically center around soil moisture depletion by rye prior to planting.

When researchers discuss planting green, they often mean planting when the rye is in the heading stage. Last year we had a trial with planting into three cover crop scenarios. The first was killing the cereal rye two weeks before planting, second was planting into a living cereal rye cover crop when the rye was at the boot stage (roughly May 1) our last approach was planting green at the heading stage (May 14). We saw better weed control with the planting green early (May 1) compared to the rye terminated 2 weeks prior to planting. So, planting green can occur at any point, it does not mean that you must wait for the rye to head to experience weed control benefits.

We have found successful planting with cover crops for either a green cover crop (not sprayed prior to planting) or after the cover crop is completely dead. Planting into a “dying” cover crop when the stems are not stiff is the most challenging. That also goes for trying to plant when the rye is under moisture stress.

If you have a field with cereal rye, and thought about planting green but do not want to wait for the rye to head out, consider planting green earlier. You are still going to see benefits.

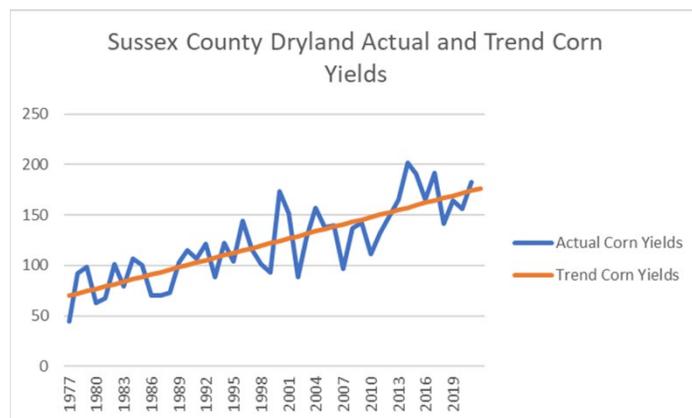
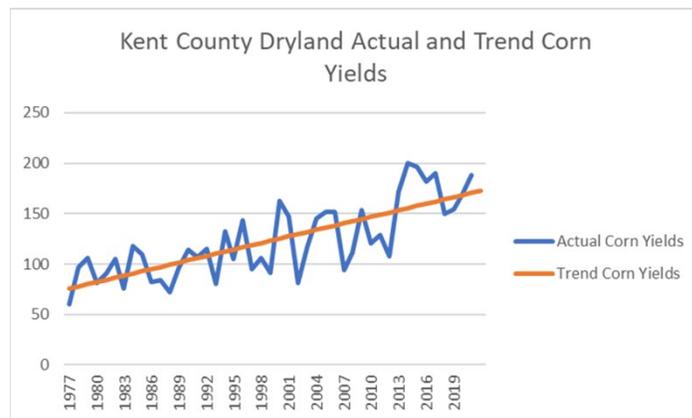
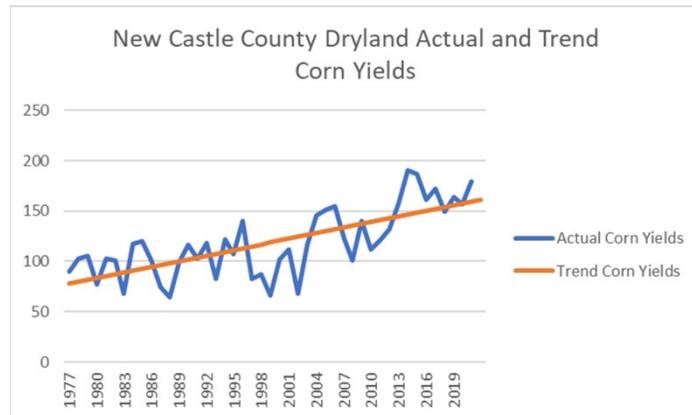
Dryland Yield Modelling for Estimating Drought Yields

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Predicting yields on dryland fields is difficult due to different weather conditions every growing season. Many producers use a simple running five-year yield average to determine what is most likely to occur for both marketing and crop insurance purposes. This is a good risk

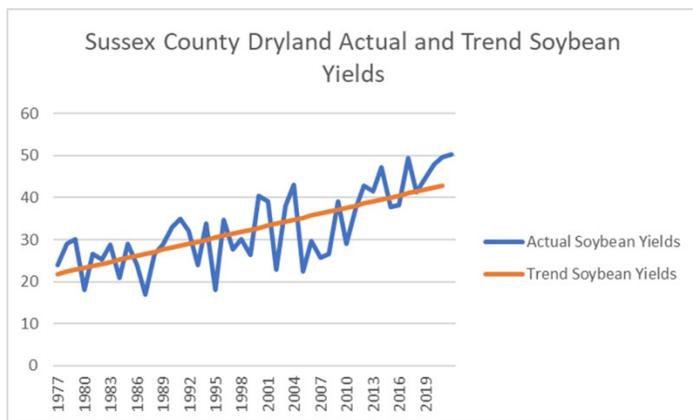
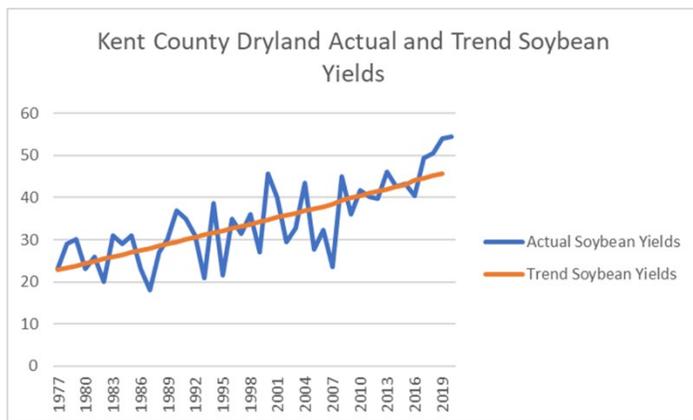
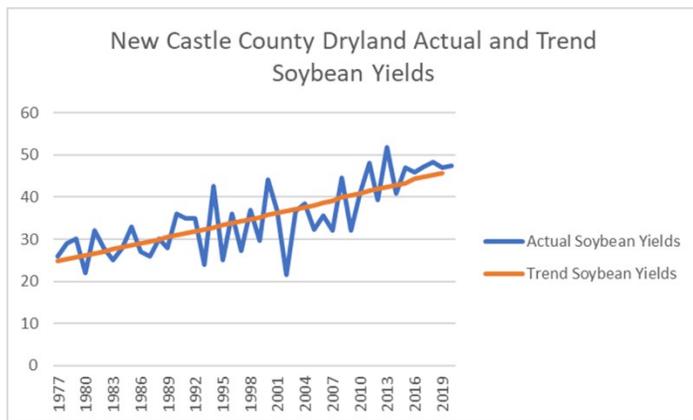
management strategy but fails to consider the possible scenario of a drought occurrence. USDA National Agricultural Statistics Service (NASS) records average dryland yield data going back to 1977 for each county for corn and soybeans. Statistical modelling of this data will give insight into what yields would look like in a drought scenario. The data for each county was manipulated using regression and analysis of variance (ANOVA) statistical tools to give insight into yield trend and predict what county average yields would be if the worst droughts of the past occurred under modern management today.

If historical droughts were to occur today, yields would be impacted differently due to improvements in genetics, IPM, and overall management. To project what yields would be if the droughts of the past were to occur today, knowing how these improvements impact yield is important. The trend yield represents the line of best fit for each observed county yield in the NASS county dryland yield datasets. In this case, these results are the year-over-year yield increase attributed to improvements in genetics, IPM, and management in each county. The year-over-year trend yield for corn and soybeans for each county are listed in the tables below. In addition, the observed average county yield values and the trend yield are also plotted for each county.



Corn Dryland Trend Yield	
	bu/acre
New Castle	1.85
Kent	2.16
Sussex	2.37
State Average	2.12

Soybean Dryland Trend Yield	
	bu/acre
New Castle	0.48
Kent	0.52
Sussex	0.48
State Average	0.49



NASS county level dryland yield data shows the past droughts in each county that deviated from trend yield the greatest. For modelling purposes, these are considered the worst droughts in the past for each county and year in Delaware. These droughts will be modelled to determine what yields would look like today under modern management if they were to occur again.

New Castle County

2002 Corn - County Average Yield = 67.7 Bushels / Acre

2002 Soybeans - County Average Yield = 21.5 Bushels / Acre

Kent County

2002 Corn - County Average Yield = 81.1 Bushels / Acre

2007 Soybeans - County Average Yield = 23.6 Bushels / Acre

Sussex County

2002 Corn - County Average Yield = 88.2 Bushels / Acre

1995 Soybeans - County Average Yield = 18 Bushels / Acre

Using the statistical methods mentioned, projected yields that would occur in each county if these droughts of the past occurred today are listed below.

Model Projected Corn Yields			
	Trend bu/acre	Drought bu/acre	Difference
New Castle	161.29	87.86	73.43
Kent	172.70	108.09	64.61
Sussex	176.22	120.61	55.61
State Average	170.07	105.52	

Model Projected Soybean Yields			
	Trend bu/acre	Drought bu/acre	Difference
New Castle	47.38	27.80	19.58
Kent	54.52	33.52	20.99
Sussex	50.18	29.66	20.52
State Average	50.69	30.33	

These results can be utilized in several different ways. They can be substituted as potential actual projected yield to evaluate crop insurance decisions. They can also be used as a marketing tool to not oversell or undersell bushels from dryland production. In addition, they can be used in the running five-year yield average producers so often utilize for overall planning purposes.

General

Guess the Pest! May 3, 2024

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Enter in for a chance to win either a great weed identification guide or one of the Farmers Guide to series.

Congratulations last week to Nichole for correctly unraveling the vegetable disease word scramble. I'm going to leave it up for folks who still want to play along and fiddle with them. In the meantime, back to pest of the week. While words were getting jumbled, we also visited alfalfa fields last week and saw this in one of them. What is going on with this alfalfa? Click on the Guess The Pest logo to enter in your guess on the google sheet.



Announcements

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 7, 2024
May 9, 2024
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 send 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.

UD Nutrient Management is Hiring a Program Coordinator

Are you interested in working with UD Cooperative Extension and the Nutrient Management Program? We are currently looking to hire a **Program Coordinator**.

[Qualified individuals interested in potential employment with the UD Nutrient Management program can view the position description here.](#)

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

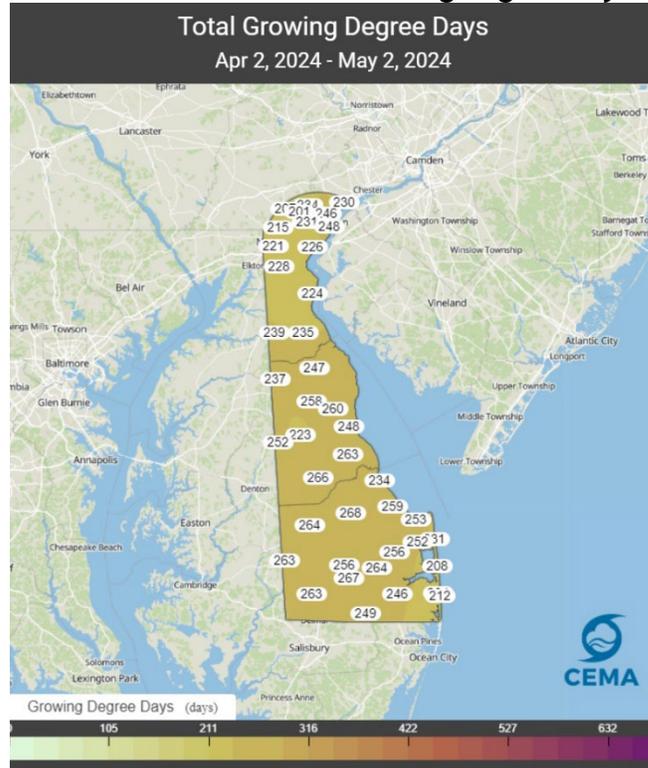
Farmers in DE who grow corn and are interested in learning more about in-season nitrogen modeling tools can participate in a 30-minute, farmer-friendly computer simulation. All participants are paid for participation (up to \$150 in a gift card) and earn 1 DE Nutrient Management Credit (1 MD credit also 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.

Weather Summary

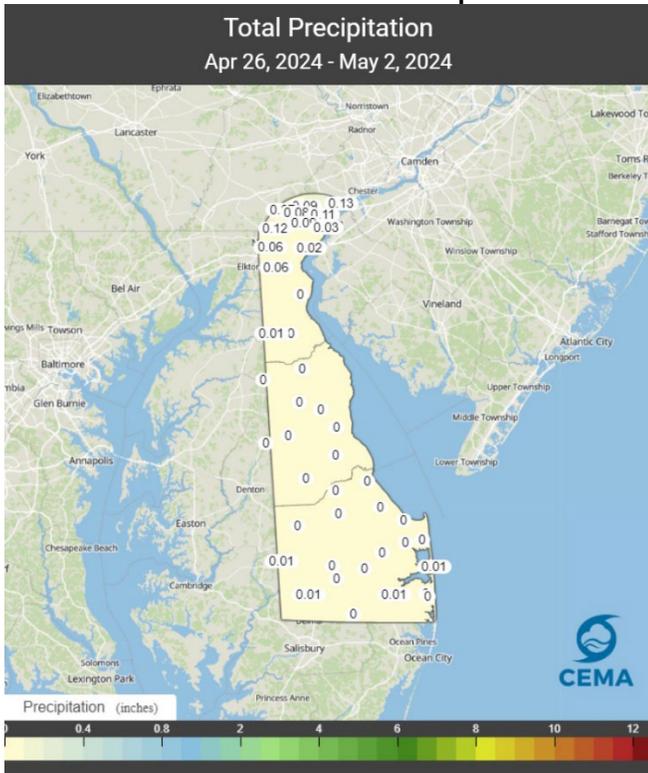
1 Week Accumulated Growing Degree Days



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

