

# WEEKLY CROP UPDATE



UNIVERSITY OF DELAWARE  
COOPERATIVE  
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## WCU Subscription Options for 2023: Mail, Email or Text

Welcome to the first regular issue of WCU for the 2023 season. The next WCU for this year will be issued on April 7. WCU will then be posted on the web and sent to mail subscribers by 4:30 p.m. each Friday until September 29. The cost of mail subscription is \$40. You can subscribe by returning the form at the back of this issue.

The WCU is also available for free online as a printable PDF or blog format at:

<https://sites.udel.edu/weeklycropupdate/>.

For those who access the newsletter via the internet we send a weekly email reminder which will let you know when the WCU has been posted online, provide a link directly to the current issue, and give you a taste of the headlines. If you are don't currently receive the email reminder and would like to be added to the list, click the [Subscribe](#) link at the top of the WCU blog page. If you experience problems with the online WCU please contact me at [emmalea@udel.edu](mailto:emmalea@udel.edu) or (302)-856-7303.

I will also send out a text message each week when a new issue is posted. The message will be brief, and the text message distribution list will not be used for other announcements except those of an urgent nature (i.e. pest or disease alerts). If you would like to receive the text reminder please send your name, number and cell phone carrier to me at the above email address or send a text message to 302-233-4719.

*Emmalea Ernest*

## Vegetable Crops

**Vegetable Crop Insect Scouting** - David Owens, Extension Entomologist,  
[owensd@udel.edu](mailto:owensd@udel.edu)

### Seedcorn Maggot

Overwintering seedcorn maggot adults are active now. Fields that have incorporated organic matter (cover crop, heavy residue, and especially poultry manure) are the most attractive to flies for oviposition. If planting in such a field within 3 weeks, be sure to have an insecticidal seed treatment. Diazinon is also labeled for some crops for other early season stand reducers such as wireworm and cutworm. It can also give excellent seedcorn maggot control. It needs to be incorporated into the soil prior to planting. Seeds planted deeper will also have a greater likelihood of sustaining heavier damage than seed planted at a shallower depth. We want seed to emerge and grow as quickly as possible.

### Alliums

Allium leafminer should be active now. Scout for oviposition scars on the leaves. They will appear as a row of round circular lesions. Good control options include row covers for March and April and systemic insecticides used with a spreader type adjuvant. If you plan to use row covers, you might want to make an insecticide application first and then cover immediately after. Scorpion, Exirel, Radiant, and Entrust (OMRI) are the most effective materials, are translaminar or systemic, and will have the longest residual

activity. Repeat applications a couple of times during the adult flight period which typically lasts 5-6 weeks. Pyrethroids should be applied more frequently.

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**Pea Shoots** - Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

Pea shoots are the young, tender tips of pea vines that are eaten fresh in salads, stir-fried, or used as a garnish. Pea shoots are 2-6 inches long with 2 to 4 pairs of leaves and immature tendrils and may also include flower buds and blossoms. They have a mild “pea pod” flavor and crisp texture. They are sold in local markets and have a short shelf-life.

Snap and snow pea varieties are commonly used for shoots. In addition, cover crop winter field peas, Canadian or Spring field peas, and taller fresh market green peas may also be used for shoots. Special pea varieties with many tendrils such as the “Parsley” pea have been selected for shoot production. Plant in the field in the spring when soil conditions are favorable in March. “Dual purpose” (shoot and pod harvest) plantings may also be made. Peas thrive in cool weather and can tolerate light frost. Seed 80-120 lbs/A (25 seeds per ft in a band) in 30-36 inch rows. Sow at a depth of no more than 1 inch.



G Johnson, University of Delaware

Pea shoots



Giving Ground Seeds

“Parsley” pea variety produces long shoots with many tendrils.

Follow fertility and pest management recommendations as for peas in the Mid Atlantic Commercial Vegetable Production Recommendations

[https://www.udel.edu/content/dam/udelImage/s/canr/pdfs/extension/sustainable-agriculture/BFP\\_2022-2023\\_Peas.pdf](https://www.udel.edu/content/dam/udelImage/s/canr/pdfs/extension/sustainable-agriculture/BFP_2022-2023_Peas.pdf)

When plants are 8-12 inches tall, clip off the growing points plus one pair of leaves to encourage branching. These clippings can be used as a first harvest. Keep clipping the top 2-6 inches of each plant after regrowth, every 3-4 weeks. Harvested shoots should include the top pair of small leaves, delicate tendrils and a few larger leaves and blossoms or immature buds. Select undamaged, fresh, succulent, crisp, and bright green shoots. Harvest a planting until shoots begin to taste bitter.

Pea shoots for fall harvest are planted mid to late summer and harvested until a hard freeze.



Shoots may also be grown in high tunnels throughout the fall, winter, and early spring.

Pea shoots have a short storage life and should be marketed within 2 days after harvest. Rapidly precool shoots to 32°F, and store at 32-34°F (0-1°C) and 98-100% relative humidity. Freezing will damage leaf tissues, so maintain storage temperatures above 28°F (-2°C)

Pea shoots are a quick (24 days to harvest) and inexpensive crop to grow with high value. They are a favorite of chefs in restaurants and are a popular item for farmers market sales and CSAs.

A fact sheet on pea shoot production from Washington State can be found at <http://pubs.cahnr.wsu.edu/publications/wp-content/uploads/sites/2/publications/PNW567.pdf>

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**Success with Sweet Onions** -Gordon Johnson, *Extension Vegetable & Fruit Specialist*; [gjohn@udel.edu](mailto:gjohn@udel.edu)

There has been increased demand for sweet onions grown both for local sales and wholesale markets. Success with sweet onions starts with growing or obtaining transplants of adapted varieties. Direct seeded bulb onions do not perform well in spring plantings. Transplants are started in January in 200-288 cell flats in the greenhouse for March transplanting. Growers can also arrange to have transplant growers in the Southwest (Texas, Arizona) produce transplants and ship them to our area for spring planting. While it is too late to have plants grown for 2023, some transplant growers do produce surplus for sale.

Onions also benefit greatly by being transplanted into black plastic mulch. Four-foot-wide plastic is laid on a raised bed such that there is a 3-foot bed top with 2 drip tapes. Four rows of onions can then be planted in the bed, with 8-10 inches between rows and 4-6 inches between transplants and a drip tape between each pair of rows.



T Elkner, Penn State University  
Sweet onions are transplanted into black plastic mulch using four rows with 2 drip irrigation lines.

Planting date impacts yield and bulb size, so it is very important to transplant at the right time. For sweet onions large (Jumbo) and colossal sizes greater than 3 inches in diameter have the most value. To achieve these sizes consistently, it is necessary to plant by the end of March on Delmarva. The later you plant in April, the lower the yields and sizes obtained.



G Johnson, University of Delaware  
Spanish Medallion sweet onion near harvest.

Sweet onions have low pungency which is determined by measuring pyruvate and must have a score of 5.0  $\mu\text{mol/gfw}$  or less, using a standard onion pungency test, to be marketed as

a sweet onion. Sulfur should be avoided in fertilizers for sweet onions to limit pungency.

In general, intermediate day sweet Spanish onion types are best adapted for our area; however, some long day varieties also can be grown successfully. The standard yellow sweet onion variety has been Candy. Other recommended yellow varieties are Spanish Medallion, Expression, Great Western, and Highlander. White onion varieties recommended include Great White and Sierra Blanca. No red varieties are recommended at this time.

It is important that once transplanted, onion growth is not interrupted. Steady, frequent applications of irrigation water are necessary because onions have small root systems. If beds are allowed to dry out at any time, yields will be reduced. Fertility varies with grower and field but in general 50 lbs. of N/acre is applied preplant along with P and K based on a soil test. An additional 25-50 lbs. N/acre is applied through drip before bulbing starts.

Allium Leafminer is a new pest to the mid-Atlantic area and needs to be controlled in onions. It is a long grey-black fly with a distinctive yellow or orange patch on the top of its head, and yellow sides. The larvae are a typical whitish maggot. Females repeatedly puncture leaves with their ovipositor, resulting in a line of small white dots. Leaves can be wavy, curled, and distorted. Larvae mine leaves and move into bulbs and leaf sheaths where they pupate. Covering plants with light weight row covers in March-April during the adult flight can exclude the pest. Systemic and contact insecticides can be effective. However, multiple applications will be needed during the 5-7-week flight period in early spring starting at planting. Onion thrips are another common insect pest. Populations frequently increase following adjacent alfalfa or small grain harvest, as adults overwinter in these fields. Thrips pierce plant tissue and remove plant liquids. Immature thrips usually feed on young tissue between the leaf sheaths and stem, adults feed on more mature tissue. Feeding damage on leaves looks like whitish or chlorotic streaks. If feeding is severe, particularly under dry conditions, the tips of leaves become brown. Prolonged feeding reduces bulb size and increases the incidence of

leaf and bulb rots. There are 3-5 overlapping generations per season. Effective management relies primarily on foliar insecticide sprays. High spray pressures and high gallonages are necessary to ensure good contact between the pest and chemical. Twin flat fan nozzles result in greater coverage than single flat fans.

Bacterial diseases such as center rot are also a problem. For sweet onions grown on plastic mulch, consider transplanting into silver reflective, white, or black biodegradable plastic mulch to reduce the soil temperatures associated with increased losses due to center rot. When conditions are favorable for bacterial diseases, typically warm and wet, initiate a preventative program consisting of fixed copper tank mixed with mancozeb or ManKocide at 2.5 lb/A.

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**Spring Planted Cover Crops** -Gordon Johnson,  
*Extension Vegetable & Fruit Specialist;*  
[gcjohn@udel.edu](mailto:gjohn@udel.edu)

Where fall cover crops were not planted due to late harvest, spring cover crops can be planted in March or April to provide soil health benefits where vegetables and field crops are not scheduled until late May or the month of June.

The most common cover crop options for late March or early April planting include spring oats, mustards and annual ryegrass. Plant oats at 90-120 lbs per acre, mustards at 10-20 lbs per acre, and annual ryegrass at 20-30 lbs per acre.

Field peas are another option; however, we are somewhat south of the best zone for spring planting. One type of field pea is the winter pea which is often fall planted in our area but can be spring planted. It has smaller seed so the seeding rate is 30-60 lbs per acre. Canadian or spring field peas are larger seeded and used as a spring cover crop planted alone at 120-140 lb/A.

Mixtures can also be used. Field peas are well adapted to mixing with spring oats or with annual ryegrass. Reduce seeding rates of each component when using in mixtures. Recommended seeding rates are 70 lbs of oats per acre and 40 lbs/A of Austrian winter peas or 80 lbs/A of Canadian or spring field peas.



Many mustard family crops have biofumigation potential. When allowed to grow to early flower stage and then incorporated into the soil, they release compounds that act as natural fumigants, reducing soil borne disease organisms. Some biofumigant mustard varieties and blends include 'Pacific Gold', 'Idagold', 'Caliente', 'Trifecta', and 'Kodiak'. Other mustard family crops serve as non-hosts, trap crops, or deterrents for pests. In research at the University of Delaware biofumigation using early spring planted biofumigant crops such as 'Image' radish, 'Dwarf Essex' rapeseed, or 'Nemat' arugula showed potential for managing root knot nematode populations. When used as a biofumigant, mustard family cover crops should be grown to achieve maximum biomass by adding 60-100 lbs of nitrogen per acre. Nitrogen is also required to produce high biomass with spring oats and annual ryegrass at similar rates. When planting mixtures with peas, nitrogen rates should be reduced.

An often-forgotten spring seeded legume crop that can also be used is red clover. Red clover can be frost seeded into small grains, seeded alone, or mixed with spring oats or annual ryegrass. Seeding rates for pure stands would be 10-16 lbs/A, for mixtures 6-10 lbs/A.



Spring planted mustards and radishes as cover crops.

## **Growing Degree Days for Fresh Market**

**Sweet Corn Varieties** - Emmalea Ernest, Scientist - Vegetable Crops; [emmalea@udel.edu](mailto:emmalea@udel.edu)

Growing degree day (GDD) calculations can be used to schedule sweet corn plantings so that a continuous supply is available during the harvesting and marketing season. The method for doing this is described in a past Weekly Crop Update article: [Using Growing Degree Days to Schedule Sweet Corn](#).

When scheduling sweet corn plantings and choosing varieties, it can be useful to know the typical number of GDDs from planting to harvest for a particular variety. I conducted sweet corn trials in 2019 with the following planting dates: April 17, May 21 and June 20. Days to harvest and GDDs to harvest from those trials are reported in the table below.

Daily growing degree days were calculated using the following formula:

$$\text{Daily GDD} = (\text{Daily Max Temp} + \text{Daily Min Temp}) / 2 - 50$$

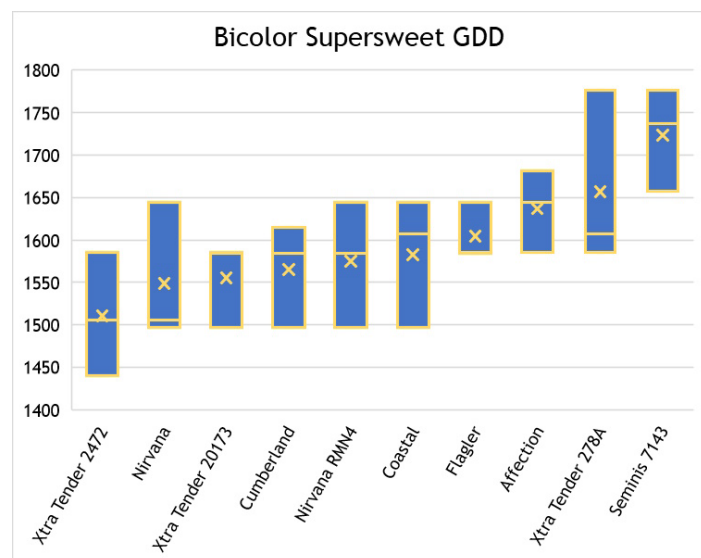
When the Daily Max Temp exceeded 86°F, 86 was used as the daily max temperature.

Accumulated GDDs were calculated by adding daily GDDs from the day after planting until the day before harvest.

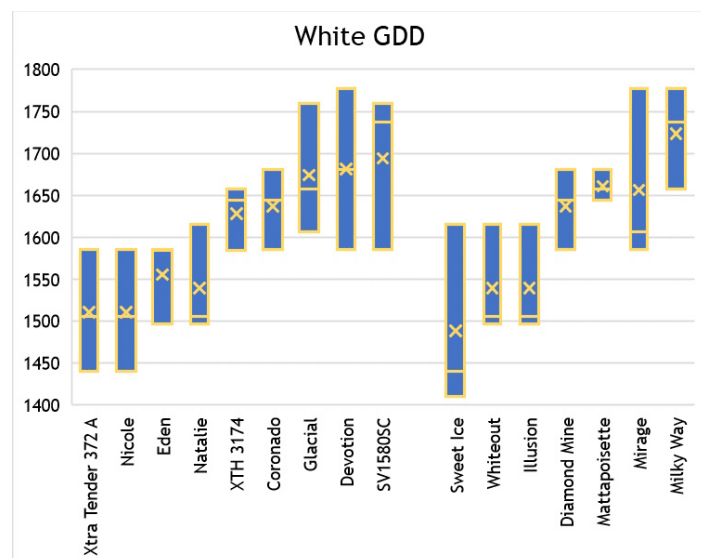
Average, Maximum and Minimum Days to Harvest and Growing Degree Days to Harvest for Sweet Corn Varieties in 2019 Sweet Corn Trials in Georgetown, DE

Variety Name	Days to Harvest			GDD		
	Average	Min	Max	Average	Min	Max
Bicolor Supersweet						
Xtra Tender 2472	66	60	77	1510	1440	1585
Nirvana	68	62	79	1549	1497	1644
Xtra Tender 20173	68	60	79	1555	1497	1585
Cumberland	68	61	79	1565	1497	1615
Nirvana RMN4	69	62	79	1575	1497	1644
Coastal	69	62	79	1583	1497	1644
Flagler	70	62	82	1605	1584	1644
Affection	71	62	82	1637	1586	1681
Xtra Tender 278A	72	66	82	1657	1586	1777
Seminis 7143	74	68	84	1724	1657	1777
White Supersweet						
Xtra Tender 378A	66	62	69	1663	1644	1681
Xtra Tender 372 A	67	60	77	1510	1440	1585
Nicole	67	60	77	1510	1440	1585
Eden	68	60	79	1555	1497	1585
Natalie	68	61	79	1539	1497	1615
XTH 3174	70	62	84	1628	1584	1657
Coronado	71	62	82	1637	1586	1681
Glacial	72	66	84	1674	1607	1759
Devotion	73	68	82	1681	1586	1777
SV1580SC	73	67	82	1694	1586	1759
White SE						
Sweet Ice	66	59	77	1488	1410	1615
Whiteout	67	61	79	1539	1497	1615
Illusion	68	61	79	1539	1497	1615
Diamond Mine	71	62	82	1637	1586	1681
Mattapoissette	72	62	84	1661	1644	1681
Mirage	72	66	82	1657	1586	1777
Milky Way	74	68	84	1724	1657	1777

Days to harvest and GDDs to harvest varied by planting date but some varieties had more consistent time and GDDs to harvest. In the charts below note that the varieties Flagler, XTH 3174 and Mattapoisette had very predictable maturity based on GDD, whereas Sweet Ice, Mirage, and Xtra Tender 278A had more variable accumulated GDDs between planting and harvest.



Growing degree days for bicolor supersweet varieties trialed in 2019. Box extends from maximum to minimum values, x indicates average GDD, line indicates median GDD.



Growing degree days for white supersweet and se varieties trialed in 2019. Box extends from maximum to minimum values, x indicates average GDD, line indicates median GDD.

## Fruit Crops

### Strawberry Cleanup and Row Cover

**Management** -Gordon Johnson, Extension

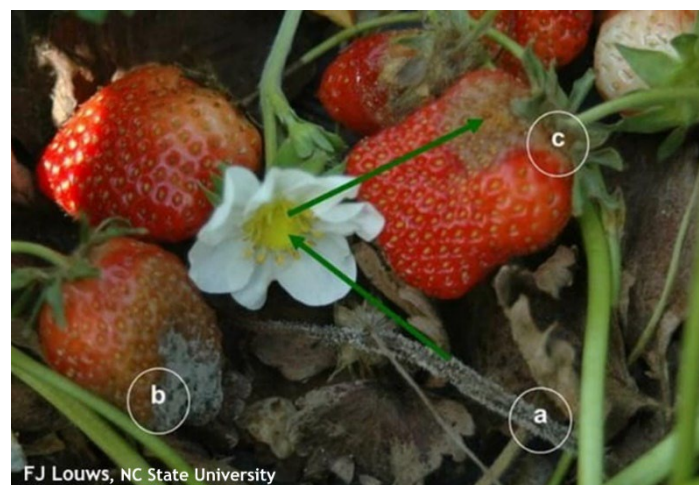
Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

It is time to clean up strawberries in both plasticulture and matted row systems. Start by taking off floating row covers. Place to the side for future frost protection. In matted row systems, rake any straw mulch to the side of rows to uncover plants.

### Gray Mold

Remove any dead leaf materials and dispose of away from the strawberries. Gray mold of strawberry fruit is caused by the fungus *Botrytis cinerea*. The reservoir for this fungus is mycelium in dead strawberry leaves. This mycelium becomes active in the spring and starts to produce spores on the old leaf tissue, which then spread to blooms. Most infections start at the bloom stage, but symptoms usually do not develop until close to harvest (the fungus does not become active until the fruit enlarges).

This pathogen can also cause crown rots that can weaken or kill plants. The crown rot phase of the disease often develops under floating row covers that are used to promote growth or protect against cold events.



Infection cycle of *B. cinerea* in strawberry plantings. Note the dead leaf tissue where the infection started. Gray mold on different parts of strawberry; a) Sporulation on dead petiole and leaf; b) fruit infection from colonized dead



tissue; c) fruit infection that came through the flower.

Removal of dead leaves will go a long way to reduce gray mold. Fungicide programs also should begin at this time, especially if Botrytis was present under the covers. Use Captan or Thiram fungicides prior to bloom.

Mites can also be an issue under row covers and should be scouted for. Miticide applications should be made as necessary.

### Weed Control

Winter annual weeds such as chickweed and henbit should be hand weeded from strawberry holes in plasticulture. An asparagus knife can help to “cut” weeds out where they are close to the mother plant. Weeds will impact yield if not removed promptly. In addition, weedy fields stay wet longer, and Botrytis gray mold loves that moisture.

Several herbicides are labeled for row middles between plastic. For dormant matted row systems, herbicides such as 2,4-D amine may be used over the top (do not use in plastic systems). See the Mid-Atlantic Commercial Vegetable Production Recommendations for specific recommendations (pp. 365-366)

[https://www.udel.edu/content/dam/udelImage/s/canr/pdfs/extension/sustainable-agriculture/BFP\\_2022-2023\\_Strawberries.pdf](https://www.udel.edu/content/dam/udelImage/s/canr/pdfs/extension/sustainable-agriculture/BFP_2022-2023_Strawberries.pdf)



Strawberry plant with dead leaves and winter annual weeds present after row covers were removed.

### Flowering and Frost/Freeze Protection

As temperatures warm, remove row covers to keep strawberries from flowering too early. Removing row covers during warmer winter periods can help to delay bud activity and reduce susceptibility to freezes. Highest yield potentials are usually obtained by uncovering and covering in the late winter and spring based on expected temperatures when compared to the practice of keeping row covers on continuously into the flowering or early fruiting stage. Another issue is that pollinating insects are restricted with covers, resulting in smaller fruit size if covers are left on too long. Flowers that open under row covers are often deformed or small. Once flowering occurs, use row covers for frost and freeze protection. Put covers back over strawberries when frosts or freezes are forecast.

Advectional freezes occur with freezing temperatures and high winds. This is the most difficult to protect against. For strawberries, two layers of floating row covers may be the most effective strategy for advectional freezes. Double covers have been shown to be more effective than single heavy covers in this case. Irrigation along with double covers can provide even more protection if done properly.

Radiation (or radiant) freezes occur on cold, still nights. In this case cold air is near the ground and warmer air is above. Row covers in strawberries will protect against radiation freezes too.

For growers that have not been taking row covers on and off and will be leaving them on until bloom, the potential for losses due to freeze events will be greater during March due to the increased bud activity. Prior to forecasted freeze events, check the plant bud stage, and apply additional freeze protection to limit losses. This may include double covering with row covers (2 layers), or the use of low volume sprinklers through the night and into the morning as a frost protection over the row covers. Loss of buds or flowers due to freeze events will reduce yields and profits substantially. A single 1.2 ounce floating row cover will give about 4 degrees of protection.



**Potential for Another False Spring and Long-Term Seasonal Shifts** -Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

The seasons are changing with shorter winters, longer “summers”, more abrupt end to spring and warmer fall months. One of the more difficult problems to have to manage will be false springs. A false spring is an early warmup followed by later freezing periods causing damage to early developing crops.

In the past 15 years, the Eastern US has experienced five major false springs: 2007, 2012, 2017, 2020 and 2022. Add 2023 to this list with earliest blooming plants well ahead of schedule.

Historical records show that the bloom times for many plants are becoming earlier and earlier.

Some plums and apricots have started to bloom four weeks ahead of normal. Other fruits such as strawberries may be blooming ahead of schedule in plasticulture systems. These fruit crops are at great risk of losses due to freeze events. Other fruits such as pears, cherries, and blueberries may also flower early and be at risk. Apples and pears are later blooming but can also be damaged if they bloom early and freeze events occur in late April or early May.

Crops coming into bloom will be exposed to the potential of freezing temperatures throughout the rest of March and April.

Normally, the average date of the last frost in Delaware is somewhere between April 20-25. We still have seven weeks of worry ahead for our fruiting crops.

For all these fruit crops the most susceptible stage of injury is when flowers have just opened. Open blooms are damaged at 32-34 °F. Closed buds have higher cold tolerance as do small fruit. For most fruits, critical temperature for losses after fruits have formed is 28-30 °F.

Some climate models predict that false springs will be the norm for the next several decades.



G Johnson, University of Delaware  
Japanese plum in bloom on February 27, 2023.



G Johnson, University of Delaware  
Apricot in bloom on February 25, 2023.

Fruit improvement programs may have to breed for later blooming. An example is with apricots

which are early blooming. Rutgers University has been breeding later blooming apricots and has released “Sugar Pearls” as a first of the later flowering apricots for the Eastern US. In addition, fruit growers will likely have to spend more on frost and freeze protection.

Frost and freeze protection methods vary with fruits and the type of freeze expected. Advective freezes occur with freezing temperatures and high winds. Radiation (or radiant) freezes occur on cold, still nights. In this case freezing air is near the ground and warmer air is above.

Wind machines and helicopters have been successfully used to stir the air and raise the temperatures in orchards for radiant freezes. Row covers in strawberries will protect against radiation freezes too. Other options are over the top sprinklers, ground sprinklers, and heaters.

Over the top sprinkling is commonly used for frost protection but it must be done properly. How this works is that as clear ice forms on plants, heat is released. For frost protection, overhead sprinkler systems are designed to deliver 0.1 to 0.2 acre-inches of water per hour. This method can be used for radiant freeze or frost protection when wind speeds are low and temperatures 24 °F or above. The key is to keep ice formation occurring through the night and continue through melt in the morning. Remember that initially, until ice starts forming, there will be evaporative cooling of the plant. The latent heat of fusion (water freezing) will release heat (approximately 144 BTUs/lb. of water), while evaporative cooling will absorb heat from the plant (absorbing approximately 1,044 BTUs/lb. of water) and lower plant temperatures. Therefore, irrigation must start well above critical temperatures. Also, the volume of water needed must be matched with the expected temperature drop and wind speed. In addition, uniformity of water application is critical. This is difficult to do in high wind situations. In orchards, under-tree sprinklers can also be used to release heat.

Heaters that are placed throughout an orchard will add heat. Large numbers of small heaters are preferred (40 per acre). This is accomplished with fuel oil fired heaters, gas/propane heaters,

or burn barrels using wood (check with regulatory agencies before using open burning in barrels). Heaters are much more efficient and less are required if they are used in conjunction with wind machines.

Frost protection fans above an orchard or vineyard mix the warmer air above the inversion layer with the colder air at ground level to protect against radiation frosts. These large fans can be permanently installed and will cover as much as 10 acres. Another type of fan is placed at ground level and pushes the cold air upward, again achieving mixing. Portable fans are also available.

## Agronomic Crops

**Agronomic Crop Insect Scouting** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu)

### Alfalfa

Alfalfa Weevil have begun hatching! This week we (Morgan Malone, Calista Turman, Danielle Watkins, and myself) scouted fields in Dover, Houston, Greenwood, Galestown, and Hebron. All but one field had above threshold numbers of very small alfalfa weevil larvae, and I suspect the field that had lower numbers will have above threshold level soon. Alfalfa right now is very small, for the most part less than 5 inches. A good ballpark estimate for **PURE STAND ALFALFA** is around 0.7 weevil larvae per stem, the fields we visited were 4 or more times greater than this. Larvae are currently deep in the terminals, where it is going to be difficult to get enough product to them for control. Larvae will be active for the next several days until about mid-next week. The forecast is currently calling for temperatures in the upper 40s and lows in the low 30s. That will slow them down considerably. It may be best to wait a bit until after the weather warms again and the larvae are a little bit larger and more active before treating them.

In the last two years, we have performed 3 different spray trials on 2 farms for alfalfa weevil and one on aphids. Pyrethroids in 2021 gave us between 60-80% control, Dimethoate alone less than 50%, and Steward at its low rate

was near 90% control. In 2022, pyrethroids gave us about 70% control, Dimethoate gave us 70% control, and a mid-rate of Steward 85%. The mid-rate of Steward also prevented weevil numbers from ticking back up 21 days after application. In the 2022 trial, Besiege at 10.0 fl oz gave NO better control than Warrior II at 1.9 fl oz. This is because the chlorantraniliprole component of Besiege does not have weevil activity.

Our third trial at a different farm site targeted larvae that were a little bit larger. Warrior II gave us only about 66% control 5 DAT whereas Steward at a sub-label rate of only 4 ounces resulted in 80%. Based on 3 years of testing, Steward at its low to mid rate range should provide good to excellent control. Follow up scouting is important after a weevil application to ensure that numbers are sufficiently reduced below threshold and to make sure aphids are not increasing. In 2021 we treated aphids that had exploded in one field several weeks after a lambda-cyhalothrin application. Although aphids are on the label of many pyrethroids, a follow up pyrethroid application did not reduce their numbers while Dimethoate, Sefina, and Sivanto gave excellent control. Fortunately, the alfalfa was tall enough and beginning to bud that early harvest was an option.

One product that we have not tested that is still labeled on alfalfa is Imidan, but based on published spray trials I would expect it to be somewhere between pyrethroids and a mid-rate of Steward. We will be testing it in the next couple of weeks.

You can find the UD alfalfa insect control recommendations page here: <https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/commercial-field-crop-pest-management/alfalfa/> . You may want to check this page periodically in the days ahead, we have updated our insect control guide and it will replace the 2020 version very soon. Please also note that the thresholds are for pure stand alfalfa only. For mixed stands, thresholds are higher until alfalfa consists of less than 50% of the hay at which point it is not considered economical to treat for alfalfa weevil.

## Small Grains

Reports have come in of scattered near-threshold aphid counts in barley. Based on observations and trial work in 2019, I suspect malting barley varieties may be a little more sensitive to high aphid pressure than wheat. It is probably too late to make an aphid treatment aimed at reducing barley yellow dwarf virus economically, but in cool weather, aphid populations can increase faster than natural enemies control them. In our 2019, aphids in our trial exceeded 300 per row foot. The threshold at this stage is near 100 per row foot. The cereal aphids are all susceptible to pyrethroid application. Aphids will not impact malting barley quality.

## General

### **Results of Maryland and Delaware Custom Rate Survey** - Nate Bruce, Farm Business Management Specialist, [nsbruce@udel.edu](mailto:nsbruce@udel.edu)

This past fall, University of Delaware Cooperative Extension partnered with the University of Maryland Extension to survey producers in the area for a custom rate survey. There are many ways a custom rate survey can be utilized. Government agencies and lenders use custom rates for analysis, budgeting, and advising clients. Producers can use custom rates to serve as a basis for developing production budgets and farm financial planning. Custom operators use custom rates to evaluate their charges compared to competitors.

Thank you to everyone that responded to the survey this past fall. The results of the 2023 Maryland and Delaware Custom Rate Survey can be found here:

[https://extension.umd.edu/sites/extension.umd.edu/files/2023-02/FS-683\\_CustoWorkChanges\\_2023.pdf](https://extension.umd.edu/sites/extension.umd.edu/files/2023-02/FS-683_CustoWorkChanges_2023.pdf)

### **Registration for Virtual Mid-Atlantic Crop Management School Closes March 9**

Registration for the Virtual Mid-Atlantic Crop Management School is now open, but will close on March 9. This virtual crop school offers 18



distinct, professionally produced video modules of selected talks from our in-person 2022 Crop School that was held in Ocean City in November 2022. This event is being held in addition to the traditional in-person crop school and will not replace the 2023 in-person Mid-Atlantic Crop Management School. Modules will be available until 5:00 p.m. on Monday, March 13. To ensure that attendees have adequate time to view modules and receive credits, registration will close at 5:00 p.m. Thursday, March 9. *Note: This is a pilot program; availability of a virtual crop school option in future years will be dependent upon registration revenues for this school being sufficient to cover the total costs of developing and hosting the virtual school.*

**Who Should Attend?** Modules are suitable for anyone interested in crop management topics. This includes:

- agronomists
- crop consultants
- extension educators
- farmers and farm managers
- pesticide dealers, distributors, and applicators
- seed and agrochemical company representatives
- soil conservationists
- state department of agriculture personnel

Registration Website:

<https://www.pcsreg.com/mid-atlantic-crop-management-school>  
[Program with Abstracts and Credits](#)

Two [registration](#) options are available:

1. Individual module access (\$15 each) allows you to view and receive credits for only the module(s) you select. There is one Soil and Water module that is offered free of charge.
2. Full access (\$200) allows you to view and receive credits for all available modules.

*Note: Full access is recommended for individuals who did not attend in-person Crop School in Nov 2022 and are seeking CCA or DE/MD Nutrient Management and pesticide credits. The full access price represents a \$45 savings over a-la-carte purchase.*

## **IMPORTANT! 2022 Mid-Atlantic Crop**

**Management School Attendees:** You are eligible to receive CEUs for modules only if you **DID NOT** attend that session at the in-person school. Please check your records **BEFORE** you register as **refunds and credits will not be issued to individuals who are not eligible to earn CEUs.**

**IMPORTANT! Please verify that the module offers the credits you need prior to registering.** [Credits at a Glance](#)

Registrations must be processed manually to allow access to content. As such, access to content for registered users may be delayed for up to 24 hours (longer on weekends) from the time you register. You will receive two confirmation emails. The first email is proof of registration/payment. The second email will confirm that your registration was completed and will include the website link to access content.

## **Obtaining CEUs**

- Certified Crop Advisor - Participants seeking CCA credits only will need to confirm that they viewed the material to receive credit.
- State Nutrient Management and Pesticide Programs - **Registered participants will receive CEUs for each session upon successful completion of the module specific evaluation/quiz.** State level programs require participants to correctly answer 4 of 5 webinar specific content questions to receive credits.
- Virginia Pesticide - **Virginia Commercial Pesticide Credits are pending approval.** Registrants seeking Virginia Private Pesticide CEUs will be required to watch a legislative update and two safety videos. Links will be provided in the module.

Records of successfully completed CEU modules will be submitted to participating State programs and CCA after the programs close on March 13, 2023.

Please contact [nutrient-management@udel.edu](mailto:nutrient-management@udel.edu) with any questions about the virtual school.

## **Share Your Thoughts on Cover Crops in the National Cover Crop Survey!**

Farmers are invited to share their thoughts on cover crops in an online survey at [bit.ly/CoverCrop23](https://bit.ly/CoverCrop23). Why do you plant cover crops...or why don't you? What do you want to know? Your insight will help guide research, communications, seed development, and more.

This National Cover Crop Survey is the seventh since 2012 conducted by the USDA-NIFA Sustainable Agriculture Research and Education (SARE) program, Conservation Technology Information Center (CTIC) and the American Seed Trade Association (ASTA), with the help of Informa/Farm Progress.

"Since 2012, the National Cover Crop Survey has been extremely valuable in helping guide research priorities, direct communications and education efforts, provide data to researchers, and illustrate the effects of policy on cover crop use and adoption," says Dr. Rob Myers, regional director of extension programs for North Central SARE and director of the University of Missouri Center for Regenerative Agriculture. "Data from previous surveys have been used in scientific papers, business planning, extension efforts, media coverage of cover crops, and even included in testimony to Congress."

Please take a few minutes to contribute your voice at [bit.ly/CoverCrop23](https://bit.ly/CoverCrop23). After completing the questionnaire, you may enter a drawing for one of three \$100 Visa gift cards.

## **Announcements**

### **Risk & Opportunity Management Conference**

Monday, March 6, 2023 8:30 a.m. - 3:00 p.m.  
University of Delaware Paradee Center  
69 Transportation Circle Dover, DE 19901

Delaware Farm Bureau and Delaware Cooperative Extension have come together to host an Agricultural Risk and Opportunity Management Conference.

Topics that will be discussed include, input cost management, grain marketing, crop insurance, and

much more. The program is zero cost for participants and lunch will be provided. Please RSVP using the link below:

<https://form.jotform.com/230395309013146>

### **Early Season Pest ID**

Tuesday April 11, 2023 5:00 – 7:00 p.m.  
Kent County Cooperative Extension Office  
69 Transportation Circle, Dover DE 19901

University of Delaware Extension Specialists will cover the following topics:

- Early season weed pressure in corn and soybeans
- Insect pests in planting and early season corn and soybeans
- The importance of correct and accurate pest identification
- Proper identification techniques of insect pest and weeds
- How utilize integrated pest management when facing early season pest pressure

Pesticide Credits: 2 (Core, Private Applicator, Agricultural Plant)

CCA Credits: 2 (Pest Management)

An evening session for new and experienced field scouts or anyone interested in properly identifying pests that may affect crops in and around planting season.

Register online at:

<https://ud-pcs.idloom.events/early-season-pest-identification>

### **USDA – Farm Service Agency Delaware Producer Meetings**

Emergency Relief Program (ERP), *Phase 2* – a program that provides assistance for producers who suffered a loss in revenue due to necessary expenses associated with losses of eligible crops, due in whole or in part, to a qualifying disaster event that occurred in the 2020 or 2021 calendar year.

Pandemic Assistance Revenue Program (PARP) – will assist producers of agricultural commodities who experienced revenue decreases in calendar year 2020 compared to 2018 or 2019 due to COVID-19

pandemic. PARP will help address gaps in previous pandemic assistance, which was targeted at price loss or lack of market access, rather than overall revenue losses.

**Come to a meeting to find out how to complete your “Self-Certification” program applications.**

**New Castle County**

Monday, March 20, 2023 6:00-8:00 p.m.  
Hooper, Inc.  
1130 Middletown-Warwick Rd.  
Middletown, DE 19709

**Kent County**

Tuesday, March 21, 2023 6:00-8:00 p.m.  
USDA State Office  
1221 College Park Dr.  
Dover, DE 19904

**Sussex County**

Wednesday, March 22, 2023 6:00-8:00 p.m.  
UD Carvel Research & Education Center  
16483 County Seat Hwy  
Georgetown DE, 19947

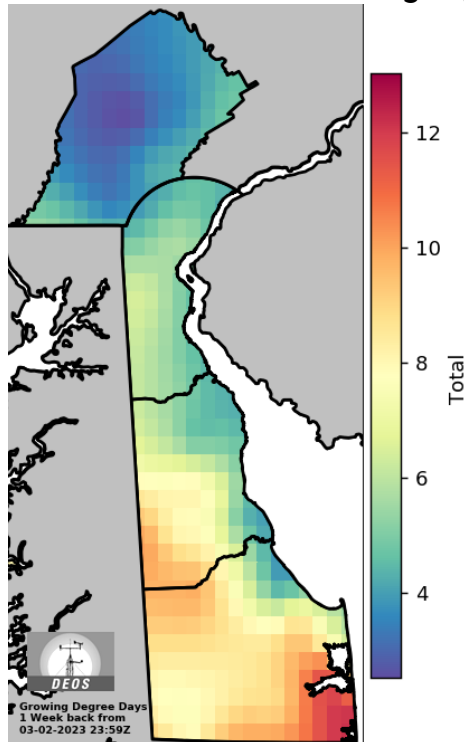
*USDA is an equal opportunity provider, employer and lender.*

If reasonable accommodation is needed, please contact Maryann Reed, at 302-678-4250 or [maryann.reed@usda.gov](mailto:maryann.reed@usda.gov)

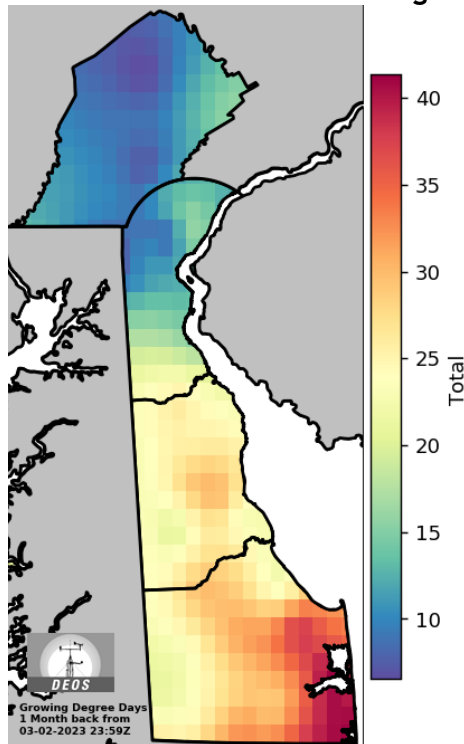
University of Delaware, USDA, Delaware State University

## Weather Summary

### 1 Week Accumulated Growing Degree Days

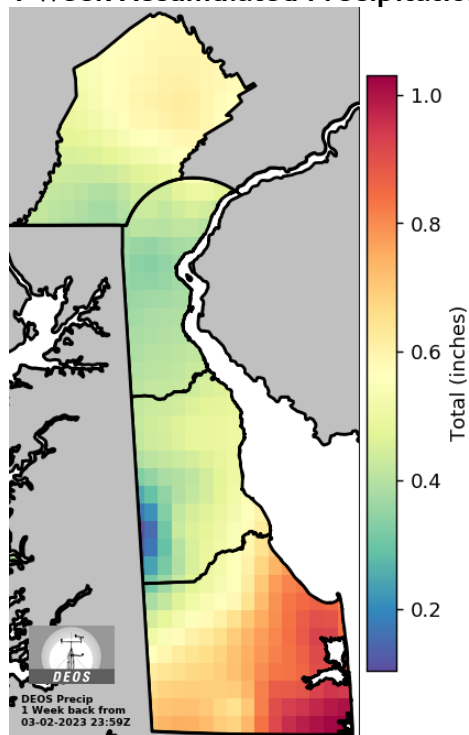


### 1 Month Accumulated Growing Degree Days

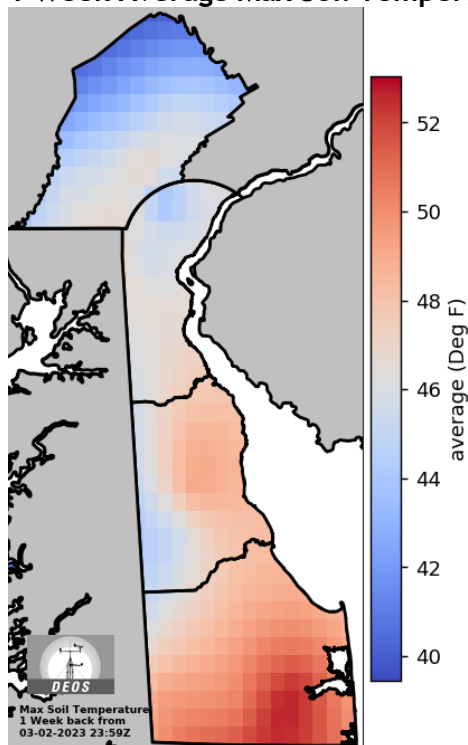




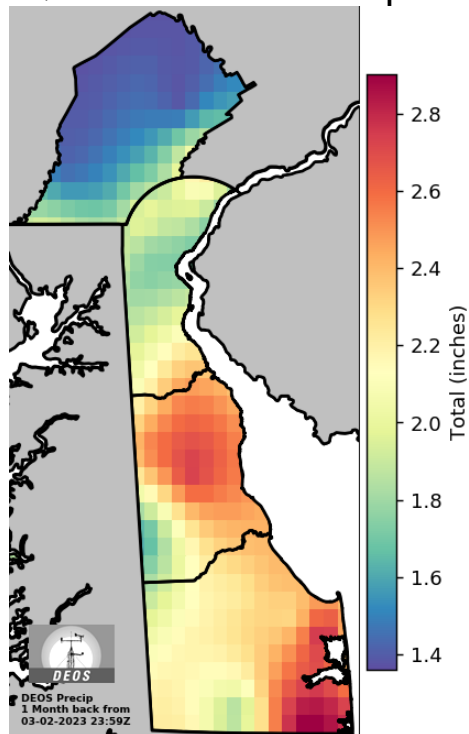
**1 Week Accumulated Precipitation**



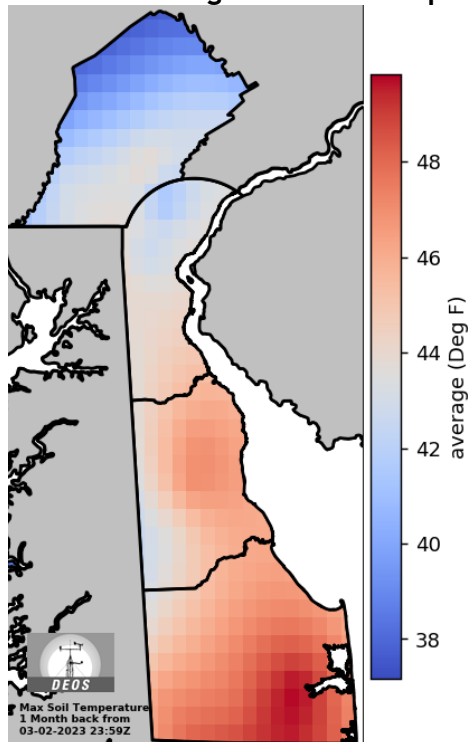
**1 Week Average Max Soil Temperature**



**1 Month Accumulated Precipitation**



**1 Month Average Max Soil Temperature**



These weather maps are generated from DEOS weather station data and are part of a new Ag Weather website that is under development. Your feedback is welcome!  
 Thanks!! Emmalea ([emmalea@udel.edu](mailto:emmalea@udel.edu))

***Weekly Crop Update is compiled and edited  
by Emmalea Ernest, Scientist - Vegetable  
Crops***

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