



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Heat and Moisture Effects on Cole Crops -

Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

September-maturing cole crops have been negatively affected by the high August and September temperatures and uneven moisture (dry to wet). While cabbage, kale, and collards can tolerate high temperatures; Brussels sprouts, broccoli, and cauliflower are more sensitive to excess heat. These three crops do best under moderate and even temperatures and even water supplies. They do not develop properly when temperatures are in the 90s.

In broccoli, high temperatures can lead to uneven development of the crown leading to a bumpy appearance and looser head. This reduces the grade and price potential. In Brussels sprouts high temperatures can cause sprouts to be very loose, elongated and unmarketable. In cauliflower high heat can cause loose curd.

The following are some other disorders that can be prevalent when cole crops are exposed to uneven moisture and excessive heat.

Tipburn of Cauliflower, Cabbage, and Brussels Sprouts

This problem can cause severe economic losses. Tipburn is a breakdown of plant tissue inside the head of cabbage, individual sprouts in Brussels sprouts, and on the inner wrapper leaves of cauliflower. It is a physiological disorder which is associated with an inadequate supply of calcium in the affected leaves, causing a collapse of the

tissue and death of the cells. Calcium deficiency may occur where the soil calcium is low or where there is an imbalance of nutrients in the soil along with certain weather conditions. (High humidity, low soil moisture, high potash and high nitrogen aggravate calcium availability). Secondary rot caused by bacteria can follow tipburn and heads of cauliflower can be severely affected. Some cabbage and cauliflower cultivars are relatively free of tipburn problems.

Cabbage Splitting

Cabbage splitting can develop when moisture stress is followed by heavy rain. The rapid growth rate associated with rain, high temperatures and high fertility cause the splitting. Proper irrigation may help prevent splitting and there are significant differences between cultivars in their susceptibility to this problem.

Lack of Heads in Broccoli and Cauliflower

During periods of extremely warm weather (days over 86°F and nights over 77°F) broccoli and cauliflower can remain vegetative since they do not receive enough cold for head formation. This can cause a problem in scheduling the marketing of even volumes of crop.

Cauliflower Purple Coloring and Yellowing

The market demands cauliflower which is pure white or pale cream in color. Heads exposed to sunlight develop a yellow and/or red to purple pigment. Certain varieties are more susceptible to purple off-colors, especially in hot weather. Self-blanching varieties have been developed to reduce problems with curd yellowing. For open headed varieties, the usual method to exclude light is to tie the outer leaves when the curd is 8

cm in diameter. Leaves may also be broken over the curd to prevent yellowing. In hot weather blanching may take 3 to 4 days, but in cool weather, 8 to 12 days or more may be required. Cauliflower fields scheduled to mature in cool weather (September and October) that are well supplied with water and planted with "self-blanching" cultivars will not need tying. Newer orange cauliflower and green broccoflower varieties are being planted. They are less susceptible to off-colors but still can develop purpling under warm conditions.

Cauliflower Ricing

"Riciness" and "fuzziness" in cauliflower heads is caused by high temperatures, exposure to direct sun, too rapid growth after the head is formed, high humidity, or high nitrogen. "Ricing" is where the flower buds develop, elongate and separate, making the curd unmarketable.

Development of Curd Bracts in Cauliflower

Curd bracts or small green leaves between the segments of the curd in cauliflower is caused by too high of temperature or drought. High temperatures cause a reversion to vegetative growth with production of bracts on the head. In a marketable cauliflower head, the individual flower buds are undeveloped and undifferentiated.

Viruses in Cucurbits - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

I am seeing and getting reports of virus infected squash, pumpkin and cucumber fields, so I thought I'd go over some information about viruses. Several aphid species are responsible for transmission of the most common viruses in cucurbits. Although some cucumber beetles have been shown to vector some viruses (such as Cucumber mosaic virus) their success rate under field conditions makes them a minor contributor to most virus infection problems.

However, Squash mosaic virus I and II (SqMV) is vectored most commonly by spotted cucumber beetles and possibly by a few other species of cucumber beetles. The spotted cucumber beetle can carry the virus for 10-20 days and transmit

the virus when it regurgitates fluid into their feeding site. SqMV-I infection usually results in mild plant symptoms while SqMV-II infection results in severe plant symptoms. SqMV is usually first introduced into a field via seedborne infection and is not very common in cucurbit fields in the mid-Atlantic compared with the viruses vectored by aphids.

Aphid vectored viruses belong to two main virus families: potyviruses: papaya ringspot virus-W (PRSV), watermelon mosaic virus (WMV), and zucchini yellow mosaic virus (ZYMV); and cucumoviruses: cucumber mosaic virus (CMV).

Aphid Virus Infection and Symptoms

WMV is capable of infecting all commercially grown cucurbits. The most common symptoms caused by this virus is leaf mosaic (variegated patterns of dark and light green to yellow that form a mosaic) and leaf distortion (Fig. 1A). Symptoms may vary from plant to plant according to the species or varieties, virus concentration in the plant, timing of infection, single or mixed infections, or temperature making symptoms mild or more severe (Fig 1). External symptoms may develop within four or five days after young plants become infected but may take up to 14 days to develop when the foliage is older and more mature. Symptoms develop more rapidly at 79° to 89°F than at 61° to 75°F. Cucurbit plants rarely become infected in the seedling stage.

Typically, viruses affect most cucurbit fruit by causing lumps, bumps and rings to appear on the skin of the fruit (Fig. 2). However, at times there is little loss if the fruit has been pollinated and begins to grow before virus infection occurs. Infection just at pollination may cause the fruit to have blotches or stripes of green or yellow color (Fig. 3). If the plant is infected before pollination there usually is no fruit production, but if some are produced then symptoms on the fruit include surface discoloration, bumps and other fruit deformity, early browning, shrinking or death, small fruit size and poor yields. Secondary infection by other microorganisms may occur on the virus infected fruits and cause soft rot.

On plants, viruses can either infect the plant alone or together. If a plant is infected by only

one virus, the symptoms generally are milder than if by two or more. Infection by two viruses initially causes strong mosaic and distortion on leaves. Infected plants have smaller and smaller new leaves. Late stage infections include leaves that turn yellow or become scorched along the edge.

Aphid species

Out of a possible 50 species of aphids that can be found in cucurbit fields, only a few have been shown to carry and effectively transmit the mosaic viruses. The melon (*Aphis gossypii*) and green peach (*Myzus persicae*) aphids were strong vectors while the potato (*Macrosiphum euphorbia*) and bean (*Aphis fabae*) aphids were poor vectors. The corn leaf aphid is one of the most numerous in pumpkin and squash fields but does not carry the virus.

Management

Aphids transmit the virus to plants through their sucking mouthparts. Viruses that are non-persistently transmitted are difficult to manage because the aphids acquire and transmit the virus so quickly. The non-persistent (NP) acquisition or transmission of the virus is completed in a matter of seconds to 1 minute. NP viruses cannot spread very far from where they were originally acquired. Pesticides sprayed on the plant will eventually kill the aphids, but too late to stop them from transmitting the virus. Therefore, insecticides have little effect on NP virus transmission by transient, non-colonizing aphids, though insecticides can control direct damage (foliar deformation and honeydew deposits) and secondary transmission of the virus in a field. Insecticides include Fulfill, Beleaf, the neonicotinoids and some of the pyrethroids.

Resistant varieties: A limited number of resistant varieties are available for certain viruses on squash and pumpkin while cucumber has many more resistant cultivars available - see the Mid-Atlantic Commercial Vegetable Production Recommendations guide. Most of the squash cultivars with virus resistance have just intermediate resistance, which means that the plant can restrict the growth and development of the virus and show less severe symptoms compared with a susceptible plant. Some cultivars of yellow summer squash carry a

"precocious yellow gene," which mask the color-breaking that is common with most cucurbit viruses.

Reflective mulch: This mulch is highly reflective (Fig. 4) and the light reflecting off the mulch confuses the aphids when they fly over the mulch and therefore do not land on the plants. The mulch works until the cucurbit plants cover the plastic mulch. This control method can increase the time with no infection occurring in the field by 2-4 weeks. For crops such as squash or cucumbers this can be the difference between just a few harvests and many harvests.

Planting dates: Virus infection is less severe when cucurbits are planted earlier in the season. The fruit is not affected as much in earlier plantings because the fruit was set before the virus arrived. Planting several successions of cucumber or squash will help to mitigate all but late season virus infections.

Weeds as Alternative Hosts

Many weeds can act as reservoirs for viruses even though they show no symptoms. Aphids will often land on these weedy plants and probe the plants at which time they acquire the virus in a matter of seconds. Some of these weeds include: Shepherd's purse, Virginia pepperweed, Chicory, Canada thistle, Jerusalem artichoke, Prickly lettuce, Dandelion, Cocklebur, Endive, Escarole, Sunflower, Yellow rocket, many Wild mustards and radish, Marsh yellowcress, Pennycress, several Chickweed species, Common lambsquarter, and most Morning glory and Speedwell weeds.



Figure 1. Virus symptoms on plants can be more severe (A) or milder (B)



Figure 2. Fruit with virus infection causing lumps and bumps



Figure 3. Fruit with mild virus infection



Figure 4. Reflective mulch and cucurbit planting

Agronomic Crops

Soybean Insect Scouting Update - *David Owens, Extension Entomologist, owensd@udel.edu and Bill Cissel, Extension Agent - Integrated Pest Management; bcissel@udel.edu*

Several fields in the SW portion of Sussex County have experienced above threshold corn earworm activity lately. I have not heard of any excessive populations or populations for which pyrethroids did not provide good control. Soybean loopers are present in many fields at low numbers, as are green cloverworm. Its important to distinguish them, cloverworms are easy to kill and are not aggressive defoliators while loopers are less susceptible to many materials. Cloverworms have a narrow body, three sets of prolegs in addition to the last abdominal segment's prolegs. Larger larvae often have white stripes and hold their last set of prolegs

out in a V shape. Cloverworms also wriggle violently when poked. Loopers tend to be narrower near the head and wider near the abdomen, and have two sets of prolegs. There are some reports of unusually high soybean aphid populations in drought stressed fields. The threshold for soybean aphid 250 per plant on 80% of plants with an increasing population. If you hit threshold, you have about a week before they might reach a damaging population. Check back in a couple of days to see if populations continue to increase, they might not if beneficials are present. Soybean aphids cause inconsistent plant injury after R5.5, and are not considered a threat once beans hit R6. Check labels for pre harvest intervals. Pyrethroids all do a good job, some have pretty long PHIs.

Table 1: Accumulated growing degree days based on planting dates through September 4th.

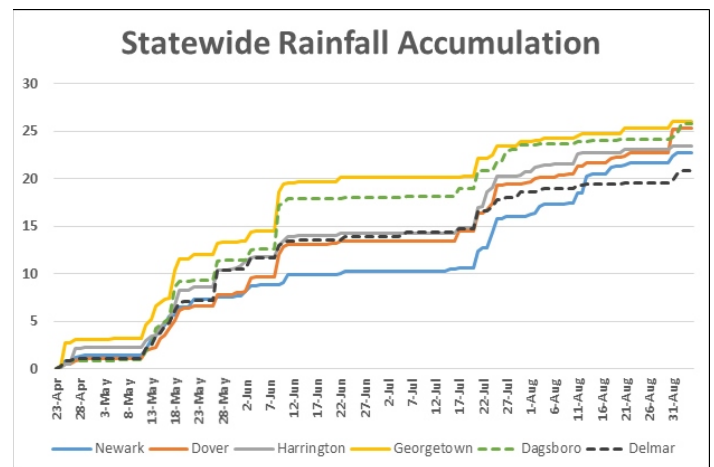
If you planted ↓	Sussex	Kent	New Castle
22-Apr	3179	3109	3000
29-Apr	3126	3062	2966
6-May	3018	2952	2868
13-May	2914	2846	2771
20-May	2803	2740	2676
27-May	2645	2580	2528
3-Jun	2492	2429	2378
10-Jun	2370	2312	2265
17-Jun	2234	2185	2136

Growing Degree Days (GDD) and Rainfall Through September 4th - Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

There is some shelling going on in Sussex County this week, with word that many fields will start on Monday. Any field planted between April 22 and May 20 should be in blacklayer, and the high temperatures this week should really help in reducing moisture content. If you planted over a range of dates, you should be able to roll through your fields week to week, depending on your variety. Most fields planted in early to Mid-June should be in R5 (dent), which you can check by watching the milk line (<https://www.agry.purdue.edu/ext/corn/news/timeless/GrainFill.html>).

R5 (Dent): 2190-2450
R6 (Blacklayer): 2700

To match most of the season, rainfall around the state over the last week was scattered with variable intensity. From the graph below, it appears that Dover took a pretty hard hit (2.47" on Aug 31st), but most of the state received about an average of 0.5" over the weekend. On DEOS I did observe at 5.39 inch rainfall in Oakley and 4.20 inches at the Prime Hook Wildlife Refuge.



Assessing Nitrogen Management in Corn After this Challenging Season - Gordon Johnson, Extension Vegetable & Fruit Specialist, gjohn@udel.edu; Amy Shober, Extension Nutrient Management and Environmental Quality Specialist, ashober@udel.edu; Jarrod Miller, Extension Agronomist; jarrod@udel.edu

Excessive rainfall that occurred early and late in the season made N management for corn (among other things) a challenge for many growers in our region. Early season rainfall resulted in significant N losses via leaching or denitrification, and in some cases delayed mineralization of manure N. We think it is safe to say that no one likely knew how much N was lost or how much additional N should have been

applied. Throughout the season, we tried to provide some guidance to help growers and consultants answer those questions. While there is no way to turn back time and change the N management decisions that were made this season, we can take a look back to assess if the decisions to forego or apply additional in-season N were warranted.

The end-of-season corn stalk nitrate test (CSNT) makes use of the fact that corn plants either remove N from, or accumulate N in, the lower stalk based on soil N availability. Studies over a wide range of conditions have found remarkably similar relationships between the amount of N found in the lower stalks late in the growing season and the likelihood that corn has been under or over-fertilized. The test allows growers to identify N deficiencies or surpluses that may not be apparent upon visual inspection of the plant.

Collect stalk samples between ¼ milk line and 3 weeks after black layer from areas with uniform soil type and management history, avoiding areas with severely damaged or diseased stalks. [Purdue Extension](#) provides a good review on how to identify corn reproductive stages. Cut an 8-inch segment of stalk starting 6 inches above the soil surface. Remove leaf sheaths from the stalk samples. Collect 15 stalk segments for every 10 acres of corn and submit them as a single sample. Store stalk samples in paper bags (not plastic) to allow for some drying and to minimize mold growth. Ship samples (within 24 hrs) for analysis or refrigerate until shipping is possible.

Factors that limit crop yield, like the unusually wet weather we experienced this year, can increase stalk nitrate concentrations. As such, we suggest taking a cautious approach to interpreting the results of the CSNT for this season. However, we believe that growers can still learn a lot about how well they fared with N management based on the results. In general, stalk samples with less than 700 ppm nitrate indicate the crop was under-fertilized with N, while samples with more than 2000 ppm nitrate indicate that the crop was likely over-fertilized with N.

The CSNT does not directly indicate how much N rates should be increased or decreased for a given stalk nitrate concentration. However, use of the CSNT for several years will allow corn producers to identify N management practices, including rates, forms, and times of application, that tend to result in optimum amounts of plant-available N. After appropriate consideration of weather and other factors, growers should consider making adjustments to N fertilizer and/or manure rates based on results of the CSNT over multiple years. In addition, the CSNT can also help growers make in-season N management decisions when faced with excessively wet conditions in future years.

For additional information:

Hansen, D.J., G. Binford, and J.T. Sims. 2014. [End-of-season corn stalk nitrate testing to optimize nitrogen management](#). University of Delaware. Newark, DE.

General

What to Think About When Using Cover Crops for Weed Control - Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

Cover crops can provide many benefits, including preventing soil erosion, improving soil structure, alleviating compaction, nutrient management, and weed control. The most successful approach with cover crops is to identify your goals, and then select the best cover crop(s) and actively manage the cover to reach the goal(s). When considering cover crops to help with weed control, consider a cover crop species that will not only produce a lot of biomass, but also produce biomass that does not breakdown quickly. Local research has shown that weed density can be reduced by more than 50% with a cover crop and cover crops can outcompete weeds for light resulting in small weeds that are easier to control with other tactics, including herbicides. Use of cover crops has shown promise for resistance management by helping to reduce selection pressure when herbicides are used. Most cover crops in Delaware are planted in the fall and terminated in the spring, so they have the potential to affect both winter and summer annual weeds.

For fall planted cover crops, cereal rye or triticale are the best two species for weed control from our research (annual ryegrass also has many similar attributes, but it can be difficult to kill in the spring). They both shade the ground quickly in the fall because they emerge fast and grow late into the fall, and they grow more prostrate than other grass species to provide ground cover very soon after emergence. Legume cover crops are not as effective for winter annual weed control because they are slow to establish and often do not produce significant amount of biomass until the spring. In addition, legume biomass tend to breakdown much quicker than winter cereals, reducing their ability to suppress late emerging summer annual weeds. Winter sensitive cover crops, such as forage radish, produce a significant amount of biomass in the fall, and are a good option for control of winter annuals such as henbit or chickweed. However, the biomass breaks down quickly in the early spring and they provide very little suppress of summer annual weeds.

Both cereal rye and triticale have a wide window for planting and quite adaptable to a range of soil conditions. Forage radish has a very short window for successful planting, while legumes have a wider window, though is not as wide as cereal species. Getting a uniform stand across the field is critical for maximum weed control or suppression. Where the cover crop stand is not uniform, the weeds are not subjected to the plant competition, the weeds are more numerous and larger, and can be harder to control than those plants growing amongst the cover crop. Achieving this uniform stand is best with a drill due to the improved soil to seed contact. Other seeding methods can sometimes provide good stands, but the results have not been consistent. Many farmers are compensating for the challenge of achieving a good stand by increasing their seeding rates compared with rates used when drilling.

Most of the local research has used 2 bu/A of cereal rye (or triticale) because that was the seeding rate for cost share programs, but experience tells us we can reduce that seeding rate without sacrificing weed control. We do not have enough local research to say how low we can plant rye and still get the same level of

weed suppression. We are asking that question with ongoing research.

Considerations

Herbicide carryover: what herbicides were used throughout the summer (and when)? Is there a risk that the herbicide can slow the growth or reduce the stand of the selected cover crop species? Forage radish and legumes tend to be more sensitive to herbicide carryover than the cereal species.

Cover crop termination (when): the maximum benefit of the cover crop for weed control occurs when the cover crop is terminated as late as possible. Terminating the cover crop at or close to flowering/heading time allows for the high levels of biomass, but also allows for the maximum production of lignified tissue (which is the tissue most resistant to breaking down). Terminating the cover crop more than 2 weeks before planting lessens the weed control benefits. Earlier termination of the cover crop results in less biomass production, less lignified tissue produced, and longer opportunity for the cover crop to breakdown (and less weed suppress after planting). UD Weed Science is examining the weed control benefits of planting green, and we have some promising results, but more work is needed.

Cover crop termination (how): ask yourself how you will terminate the cover crop in the spring. It is best to know how difficult it might be to kill the cover crop; what herbicides are needed to control the cover crop; and will the herbicides used to kill the cover crop interfere with planting your spring crop. If planting a cover crop mixture, consider how you will kill all the species. Do not plant something that you cannot successfully terminate in the spring. Annual ryegrass is one of the species that can be challenging to kill in the spring.

Is an herbicide needed at planting: Are weeds present when you are planting your cover crop, how big are they? If winter annual weeds have emerged before you plant your cover crop, you may see benefits from a burndown herbicide. Winter annual weeds emerging after planting are seldom a problem with a competitive stand of cereal rye or triticale, but weeds up before

planting could compete with the cover crop and limit it from reaching its full biomass potential.

Fertility levels: some cover crop species' growth can be reduced if there are low levels of soil nutrients (including micronutrients). Tillage radish is more sensitive to fertility levels than some of the cereal cover crop species.

Multi-species mixtures: using more than one species is a great strategy for some soil health objectives. However, as more species are added to the mixture (and the amount of any one species is reduced) the benefits for weed control could be reduced. Terminating a multi-species cover crop could be difficult.

In the early spring newsletter we will discuss related topics to using cover crops for weed control, including challenges:

- Cover crop/cash crop competition (moisture/light/nutrients)
- Volunteer cover crops
- Pests (slugs)
- Additional expense / management
- Establishment a good crop stand

Guess the Pest! Week #23 Answer: Sudden Death Syndrome of Soybean - *Bill Cissel*,
Extension Agent - Integrated Pest Management;
bcissel@udel.edu

Congratulations to Lamar Witmer for correctly identifying the disease as sudden death syndrome of soybean and for being selected to be entered into the end of season raffle for \$100 not once but five times. Everyone else who guessed correctly will also have their name entered into the raffle. Click on the Guess the Pest logo to participate in this week's Guess the Pest challenge!

Guess the Pest Week #23 Answer: Sudden Death Syndrome of Soybean
by Nancy Gregory, Plant Diagnostician;
ngregory@udel.edu



Sudden death syndrome of soybeans (SDS) is caused by the fungus *Fusarium virguliforme*. We started seeing this disease in Delaware in 2002 in cool and wet seasons, but have seen it more often in the past few years. SDS can be confused with other stem diseases such as Phomopsis stem canker and charcoal rot. Leaf symptoms of yellowing and browning between the veins are typical, and leaves shrivel and fall off, leaving petioles still on the stems. If stems are pulled up and placed in a plastic bag overnight, blue spore masses of the fungus may be seen at the base of stems. The internal stem tissue (cortex) may show dark discoloration. There is a toxin produced by the fungus that is responsible for the symptom pattern showing up at the top of the plant. The fungus overwinters in debris, and disease is most severe when infection occurs early. Improving drainage, alleviating compaction, and treating seed may help get seedlings established.

Guess the Pest! Week #24 - *Bill Cissel*,
Extension Agent - Integrated Pest Management;
bcissel@udel.edu

Test your pest management knowledge by clicking on the GUESS THE PEST logo and submitting your best guess. For the 2018 season, we will have an "end of season" raffle for a \$100.00 gift card. Each week, one lucky winner will also be selected for a prize and have their name entered not once but five times into the end of season raffle.

This week, one lucky participant will also win A Farmer's Guide To Corn Diseases (\$29.95 value).

You can't win if you don't play!

Guess the Pest Week 24:



Helene Doughty

[What is this insect?](#)



Chlorpyrifos Ordered Removed from Sale -
Kerry Richards, Coordinator University of
Delaware Pesticide Safety Education Program;
kerryr@udel.edu

On August 9, 2018, in a split decision, a federal appeals court ruled Thursday reversed an Environmental Protection Agency (EPA) decision to keep the insecticide chlorpyrifos on the market. In October 2015, the Obama administration proposed banning the pesticide's use on food. The EPA reversed that effort in March 2017, adopting Dow's position that the science showing chlorpyrifos is harmful was inconclusive and flawed.

Chlorpyrifos was created by Dow Chemical Co. in the 1960s. It remains among the most widely used agricultural pesticides in the United States,

with about 5 million pounds domestically each year through its subsidiary Dow AgroSciences. Dow voluntarily withdrew chlorpyrifos for use as a home insecticide in 2000. EPA also placed "no-spray" buffer zones around sensitive sites, such as schools, in 2012.

Appeals Court Judge Jed S. Rakoff wrote in August 9, 2018 majority's opinion, "The panel held that there was no justification for the EPA's decision in its 2017 order to maintain a tolerance for chlorpyrifos in the face of scientific evidence that its residue on food causes neurodevelopmental damage to children,"

The 9th U.S. Circuit Court of Appeals in San Francisco ordered the Environmental Protection Agency to remove chlorpyrifos from sale in the United States within 60 days. EPA spokesman Michael Abboud said the agency was reviewing the decision. It could appeal the ruling to the Supreme Court.

A PDF of the decision is here:

<https://cdn.extension.udel.edu/wp-content/uploads/sites/12/2018/09/07133904/8.9.18-9th-Cir.-DecisionChloropyr.pdf>

Announcements

Sussex Master Gardeners Summer & Fall Workshops

The Master Gardeners are planning an interesting array of workshops for the summer and fall. The classes are free, unless otherwise specified, and held at the Elbert N. and Ann V. Carvel Research and Education Center, 16483 County Seat Highway, Georgetown, DE 19947.

Pre-register for workshops by contacting Tammy Schirmer at (302) 856-2585, ext. 544 or by email at tammys@udel.edu. You can also register online at <http://extension.udel.edu/lawngarden/mg/sussex-county/workshops/>.

Thursday, September 13, 1:00 p.m. Master Gardener Sandi Dew will teach us how to make **Draped Hypertufa**. New to hypertufa or looking for new hypertufa project? This is a new, messy and fun adventure making draped hypertufa flowerpots. **Limit 14 participants. Fee \$15.00.** (please register, but receiving payment reserves your spot) Wear old clothes, bring an old bath towel and latex gloves.

Tuesday, September 25, 1:00 p.m. Master Gardener Judy Pfister will lead a program on common **Native Plant Seed Harvesting**. Workshop will also include propagation including when to harvest, how to dry and store them. We will also discuss testing seeds for viability before planting. Weather permitting, we will go into the demo garden to identify seed heads of fall bloomers and select some seeds for harvesting back in the classroom. Please bring a pair of tweezers and a magnifying glass if you have them.

Tuesday, October 2, 6:30 p.m. Master Gardener Terry Plummer will present a workshop on **Landscaping with Native Plants**. Make your garden life easier with less watering and less fuss. Plant native trees, shrubs, and perennials for a delightful landscape. Terry will introduce you to a wide variety of native plant materials, that will draw insects and the birds that love to eat them to your garden.

Tuesday, October 16, 1:00 p.m., Woodland Trail Master Gardeners will lead the group along a trail through the woods. The trail invites attendees to enjoy the woods and learn interesting things about trees, soil, and the residents of the woods. The trail is about a 40-minute walk. Wear closed-toe shoes and long-sleeved shirts or jackets.

Tuesday, October 23, 1:00 p.m., Woodland Trail Master Gardeners will lead the group along a trail through the woods. The trail invites school-aged children to enjoy the woods and learn interesting things about trees, soil, and the residents of the woods. The trail is about a 40-minute walk. Children must wear closed-toe shoes and long-sleeved shirts or jackets.

Tuesday, October 30, 6:30 p.m. Master Garden Joe Parish will discuss **Bats**, an organic choice for insect control. Bats are not just a cute Halloween creature but should become a part of your garden planning. Why not invite some in today.

Master Gardeners are working volunteers and are supported by Delaware Cooperative Extension through the University of Delaware and Delaware State University Extension offices. Delaware Cooperative Extension's policy that no person shall be subjected to discrimination on the grounds of race, creed, color, sex, age, religion, national origin, sexual orientation, veteran or handicap status. If you have special needs that need to be accommodated, please contact the office two weeks prior to the event.

Growing Farmers Workshops

Coverdale Farm Preserve
543 Way Road, Greenville, DE 19807

Coverdale Farm Preserve is a 377-acre farm and nature preserve located in Greenville, DE. We are pleased to offer a series of free hands-on workshops for farmers of all levels of experience and scale of operation.

Registration is required. To Register please contact Melinda Hardie: melinda@delnature.org

Fall 2018 Series

Troubleshooting in Specialty Crop Production

Wednesday, September 19, 10:00am – 12:00pm

Rain date: Friday, September 21, 10:00am – 12:00pm

Keep your plants thriving and productive. Learn to identify common pests including insects, plant diseases, nutrient deficiencies. Discover preventative strategies, steps, and solutions to compromising conditions in order to maximize yields.

Techniques for Successful Lettuce Production

Wednesday, October 10, 10:00am – 12:00pm

Rain Date: Friday, October 12, 10:00am – 12:00pm

Lettuce is a fast growing and profitable 4-season crop. Explore our production fields to learn the methods we have refined over the years, the varieties that do best in both cool and hot seasons, as well as harvesting, cleaning, and storage tips.

Season Extension of Specialty Crops

Wednesday, October 17, 10:00am – 12:00pm

Rain Date: Friday, 19, 10:00am – 12:00pm

Vegetables are the focus of this workshop with particular attention to selected varieties trialed for season extension. Learn how to maximize yields in shoulder season in both protected culture and field grown situations.

Advanced Soil Health & Cover Crops Workshop

Wednesday, September 12, 2018 9:00-3:00

St Jones Reserve Coastal Training Center
818 Kitts Hummock Rd Dover, DE 19901

Topics Include:

- Increasing soil organic matter
- Soil biology
- Impacts of herbicides on cover crops

- Benefits of species and mixes
- Farmer case studies

Featuring:

Dr. Sjoerd Duiker from Penn State
& Dr. Mark VanGessel from UD

CEU's are pending for this free workshop.

Lunch is included.

Contact Jason Challandes for more information or to register at jchallandes@desu.edu or (302) 388-2241.

Cooperative Extension Education in Agriculture, 4-H and Home Economics, Delaware State University, University of Delaware and United States Department of Agriculture cooperating, Dr. Dyremple B. Marsh, Dean and Administrator. It is the policy of Delaware Cooperative Extension that no person shall be subjected to discrimination on the grounds of race, color, sex, disability, age, or national origin.

Summer Cut Flower Tour
Wednesday, September 12, 2018
8:40 a.m.-2:30 p.m.

Sponsored by:

University of Maryland Extension

Co-sponsors:

Association of Specialty Cut Flower Growers
Maryland Cut Flowers Growers Association

LOCATIONS

Loveville Produce Auction
40454 Bishop Road, Mechanicsville, MD

Weaver's Cut Flower Farm
25964 Bishop Road, Mechanicsville, MD

Jacob Hertzler Farm
37011 New Market Road, Charlotte Hall, MD

SCHEDULE

8:40 – 9:00 Check-in/Registration

9:00 – 10:00 Loveville Produce Auction

10:00 – 11:30 Weaver's Cut Flower Farm

11:30- 12:15 Ko Klaver – Botanical Trading Company, Bulbs for Cut Flowers

12:15 – 12:45 Lunch: Fried Chicken, Local Produce
Fixin's and Homemade Ice Cream

12:45-1:15 Travel to Jacob Hertzler's in Charlotte Hall

1:15 – 2:30 Jacob Hertzler and Family Cut Flower Farm

Times are approximate. Farm stop times can vary.

University of Maryland Extension programs are open to all citizens without regard to race, color, gender, disability, religion, age, sexual orientation, marital or parental status, or national origin.

REGISTRATION

Cost: \$30 per person

Lunch is not guaranteed after September 10.

No refunds after September 11.

To register with a credit card go to:

<http://2018cutflowertour.eventbrite.com>

[*A form for mail-in registration is available.*](#)

For more information on the program or registration call (301) 596-9413 or email sklick@umd.edu

2018 Mid-Atlantic Crop Management School

November 13-15, 2018

Princess Royale in Ocean City, MD

The Mid-Atlantic Crop Management School is held every November the week before Thanksgiving. This 2.5 day workshop has five classrooms supporting continuing education for certified crop advisors and other ag professionals in Crop, Pest and Nutrient Management as well as Soil & Water. This school is organized by Cooperative Extension from the University of Delaware, University of Maryland, Virginia Tech and West Virginia University. Other support comes from Mid-Atlantic State Agricultural Departments and the Natural Resources Conservation Service.

To see the program or register please visit: [Crop 18 Registration](#)

If you have any issues with registration, please contact UMD Conference services: cropregistration@umd.edu

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 30 to September 5, 2018

Readings Taken from Midnight to Midnight

Rainfall:

0.66 inch: August 31

0.07 inch: September 1

Air Temperature:

Highs ranged from 95°F on September 4 to 83°F on September 1.

Lows ranged from 75°F on August 30 to 71°F on August 31

Soil Temperature:

78.2°F average

Additional Delaware weather data is available at http://www.deos.udel.edu/monthly_retrieval.html and <http://www.rec.udel.edu/TopLevel/Weather.htm>

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

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