



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 27, Issue 25

September 13, 2019

Vegetable Crops

Vegetable Crop Insect Scouting - David

Owens, Extension Entomologist;

owensd@udel.edu

General

Any flowering crop should still be considered at risk for corn earworm, this includes lima beans, peppers, and snap beans.

Cole Crops

Scout fields for worms in fall cole crops. Cabbage worm, cabbage looper, diamondback moth, and yellow striped armyworm are all active, plus a few 'oddballs.'

Spinach

Beet armyworm are still active in the area. This is also the time of year when webworm are usually active. Insecticide efficacy is decreased when worms begin to web leaves.

Sweet Corn

Although we have discontinued most of our sweet corn traps, moths are still easily seen working blooms at dusk. Moth activity is greatest around silking sweet corn and tight spray intervals would be conservative, especially with warm daytime weather in the forecast.

Sweet Potato Harvest, Curing and Storage -

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

Sweet potatoes for processing are being grown on Delmarva in larger acreages. These are dug using a modified potato digger, conveyed to trucks, and then are transported to the processing plant.

In contrast, there are a considerable number of small acreage commercial growers of sweet potatoes on Delmarva because it is a profitable crop for fall sales, especially before the holidays. The following are some guidelines for harvesting, curing, and storage of sweet potatoes for local fresh markets:

- Sweet potatoes may be dug any time they have developed market size. Normally, vines will have started to yellow at this time.
- Caution must be taken when digging sweet potatoes. The sweet potato has a thin, delicate skin that is easily broken. Any cuts, bruises, or skin abrasions will reduce quality and storability significantly.
- A common method for digging is using a one bottom plow or middlebuster to expose the row. Sweet potatoes are picked up by hand and then placed into baskets, slatted crates, or small bins, being careful not to cause cuts, abrasions, or bruises. Small acreage growers can also lift potatoes using a garden fork. Expect to miss about 20% of marketable roots with these methods.

- Modified potato diggers can also be used for harvesting. The key with these mechanical diggers is to carry enough soil up the separation chain to limit root contact with the rods and to have a limited drop to the ground to reduce cuts and bruises. Vines normally are mowed before digging. Again, sweet potatoes are picked up by hand into baskets or bins. Larger machines that convey the sweet potatoes to a grading line or bins are used on some farms in major sweet potato producing areas such as North Carolina.

- Sweet potatoes are best dug while soil temperatures are relatively high and soil is on the dry side. Roots are injured below 55°F. If sweet potato vines are exposed to a light frost, usually no injury will occur if roots are dug quickly because soil temperatures have not dropped too low (it should still be around 60°F near most roots). Heavy frosts or freezes will drop soil temperatures below critical levels, causing significant losses.

- Washed and graded sweet potatoes can be sold immediately without curing; however, for Thanksgiving and Christmas markets, curing will be necessary.

- Bins or baskets containing harvested sweet potato roots should be taken to an area to cure. Do not wash before curing. In the curing process, cuts and abrasions are healed over, allowing for longer term storage. The ideal conditions for curing are a temperature of 85°F and 90% humidity for 5-7 days. This is an issue because most growers in Delaware do not have dedicated curing houses. As an alternative, place covered baskets or bins containing sweet potatoes in an empty greenhouse. Water the floor heavily or put pans of water out to keep the humidity up and turn the heat on so night temperatures do not drop below 70°F. Set fans for 85°F for the daytime. Using this method, curing will take 14 days usually.

- Once cured, store as close to 60°F as possible, but no lower, in an area where you can maintain a high humidity. Most local commercially grown sweet potatoes are stored no longer than Christmas.

- Before marketing, cured sweet potatoes should be washed and graded, allowed to dry, and then boxed.

Harvest and Post-Harvest Handling for Fall Vegetables - Leafy and Heading Crops - *Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu*

Fall vegetable harvest will begin soon. For best quality and longevity of leafy and heading crops in the fall, it is important to reduce respiration and water loss from crops immediately after harvest. Harvest is best done in the early morning when field heat is lowest. All of these crops are best stored at near freezing and high humidity.

Broccoli should be harvested when heads have reached maximum diameter and flower buds (beads) are still tight. Bunched broccoli heads are tied together in groups of 3-4 with a rubber band. Broccoli should be hydrocooled or packed in ice immediately after harvest and stored at 32°F (0°C) and relative humidity of 95-100% to maintain salable condition. Under these conditions broccoli should keep satisfactorily 10-14 days.

Cabbage is harvested when heads are tight and have reached the desired size for the variety and spacing. The head is harvested by bending it to one side and cutting the base with a knife. Harvesting knives should be sharpened frequently. The stalk should be cut flat and as close to the head as possible, yet long enough to retain 2-4 wrapper leaves. Extra leaves should be removed. Heads with insect damage and other defects should be discarded. Room or forced air cool harvested cabbage and then store at 32°F (0°C) and a relative humidity of 98-100%. Barrel-type Chinese cabbage (Napa cabbage) is handled similarly but is more fragile and requires a large twist-tie to keep leaves tight.

Cauliflower is harvested while the heads are pure white and before the curds become loose. Most varieties are self-blanching. For those that are not, blanching is achieved by tying outer leaves over the heads when heads are 3 to 4 inches in diameter. Blanching takes about 1 week in hot weather and 2 weeks in cooler weather. The head is harvested by bending it to one side and cutting the base with a knife. Harvesting knives should be sharpened frequently. The stalk should be cut flat and as

close to the head as possible with a minimum of wrapper leaves. Cauliflower may cut, wrapped, and packed in the field. Reduce temperatures using room cooling or forced air. Store harvested cauliflower at 32°F (0°C) and a relative humidity of at least 95%. Avoid bruising heads in harvest, handling and packing.

Brussels sprouts are the compact vegetative buds that develop along the stem of the Brussels sprouts plant. They should be harvested when the buds are firm, but not overmature which is indicated by splitting of the outer leaves. Harvest by snapping and trim with a sharp knife. Good quality Brussels sprouts should be bright green, without yellowing or discoloration, and have a firm texture. Brussels sprouts are moderately perishable and can be stored 3-5 weeks at temperatures near the optimum of 0°C (32°F) and 95% relative humidity. Brussels sprouts are often hydrocooled, but can be force air cooled as well.

Kale and Collards may be harvested by cutting off entire plants near ground level. Whole plants are then bunched. As an alternative, lower leaves may be stripped from plants and packed individually. Kale and collards may also be machine cut 4-6 inches from the ground when full tonnage has been achieved but before petioles have elongated. Multiple harvests are possible. Because of their perishability, kale and collards should be held as close to 32°F (0°C) as possible. At this temperature, they can be held for 10-14 days. Relative humidity of at least 95% is desirable to prevent wilting. Air circulation should be adequate to remove heat of respiration, but excessive air circulation will speed transpiration and wilting. Satisfactory precooling is accomplished by vacuum cooling or hydrocooling. These leafy greens are commonly shipped with package and top ice to maintain freshness. Kale packed in polyethylene lined crates and protected by crushed ice keeps in excellent condition for 3 weeks at 32°F (0°C).

Lettuce is extremely perishable and needs to be handled delicately and marketed rapidly. Head lettuce is harvested when the heads are of good size (about 2 lb) and solid. Head lettuce is hand cut and trimmed (leave 3 undamaged wrapper leaves on each head) and placed in containers in the field. It is then vacuum cooled or

hydrocooled. Specialty leaf lettuces and other greens for bag mixes are harvested by hand or mechanically. Leaf, butterhead and cos/romaine types are cut and trimmed in the field. Lettuce should be precooled to 34°F (1°C) by hydrocooling soon after harvest and stored at 32°F (0°C) and 98-100% relative humidity for retention of quality and shelf life. At 32°F, head lettuce can be held in good condition for 2-3 weeks. Leaf, cos/romaine, and butterhead lettuce have a shorter shelf life. Lettuce is easily damaged by freezing, so all parts of the storage room must be kept above the freezing point (31.7°F, -0.2°C).

Turnip and Mustard Greens for baby salad mixes are cut at ground level for a single harvest, or 1-2 inches from the ground for multiple cuts. Larger turnip, mustard, and Asian greens may be harvested by cutting off entire plants near ground level for a single harvest, or by cutting 2-6 inches above the ground to allow for regrowth. For processing, greens are machine cut 4-6 inches from the ground when full tonnage has been achieved but before petioles and midribs have become too large. Multiple harvests may be possible. Greens should be transported as quickly as possible to the packing area. Hydrocooling or vacuum cooling are recommended for pre-cooling. Greens should be held as close to 32°F as possible, because of their perishability. At this temperature, greens can be held 10-14 days. Relative humidity of at least 95% is desirable to prevent wilting. Air circulation should be adequate to remove heat of respiration, but not too rapid to speed transpiration and wilting. Greens are commonly shipped with plastic package and top ice. Greens packed in polyethylene-lined crates and protected by crushed ice keep in excellent condition if kept near 32°F but deteriorate rapidly at higher temperatures.

For fresh market **Spinach, Chard, and Beet Tops**, plants should be dry prior to harvest to prevent petiole breakage. When harvesting by hand, cut leaves above the crown or soil line and bunch. Exclude yellow leaves and leaves that are dirty with soil. Bunched spinach, chard, and beet tops must be handled very carefully to avoid breakage of plants or bunches during bunching, washing and packaging. Spinach for bag mixes are usually hand harvested, but mechanical

harvesters for this purpose are now available. Walk-behind harvesters are also available for smaller acreage growers. Spinach, chard, and beet tops are very perishable and can be stored for only 10-14 days. Crushed ice should be used for rapid cooling and for removing the heat of respiration. Top ice, hydro-cooling and vacuum cooling are other satisfactory cooling methods. Store spinach at 32°F (0°C) and 95-100% relative humidity. Most spinach for fresh market is prepackaged in perforated plastic bags to reduce moisture loss and physical injury. Controlled atmospheres with 10-40% carbon dioxide and 10% oxygen retard yellowing and extend shelf life.

Maturity of **Green Onions** is determined primarily by size which is largely determined by seeding density. Green or "bunching" onions are selected varieties of white onion (*Allium cepa*) planted at high density or from the non-bulbing onion group (*Allium fistulosum*) generally called Japanese-bunching. Harvest when the onions are at ¼ to ½ inch in diameter at the base plate of the immature bulb or shank. Quality green onions have a thin, white shank or neck at least 5 to 7.5 cm (2-3 inches) in length. Green onions are highly perishable and normally marketed over a short period. Lowering and removing the heat of respiration as well as preventing water loss is critical. Package-icing and perforated polyethylene film liners are used cool quickly and maintain quality. Green onions may also be hydrocooled. Green onions are best held at 32°F and 98% humidity. Under these conditions they will store for up to 4 weeks.

Maintain Pumpkin Foliage as Long as You Can - Jerry Brust, *IPM Vegetable Specialist*, University of Maryland; jbrust@umd.edu

One of the main things a grower can do to ensure a good quality pumpkin is to be sure that they maintain their fungicide applications for as long as they continue to harvest fruit. Maintaining good foliage cover for your pumpkins results in pumpkin handles that are dark green, stout and firm (Fig. 1). If fungicides are cut too soon, foliage can be lost to powdery or downy mildews or other foliar diseases and this defoliation can result in handles that are brown, withered and decayed (Fig. 2).

Another reason to keep your foliage in good shape is that pumpkins that are maturing and turning color need to be protected from the sun. With our hotter and usually sunnier September weather pumpkin fruit can easily become sunburned or sunscalded. Areas on orange (or at times green) pumpkins that are facing the sun can become reddish or bleached white (Fig. 3). These sunburn/sunscald areas on the fruit often become soft, with rot setting in a few weeks later. Clear, sunny days with highs in the mid to upper 80s °F are perfect settings for sunburn/sunscald of fruit, especially if the fruit has been clipped and left in the field. I have seen several pumpkin fields (especially U-Pick ones) over the last 3-4 years that suffered significant losses to sunburn because of reduced leaf cover due to unchecked foliage diseases.



Figure 1. Harvested pumpkins with good handles



Figure 2. Harvested pumpkins with poor handles

Agronomic Crops

Agronomic Crop Insect Scouting - David Owens, Extension Entomologist; owensd@udel.edu

Soybeans

Continue sweeping for stink bugs, especially in double crop beans. As full season beans begin senescing, stink bugs may move and concentrate in later plantings. Once beans reach R6.5, stink bug thresholds increase dramatically. Soybean looper and bean leaf beetle populations are generally present, but in low numbers.

Sorghum

Sugarcane aphids are present in some fields. Fields that have reached the hard dough stages are less likely to incur problems. Fields that have isolated hot spots or sugarcane aphid and with abundant natural enemies seem to have had corn leaf aphids in them earlier this season. Be sure to scout for honeydew or for aphids in sorghum fields that may have been treated with an insecticide earlier this year and late fields that are younger than soft dough.

Small Grains Crop Insurance Deadline September 30 - Laurie Wolinski, Extension Agent; lgw@udel.edu

The sales closing/policy change deadline for federal crop insurance policies covering fall-planted small grains such as wheat and barley will be September 30, 2019. If you are uninsured and would like to be covered for the upcoming crop year or are insured, but unsure what your coverage is, contact your licensed crop insurance agent as soon as possible. If you do not have a crop insurance agent currently, you may find one with the agent locator tool provided on the Risk Management Agency web site:

<https://www.rma.usda.gov/Information-Tools/Agent-Locator-Page>

The current projected price for the State of Delaware on conventionally planted barley, according to RMA's price discovery tool, is \$3.22 per bushel, while wheat is \$4.92 per bushel. For

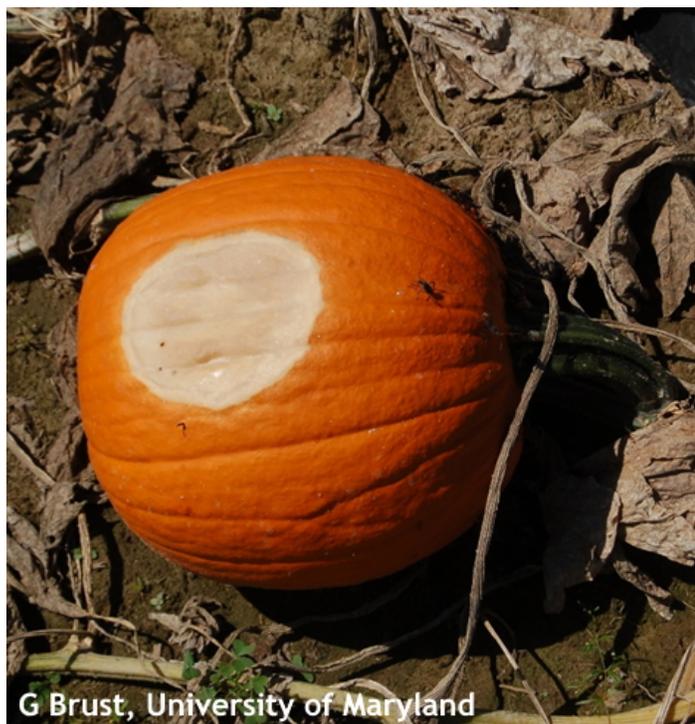
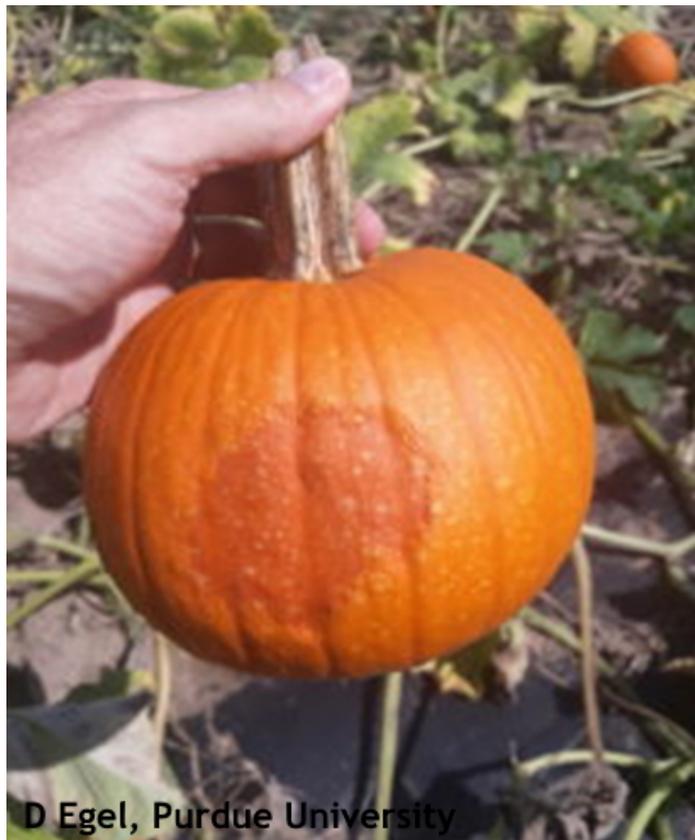


Figure 3. Sunburn (red spot) and sunscald (white spot) on harvested pumpkins

more information or for answers to pertinent questions, email decrophelp@gmail.com or reach out to your crop insurance agent.

General

Guess the Pest! Week 22 Answer: Fusarium Stalk Rot - David Owens, *Extension Entomologist*, owensd@udel.edu

Congratulations to Grier Stayton for guessing this week's challenge as a Fusarium stalk rot pathogen. Due to an oversight on my part, the online submission form still had the previous week's Dectes photo up, so everyone who entered a Dectes answer will also be included in the end of season raffle.

From Dr. Alyssa Koehler:

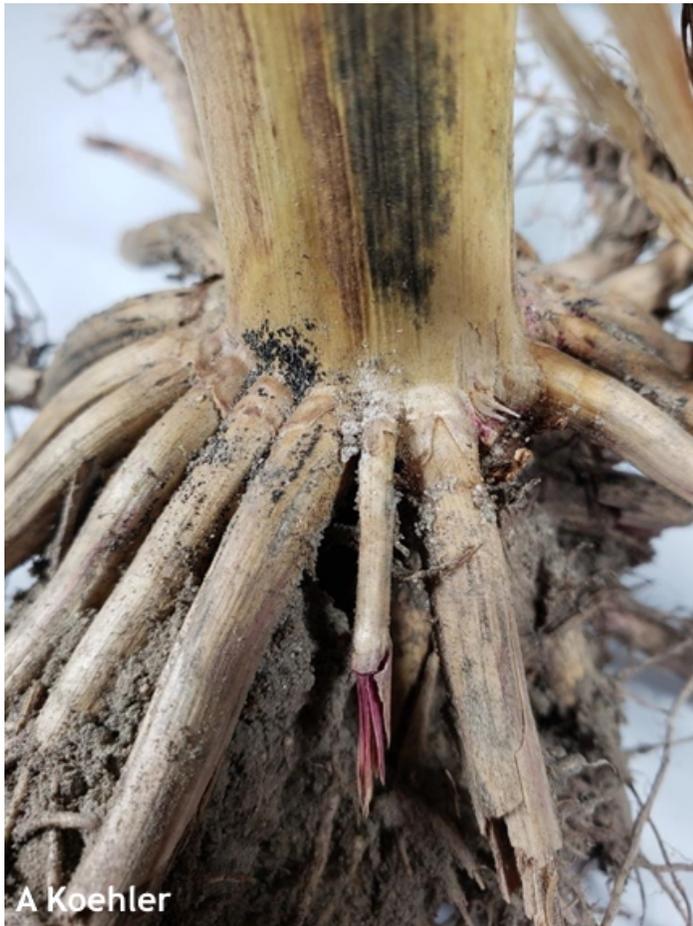
Stalk rots have been quite widespread this season. There are multiple pathogens that can cause stalk rots. Giberella stalk rot is caused by the fungus *Giberella zea*, also known by its asexual name, *Fusarium graminearum*, that causes Fusarium Head Blight in wheat. (In older naming systems, many fungi have two names for different stages of their life cycle). Plants with Giberella stalk rot have a shredded pith, often with pink to red discoloration, and it is common for infected stalks to die prematurely. We have seen a number of plants over the past month with accelerated senescence due to various stalk rots (Figure 2). As you are riding in the combine, these are now often the lodged plants with snapped out tops. Giberella stalk rot can be separated from other stalk rots by the black specks called perithecia that form at the base of the plant (Figures 3 and 4). These specks house spores of the fungus and will overwinter in residue to be a source of inoculum for future corn and wheat crops. These structures are not embedded in tissue and can be easily removed with a fingernail. Red root rot is another disease common in our region that can cause red/pink stalk and root discoloration. Red root rot is caused by a different fungus, *Phoma terrestris*, that does not make perithecia.



Figure 1. Corn affected by stalk rot



Figure 2. Corn plant with accelerated senescence due to stalk rot



A Koehler

Figure 3. Perithecia at the base of a corn plant with Giberella Stalk Rot



A Koehler, University of Delaware

Figure 4. Zoom in from last week's Guess the Pest! image (Fig. 3), black structures (perithecia) at the base of a corn plant with Giberella Stalk Rot.

Guess the Pest! Week 23 - David Owens, Extension Entomologist, owensd@udel.edu

Test your pest management knowledge by going to <https://docs.google.com/forms/d/1oz5-yCm8xifZtDivZ-vPbd8a0GR-V6H9ddb9fhAyzzy> and submitting your best guess. For the 2019 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. A lucky winner will also receive a heavy duty sweep net.

While examining fields for small grain potential, you see some misplaced green leaves. What kind of plant is this?



D Owens, University of Delaware

To submit your answer, please go to: https://docs.google.com/forms/d/e/1FAIpQLSfU-PYLZnTRsol46hXmggj8fvt5f8-JI0eEUHb3QJaNDLG_4kg/viewform



Announcements

Farm Management Classes for Women

Tuesdays Oct 15 – Nov 19 5:00-8:00 p.m.
Eldorado Brookview Fire Department Hall
5752 Rhodesdale Eldorado Road
Rhodesdale, MD 21659

The University of Maryland and Delaware Cooperative Extension will conduct an Annie's Project for Women Managing Commercial Poultry during the fall of 2019 in Rhodesdale, Maryland. Annie's Project focuses on the many aspects of farm management and is designed to empower women in overall farm decision making and to build local networks throughout the state. The target audience is farmwomen and women involved in agriculture with a passion for business, agriculture, and involvement in farm operation. Topics for the sessions cover the five areas of Risk Management – Production, Marketing, Financial, Legal Risk, and Human Resources. This course is open to anyone interested in farm management practices.

Annie's Project for Women Managing Commercial Poultry is 6 classroom sessions on Tuesday evenings, October 15, 22, 29, Nov 4, 13, 19 from 5:00 pm - 8:00 pm.

The program will be held at Eldorado Brookview Fire Department Hall, 5752 Rhodesdale Eldorado Road, Rhodesdale, MD 21659.

The cost of the entire course including meals and materials is \$75. There is an additional \$100.00 fee for FSA Borrower Training attendees.

Please register by October 5th - space is limited. For more information and to register visit the website <http://extension.umd.edu/annies-project/class-information> or call 410-758-0166 or email jrhodes@umd.edu. If you require special assistance to attend the classes, please contact the site at least two weeks prior.

The University of Maryland is an Equal Opportunity Employer and Equal Access Programmer

Invasive Pond Plants Workshop

September 26th 5:00 p.m.
DSU Outreach and Research Center
884 Smyrna Leipsic Rd., Smyrna, DE 19977

Invasive pond plants are non-native species that spread very quickly. They threaten the diversity of other native plant species and also have a negative effect on the natural balance of local bodies of water. This presentation will give some examples of some invasive species to keep an eye out for as well as some management strategies for dealing with invasive pond plants. The presenter will be Mr. Brian O'Neill from Weeds Inc.

Aquatic Pesticide Applicator Credits: 2

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

Designer Ditches Workshop

October 22 1:00 p.m.
St. Jones Reserve Coastal Training Center
818 Kitts Hummock Rd., Dover, DE 19901

Ditches can quickly move floodwaters away from our properties and roadways. This workshop will give examples on how we can help reduce erosion, and help increase the absorption of excess nitrogen and phosphorus from leaching into our waterways. Planting the right plants in our ditch areas can reduce pollution, help water soak into the ground to replenish ground water, provide habitat for birds, butterflies, and pollinators, promote diversity by planting natives, and beautify our yards.

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

2019 Mid-Atlantic Crop Management School

November 19 - 21, 2019
Princess Royale in Ocean City, MD

The Mid-Atlantic Crop Management School will be held at the Princess Royale in Ocean City, MD from November 19 - 21, 2019. The school offers a 2 ½ day

format with a variety of breakout sessions. Individuals needing training in soil and water, nutrient management, crop management and pest management can create their own schedule by choosing from 5 program options offered each hour. Emphasis is placed on new and advanced information with group discussion and interaction encouraged. Online registration will close at 11:59 p.m. EST on Monday, November 11, 2019. Registration Fees are \$285 by Sunday, September 15, \$295 from September 16 through October 31, and \$335 from November 1 through November 11. We look forward to seeing you there.

Registration and program details are online at: <https://app.certain.com/profile/form/index.cfm?PKformID=0x3034320abcd>

Building Wood Duck Boxes

January 30, 2020 5:00 p.m.
DSU Outreach and Research Center
884 Smyrna Leipsic Rd., Smyrna, DE 19977

Build them and they will come. Justyn R. Foth, Ph.D., Environmental Scientist and Waterfowl, Turkey, and Upland Gamebird Biologist for DNREC, will give a brief presentation about the importance of wood ducks and why we should promote the species. You will be able to build and prepare a wood duck box and take it home with you free of charge.

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of September 5 to September 11, 2019

Readings Taken from Midnight to Midnight

Rainfall:

0.06 inch: September 6

Air Temperature:

Highs ranged from 89°F on September 11 to 71°F on September 6.

Lows ranged from 70°F on September 5 to 56°F on September 7.

Soil Temperature:

74.4°F average

Additional Delaware weather data is available at <http://www.deos.udel.edu/>

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

University of Delaware Cooperative Extension in accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Reference to commercial products or trade names does not imply endorsement by University of Delaware Cooperative Extension or bias against those not mentioned.