



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 27, Issue 12

June 14, 2019

Vegetable Crops

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

Beans

Thrips, leafhoppers, and defoliators are all active or becoming active. Action thresholds for snap bean pests can be found at <http://extension.udel.edu/blog/ipm-processing-snap-beans-scouting-guidelines-2003/>.

Sweet Corn

Sweet corn pheromone and blacklight traps are checked twice weekly on Mondays and Thursdays. By Tuesday and Friday morning, data is uploaded to our website: <https://agdev.anr.udel.edu/trap/trap.php>. For reference, action thresholds based off of blacklight and pheromone trap can be found here: <http://extension.udel.edu/ag/insect-management/insect-trapping-program/action-thresholds-for-silk-stage-sweet-corn/>. Moth counts are steadily decreasing, but we are still getting 'fresh' looking moths. Thursday's trap capture is as follows:

Trap Location	BLT - CEW	Pheromone CEW
	3 nights total catch	
Dover	1	2
Harrington	0	26
Milford	1	8
Rising Sun	0	18
Wyoming	1	10
Bridgeville	1	20

Concord	1	15
Georgetown	1	25
Greenwood	0	0
Laurel	0	7
Seaford	0	4
Harbeson	--	--
Trap Pond	2	19
Lewes	---	17

Watermelon

Spider mites are beginning to move into fields from woodlines and ditch edges. While these are the first places mites typically show up, hotspots can develop in field interiors, either from mites that came in with transplants or were blown into fields. With warm weather in the forecast, keep an eye out for mites moving from the edge to the interior of fields.

Squash

According to degree day models, squash vine borer should've started flying last week statewide. Start scouting the bases and vines of winter squash for the presence of eggs or larval tunneling signs. Once larvae enter the vine, they are protected from foliar insecticide applications. In small plantings, larvae can be dissected out of the vines carefully. Soil should be mounded up over the vine to encourage adventitious roots at the cut site. I have also heard some folks have success with injecting Bt using a syringe at the site of a larval tunnel. Sprays directed to the vine may help reduce larval density, but sprays would have to be frequently reapplied because adult squash vine borers are active over an extended period of time.

Prepare Now for Late Summer and Fall Harvests - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Plantings for late summer and fall harvested vegetables will be underway in the next few weeks. Timing these plantings can be a challenge, especially where multiple harvests are needed. Plantings from early July through the beginning of September may be made, with cutoff dates depending on the crop, variety, and season extension methods such as row covers, low tunnels, and high tunnels.

These plantings can be divided into 2 groups: 1) warm season vegetables for harvest up to a killing frost and 2) cool season vegetables for extended harvest in the fall.

The three main factors influencing crop growth and performance in the fall are daylength, heat units, and frost or freeze events. A few days difference in planting date in the summer can make a big difference in days to maturity in the fall.

Warm season vegetables for fall harvest include snap beans, squash, and cucumbers. July plantings of sweet corn can also be successful to extend seasons for farm stands. Mid-July plantings of tomatoes and peppers also are made for late harvests, particularly in high tunnels.

Cool season vegetables for fall harvest include cabbage, broccoli, and cauliflower; the cole crop greens, kale and collards; mustard and turnip greens; turnips for roots; spinach; beets; lettuce; leeks; green onions; and radishes.

To extend harvest in the fall, successive plantings are an option. However, days between plantings will need to be compressed. One day difference in early August planting for a crop like beans can mean a difference of several days in harvest date.

Another option to extend harvest in the fall is with planting different maturing varieties at the same time. This is particularly successful with crops such as broccoli and cabbage where maturity differences of more than 30 days can be found between varieties.

Another way to get later harvests is to use row covers or protecting structures (high tunnels).

This can allow for more heat accumulation and will aid with protection against frost and freezes. Decisions on what type or combination of covers/protection to use and when to apply the protection will influence fall vegetable maturation and duration of harvest. In general, plantings of cool season crops can be made 30-45 days later in high tunnels than in outside production.

A final factor for summer planting for fall production is on planting cutoff dates. For example, a crop such as cucumber may produce well with an August 2 planting but poorly with an August 8 planting; broccoli has a wider planting window than cauliflower; turnip greens have a wider planting window than kale.

Planting Window for Fall Harvested Warm Season Vegetables
(harvest September through Frost)

Snap Beans: July 10 through August 10

Lima Beans: June 15 through July 15

Cucumbers: July 10 through August 7 (high tunnel transplanted up to September 1)

Peppers: Transplant up to July 10 (high tunnel up to July 30)

Pumpkins and Winter Squash: Direct seed through June 30 (July 10 for short season varieties)

Summer Squash: Direct seed July 15 through August 15 (high tunnel up to September 1)

Sweet Corn: Direct seed July 1 through July 30

Tomatoes: Transplant July 20 through July 5 (high tunnel up to July 30)

Planting Window for Fall Harvested Cool Season Vegetables
(harvest September - December) *For transplants, seed 3-6 weeks prior to desired planting date (8 weeks for leeks and onions).*

Beets: Direct seed July 1 through August 10

Swiss Chard: Direct seed July 15 through August 20 (high tunnel up to September 30)

Broccoli: Transplants July 15 - August 20

Brussels Sprouts: Transplants June 20-July 10

Cabbage: Transplants July 1 – August 20

Cauliflower: Transplants July 20 through August 10

Kale: Transplants July 15 through August 30

Kale: Direct seed July 1 through August 15 (high tunnel up to September 30)

Collards: Direct seed July 15 through August 15

Carrots: June 20 through July 10 (high tunnel through September)

Turnip Greens: August 1 through September 10 (high tunnel up to September 30)

Turnip Roots: August 1 through August 30 (high tunnel up to September 20)

Mustard Greens: August 1 through September 10 (high tunnel up to September 30)

Leeks: Transplant July 20 through August 10

Lettuce (full head stage): Direct seeded August 1 through August 20

Lettuce (full head stage): Transplants August 10 through August 30

Lettuce (baby stage and cut salad mix): Direct seed August 1 through September 15 (high tunnel up to October 15)

Onion (green bunching): Direct seed July 1 through August 30 (high tunnel through September 30)

Parsley: direct seed July 15 through August 15 (high tunnel through September 15)

Radishes (salad): Direct seed August 1 through September 30 (high tunnel through November 30)

Radishes (Daikon): Direct seed August 1 through September 10 (high tunnel up to September 30)

Spinach: Direct seed August 10 through August 30 (high tunnel up to September 30)

Cautions with Herbicides in and Around High Tunnels and Greenhouses - Gordon Johnson, Extension Vegetable & Fruit Specialist; gjohn@udel.edu

Each year, there are cases where vegetables in high tunnels and greenhouses are injured by herbicides. Drift from herbicide applications near greenhouses and high tunnels can cause major losses.

Small spray particles can move long distances with wind. This is called particle drift which is commonly associated with herbicides such as paraquat. Vapor drift occurs when the herbicide volatilizes and then moves in the air, which is common with ester formulations of 2,4-D

Growth regulator herbicides are often of most concern for drift damage to high tunnel and greenhouse crops. This group includes dicamba, 2,4-D, MCPA, MCPP, triclopyr, picloram, clopyralid, aminopyralid, and quinclorac. Drift from these herbicides can occur over one mile from where they were applied.

Sources for drift can be crop field, turf and lawn care, right of way, and other applications. Another issue is with applications to control weeds around greenhouse or high tunnel structures themselves.

Tomatoes and other solanaceous crops such as potato and eggplant are particularly susceptible to damage from these growth regulator type herbicides. The most common symptom of this injury is the twisting of petioles and deformed leaflets. Stem and petiole elongation, downward cupping or rolling of new leaves, stem splitting, vein yellowing, and stunting may also be observed.

The most susceptible period for greenhouses and high tunnels is when the sides or ends are fully open. In areas surrounding high tunnels or greenhouses, do not use herbicides that might contaminate the greenhouse or environment by volatilization or movement in water. Do not use growth regulator type herbicides, such as those labeled for broadleaf weed control in turf, near greenhouses or high tunnels. Do not use soil sterilant herbicides such as Picloram, Arsenal, Oust, or Casoron around greenhouses or high tunnels.



Growth regulator herbicide damage to high tunnel tomatoes. Injury was most severe along open sidewalls. This high tunnel was next to crops fields where the drift likely came from. Note the deformation of the leaves.

Oh Hail Yes – *Jerry Brust, IPM Vegetable Specialist, University of Maryland;*
jbrust@umd.edu

Last week I had a call from a vegetable grower who thought they might have *Allium* leaf miner (LM) pretty bad in their onion field. While this grower was organic (synthetic pesticide use reduces *Allium* LM risk) and in the northern part of Maryland I was skeptical about *Allium* LM being a really bad problem in onions. As I approached the onion field it did look like the pictures I have seen of *Allium* LM damage in Pennsylvania. The onions were broken and falling over one another and there were white marks on the onion stems (Fig. 1), just like what has been seen in PA (Fig. 2). Upon closer inspection, the white marks on the onion stems were too large and scattered on a stem (Fig. 3) to be the marks made by female *Allium* LM flies that are smaller and generally in a more orderly row usually near the tip of an onion leaf (Fig. 4). Although it is hard to tell from Figure 3, all the marks on the onions from the Maryland field were on one side of a leaf and all of the onion plants were leaning in one direction. This looked like hail damage. The grower was skeptical as they did not see any hail fall over the last 2 weeks and there was no other damage from hail on the farm. The white marks on the onion stems were most likely made by hail that was probably smaller than a pea. We had had reports of hail on June 2 in areas in northern Maryland, but the reports were very scattered and the hail was usually very light if it did fall.

A few days after this visit another grower brought me onion stems that looked odd and they were afraid it was some disease. The damage appeared suddenly in the past few days (June 4-6) and only the onions at one end of the field had the problem. Figure 5 shows the onion stems with the damage. As on the other farm it was white marks on only one side of the stem and not the other. Figure 6 shows the same stems as in Figure 5 but flipped over—no white marks. This grower was less skeptical that this was hail damage as they had heard some hail on their metal barn roof, but they really saw very little on the ground. The thunderstorms we had last week and in May produced some very small hail pellets that resulted in very isolated

damage. To be sure, I had the onions tested from both farms for any disease—none were found. Other than possibly feeding the onions a low level of nutrient solution to help the recovery process there is not much else that can be done for the damage.



Figure 1. Broken twisted onion stems with white blotches on them



Figure 2. Onions infested with Allium leaf miner



Figure 3. Damaged onion stems with scattered white marks caused by hail



Figure 4. The generally orderly white dots caused by female Allium LM



Figure 5. Onion stems with white marks on one side



Figure 6. Same onion stems turned over showing no white marks

Agronomic Crops

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

Alfalfa

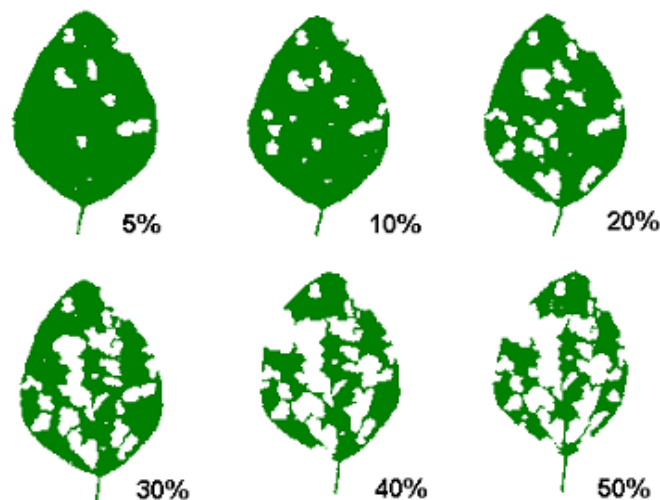
Be on the lookout for potato leafhoppers. Leafhoppers are active in the region and can cause yield loss before visible symptoms develop. When feeding, leafhoppers inject a toxic saliva into the plant that causes yellowing at the leaflet tips, or 'hopperburn.' The action threshold for number of leafhoppers per 100 sweeps depends on alfalfa height and growth stage. Refer to the UD factsheet here:
<http://extension.udel.edu/factsheets/potato-leafhopper-control-in-alfalfa/>

And insecticide recommendations here:
<https://cdn.extension.udel.edu/wp-content/uploads/2012/05/25073121/Insect-Control-in-Alfalfa-2018.pdf>.

Soybean

Early season defoliators are active, and include bean leaf beetle, bean leafroller, green cloverworm, yellow striped armyworm, leafhoppers, and thrips. Thrips feeding is typically concentrated in a narrow time window and does not cause economic injury unless fields are under severe drought stress. You will see silvery streaks on leaves. Leafrollers hide during the day by cutting and folding leaf sections over themselves. Defoliation thresholds during vegetative stage soybean are very high, over 35%. Defoliation is easy to over-estimate, our

eyes are drawn to what's different or concerning, in this case, holes in the leaves. It is important to consider whole canopy defoliation, not just upper leaflet defoliation. I like to mentally divide the leaflet up into quarters and try to piece the holes into those quarters as if it were Tetris. The below image is a good guide for estimating defoliation:



Scouting for Corn Diseases - Alyssa Koehler, Extension Field Crops Pathologist;
akoehler@udel.edu

Pythium Root Rot

This year has continued to have very conducive conditions for *Pythium* species. Symptoms can include stunted, slower growing plants, to severely infected, dead plants. Early in the season, we were seeing quite a bit of post-emergent damping off. Some of the symptomatic plants displaying symptoms of stunting have begun to set new brace roots and are growing out of the disease.

Anthracnose Leaf Blight

Anthracnose of corn is caused by the fungal pathogen *Colletotrichum graminicola*. Foliar symptoms typically include oval to irregular lesions on the lower leaves around V5-V8 that are brown/red-brown in color. Lesions often have concentric rings that can give a target like appearance. Using a hand lens, black hairs called setae can be observed and are usually diagnostic of *Colletotrichum* sp. This disease is residue borne and favored by no-till production and

irrigation or natural warm, rainy conditions. Many hybrids are able to accumulate defensive chemicals and lesions are not observed after V6-V8. In a few weeks we will discuss Anthracnose stalk rot which can appear later in the season.

As the season progresses, if you are planning to make a fungicide application, the Corn Disease Working Group has updated the 2019 Fungicide Efficacy for Control of Corn Diseases which can be found at <https://crop-protection-network.s3.amazonaws.com/publications/cpn-2011-corn-fungicide-efficacy-for-control-of-corn-diseases.pdf>

Growing Degree Days Through June 12 - Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

Most corn at the station is starting to pull out of the sulfur deficiency with the sidedress application. We have seen 3-5 days between leaf stages since plants hit V6 and temperatures remained higher. If you planted corn in early April, you should be close to the V12 stage (Table 1). It will be difficult to count leaf collars, as after V6 the bottom one or two leaves may have dropped off. Some of our plots in Georgetown planted on April 24th are at V9/10, so with 19-20 growing degree units per day, we could hit V12 early next week.

Any corn planted later in May through early June should be at or close to V5/6 and ready to sidedress, so be sure to scout those fields. We have noticed less sulfur deficiency with later planted fields, possibly due to S being available as it is released from organic matter with warmer temperatures. Let us know where you have seen S deficiencies this year. An application of gypsum as a starter to some of our plots did not reduce visual symptoms, we will have to wait and see if it helps with yield.

Day and nighttime temperatures for corn growth (Figure 1) have been great so far, plenty of warm days and cooler nights to keep growth at a maximum. Rainfall has had an almost linear increase (Figure 2) since April 14th, with periodic storms keeping soil moisture up. Newark received almost 2 inches over the weekend, but

otherwise, most regions are doing much better than this time last year.

Table 1: Accumulated growing degree-days based on planting dates through June 12th.

If you planted ↓	Sussex	Kent	New Castle
14-Apr	974	930	885
21-Apr	883	837	799
28-Apr	801	762	718
5-May	701	681	647
12-May	601	583	556
19-May	531	518	496
26-May	391	382	362

V6 = 475 GDD, V12 = 870 GDD, VT = 1135 GDD, R1 = 1400 GDD

Figure 1: Statewide temperatures since April 1st.

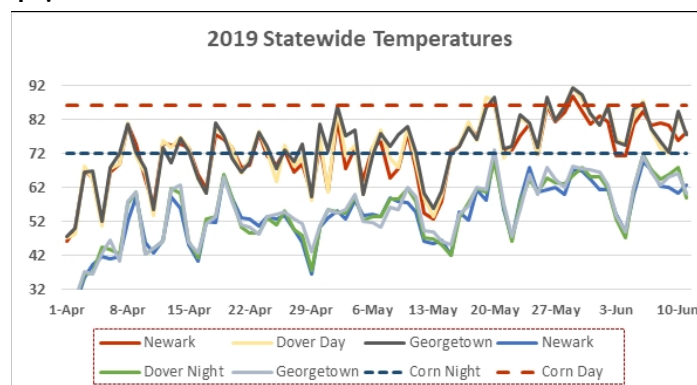
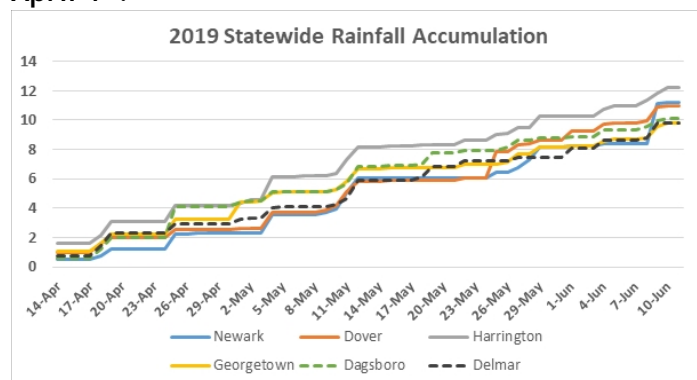


Figure 2: Statewide rainfall accumulation since April 1st.



Harvest Aides for Wheat and Feed Barley -

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

There are only a few options available as harvest aides for small grains. These include Aim, Defol, glyphosate, and Sharpen. While 2,4-D and dicamba are labeled, we do not recommend them for this region. Refer to the labels for rates, adjuvants, crop stage at application, and harvest intervals. These options will have limited effectiveness on large weeds.

2019 Weed Science Field Day - Mark

VanGessel, Extension Weed Specialist;
mjv@udel.edu

The 2019 Weed Science Field Day will be held **Wednesday, June 19, 2019** at the University of Delaware Research and Education Center, Route 9 (16483 County Seat Highway), Georgetown, DE.

The weather delayed getting some of the plots planted, but the past three weeks have been very productive and we will have lots to view. All of our corn studies will be part of the tour, which includes most of the commercially available herbicides. Some of corn trials include different approaches and timings for herbicide application. We will view trials for full-season no-till and conventional tillage soybean production; including a number of trials with postemergence treatments.

The day will begin with **registration beginning at 8:30** at the Grove near the farm buildings and new office building on the north side of the road. We will start to view the plots at 8:45 am. Coffee, juices, and donuts will be provided. We will also provide sandwiches for lunch. Pesticide credits and Certified Crop Advisor continuation credits will also be available.

Dr. Alyssa Koehler (plant pathology), Dr. David Owens (entomology), and Dr. Jarrod Miller (agronomy) will also be discussing their summer research projects as well.

General

Considerations when Choosing Adjuvants -

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

We have had conditions that have resulted in a lot of tender plants. Specifically, prolonged periods of overcast skies, cooler weather, and plenty of rain. If postemergence herbicides are made as the days turn hot and sunny, the risk of injury is greater. This is because the wax layer on the leaves may be thin and the leaf surface is "tender". This, coupled with many fields needing postemergence herbicides, means we need to pay attention to adjuvant selections. Adjuvants are needed to increase herbicide coverage, increase adsorption across leaf surfaces, and improved performance. However, this can also increase the risk of crop injury. So consider:

- What is required on the pesticide labels? Herbicide manufacturers will not stand behind their products if the label is not followed. Given a choice of adjuvants, non-ionic surfactants (80:20) are safer than crop oils or methylated seed oils. Also, given the choice of nitrogen sources, dry ammonium sulfate has less risk than liquid nitrogen fertilizer.
- If the crops are tender and more susceptible, then weeds are likely to be more susceptible (meaning weeds of the same size are more susceptible under these types of conditions). It may not be necessary to use the same level of adjuvants as you would for the same size weed under drought conditions.
- What is included in the tankmixture? Tankmixing can increase risk of injury. Other pesticides can increase risk of injury, for instance herbicide formulations may have similar properties to an adjuvant (i.e. emulsifiable concentrates can have adjuvant properties and add to the adjuvant load).
- If weeds are larger than the labeled heights for control, then consider using adjuvants and rates that allow for more "activity" (i.e. switching to crop oils or using nitrogen, using higher rates)

Be sure to match the adjuvants you use to the growing conditions, and the weeds and crop susceptibility at time of application.

Guess the Pest! Week 10 Answer: Rapid Physiological Growth - David Owens, Extension Entomologist, owensd@udel.edu and Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

I apologize for not updating the webform with last week's image. Those who guessed sulfur deficiency based on the image from Jarrod Miller showing leaf stripping will be entered for the end-of-year raffle.

This from Mark VanGessel:

When corn grows very rapidly and leaves do not unroll, younger leaves become trapped by outer leaves. When outer leaves open, the inside leaves are chlorotic for one to two days. Leaves quickly turn green and symptoms disappear.

This is most likely to be observed after side-dressing nitrogen when growing conditions are ideal. Some hybrids are more prone to developing these symptoms than others.

So, your corn is growing very well. Keep that sweep net handy to make sure our six-legged friends stay out!



Guess the Pest! Week 11 - David Owens, Extension Entomologist, owensd@udel.edu

Test your pest management knowledge by clicking on the link below 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.

As you are using a sweep net as a crutch and scouting cucurbits for insects and diseases, you find an odd grouping of coppery spheres. What are they?



To submit your answer, please go to:
https://docs.google.com/forms/d/e/1FAIpQLSfUPYLZnTRsol46hXmqgj8fvt5f8-JI0eEUHb3QJaNDLG_4kg/viewform



USDA Announces Availability of \$12.5 million in Conservation Innovation Grants

USDA recently announced it is investing up to \$12.5 million to help support the adoption of innovative conservation approaches on agricultural lands. USDA's [Natural Resources Conservation Service \(NRCS\)](#) is accepting proposals through July 30, 2019, for national Conservation Innovation Grants (CIG) funding opportunities.

CIG projects inspire creative problem-solving that boosts production on farms and private forests - ultimately, they improve water quality, soil health, and wildlife habitat. All U.S.-based non-Federal entities and individuals are eligible to apply.

CIG support the development and field testing, on-farm research and demonstration, evaluation, or implementation of conservation technologies, practices, and systems and approaches to incentivizing conservation adoption. Grantees must match the CIG investment at least one to one.

The 2019 CIG priorities are:

- Increasing the pace and scale of conservation adoption
- Water quantity
- Pollinator habitat
- Urban agriculture

The complete funding announcement information can be accessed through the [Conservation Innovation Grants webpage](#). The National CIG program supports early pilot projects or demonstrations of promising conservation approaches.

National CIG program is distinct from the \$25 million [announced on May 15](#) for On-Farm Conservation Innovation Trials. On-Farm Trials is a new CIG component created by the 2018 Farm Bill. On-Farm Trials include a Soil Health Demo Trial.

Applications for this national CIG must be submitted through [Grants.gov](#) by 5 p.m. Eastern Time on July 30, 2019. Please visit www.nrcs.usda.gov for more information on USDA NRCS programs or services.

USDA is an equal opportunity provider, employer and lender.

Announcements

DSU Blueberry Field Day

Tuesday, June 18, 2019 8:30 a.m. to 2:30 p.m.
Delaware State University
Outreach & Research Center
884 Smyrna-Leipsic Road, Smyrna, DE

Speakers

Dr. Dharma Pitchay, Associate Professor, Tennessee State University
A representative from USDA local office, DE

Open to the public. Commercial and Residential Producers are welcome to this FREE Event.

Blueberries can be a profitable, specialty crop that commercial and backyard growers can produce successfully. Participants will be guided through the soil and water testing process as well as discuss production aspects of blueberries. Participants will gain hands-on knowledge of proper planting and pruning techniques to maximize disease prevention and insect control, thus maximizing plant health and productivity.

Interested participants are requested to bring soil sample (1/2 lb) from their plot where they plant blueberries and water sample (30 ml) they apply during irrigation to test pH.

Class space is limited - registration is required: Register by contacting Lekha Paudel, at 302-857-7796 or email Lnpaudel@desu.edu.

Integrated Pest Management Implementation Workshop

Monday, July 8, 2019
Delaware State University, Smyrna Outreach Research Center
884 Smyrna-Leipsic Road, Smyrna, 19977-3440

The workshop will cover:

- Integrated Pest Management Strategies
- Insect and Mites: life cycles, detection methods, monitoring thresholds and control options
- Experience with predatory mites
- Housing pests and control
- Weed management and cover cropping for specialty crop growers

Pesticide Credits: 6

Speakers:

Dion Lerman Lewis
Penn State Center

David Owen
University of Delaware

Cerruti Hooks
University of Maryland, College Park

Brian Kunkel
University of Delaware

Please register by July 3, 2019.

For more information, to register for this free workshop, or for assistance due to disabilities, contact: Rose Ogutu rogutu@desu.edu- Phone number 302-857-6397

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of June 6 to June 12, 2019

Readings Taken from Midnight to Midnight

Rainfall:

0.10 inch: June 6

0.13 inch: June 9

0.74 inch: June 10

0.28 inch: June 11

Air Temperature:

Highs ranged from 87°F on June 6 to 72°F on June 9.

Lows ranged from 71°F on June 6 to 57°F on June 12

Soil Temperature:

74.8°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.