



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 25, Issue 26

September 22, 2017

Vegetable Crops

Contaminants in Processed and Fresh Market Vegetable Crops - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Contaminants are a major concern for vegetable processors and packers. Consequently, quality control/food safety programs have been developed by vegetable companies to reduce the risk of tainted products.

One major concern in processed vegetables is foreign materials such as glass, metal, plastic, and stones. A high risk area for foreign material in processing vegetable fields is next to roadsides where bottles, cans and other litter is often found.

Managing to reduce foreign material contamination requires inspecting fields prior to harvest and hand removal of these materials. In processing plants, magnets can be used to remove metals; gravity and flotation based systems can remove heavier materials such as glass and stones, color sorters also can remove some of these materials, and having crews hand remove contaminants over a grading belt is another option.

Insect contaminants are a second area of concern. In particular, those insects that “bore” into or lay eggs inside of fruits, seeds, leaf whorls, or stems, and cannot be removed in washing and sorting operations, are problematic. A major issue is consumers finding “worms” in processed vegetable products or fresh produce.

Snap beans, edamame vegetable soybean, pickles, sweet corn, and spinach are examples of crops where there is a zero or low tolerance for insects in harvested products for processing.

Managing to reduce or eliminate insect contamination starts with strict control programs in the growing field. Insect damaged fruits and seeds may be removed by hand or by mechanical means during grading. However, insects found in fruit or seed interiors may be difficult to remove by these methods.

Weed seeds and fruits are a third area of concern, especially for processors. The most problematic are those weeds that produce a seed or fruit similar in size and color to the harvested product. A good example is horsetail. It produces a fruit similar in size and shape to lima bean seeds which end up being harvested along with the lima beans in field operations.



Horsetail fruits are a lima bean processing crop contaminant because they are a similar color and shape as baby limas.

Managing to reduce or eliminate weed contamination of vegetable products starts with good weed control in the field. If a field has a history with a problem weed then efforts should be made to eliminate that weed in rotational crops. If there are small areas of escaped weed contaminants in a field then they can be removed by hand. Post-emergence applications of herbicides timed properly can reduce flowering and weed seed and fruit formation in some cases. Avoiding harvest in infested areas is another practice to reduce contamination by weeds.

Contamination from disease causing organisms is another area of concern in processed vegetables and fresh packed produce. Infected produce may be discolored, may have off-tastes, or may generate bad odors. Infected produce may also break down or rot in transit. One major problem in recent years has been *Phytophthora capsici* causing breakdown of watermelons and cantaloupes during shipping. It is a major concern in pickles causing breakdown of pickle fruits between washing operations and delivery to the processing plant. In lima beans, harvest of *Phytophthora* infected pods has tainted whole runs of lima beans during processing with foul odors rendering a significant number of frozen lots unsaleable.



G Johnson
Phytophthora capsici infected watermelon fruit can cause "melting" in the bin during staging and transit.

It also can taint products such as frozen lima beans with a foul odor reducing salability.

Control programs should be targeted on problem diseases to reduce contamination. In particular, fields with a history of *Phytophthora capsici* should be avoided if possible. Chemical control programs should be used as a preventative when suspect fields are planted to susceptible vegetables such as lima beans, cucumbers, or watermelons. Because this is a soil-borne organism with a long-term resting spore that infects during wet periods, all efforts should be made to improve drainage in fields. Avoid harvest in field areas with infections.

Processors and packers are also concerned with off-label applications of pesticides, and therefore keep detailed records of herbicide, insecticide, fungicide, and other chemical usage. One major issue has been days to harvest with herbicide applications. Quick growing vegetables may be ready for harvest ahead of the label restrictions. Rotational restrictions with herbicides also limit field options for many vegetables.

Lastly, microbial contamination with food-borne illness causing organisms such as *E. coli* and *Salmonella* is a major concern in high risk vegetables that are consumed fresh such as lettuce and other leafy greens, tomatoes, and netted muskmelons. All produce growers should have a food safety plan and implement practices to reduce potential contamination with food borne human pathogens.

Troubleshooting Pole Lima Beans - *Emmalea Ernest, Associate Scientist - Vegetable Crops; emmalea@udel.edu and Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu*

Pole lima beans are a very profitable crop for market gardeners and produce growers across Delaware and also have an enthusiastic following among home gardeners. However, a number of problems can come up that limit yield potential. We have getting calls about three major issues in recent weeks.

Downy Mildew

Downy mildew, caused by *Phytophthora phaseoli*, affects pods, shoot tips, racemes (flower stalks) and sometimes petioles, but there are rarely symptoms on leaves. Downy

mildew produces a white cottony growth on affected plant parts. This season's wet weather has favored Downy mildew's development and spread.



Downy mildew on a pod of Dr. Martin pole lima bean.



Downy mildew on shoot tip, petiole and leaf of Dr. Martin pole lima bean.

Some other lima pathogens can also produce white mycelial growth on pods (white mold, pod rot, *Pythium*) but these rarely affect trellised pole beans because their spread depends upon proximity to infested soil.

Phosphonate fungicides containing potassium phosphite salts (i.e. Phostrol, Agri-Fos) are effective if applied when downy mildew symptoms are first observed. Some of these products are available in smaller quantities (quart) that are suitable for use by growers with

small farms or home gardeners. Ridomil Gold is an option for commercial applicators. As a cultural control, growers may consider removing symptomatic pods from the field in addition to spraying. Plant debris should be removed at the end of the season to prevent overwintering of downy mildew, especially if limas are grown in the same area year after year. If you save your own seed, do not save seed from diseased pods.

Stink Bugs

Three of our common stink bug species are pests of lima bean: green stink bug, brown stink bug, and brown marmorated stink bug. Stink bugs can reduce lima bean yields significantly. These insects feed by piercing developing pods with their needle-like stylets, sucking sap out of the pods or young seeds. This causes misshapen seeds in more developed pods and dropped pods when seeds inside young pods are killed. Hot weather will also cause poor pod set, but if conditions are cool and pods and flowers are dropping from plants, stinkbugs are frequently the cause of the problem. Scouting for stinkbugs in a mass of thick pole bean foliage can be difficult. You may want to instead look for the damage they cause to confirm they are causing a problem.



Stinkbug feeding damage on a lima bean leaf. This type of damage probably does not cause yield loss, but it will help you to know that stink bugs are present.



E Ernest

Stink bug feeding damage on baby lima pods (left) and undamaged pods at a similar developmental stage. Stink bug feeding can kill developing seed and cause fluffy white growth inside of pods at the feeding site.



E Ernest

Recently hatched stink bug nymphs on a pole lima pod.



E Ernest

Pole lima bean pod with stink bug feeding damage indicated by arrows.



E Ernest

Green stink bug nymph



E Ernest

Stink bug eggs on a pole lima pod.



E Ernest

Brown marmorated stink bug nymph



Adult green stink bug.



Adult brown stink bug.

Insecticide sprays are used for control. Commercial applicators may consult the Mid-Atlantic Commercial Vegetable Recommendations for insecticide options (<http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/>). Home gardeners and small scale growers can look for products containing bifenthrin which are labeled for use on lima beans. Follow the product directions for application and days until harvest. Such products are available in some garden centers. Be careful with some of the pyrethroids because they can cause mite populations to explode by reducing natural controls (predators).

Leaf Yellowing

The third issue we have seen is yellowing of leaves and poor vine growth not related to insects or disease. This is often due to nitrogen deficiencies in mid-summer. In addition, in a wet year such as 2017, poor root function and denitrification resulting from saturated soils will lead to poor vine growth, yellowing, and poor pod set. Severe N deficiency in lima beans will be seen as an overall yellowing of plants with lower leaves often dropping off as N is mobilized from the oldest leaves to support the new growth at growing tips. Less severe N deficiency will be seen as a lighter green color than normal with lowest leaves most affected. There are other potential causes for yellowing in lima beans including low pH leading to magnesium deficiencies and excessively high pH leading to micronutrient deficiencies, most commonly manganese.

Agronomic Crops

Considerations for Proper Soil Sampling -
Jarrold O. Miller, Extension Agronomist,
jarrod@udel.edu

It's the time of year to start planning soil sampling, but remember all soil samples aren't the same. Cropping system, soil type and past management contribute to how you should sample.

Consistently sampling the correct depth is key to good fertility recommendations. A depth of 6-8 inches is the typical recommendation for fields under tillage, since that much of the soil is often mixed together. To get a good idea of nutrient or lime needs for pastures, samples should be taken no deeper than 4 inches. The reason for this is stratification of nutrients and acidity. In pastures only rainfall moves nutrients and lime into the soil profile, versus mixing that upper layer with tillage. Deeper samples may cause you to overestimate nutrient or lime needs for pastures. [Michigan State University](#) observed 228% more P_2O_5 and 180% more K_2O at 4 versus 7 inch samples. The deeper samples may cause you to add potash to pastures that don't yet need it.

No-till fields can be similar to pastures when considering nutrient stratification, but a 6-8 inch

fertility sample is still recommended. Sampling in no-till systems should be based more on nutrient placement. If you band fertilizer, be sure to avoid sampling those locations. Don't avoid entirely, it still represents soil nutrient levels, but bands can skew your soil tests and cause you to under apply. One recommendation for dealing with bands, is for every one sample taken within a band, take another 8 samples x the distance (in feet) between the bands (<http://www.cropnutrition.com/efu-soil-sampling>).

Acidification from nitrogen fertilizers also creates sampling issues. Broadcast or surface applied N often only causes acidity in the upper few inches, so a deeper sample may not capture the lime needs at planting. For surface applied N in no-till fields, a sample from 0-2 inches to determine pH is best. Knifed or injected N will cause acidity deeper in the profile, typically about 2-3 inches above the knife depth. For those soils, samples should be taken deeper in the profile, and the typical 6-8 inch fertility sample may work fine for determining soil pH.

Proper sampling can reduce error on your end. If pH or nutrient levels vary between years, consider whether you:

- 1) Sampled a consistent depth
- 2) Have a tillage, continuous no-till, or pasture system
- 3) Where and how you applied your nitrogen (banded, broadcast, knifed, etc.)

Errors in sampling can easily cause under/over application of fertilizer or lime. If you have any questions about where you should sample in your system, email me at Jarrod@udel.edu.

Fungicides for Ear Rots? - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu; @Delmarplantdoc

Increased levels of ear rots in field corn are typically associated with wet weather in September. Ear rots are caused by several fungal pathogens, but most often we see observe those that are caused by *Gibberella*, *Aspergillus*, *Fusarium* and *Diplodia*. The main issue associated with these ear rots (Except *Diplodia*) is the production of mycotoxins, which can be

affect the safety and quality of grain used for feed and ethanol production. Thus, it is important to be able to identify which organisms you are encountering.

Gibberella ear rot (Figure 1a) is the same fungus that causes *Fusarium* head blight in small grains. The reason the name differs has to do with fungal reproduction and the types of spores produced. *Gibberella* infects through the silks and is typically observed at the tips of the ears and develops down the cob. The fungus produces a red to pink growth on and in-between kernels, and can produce vomitoxin and zearaleone.

Aspergillus (Figure 1b) has a powdery, olive green appearance and typically occurs on damaged kernels. *Aspergillus* is more of an issue in dry seasons. Aflatoxins are produced by this fungus.

Fusarium ear rot (Figure 1c) can be caused by multiple species of *Fusarium* and is the most commonly occurring ear rot we encounter. A starburst appearance or streaks in kernels, as well as a white to pink growth in-between kernels is typically observed. Research we conducted with Virginia Tech indicated that this fungus and the fumonins it can produce can be increased by stinkbug damage to the cob.





Figure 1 Different ear rots encountered in field corn grown in Delaware. a) Gibberella ear rot; b) Aspergillus ear rot; c) Fusarium ear rot.

Hybrids with cobs prone to exposed ends as well as insect and bird damage can increase corn ear rots. General management of ear rots should focus on selecting hybrids with resistance or reduced susceptibility to commonly occurring ear rot fungi, rotating crops and sizing residue to enhance residue decomposition, and managing insects that can damage the cob. Fungicides can reduce some ear rots, but experimental results have not been consistent. For example, Anderson *et al.* (2017) studied the impacts of Quilt Xcel, Proline, and Headline applied at R1 on Gibberella ear rot and associated mycotoxins. The researchers inoculated corn with the fungal pathogen to ensure it would be present during the study. Their results showed that Gibberella ear rot consistently reduced yields but fungicides did not consistently reduce mycotoxin content of the grain. This article and other references to similar studies can be viewed here:

<https://www.plantmanagementnetwork.org/php/elements/sum2.aspx?id=10992>

Considerations for Small Grain Weed

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

There has been an interest in using herbicides at planting (or shortly after planting) for weed control in small grains. There are few effective herbicides labeled for preemergence applications. Sharpen is labeled for wheat and barley but provides limited control. Valor or Afforia can be used with the burndown application, but there must be a 7-day period between application and planting wheat. We have seen injury with Afforia or Value used on coarse-textured soils, particularly if rain occurs shortly after planting or if seed is planted less than 1 inch deep.

Axiom, Anthem Flex and Zidua can be used after wheat emergence, typically spike stage. These products are only labeled for winter wheat, not barley. They do not provide control of emerged weeds, but can have utility in situations where application can be made after wheat emergence but before weed emergence. These three herbicides require rainfall or irrigation to activate, so if we experience a dry spell after application, control can be compromised.

Axiom, Anthem Flex, Zidua, Valor and Afforia all specify that the seed must be planted at least 1 inch deep. None of these products are compatible with wheat planted by "spinning the seeds" on the soil surface and shallow incorporation with a disk or turbo-till.

Announcements

New Castle County Fall Equine Program

October 10, 2017

New Castle County Extension Office

461 Wyoming Road

Newark, DE 19716

6: 00 p.m. Global Worming: How to Prevent Dewormer Meltdown in the 21st Century

Dr. Rose D. Nolen-Walston, University of Pennsylvania School of Veterinary Medicine

6:40 p.m. New Castle County Conservation District Programs for Equine Operations

Mr. Kevin Donnelly, New Castle Conservation District Coordinator

6:55 p.m. **Break**

7:05 p.m. **Preparing Your Pasture for Winter: Fall Fertilization and Weed Control**

Ms. Susan Garey, University of Delaware Cooperative Extension

7:30 p.m. **Preparing an Animal Waste Management Plan for Your Farm**

Ms. Sydney Riggi, University of Delaware Cooperative Extension

7:55 p.m. **Paperwork**

8:00 p.m. **Adjourn**

Nutrient Management CEUs are pending

DSU Woodland Workshop Series

Please register for any or all of these workshops by contacting Megan (302) 857-6438 or emailing mpleasanton@desu.edu. (Please note that these workshops are not all at the same location.) You must register to attend these free workshops.

Chainsaw 101

Saturday, September 23 10:00 a.m. – noon
915 Kenton Rd. Dover DE 19904

This workshop will show you the do's and don'ts when it comes to chainsaw operations. You will learn safety tips as well as general chainsaw maintenance techniques. The class will be taught by Sam Topper from the Delaware Department of Agriculture's Forest Service.

Selecting and Harvesting Firewood

Thursday, October 26 3:00 – 5:00 p.m.
142 Simmental Meadows Ln, Marydel, DE

During this workshop, you will learn what trees to choose for harvest and which to let grow. You will also learn techniques for harvesting and selecting firewood for sale. This class will be taught by a Delaware Department of Agriculture Forest Service Representative.

Tree Trimming

Thursday, November 9 10:00 – noon
884 Smyrna Leipsic Rd, Smyrna DE 19977

This workshop will teach you the importance of proper tree trimming. The first half of the class will be instructions on how to make a proper cut and the second part will be a demonstration outside.

Building Wood Duck Boxes

Thursday, December 14 6:00 -8:00 p.m.
884 Smyrna Leipsic Rd Smyrna DE 19977

Build them and they will come. During this session you will learn 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.

Large Animal Emergency Rescue Training

October 7 or 8, 2017 8:00 a.m. – 4:00 p.m.
University of Delaware Equine Science Program
UD Webb Farm, Farm Road, Newark

Do you know what to do in a large animal emergency? Are you prepared with equipment, know who to call, what to do? Whether you are a public safety official, a first responder, a veterinary professional, or an equestrian, this course is essential to prepare you for an emergency. You will learn how to move large animals safely and quickly in cases of disaster or injury, while preventing potential injuries to the humans involved. The course offers classroom instruction and hands-on scenarios using our specialized equipment and equipment that may be readily available to first responder departments.

A one-day clinic is being offered to educate first responders, horse owners or anyone interested in learning basic large animal rescue techniques instructed by Roger Lauze, the Equine Rescue and Training Coordinator for MSPCA. Fair Hill NRMA's new rescue trailer, donated by the Volunteer Mounted Patrol, will be utilized for the training. The cost for the full day of training is \$10 per person. Please bring your own lunch and drinks.

Registration is limited to 40 participants per day so please register early. Dress appropriately for the weather as you will be hands on after classroom work. Please bring leather gloves and safety helmet.

For more information, contact Amy Biddle, Department of Animal and Food Sciences, asbiddle@udel.edu or (302) 831-2642.

To register mail or email **registration form** to Amy Biddle. Pre-registration must be received by September 30, 2017 <https://cdn.extension.udel.edu/wp-content/uploads/sites/12/2017/08/25133805/LAERTform2017.pdf>

Delaware Beekeepers Association's Open Hive Event

Saturday, September 23, 2017

8:30 a.m. – 12:00 p.m.

Delaware State University
Outreach and Research Center
884 Smyrna-Leipsic Road Smyrna, DE 19977

Please join us for educational lectures, demonstrations and a first-hand look inside a real honeybee hive. Get your first exposure to these important and fascinating insects!

(Rain Date September 24, 2017)

RSVP: Kathy Hossler, DBA President,
dbapresidenthossler@gmail.com

Or for more information about DSU's beekeeping program, contact Jason Challandes,
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.

2017 Dickeya and Pectobacterium Summit

November 9, 2017

The Potato Association of America meetings were held last week in Fargo, ND. Interesting items of note were:

- Scottish scientists (including Ian Toth and Gerry Saddler) recommend regulating *Dickeya dianthicola* as A2 quarantine pest. They also recommend a zero tolerance for all *Dickeya* spp. on potatoes in Scotland.
- Work from North Dakota and Maine presented changes in dormant tuber tests that increased *Dickeya* recovery (reduced the false negatives) by as much as 30 percent.
- There is a new *Pectobacterium* species reported from Maine that affects plants in the field and tubers in storage.
- There may be some progress in chemical control of the pathogens (and NO, it is not phosphorous acid, Tanos, or anything else applied to the foliage!!!)

Sound interesting? Valuable? These, and other speakers will all be presenting on these and other topics at the Dickeya and Pectobacterium summit in Bangor on November 9, 2017.

This is an opportunity to hear the latest information that you, as a grower, need to know about these pathogens and diseases.

There is still room at the upcoming Dickeya and Pectobacterium Summit:

<https://extension.umaine.edu/agriculture/programs/dickeya-and-pectobacterium-summit/>

Mid Atlantic Crop Management School

November 14-16, 2017

Ocean City, MD

Registration is now live

<https://app.certain.com/profile/form/index.cfm?PKfor mID=0x26558978c60>

You may now register for the 2017 Crop School by following the link above. We also have a shortened link you may share by email (<https://go.umd.edu/crop17registration>). The early bird fee is \$275 prior to September 15th; \$285 prior to October 30th; and \$325 if received by November 6th.

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.

The full program for the 2017 Mid-Atlantic Crop Management School can be downloaded here:

https://app.certain.com/accounts/register123/umd/events/crop-17/2017_CMS_Program_FINAL_2017-09-05.pdf

Annie's Project: Women Managing Commercial Poultry

six classroom sessions starting on

Thursday, October 12, 2017

5:30 – 8:30pm

Two locations:

UD Carvel Research & Education Center,

Georgetown, DE
and
UD Paradee Center, Dover, DE

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 the 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.

The University of Maryland and Delaware Cooperative Extension will conduct the program at two sites. The classes will be offered at the same time. Zoom Web Conferencing will be used to bring the two locations together.

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 6th- 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.

Upcoming Women in Ag Webinars

Noon – EST

Register

<http://extension.umd.edu/womeninag/webinars>

9/27/17: The Produce Safety Rule of the Food Safety and Modernization Act & the Records You Need to Keep

If you grow produce you need to keep records in order to comply with the Produce Safety Rule of the Food Safety Modernization Act (FSMA). If your operation is not subject to the law you need to keep certain records to prove your exemption. If your operation is subject to the law you need to keep certain records to be in full compliance with the law. Join the webinar to learn which records your operation needs to keep to stay compliant with FSMA.

10/11/17: Urban Soil Quality

What are the contamination risks to be aware of when growing in urban soil? How should you test for soil contaminants? How do you interpret the test results? What treatment and management options exist? Which of those are practical? If you're interested in the answers to any of these questions, tune in to this webinar.

2018 MidAtlantic Women in Ag Conference

February 8 & 9, 2018

Dover Downs, Dover, Delaware

February 8 is the preconference (social media or specialty crop production topics) and February 9 is the conference.

Details of the conference and registration will be available soon at: <http://extension.umd.edu/womeninag>

Webinar: Connecting Health Insurance and Agricultural Viability—Helping Farmers and Ranchers Address Health-Related Risks

Tuesday, October 10, 2017 1:30-3:30 p.m

Health, access to care and health insurance affect the vitality of agricultural enterprises and farm and ranch families, according to results from a national research project funded by the USDA. Designed for Extension, tax, loan, health and other agricultural advisors, this webinar will provide an overview of the research findings and introduce some practical tools that educators and advisors can use to help farmers and ranchers make informed decisions for their businesses and households.

Participants will leave the webinar with:

- An understanding of the intersection of health and agricultural business viability, grounded in 2016-2017 national research findings;
- Tools they can use in their work farmers, including worksheets, videos and other informational resources.
- Questions to ask farmers and ranchers to help incorporate health costs into farm enterprise and risk management planning.

Host:

Scott Loveridge, North Central Regional Center for Rural Development

Presenters:

Shoshanah Inwood, *The Ohio State University*
Bonnie Braun, *University of Maryland Extension*
Bob Parsons, *University of Vermont Extension*
Jake Jacobs, *University of Vermont Extension*
Maria Pippidis, *University of Delaware Cooperative Extension*

This webinar is FREE. Register online:
<https://www.hirednag.net/webinars>

For more information, please email
Katlyn.Morris@uvm.edu. To request a disability-
related accommodation to participate in this program,
please email by September 19, so we may assist you.

The project was supported by the Agricultural and
Food Research Initiative Competitive Program of the
USDA National Institute of Food and Agriculture
(NIFA), grant number 2015-2014-05623.

**Delmarva Small Ruminant Conference: All
Worms, All Day**

Saturday, December 9, 2017
Delaware State University
Dover, DE

Save the date. More details will be available soon!

Soil Health 101

Wednesday, November 1, 2017
DSU Outreach & Research Center
884 Smyrna Leipsic Road
Smyrna, DE

Join us to learn about:

- 4 basic principles of soil health
- Benefits to your Farm
- Why compaction is your #1 enemy and what to do about it

CEUs are pending for this free workshop.

Contact Jason Challandes, Regional SARE
Coordinator, at jchallandes@desu.edu or (302) 388-
2241 by October 30 to register.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of September 14 to September 20, 2017

Readings Taken from Midnight to Midnight

Rainfall:

0.03 inch: September 15
0.01 inch: September 17
0.39 inch: September 19

Air Temperature:

Highs ranged from 84°F on September 16 and
September 20 to 75°F on September 19.
Lows ranged from 69°F on September 18 and
September 19 to 63°F on September 17.

Soil Temperature:

73.9°F average

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

*Weekly Crop Update is compiled and edited by
Emmalea Ernest, Associate Scientist - Vegetable
Crops with assistance from Don Seifrit.*

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.**