



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 26, Issue 2

April 6, 2018

Vegetable Crops

Revisiting Compost for Vegetable Production - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Each year I field questions from vegetable growers on the use of compost for their production systems. The availability of commercial compost has fluctuated over the years based on the companies operating in the region. With the entry of Perdue AgriRecycle into the compost field another quality compost is now available for use by growers on Delmarva.

In the composting process, organic stock material sources such as yard wastes, manure and litter, wood waste, food scraps and garbage, paper, hatchery waste, or other waste materials are combined in a proper mix to create a carbon to nitrogen ratio that will promote the growth of microorganisms that then decompose the materials, producing a dark, humus-rich end-product. In addition, in the composting process, the compost piles will heat up to between 130-170° F, killing pathogens of concern in the materials. A properly produced compost can be used for vegetable production without concerns for transferring plant pathogens or human pathogens.

Compost will contain plant nutrients, the level of which depends largely upon the stock materials used. Nitrogen content may be significant; however, much of the nitrogen will

be in organic form and will be slowly available over several years. Most of the potassium will be readily available while phosphorus availability is more variable.

While compost does contain plant nutrients, the more important benefit that it provides is stable organic matter. Because it has already been decomposed, the organic component contains humus-like materials that will decompose very slowly when added to the soil. This means that compost will immediately raise the organic matter of the soil. This in turn will increase the cation exchange capacity (CEC) of the soil, improve soil moisture holding capacity, and improve soil physical characteristics (reduced compaction, improved aeration, decreased crusting).

Research has also shown that certain composts can reduce the incidence of soil borne diseases and pests. This is most likely because the organic addition promotes more diversity in soil microorganisms that can compete with pathogens and the improved physical properties of the soil (such as reduced compaction) that limits the impact of certain pathogens. Newly finished compost also contains beneficial microorganisms that directly affect plant pathogens by antibiosis or hyperparasitism. Some composts have also been shown to induce resistance to pathogens in crop plants.

When using compost, growers should first receive an analysis of the material. From this analysis you should look at the following:

Compost Maturity and Stability - Only use mature compost that has finished the composting process and that is stable. Immature compost will continue to decompose, and can cause soil imbalances in some cases.

Nutrient Content - As previously stated, compost has a base nutrient content. You need to account for available nutrients in the nutrient management plan for the crop the compost will be used on. Much of the nitrogen will be in organic form and only a portion will be available for the growing season.

Electrical Conductivity (EC or salts levels) - Composts that use manure or poultry litter as part of the stock materials can accumulate salts (particularly potassium) at elevated levels. The elevated salt content must be accounted for when determining application rates so that salt injury does not occur with crops.

Calcium Carbonate Equivalent (lime value) - Lime is generally not added in the composting process; however, high pH materials such as hatchery waste sometimes are composted. This means that certain composts may have more liming value.

Moisture Content and Physical Condition - Compost will be partly water. With higher moisture composts, you will be paying for more water and less of the humus material and nutrients. In addition, higher moisture composts do not spread as well. Compost should be adequately screened so that the product spreads well.

In research at the University of Delaware with several compost materials, a rate of 5-7 tons per acre showed yield benefits on sandy soils in the first year with several vegetable crops. However, specific effects on a grower's farm will depend on soil type, existing organic matter, existing soil health, and compost source; therefore, rates should be adjusted accordingly.

The decision to use compost is also an economic one. Compost can cost anywhere from \$15.00 to \$50.00 per ton depending upon the source and distance for transport. Growers need to consider

the soil improving and nutrient value of the compost and evaluate that against other soil improvement programs such as cover cropping and green manure crops.

New Mid-Atlantic Commercial Vegetable Production Recommendations Available - *Emmalea Ernest, Associate Scientist - Vegetable Crops*; emmalea@udel.edu

The 2018 Mid-Atlantic Commercial Vegetable Production Recommendations have been posted online at <http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/>. The Veg Recs were not updated for 2017 because the document was being reformatted. The new 2018 version is in single column format and pesticide information has been organized in tables.

Printed copies of the Vegetable Recommendations are available at the Kent and Sussex Extension offices. Cost is \$20 for members of the Fruit and Vegetable Growers Association of Delaware and \$25 for non-members.

Agronomic Crops

Bird Repellent for Corn Seed - *David Owens, Extension Entomologist*, owensd@udel.edu

Some folks have recently asked about products to discourage birds from feeding on field and sweet corn seed. Avipel (9,10-Antraquinone), manufactured by Arkion Life Sciences LLC has a 24(c) special local needs label for use on corn seed in Delaware. Approved Delaware formulations are dry hopper box treatment and a liquid formulation for treating seed ONLY in commercial seed treatment equipment. It should also be used with a dye and cannot be used for other purposes than planting - standard language for seed treatments. Both registrations expire July 1, 2022. Registration was originally requested because of incidences of severe bird feeding damage in fields east of Route 1. Large flocks of blackbirds can quickly pull up a stand as they migrate north. You might want to

consider this if you have had significant bird damage in the past and are seeing large numbers of blackbirds in your field. Should you use Avipel or have it applied to your seed using seed treatment equipment, you MUST have a copy of the 24(c) label in your possession when handling and planting. As always, consult the label for additional application guidance. The labels for Delaware can be found here:

<http://arkionls.com/av/states/delaware.html>.

Maryland and Virginia ONLY have the hopper box treatment approved, labels can be found here:

<http://www.arkionls.com/av/states/maryland.html>, and

<http://www.arkionls.com/av/states/virginia.html>.

Small Grain Insect Update - David Owens, *Extension Entomologist*, owensd@udel.edu

The cold March weather has kept insect activity in small grains to a minimum. Aphids are very difficult to find and are almost all English grain aphids. Winter grain mite, though present in some fields, rarely causes issues, and only in dry, stressful years. Kentucky has also been seeing very low insect pressure and Kentucky Pest News has an excellent post on insect control and automatic insecticides, which you can find here:

<https://kentuckypestnews.wordpress.com/2018/04/03/unnecessary-use-of-pyrethroids-in-wheat-can-lead-to-aphid-resistance-and-barley-yellow-dwarf-virus-outbreaks/>

Nitrogen on Spring Wheat - Jarrod O. Miller, *Extension Agronomist*, jarrod@udel.edu

Cooler weather the past few weeks has slowed down wheat growth. On our research plots we have observed many plants still at Feekes 3/4, with no jointing or nodes above ground. Any fields that already have 2-3 tillers per plant can wait for N applications until after Feekes 5, when plant leaves become erect and the first node will be above the ground. Fields with lower tiller counts could still benefit from an

application of N before jointing begins (up to 30 lbs).

Recommendations based on yield are often 1.1 lbs N per bushel expected, while the University of Delaware recommends 80-120 lbs N/acre. The higher end of the UD range is for sandy soils or those fields receiving a single application. Subtract any March applications from your total N application.

General

Guess the Pest! Week #1 Answer: Spotted Lanternfly - Bill Cissel, *Extension Agent - Integrated Pest Management*; bcissel@udel.edu and Tyler Hagerty

Congratulations to Joseph Baltrukonis for correctly identifying the insect as the spotted lanternfly 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!





Lawrence Barringer, Pennsylvania Department of Ag, Bugwood.org 5537180

The spotted lanternfly is an invasive species originally from China, India, and Vietnam. It was first discovered in Berks County, PA in 2014 and has since been detected in Virginia, New York, and in New Castle County, Delaware. The adult is about an inch in length with a black head and legs. Its forewings are light brown to grey in color with black spots. The forewing tips have a black margin with a rectangular blocking pattern outlined in grey. The hind wings are red with black spots and the wing tips have a black margin separated by a white band. Only the forewings are visible when the bug is in a resting position.

The nymphs are similar to all other immature insects in that they lack wings. The first three immature stages are black with white spots. The fourth nymphal stage has black legs, a red body and is covered with white spots.



E Swackhamer, PSU
Spotted Lanternfly Nymph



E Swackhamer, PSU
Spotted Lanternfly Nymphs on Wild Grape

Spotted lanternfly egg masses are 1-1½" in length and ½ - ¾" wide, grayish-brown in color and are covered in a waxy coating. Each egg mass contains 30-50 eggs that are typically laid on vertical surfaces including tree trunks, telephone poles and even vehicles.



Pennsylvania Department of Agriculture 5522647
Spotted Lanternfly Egg Mass

The spotted lanternfly is univoltine (one generation per year) and overwinters as eggs. In

the spring and early summer, the eggs hatch and the nymphs undergo four nymphal instars before molting into an adult in July. Adults begin laying eggs in September until the onset of winter which kills any remaining adults.

The adults and nymphs feed on plants by inserting their piercing-sucking mouth parts into young leaves and stems, removing plant sap. This causes plant stress, reducing photosynthesis, and can eventually contribute to plant death. They are not known to feed directly on fruit but excrete a sugary substance known as honeydew that facilitates the growth of sooty mold that can damage or kill whole fruit trees.

The spotted lanternfly's preferred host plant is tree of heaven. However, it is considered a generalist, meaning it feeds on many species of plants, some of which are of economic importance including but not limited to blueberry, peach, grape, apple, nectarine, hops, and timber.

Currently, efforts are underway throughout the Mid-Atlantic to detect possible new infestations of spotted lanternfly. If you find an insect or egg mass that you suspect as spotted lanternfly, please follow the guidelines below for each respective state with details on how to report it.

Delaware

- For general information about spotted lanternfly in DE:

<https://agriculture.delaware.gov/plant-industries/spotted-lanternfly/>

- If you find a spotted lanternfly in DE, please report it to:

HitchHikerBug@state.de.us

Pennsylvania

- For general information about spotted lanternfly in PA:

http://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/Pages/default.aspx

- To report Egg Masses that have been scraped off in PA:

<https://www.paplants.pa.gov/EntomologySurveyExternal.aspx>

- To report caught specimens (young or adults) in PA:

http://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/Documents/ENTOMOLOGY%20PROGRAM%20SAMPLING%20SUBMISSION%20FORM.pdf

- Submit photographs of spotted lanternfly detections in PA to:

Badbug@pa.gov

Also call 1-866-253-7189 and report sightings

Virginia

- For general information about spotted lanternfly in VA:

<https://ext.vt.edu/agriculture/commercial-horticulture/spotted-lanternfly.html>

- Submit a photographs of spotted lanternfly detections in VA:

<https://ask.extension.org/groups/1981/ask>

Maryland

- If you observe any egg masses or insect that you suspect is a spotted lanternfly, please try to collect it, and inform the Maryland Department of Agriculture at (410) 841-5920 or

DontBug.MD@maryland.gov as soon as possible.

Guess the Pest! Week #2 - *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!](#) What is this insect?



Announcements

2018 National Ginger & Turmeric Conference

October 17-19, 2018
Richmond, Virginia

With growing interest in ginger and turmeric, many health professionals, researchers, farmers, and food and beverage professionals are turning their attention toward these healthy spices. In order to cultivate new ideas and further grow the industry, Virginia State University is hosting the first National Ginger & Turmeric Conference in Richmond, Virginia this fall. The three-day conference is targeted at the agricultural, health, and culinary professionals who work or are

considering working with ginger and turmeric. It will showcase the latest science and technology related to production, product development and health, as well as feature success stories and marketing strategies.

CALL FOR ABSTRACTS

Abstracts are now being accepted for oral and poster presentation

[Submit your abstract now.](#)

A *Conference Proceedings* documenting oral presentations and poster displays will be published post-conference.

WHO SHOULD ATTEND

- Farmers
- Horticulturists
- Researchers
- Health Professionals
- Cooperative Extension faculty
- Professionals in the Nutrition Supplement Industry
- Professionals in the Food & Beverage Industry
- Chefs

WHAT WILL BE INCLUDED

- Keynote Speakers
- Technical Sessions
- Poster & Oral Abstract Presentations
- Ginger & Turmeric 101 Workshop
- Networking Opportunities
- Tours

CONFERENCE LOGISTICS

Conference Registration fee is \$250. Lodging is not included in the registration fee. Registration will be open soon

The conference hotel is the [DoubleTree Richmond Midlothian](#). Discounted conference rooms are available now.

[Visit the conference](#) website for updated information as it becomes available. You may also contact Dr. Reza Rafie at arafie@vsu.edu or 1-804-712-4600.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of March 29 to April 4, 2018

Readings Taken from Midnight to Midnight

Rainfall:

0.01 inch: March 31
0.01 inch: April 1
0.06 inch: April 3
0.03 inch: April 4
0.20 inch: April 4

Air Temperature:

Highs ranged from 78°F on March 29 to 50°F on April 2.

Lows ranged from 47°F on March 30 to 36°F on March 31

Soil Temperature:

51.6°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*

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.