



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Pumpkin Fruit Set and Fruit Retention -
Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Pumpkins have become an important income source for many Delmarva vegetable growers including u-pick, local sales and regional wholesale.

Each year we see pumpkin fields with poor fruit set or fruit retention. In larger pumpkin sizes, each plant will normally carry 1-2 fruits. The large vining plants also need considerable space - 25 to 50 square feet per plant. While planting jack-o'-lantern types at higher densities might at first seem to be a way to achieve higher yields, interplant competition will increase and you can decrease fruit retention because of this competition. Matching pumpkin types with space requirements is very important to optimize fruit set.

A major reason for poor fruit set is high temperatures during flowering in July. Day temperatures in the 90s or night temperatures in the high 70s will cause flower and small fruit abortion. For pumpkin growers that do wholesale and start shipping right after Labor Day, this will limit early pumpkin availability. Varieties vary considerably in their ability to tolerate heat and to set under hot conditions. Inadequate irrigation and excessive water stress can also reduce fruit set, increase abortions, and reduce fruit retention. High temperatures and water stress reduce photosynthesis and the ability of the plant to carry fruits. Drought can also cause

a higher than normal male/female flower ratio, thus affecting the amount of fruit per plant.

Another major factor that will reduce fruit set is poor pollination. Misshapen fruit can also result from inadequate pollination. A pumpkin plant has both male and female flowers and the first female flower opens one week after the first male opens. The flowers only last a few hours, blooming at dawn and closing later in the morning but well before noon. Pollinators need to be active during this short period.

Native pollinators can be very effective in pollinating pumpkins and some research has shown that most of the fruit set is occurring because of these native pollinators. Bumblebees and squash bees are native bees active in pumpkins. The squash bee is of particular interest because it has evolved along with pumpkins and squash in the Americas and is dependent on pollen from pumpkin and squash plants.

Other research has shown that honeybees do provide additional pollination benefits above what native pollinators are providing. In research from Illinois, Walters and Taylor found that while pumpkin fruit number was not increased with the addition of honeybees, pumpkin weights and size were increased significantly. Research has shown that 10-15 visits by honeybees transferring 1200 pollen grains will result in full fruit set.

Too much available nitrogen can also delay pumpkin fruit set so that many of the pumpkins that are produced do not reach maturity in time. Pumpkins do not normally need more than 80

lbs/acre N to grow a crop. Fertilizing above 100 lbs/acre N may cause the pumpkins to put on excessive vine growth and delay fruiting.

Potato Late Blight Update #11 - July 5, 2017 - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu; @Delmarplantdoc

Late Blight was reported 5/29 near the NC -VA border.

Greenrow - May 1, 2017

Frederica			
Date	DSV	Total DSV	P Value
6/23-5/1	8	49	467
6/21-6/23	3	41	386
6/16-6/21	8	38	379
6/8-6/16	4	30	354
6/1-6/8	4	26	302
5/30-6/1	5	22	244
5/25-5/30	3	17	225
5/23-5/25	4	14	179
5/15-5/23	7	10	161
5/4-5/15	3	3	104
5/1-5/4	0	0	30

Notes: Season severity of 18 severity values indicates the need for the first fungicide application. An accumulated severity of 7 after fungicide application identifies the need for a subsequent fungicide application. You can personalize your late blight forecasts for specific fields, sign up for email or text alerts, and enter in management information at <http://blight.eas.cornell.edu/blight/>.

Real time fungicide application timing tables for locations within Delaware can be accessed at <http://blight.eas.cornell.edu/blight/DE>

See the 2016 Commercial Vegetable Production Recommendations-Delaware for recommended fungicides: <http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/>

Any suspect samples can be sent to the Plant Diagnostic Clinic or dropped off at your local Extension office. Dr. Nathan Kleczewski can also

be contacted at nkleczew@udel.edu or 302-300-6962.

The website USABlight tracks tomato and potato late blight across the nation and can be found here: <http://usablight.org/>. Information on scouting, symptomology, and management can also be found on this website.

Agronomic Crops

Seed Treatment in Soybeans - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu; @Delmarplantdoc

Many growers in the region have started using, or are interested in using seed treatments for disease and/or nematode suppression in soybean production. The use and interest in seed treatments has increased for several reasons. First, because most seed treatments are applied by the seed supplier or are custom treated, growers do not need to worry about self treating and the various issues associated with this practice. Second, there are many different chemicals that can be added to modern seed treatments, allowing for a broader spectrum of activity. Safety, both to the user and the environment is increased due to low use rates as well as reduced exposure. The big question is: What can you expect with seed treatments?

The first thing that needs to be realized is that the amount of active ingredients included in seed treatments is limited. Yes, you can often request a range of concentrations, but the overall amount is limited to the amount of area on the seed. Safety to the germinating seedling also needs to be taken into consideration. For this reason efficacy of seed treatments may be somewhat limited, and most effective in situations where soil borne diseases are present, but not at high levels. In addition, the zone of effectiveness for these products is limited. **Figure 1** illustrates the general zone of effectiveness and movement of active ingredients in the soil and developing seedling.

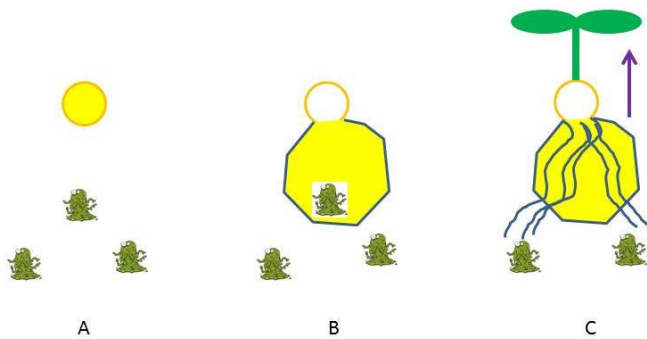


Figure 1. A cartoon depicting the zone of effective treatment and movement of active ingredients included in seed treatments. The yellow color indicates the seed treatment. The green guys represent soil-borne pathogens.

Initially, the seed is completely coated with a seed treatment (A in Figure 1). As water enters the soil and seed starts to swell, the seed treatment may move into a limited area of the soil. Movement is limited by organic matter in the soil, soil texture, water, and other factors (B). Pathogens that are affected by active ingredients and fall within this zone can be suppressed. As the seedling starts to grow, roots come in contact with the active ingredient and it may be translocated into the developing seedling. The amount of active ingredient moved is limited to what is available in the soil and will be diluted by the development and size of the seedling over time. Roots eventually grow outside of the zone of protection and can come in contact with soil-borne pathogens (C). As a rule of thumb, you can expect roughly 2-3 weeks of protection from seed treatments.

How effective are seed treatments? There has been a significant amount of comprehensive work from the Midwest on this topic, and it falls in line with work we have conducted in Delaware and Maryland. Basically, there is no consistent effect on plant health. Some years and locations they may work, other years they may have no effect. We are currently collaborating with UMD to assess three “new” seed treatments on soybean establishment, health, and yield in different locations in DE and MD. Thus far, the biggest thing we have noticed is that early season germination can be affected by some seed treatments. This season, one of the seed treatments we are testing appears to slow germination and even reduce germination.

However, because soybeans compensate so well, we do not know if this will impact end season yield. Only time will tell. In sum, when using a seed treatment, do not expect miracles to happen. They are easy to include when ordering seed, but the overall impact, particularly to a plant like soybean, is not clear. A link to some seed treatment data from Iowa can be found here:

<http://crops.extension.iastate.edu/cropnews/2016/04/2015-evaluation-commercial-seed-treatments-soybean-three-locations-iowa>

General

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

Congratulations to Drew Norman for identifying the insect in this past week’s Guess the Pest 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. Drew will also receive a FREE copy of [A Farmer’s Guide to Corn Diseases](#). Click on the Guess the Pest logo below to participate in this week’s Guess the Pest! For Guess the Pest # 14, we will also be giving away [A Farmer’s Guide To Corn Diseases](#) (\$29.95 value) to one lucky participant.

<http://www.plantmanagementnetwork.org/book/cornfarmersguide/>

Guess the Pest Week #13
Answer: Thrips Injury



Thrips injury to corn appears as small whitish spots or scarring, on both field corn and sweet corn. Lower leaves are more commonly affected. Grass thrips are found on corn, with winged

adults and immature stages that feed by penetrating leaf cells and sucking out cell contents. Small, longitudinal, light colored scars become numerous, so that leaves look gray and dry from a distance. Most feeding takes place behind leaf sheaths, in the whorl, or on the underside of lower leaves. Damage is usually noticed under extended periods of hot, dry, windy weather when plants are moisture-stressed. No management guidelines have been established for thrips in corn, but plants with adequate soil moisture and good vigor can tolerate thrips damage. If conditions are dry, plants are gray and wilted, and thrips are present, then an insecticide treatment may be recommended. - Nancy Gregory, UD Extension Plant Diagnostician



Announcements

2017 Dickeya and Pectobacterium Summit November 9, 2017

University of Maine staff are working to address Dickeya, a recent and potentially “devastating bacterial disease in Maine seed potatoes.” Projects are being conducted in Maine and in collaboration with colleagues in other states. We have been successful in pursuing funding opportunities and hope to have news soon on additional pending grants.

Some of the efforts include:

- Chemical control of Enterobacteria
- Identifying seed lots with Enterobacteria
- Enterobacteria spread and epidemiological studies
- Enterobacteria identification
- Enterobacteria pathogenicity
- Enterobacteria levels in a seed lots related to stand loss
- Movement of Enterobacteria in a seed system
- Postharvest test for the presence of • Enterobacteria

Results from these studies will be presented at the 2017 Dickeya and Pectobacterium Summit November 9, 2017. The summit will be your chance to hear about improvements in the dormant tuber post-harvest test, among other topics.

For interest, please see a [bulletin #482](#) entitled: “[Factors Affecting Potato Blackleg and Seed Piece Decay.](#)”

The Introduction has this sentence:

“State potato seed certification officials discriminate against the presence of blackleg and many buyers refuse to purchase seed stocks known to have even a small percentage of the disease.”

By the way, the bulletin was from 67 years ago, May 1950.

Guess the Pest Week #14



What insect caused this damage?

To submit your guess click the Guess the Pest logo below or go to:

https://docs.google.com/forms/d/e/1FAIpQLSfU-PYLZnTRsol46hXmgqj8fv5f8-JI0eEUHb3QJaNDLG_4kg/viewform?c=0&w=1

To register for this meeting and for additional information go to:
<https://extension.umaine.edu/agriculture/programs/dickeya-and-pectobacterium-summit/>

Cover Crops, Soil Health and On Farm Research

Thursday, August 10

Two Educational Programs are scheduled for August 10. In the morning there will be program on cover crops and soil health sponsored by the Sussex County Conservation District with University of Delaware and Delaware State University. In the afternoon, there will be a session on conducting on-farm research. More details will be provide in future newsletters, but this early notice is provided so you can mark your calendars.

Whole Farm Revenue Protection (WFRP) Workshop

Tuesday, August 22, 2017 9:00 a.m.-12:00 noon
University of Delaware
Carvel Research & Education Center
16483 County Seat Highway, Georgetown, DE

An emerging insurance product, Whole Farm Revenue Protection (WFRP), is now available throughout the U.S. In many cases, **WFRP can provide more actual income protection at a reduced premium cost.**

This workshop will include an introduction to WFRP. Every farm family should have someone in attendance to get an overview of how the Whole Farm coverage concept works.

Details are still being arranged. Save the date and watch future Weekly Crop Updates for further details. In the meantime, contact Laurie Wolinski at 302-831-258 or LGW@udel.edu.

Cut Flower Tour on the Eastern Shore

Tuesday, September 12, 2017

Save the Date! Details coming later this summer.

Organized by University of Maryland

2017 UD/DNLA Summer Hort Expo

Tuesday, August 15

University of Delaware Botanic Gardens
Newark, Delaware

UD/DNLA's 2017 Summer Turf & Nursery Expo will be held Tuesday, August 15, 2017 at the University of Delaware Botanic Gardens Newark, Delaware.

For more information or to register -
<http://www.dnlaonline.org> or contact Valann Budischak at (888) 448-1203 or info@DNLAonline.org

The Delaware Nursery & Landscape Association (DNLA) is a non-profit association of green industry professionals.

Schedule

8:15 – 9:00 Registration/View Exhibits/CNP Plant ID/Weed ID

9:00 – 10:00 Concurrent Education Workshops

Option A: Pest/Disease Walk
Brian Kunkel & Nancy Gregory, UD Cooperative Extension

Option B: Topping vs Crown Reduction in Trees
Marc Conaty, Kerns Brothers Tree Service a Davey Company

10:00 – 10:50 Concurrent Education Workshops

Option A: UDBG Trial Garden – Color Galore
Bob Lyons, Longwood Graduate Program; Professor, Landscape Horticulture

Option B: Trees for the Home Landscape Tour
John Frett, Univ. of Delaware

10:50 – 11:20 Break/View Exhibits/CNP Plant ID/Weed ID

11:20 – 12:10 Concurrent Education Workshops

Option A: Rain Garden at STAR
Sue Barton, UD Cooperative Extension

Option B: UDBG Trial Garden

12:10 – 1:00 Lunch/View Exhibits/CNP Plant ID/Weed ID

1:00 – 1:50 Concurrent Education Workshops

Option A: Pest/Disease Walk

Option B: Pollinator Plants Walk
Anna Wik, Univ. of Delaware

1:50 – 2:40 Concurrent Education Workshops

Option A: Trees for the Home Landscape Tour

Option B: Pollinator Plants Walk

2:40 – 3:30 CNP Plant ID/Weed ID and treatment options
Sue Barton & Valann Budischak, UD Cooperative Extension

Disease and Insect Identification Workshop

Wednesday, July 19, 4-6 pm
University of Delaware
Room 012 Townsend Hall
531 South College Avenue, Newark, DE

Learn what signs and symptoms the Extension Specialists use to identify pests and diseases! Tips and techniques will be shared. Fresh and preserved specimens will be available to look at using hand lenses and microscopes.

Instructors: Nancy Gregory and Brian Kunkel

Credits: 2 pest., 2 ISA, and 1 CNP

Cost: \$15

Register with Carrie Murphy (302) 831-2506 or cjmurphy@udel.edu

Laurel Auction Market Tour

Wednesday, August 2, 2017 8:30 a.m.
10667 Georgetown Road
Laurel, DE 19956

A morning visit to the Laurel Auction Market in Laurel, DE to learn more about the process of selling through the market. Please join us at 8:30 a.m. at 10667 Georgetown Road, Laurel, DE for a tour of the market, to learn how sales take place, see baskets and other items for sale at the market to the public.

If you are interested in join us for this tour, contact Tammy Schirmer, tammys@udel.edu or 302-856-7303.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of June 29 to July 5, 2017

Readings Taken from Midnight to Midnight

Rainfall:

No rainfall recorded

Air Temperature:

Highs ranged from 92°F on July 2 and 3 to 82°F on July 5.

Lows ranged from 74°F on July 1 to 62°F on June 29.

Soil Temperature:

80.4°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.

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