WEEKLY CROP UPDATE
UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Improving Early Fruit Set in Seedless Watermelons

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

The first watermelon plantings have gone in across the region. Markets for early watermelons are normally the strongest so early planting is often more profitable. However, fruit set is often below desired levels in the earliest plantings and crown sets in early plantings often have quality issues such as higher levels of hollow heart.

The following are some considerations for managing watermelons to maximize early fruit set:

1) ***Get plants off to a good start with a minimum of stress***. In early plantings always plant on a warming trend where temperatures are expected to increase and skies are mostly clear. Black plastic mulch will then allow soils to accumulate heat and roots will be able to establish more quickly. Use every row rye windbreaks (or clear row covers if windbreaks have not been planted) to reduce heat losses and protect plants. Plant well hardened off plants and train transplanting crews to handle plants carefully with a minimum of damage. Provide adequate water at planting and avoid putting excess starter fertilizers in transplant water which can cause salt stress on plants. Manage early fields more intensively by monitoring irrigation and fertigation programs so that stress is reduced throughout the growing period. Extra nitrogen can delay flowering so there is a fine balance between promoting growth and initiating flowering. Avoid practices that put extra stress on plants and be careful of phytotoxicities with misapplication of foliar fertilizers, fungicides such as copper products, and herbicides (proper shielding when spraying row middles, follow label guidelines for herbicides). Manage windbreaks so that mites do not infest watermelons when they are terminated. Manage insecticide applications so that bees are not affected during flowering (see pollinator protection information on labels).

2) ***Manage pollinizer-seedless combinations for maximum pollination potential***. Loss of pollenizers after planting will reduce fruit set. This has been a problem in the past when pollenizers were not hardened off properly because they were seeded later in the greenhouse. In-row pollenizers should be used to achieve best early fruit set. Pollenizers should be chosen so that they are flowering adequately as the seedless come into flower. Pollen is the key for early fruit set and earlier flowering pollenizers should be used to improve crown sets. A case can be made also for increasing the number of pollenizer plants for the earliest plantings. A 1:3 ratio of pollenizer to seedless should be the minimum used and extra pollenizers that flower early could be planted at intervals to provide additional pollen. Another issue is the vigor of pollenizers. Make sure that pollenizers have good disease packages. In fields with a history of Fusarium wilt, Fusarium resistance in both pollenizers and seedless is

needed. If at all possible, place early plantings in fields with little or no history of watermelon production to avoid soil borne disease stress.

3) ***Manage pollinators so that pollen is transferred effectively and in adequate quantity***. Consider placing extra hives in early plantings. Have hives set when pollenizers are 10% in bloom so bees start to work fields immediately. If there are not enough bees when first female flowers open, you will lose much of the crown set. Avoid having flowering crops nearby that are more attractive to bees and could siphon off bee activity. Fruit set is often reduced when weather conditions at first flowering is rainy and windy or night temperatures are cold. Honey bees rarely work when the temperature is below 57°F and don't fly when the temperature is below 55°F. They do not forage in rain or in wind stronger than 12 mph. Cloudiness also reduces flight activity, especially near threshold temperatures. A cold spell in June can reduce fruit set significantly because of reduced bee flights. While honey bees can work over a 2 mile distance, a case can be made for placing honey bee hives at more than one location in or around the field in early plantings to address shorter flights in bad weather. Bumblebees are stronger fliers that can fly in heavier winds and are active at lower temperatures. Placing bumblebee hives throughout the field may improve early fruit set. Growers should be cautioned not to place bumblebee hives near honeybees because the honeybees will place stress on and rob from the bumblebee colonies if both honey bees and bumblebees are used.

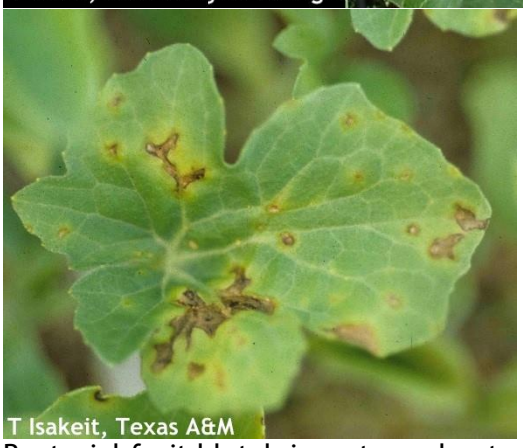
Managing Diseases in Greenhouse Grown Melon Transplants

– *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland*; keverts@umd.edu

Examine greenhouse transplants daily. Below are pictures of common diseases that show up on transplants and some advice on how to manage each disease. Additional information is available in the links.

Bacterial Fruit Blotch

The first symptoms of bacterial fruit blotch in the greenhouse is water-soaking on the undersurface of cotyledons.



Bacterial fruit blotch in watermelon transplants. Note the yellow halos around the necrotic lesions.

• If a bacterial pathogen is present, conditions in greenhouse transplant houses are highly favorable for the development of disease.

• Separate different seedlots, in order to reduce lot-to-lot spread if disease occurs.

• The two most prevalent bacterial diseases on watermelon or cantaloupe are bacterial fruit blotch (BFB) or angular leaf spot.

• Both can cause significant yield loss in the field. BFB has caused extremely high losses in the recent past.

• If either bacterial disease is suspected, collect a sample and submit it to your extension educator, specialist, or UD or UMD plant diagnostician.

• If BFB is confirmed, destroy all trays with symptomatic plants, and the trays that were immediately adjacent to them (this should include those that were adjoining when symptoms were first observed).

• Some fungal diseases also can show up in transplant production: gummy stem blight, Alternaria leaf blight, anthracnose, and Fusarium wilt.

Angular Leaf Spot

Angular leaf spot on cantaloupe looks similar to bacterial fruit blotch.

Upper and lower surface of leaf with symptoms of angular leaf spot.

Links to more information:
Managing bacterial fruit blotch in the greenhouse
http://extension.udel.edu/weeklycropupdate/?p=5318

Managing bacterial fruit blotch in the field
http://extension.udel.edu/weeklycropupdate/?p=2965

Comprehensive article including disease cycle, epidemiology and management
http://www.apsnet.org/edcenter/intropp/lessons/prokaryotes/Pages/BacterialBlotch.aspx

Ethylene Problems in a Few Vegetable High Tunnels

- *Jerry Brust, IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

Last week Gordon Johnson had an article about exhaust problems for greenhouse transplants. In Maryland we have seen a few problems with ethylene interactions with tomatoes in high

tunnels. Ethylene (C_2H_4) occurs in trace amounts in gasoline and natural gas and is produced when these substances are burned. It is present in wood and tobacco smoke. Ethylene is also a plant hormone produced by plants during their growth and development. However, ethylene produced through defective heating equipment can be detrimental to protected crops, because the ethylene is produced in much greater quantities. Ethylene pollution influences the activities of plant hormones and growth regulators, which affect developing tissues and normal organ development, many times without causing leaf-tissue damage.

Injury to broad-leaf plants occurs as a downward curling of the leaves and shoots (epinasty); some growers think that this is wilting in the plant and look for root or irrigation problems that are not there. But a wilting plant is flaccid or soft and droopy with the leaves collapsed, while in epinasty the plant is turgid and firm, but with the leaves turned down (Fig. 1). How bad the down-turning of leaves is depends on the tomato variety, temperature, ethylene concentration, and the duration of exposure (see study by M. Jones at: http://u.osu.edu/greenhouse/2014/04/21/preventing-ethylene-related-losses-during-the-postproduction-care-and-handling-of-greenhouse-crops/). The epinasty then can be followed by stunting of growth.

Other symptoms of excess ethylene exposure include the abscission of flowers (Fig. 2), petals or leaves; water-soaking of older leaves; chlorosis; and wilting of flowers. Crops vary in their sensitivity and response to ethylene toxicity. High temperatures and high light levels will increase the severity of ethylene damage. In high tunnels that burn propane, kerosene or use motors that burn gasoline and have poor or no ventilation, even minute amounts of this pollutant can cause some damage to tomatoes. Symptoms of ethylene damage can be subtle, especially if there are no plants grown in non-polluted air for comparison. Often times the damaged tomatoes show up in unexpected areas of a high tunnel--sometimes in the middle of the high tunnel with a group of 5-10 plants affected and no tomato plants around them with any symptoms. This is due to the patterns of air movement in high tunnels that are passively vented and not as predictive as in actively vented situations. At times air patterns can concentrate the ethylene in certain areas one week and then in different areas the next week, making diagnoses of the problem difficult.

Proper heating system installation and maintenance are the best ways to prevent problems. Propane flames should have a small yellow tip when properly adjusted and natural gas flames should be a soft blue with a well-defined inner cone. To ensure proper combustion, heater units should have a clean air intake and should be vented to the outside with a stack, which keeps exhaust gas from being drawn back into the greenhouse through the ventilation system.

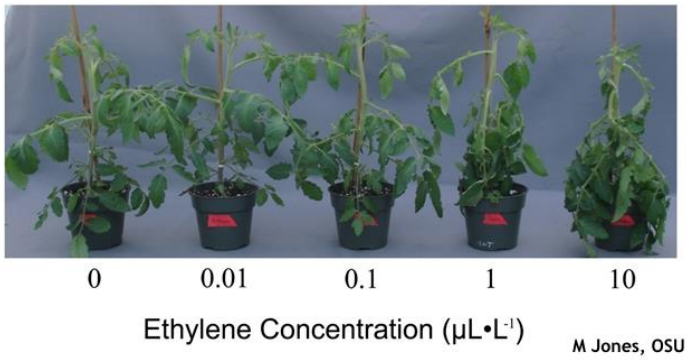


Figure 1. Tomato plants with a downward curling of leaves (epinasty) due to different levels of ethylene exposure.

Figure 2. Flower abortion on a tomato plant exposed to ethylene in a high tunnel.

UMaine to Hold International Potato Disease Summit Nov. 9, 2017

Two bacteria threatening the potato industry worldwide will be the focus of a Potato Disease Summit Nov. 9 in Bangor, Maine, convened by the University of Maine.

Plant pathologists, researchers and scientists from The Netherlands, Scotland and five U.S. states will present the latest information on the bacteria — Dickeya and Pectobacterium — that cause blackleg disease, an emerging potato seed problem.

In the past three growing seasons, Dickeya, a bacterial pathogen of potatoes, has caused significant economic losses in seed nonemergence and crop loss nationwide. In addition, an associated pathogen, Pectobacterium, has caused potato crop losses in the field and in storage. The bacteria have caused losses to the potato industry in Europe for an even longer period.

"The University of Maine is responding to this situation by holding an international summit focused on the latest research and what steps are needed to help the potato industry," says University of Maine President Susan J. Hunter. "As Maine's only public research university, we are a longstanding partner with the state's potato industry in addressing its needs, including the growing threat posed by Dickeya and Pectobacterium."

The Potato Disease Summit, 8 a.m.–5 p.m., Nov. 9 at the Cross Insurance Center, 515 Main St., Bangor, Maine, is designed for scientists, consultants, regulatory officials, and potato seed growers and buyers. It will focus on such topics as current advances in detection and diagnosis of Dickeya; an overview of Pectobacterium in the U.S.; and management of Enterobacteriaceae spread and risk.

The $80 per person fee includes materials, lunch and breaks. Registration deadline is Oct. 2 and is available online: https://extension.umaine.edu/agriculture/programs/dickeya-and-pectobacterium-summit/.

For more information or to request a disability accommodation, contact Steve Johnson, 207.554.4373, stevenj@maine.edu.

Agronomic Crops

Time to Scout for Alfalfa Weevil

– *Bill Cissel, Extension Agent – Integrated Pest Management*; bcissel@udel.edu

If you haven't been scouting your alfalfa for Alfalfa Weevil, now is the time!

To sample alfalfa for alfalfa weevils, examine 10 random stems per field on a weekly basis until first cutting, noting the presence of alfalfa weevil larvae and feeding injury. If damage or larvae are found, a full stem sampling should be conducted by randomly collecting 30 stems throughout the field. Once the stems have been collected, separate them into 3-4 bundles and beat them against the inside of a bucket to dislodge larvae from the stems. Count and record the total number of larvae found from the 30 stems. Measure the length of the stems to determine the average stem height and note the percentage of plant in the bud or flower stage.

Here is a short Youtube video demonstrating how to do a "full stem" sampling: https://drive.google.com/file/d/0B76Sjy23j-ZTVHBiMzRzbWNOeEU/view?usp=sharing

For more information refer to our Extension Fact Sheet for thresholds and control decisions: http://extension.udel.edu/factsheets/alfalfa-weevil-control-in-alfalfa-2/

If alfalfa is in the full-bud stage and economic levels are present, early harvest is an option if harvest is possible within 3 days and populations are increasing. If cutting early versus spraying, be sure to check fields within one week for damage to re-growth. Re-growth can be significantly damaged from alfalfa weevils and in some cases; a stubble treatment may be needed if you find 2 or more weevils per stem. If cutting early is not an option, please refer to our Insect Control in Alfalfa Recommendations for chemical control options found at: https://cdn.extension.udel.edu/wp-content/uploads/2012/05/18063238/Insect-Control-in-Alfalfa-final-for-2017.pdf

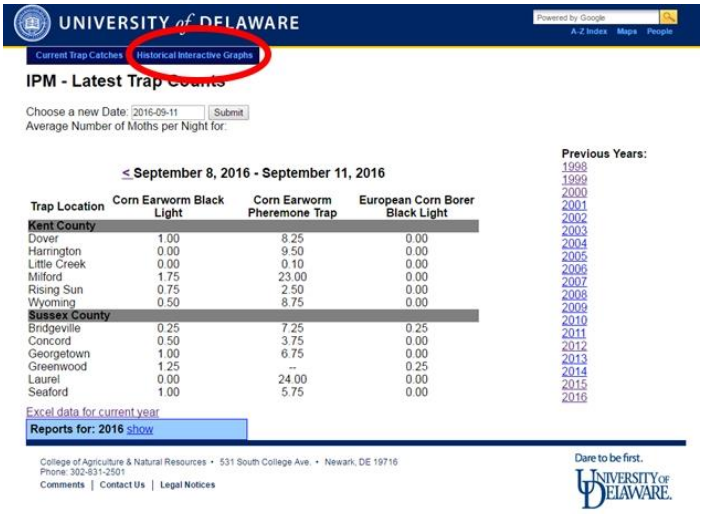
UD Insect Trapping Program Changes – *Bill Cissel, Extension Agent – Integrated Pest Management*; bcissel@udel.edu

For the 2017 growing season, there are several changes to our black light and pheromone trapping program. The Little Creek trapping location will no longer be serviced. Also, if you have been using the recorded phone message to access current trap catches, you will now need use our webpage to view the trap counts. We will begin trapping on May 1 for the 2017 season.

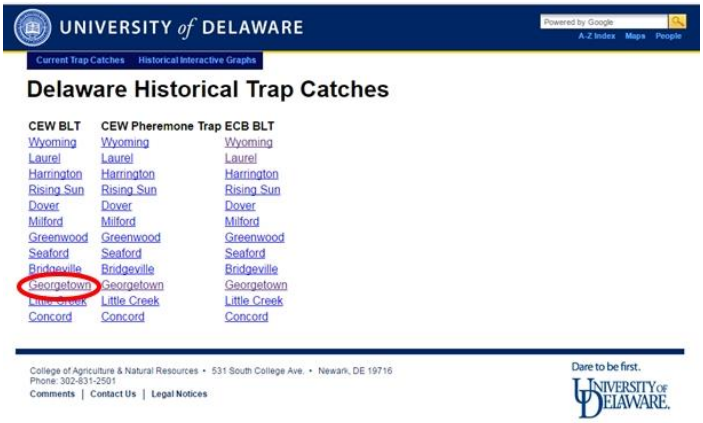
New for 2017!
We will be adding several new trapping locations. These locations are part of a pilot program and will be serviced by growers with the assistance of the IPM program. If you would like to be involved in the pilot program or if for more information, please contact Bill Cisssel: bcissel@udel.edu or 302-893-9206.

To get the current trap catch and for decision making information, go to our webpage: http://extension.udel.edu/ag/insect-management/insect-trapping-program/

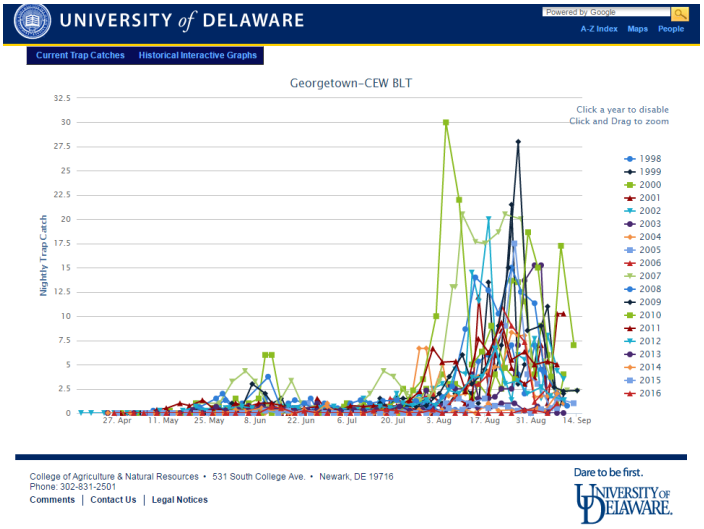
On this page, you will find links with current trap catches and decision making information including action thresholds for silking stage sweet corn and processing snap beans. If you are not familiar with our trap catch webpage, I want to highlight some of the features that will allow you to compare current trap catch results with historical data. Once on the *IPM – Latest Trap Counts* page (http://agdev.anr.udel.edu/trap/trap.php), click on the link "Historical Interactive Graphs" at the top of the page.



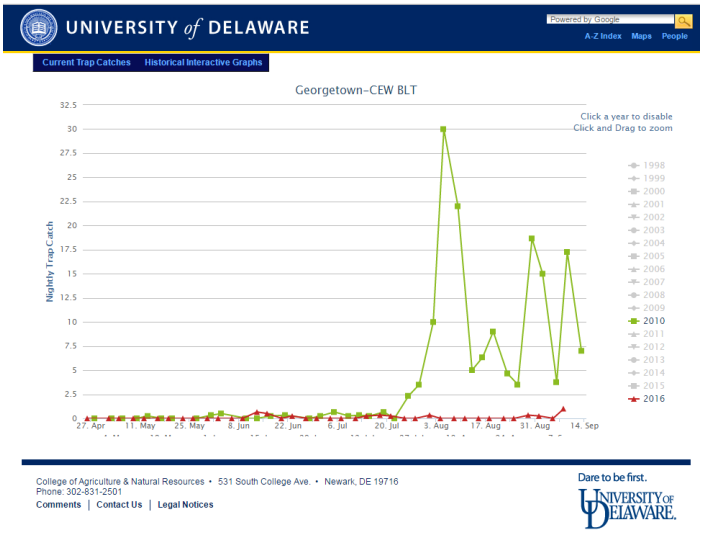
This brings you to the *Delaware Historical Trap Catches* page where you can select a trapping location and insect/trapping method.



For example, clicking on CEW BLT (corn earworm, Black Light Trap) for Georgetown, you will get a line graph with historical trap counts from 1998-current trap catch.



If you click on each year on the right side of the graph, you can disable years to compare the current year to one that may have been a break out year, such as comparing 2010 as a year with high CEW pressure to 2016. You can also click and drag to zoom to focus on a particular trapping period.



Late Season Fungicide Applications in Wheat

– *Nathan Kleczewski, Extension Specialist – Plant Pathology*; nkleczew@udel.edu; @Delmarplantdoc

I have had some questions regarding fungicides and application timings in wheat approaching flowering. In particular, the question of efficacy on canopy and head diseases has come up in conversations. The first thing to note is that the fungicides that are recommended for Fusarium Head Blight (FHB) suppression (Caramba, Prosaro, Proline) are effective in controlling foliar diseases. Commonly encountered foliar diseases include Stagonospora leaf blotch, tan spot, powdery mildew, and the rusts. However, it is important to understand that although these products are labeled for FHB, they are only effective if applied at the correct timing. Applying these products before flowering will not result in FHB suppression. This is because the FHB pathogen infects **flowering grain heads** (Figure 1).

Consequently, application of materials before flowering are not going to be as efficacious for FHB as they will be if you make these applications from the start of flowering (when about 50% of your main tillers are flowering) to 5-6 days after the start of flowering (Figure 2).

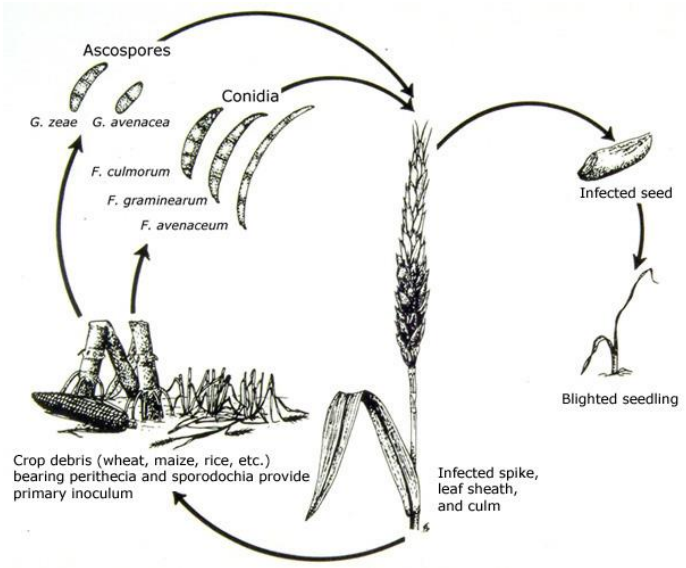


Figure 1. The Fusarium Head Blight Disease Cycle. The FHB pathogen grows on crop residue (corn, small grains predominantly). When it rains for 7-10 days prior to flower, the fungus can produce spores. Spores can be rain dispersed or moved long distances on air currents. When grain is flowering, spores that land on the head or anthers colonize these tissues and move into the grain head. Once in the head they can choke off water and nutrient movement, resulting in bleaching. The FHB pathogen can produce vomitoxin (DON) under the right conditions. Applications prior to flowering are not efficacious for FHB suppression.

Figure 2. Wheat heads just starting to flower. Flowering starts at the center and moves to the top and bottom of the heads. Anthers will be yellow for a short period after flowering. This yellow color indicates that they carry pollen. Fungicides should be timed such that roughly 50% of your main tillers are starting to or have recently flowered. Applications at this timing ensures that the glumes and anthers are protected from FHB. These same fungicides are very effective in managing foliar diseases of the canopy. Our research trials since 2013 have shown that in the majority of cases, the flowering timing is just as efficacious if not better for managing our most common foliar diseases (Table 1). This is because in most cases, these diseases do not reach the flag leaf or leaf below the flag leaf until near the flowering stage. This doesn't mean that earlier applications cannot be profitable and efficacious, in fact in some cases, such as early infection by stripe rust, applications at flag leaf may be warranted, but it does mean that you can expect good to excellent protection of the major tissues contributing to wheat yield in many growing situations in Delaware and Maryland.

Table 1. An example of a wheat fungicide trial we conducted at the Wye, Maryland, in 2016

Product	Timing (Feekes)	Rate (oz/A)	Leaf Blotch (% Sev)	twt (lbs/bu)	Yield (bu/A)
Untreated control			7.3 a	45.9 c	56.4 de
Twinline	FGS 8/9	9	5.9 ab	48.1 b	58.7 cd
Tilt	FGS 5	4	6.9 a	47.2 bc	58.8 cd
Quilt Xcel	FGS 5	7	3.9 bc	45.9 c	59.8 bcd
Quilt Xcel	FGS 8/9	10.5	3.0 bcd	46.7 bc	61.1 bcd
Quilt Xcel fb Quilt Excel	FGS 5 fb 8/9	7 fb 10.5	2.4 cd	47.2 bc	59.9 bcd
Tilt	FGS 8/9	4	3.1 bcd	48.0 bc	54.6 e
Prosaro	FGS 10.5.1	6.5	**0.3 d**	**51.8 a**	**63.4 ab**
Caramba	FGS 10.5.1	13.5	**1.4 cd**	**51.3 a**	**65.1 a**
Quilt Xcel + Prosaro	FGS 5 fb 10.5.1	7 fb 6.5	**0.3 d**	**51.3 a**	**63.4 ab**

FB = followed by. FGS = Feekes growth stage where 5 occurs with 2nd shot of N, 8/9 is flag leaf emergence/early boot, and 10.5.1 is flowering. Different letters within a column indicate statistical differences between treatments. In this trial, leaf blotch complex was managed the best when products were applied at flowering. These treatments also resulted in the greatest test weights and yields under these conditions.

Diseases Affecting Soybean Production - *Nathan Kleczewski, Extension Specialist - Plant Pathology*; nkleczew@udel.edu; @Delmarplantdoc

Diseases significantly impact soybean production throughout the United States. In Delaware, diseases such as Soybean Cyst Nematode, Root Knot Nematode, and stem canker can cause significant annual yield losses. Plant pathologists throughout the United States collect disease loss data each year. This data is compiled and published periodically. Recently, summary data from 2010-2014 was published in Plant Health Progress. What is the biggest message for you to keep in mind when reading this article? Soybean cyst nematode reduces soybean yield far more than any other plant disease. Management of Soybean Cyst Nematode should be at the top of your list if you want to produce high yielding soybeans. This means checking your fields for soybean cyst nematode populations over time, avoiding continuous soybean production, and planting soybeans with resistance to this nematode.

TABLE 4
Ten most destructive diseases and associated estimated soybean yield losses (bushels in thousands) by disease or type of disease in the northern United States[w] and Ontario, Canada, from 2010 to 2014

	2010		2011		2012		2013		2014	
Rank	Disease	Loss	Disease	Loss	Disease	Loss	Disease	Loss	Disease	Loss
1	Soybean cyst nematode	110,325	Soybean cyst nematode	90,525	Soybean cyst nematode	118,697	Soybean cyst nematode	112,394	Soybean cyst nematode	108,008
2	Sudden death syndrome	70,658	Seedling diseases	46,847	Charcoal rot	59,481	Seedling diseases	43,672	Seedling diseases	60,305
3	Seedling diseases[x]	55,000	Phytophthora root and stem rot	33,180	Phytophthora root and stem rot	23,950	Charcoal rot	31,865	Sudden death syndrome	46,815
4	Phytophthora root and stem rot	35,967	Charcoal rot	29,403	Seedling diseases	23,642	Phytophthora root and stem rot	29,134	Sclerotinia stem rot (White mold)	40,709
5	Charcoal rot	25,935	Sudden death syndrome	22,835	Sudden death syndrome	21,831	Sudden death syndrome	20,391	Phytophthora root and stem rot	32,864
6	Septoria brown spot	25,306	Septoria brown spot	17,954	Fusarium wilt and root rot	14,636	Septoria brown spot	20,209	Septoria brown spot	24,030
7	Sclerotinia stem rot (White mold)	24,520	Fusarium wilt and root rot	16,492	Brown stem rot	12,532	Sclerotinia stem rot (White mold)	17,663	Charcoal rot	18,347
8	Brown stem rot	13,465	Brown stem rot	14,064	Viruses[y]	11,661	Brown stem rot	10,385	Brown stem rot	13,686
9	Fusarium wilt and root rot	10,689	Sclerotinia stem rot (White mold)	12,770	Septoria brown spot	6,379	Viruses[z]	7,543	Stem canker	11,871
10	Pod and stem blight	9,514	Pod and stem blight	8,404	Sclerotinia stem rot (White mold)	5,530	Stem canker	6,052	Pod and stem blight	10,540

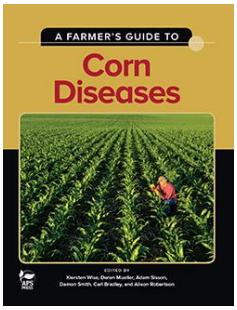
[w] Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, and Wisconsin.
[x] Seedling diseases include those caused by *Rhizoctonia*, *Pythium*, *Fusarium*, and/or *Phomopsis* spp.
[y] Includes *Bean pod mottle virus*, *Soybean dwarf virus*, *Soybean mosaic virus*, and *Soybean vein necrosis virus*.
[z] Includes *Bean pod mottle virus*, *Soybean dwarf virus*, *Soybean mosaic virus*, *Soybean vein necrosis virus*, *Tobacco ringspot virus*, and *Tobacco streak virus*.

The most damaging diseases affecting soybean production in the United States. From Allen et al 2017.

General

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

Congratulations to Mark Sultenfuss for identifying the disease as Barley Yellow Dwarf 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 below to participate in this week's Guess the Pest! For Guess the Pest # 4, 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 #3

Barley Yellow Dwarf (BYD) is vectored by aphids and is considered the most widespread viral disease of economically important grasses worldwide. Symptoms of BYD include discoloration of the leaves and in some cases, stunting of the plant. In wheat, the leaves often appear yellow to purple in color and in barley, the leaves are typically yellow. In severe cases, stunting can occur and grain heads can fail to emerge. In other severe cases, grain heads contain dark and shriveled seed. In Delaware, BYD is often observed in patches, 1-5 ft in diameter. The severity of symptoms is influenced by the strain of the virus (different strains are vectored by different aphid species), the timing of infection (fall infections are typically more severe than spring), and a variety's tolerance to BYD. Symptoms of BYD can be confused with other issues such as nutrient deficiencies or compaction. A diagnosis cannot be based on symptoms alone and samples must be submitted to a diagnostic lab for conformation.

Here is a link to Agdia if you would like to submit a sample for BYD screening:
http://www.agdia.com/

Management of BYD involves an integrated approach including planting date, alternate host management, variety selection, and chemical control to manage aphids.

For more information on Barley Yellow Dwarf and potential management options, please visit our Fact Sheet:
https://cdn.extension.udel.edu/wp-content/uploads/2015/10/14051904/BYDV-Final-Draft-9-12-16.pdf

Here is a link to view additional images of BYD symptoms:
https://www.flickr.com/photos/139973317@N03/sets/72157666301880210/

Images of Common Aphid Species infesting small grains:
https://www.flickr.com/photos/139973317@N03/sets/72157664513242564/

Youtube Video demonstrating how to scout small grains for aphids in the fall:
https://www.youtube.com/watch?v=He3nTpL6k_U&nohtml5=False

Guess the Pest #4

What is this barley disease? Think you know the answer…. Click on the *Guess the Pest* Icon below or go to https://goo.gl/forms/pWjHQUpmjABFB0v32 to submit your best guess.

Think you know the answer…. Click on the "Guess the Pest" logo to submit your guess.

UD Extension Is Looking For Your Input On Our Two New Specialists

– *Mark VanGessel, Extension Weed Specialist*; mjv@udel.edu and *Amy Shober, Extension Nutrient Management and Environmental Quality Specialist;* ashober@udel.edu

The University of Delaware is in the process of hiring an Extension Agronomist and an Extension Entomologist. We have selected three candidates for each position and they will be interviewing on Campus (at Townsend Hall) and at the Carvel Research and Education Center in Georgetown over the next four weeks.

We are inviting stakeholders to meet the candidates, participate in their seminars, ask questions, and provide us feedback. These are vital positions for Delaware agriculture and we are hoping you can join us in this selection process. The times and locations for the presentations are listed below. These interviews are open to everyone.

At the same time, we realize it is an extremely busy time of the year, and so if you are unable to join us in person, we will be taping the seminars and you will have a chance to provide feedback. The videos will be available for about one week starting on May 12 for the Agronomy position and May 24 for the Entomology position. More details can be found at http://sites.udel.edu/carvelnews/presentations/

Agronomy Candidates

May 3-4: Dr. Jarrod Miller

Date	Time	Location	Activity
Wednesday, May 3	8:30 am	Carvel Center (REC) Georgetown	Coffee and informal discussions
	9:00 am		Extension seminar
Thursday, May 4	10:30 am	132 Townsend Hall, Newark	Research (30 min) and Teaching (20 min) seminars

May 8-9: Dr. Ramdeo Seepaul

Date	Time	Location	Activity
Monday, May 8	8:30 am	Carvel Center (REC) Georgetown	Coffee and informal discussions
	9:00 am		Extension seminar
Tuesday, May 9	10:30 am	132 Townsend Hall, Newark	Research (30 min) and Teaching (20 min) seminars

May 10, 12: Dr. Nicole Fiorellino

Date	Time	Location	Activity
Wednesday, May 10	10:30 am	Fischer Greenhouse, Newark	Research (30 min) and Teaching (20 min) seminars
Friday, May 12	8:30 am	Carvel Center (REC) Georgetown	Coffee and informal discussions
	9:00 am		Extension seminar

Entomology Candidates

May 16-17: Dr. David Owens

Date	Time	Location	Activity
Tuesday, May 16	8:30 am	Carvel Center (REC) Georgetown	Coffee and informal discussions
	9:00 am		Extension seminar
Wednesday, May 17	1:00 pm	Townsend Hall, Newark	Research (30 min) and Teaching (20 min) seminars

May 18-19: Dr. Jaime Pinero

Date	Time	Location	Activity
Thursday, May 18	8:30 am	Carvel Center (REC) Georgetown	Coffee and informal discussions
	9:00 am		Extension seminar
Friday, May 19	9:30 am	Townsend Hall, Newark	Research (30 min) and Teaching (20 min) seminars

May 23-24: Dr. Arturo Goldarazena

Date	Time	Location	Activity
Tuesday, May 23	8:30 am	Carvel Center (REC) Georgetown	Coffee and informal discussions
	9:00 am		Extension seminar
Wednesday, May 24	9:30 am	Townsend Hall, Newark	Research (30 min) and Teaching (20 min) seminars

Announcements

Growing Farmers Workshops

Coverdale Farm Preserve is a 356-acre farm and nature preserve located in Greenville, DE. We are pleased to offer a series of free hands-on workshops for farmers of all levels of experience and scale of operation. Registration is required. *To register please contact Michele Wales: michele@delnature.org.*

Spring 2017 Series: Protected Culture Growing includes the use of greenhouses, high tunnels, low tunnels, hoop houses, and caterpillar tunnels. Both high and low tech options are designed to help defend your crops against the extremes of nature from torrential rains, parching drought, scorching heat, and frigid cold. Protected Culture Growing extends your seasons, brings harvests earlier in spring and later in fall to your customers, and can be used on acres of open field to urban raised bed gardens. Engage in hands-on workshops that take you from construction to production targeting key topics for your growing success.

Vegetable Production in High Tunnels
Wednesday, May 17, 8:00am – 12:00pm
Rain Date: Friday, May 19, 8:00am – 12:00pm

Vegetables are the focus of this workshop with particular attention to selected varieties trailed for protected culture growing, operating and managing irrigation and fertigation systems, utilizing a vine clip trellis system, plant health, pruning, and planting schedules for maximized production.

Troubleshooting in High Tunnels
Wednesday, June 21, 6:00pm – 8:00pm

Keep your plants thriving and productive. Learn to identify common pests including insects, plant diseases, nutrient deficiencies. Discover preventative strategies, steps, and solutions to compromising conditions in order to maximize yields.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 20 to April 26, 2017

Readings Taken from Midnight to Midnight

Rainfall:

0.34 inch: April 22
0.46 inch: April 24
1.38 inch: April 25
0.01 inch: April 26

Air Temperature:

Highs ranged from 82°F on April 21 to 56˚F on April 22.

Lows ranged from 60˚F on April 20 to 47˚F on April 23.

Soil Temperature:

62.0˚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.