WEEKLY CROP UPDATE
UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 25, Issue 9 **May 26, 2017**

Vegetable Crops

Sweet Potatoes and Plasticulture? *–Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

Sweet potatoes are planted from the end of May through the middle of June in our region. Commonly production is on ridges in conventionally tilled soil. I was recently asked about the potential to plant sweet potatoes using plasticulture (plastic mulch and drip irrigation). While not common in our region because of the cost, this has been a practice used further north where season extension is needed for production.

Lay 4' black plastic mulch with 3' bed top, and on 6' centers. On each bed, two rows can be planted with 9-12" between plants in the row and 18-24 inches between rows. Waterwheel transplanters can be used but it is important to get several nodes in the ground as crews place the slips. Plant at depth of 3 inches with no less than 2 plant nodes in the ground and leaving at least 2 leaves or more above the ground. This is often difficult to do while riding the transplanter and it may be necessary to create the holes with the waterwheel and then go back and hand set the plants at the proper depth.

At the end of the season, for mechanical digging it will be necessary to mow the tops and then remove the plastic. Sweet potato yields in plasticulture have been excellent in our region – similar to or better than bare ground.

Reduced Seed Set in Peas *–Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

There have been a number of early pea fields with reduced seed set. Pods developed but only one or two seeds were formed.

Reduced seed set is often related to flower development and pollination. Peas are self-pollinated. As the flower opens, the pollen from the anthers is released to the stigma of the pistil of the same flower. Once on the pollen is on the stigma, the pollen germinates and a pollen tube is formed and then grows down the style and when it reaches the ovule, the egg is fertilized by one of the two sperm cells, the other fuses with polar nuclei to become the seed endosperm. During the development of the pollen tube, plant hormones are released which are also essential for seed set.

Seed set problems therefore may be related to lack of pollen formation, pollen that does not release to the stigma, reduced pollen germination, abnormal pollen tube development, abnormalities in the stigma or stile, or abnormalities in the ovule. Lack of Gibberellin hormone release has also been shown to reduce seed set or lead to early seed abortion in peas. Stress to peas just after flowering has been shown to cause seed abortions.

What are the potential causes of reduced seed set in peas? Frost or freeze when flowers are opening has the potential to injure pollen or directly damage flower parts. Peas are very cold tolerant normally but are susceptible to injury at

flowering. Our last freeze event on Delmarva was on April 9 where temperatures dropped to below 30°F at some locations. Fortunately, early peas were not in flower during that time.

Research has shown that peas under temperature and moisture stress produce fewer seeds. Experiments have shown that temperatures at 93°F or above can also reduce seed set in some varieties of peas. Dry soil conditions will magnify this effect. We had temperatures at 90°F in some locations on April 29 with upper canopies approaching critical temperatures during flowering.

Another factor to consider is timing of chemical applications to peas – applications near and at flowering may damage pea flowers under certain weather conditions and reduce seed set.

Pea pods with reduced seed set. Affected fields yielded 1000 lbs/a while nearby unaffected fields yielded near 4000 lbs/a.

Potato Late Blight Update #4 – May 25, 2017 – *Nathan Kleczewski, Extension Specialist – Plant Pathology*; nkleczew@udel.edu; @Delmarplantdoc

Greenrow - May 1, 2017

	Frederica	
Date	**DSV**	**Total DSV**
5/23-5/25	4	14
5/15-5/23	7	10
5/4-5/15	3	3
5/1-5/4	0	0

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.

Watch for Symptoms of Blackleg in Potato – *Nathan Kleczewski, Extension Specialist – Plant Pathology*; nkleczew@udel.edu; @Delmarplantdoc

This week we started receiving reports of blackleg or black leg-type symptoms in potatoes. Remember that blackleg can be caused by Pectobacterium or the more aggressive Dickeya. In order to confirm the cause, affected plant tissues need to be tested using specialized molecular techniques. If you suspect blackleg, and would like confirmation of the cause, please contact your county agricultural agent or myself and we will be happy to assist you. In addition, growers with suspect fields should check their seed certificates and keep these handy for future purposes.

Potato plant exhibiting symptoms of blackleg infection.

Fruit Crops

Section 18 Renewal Approved for Dinotefuran on Pome and Stone Fruit to Manage Brown Marmorated Stink Bugs – *Bill Cissel, Extension Agent – Integrated Pest Management*; bcissel@udel.edu

Our Section 18 renewal request for dinotefuran (Venom manufactured by Valent USA and Scorpion 35 SL manufactured by Gowan Company) has been approved by the EPA for use on pome and stone fruit to manage Brown Marmorated Stink Bugs. This use expires on October 15, 2017. You must have a copy of the label in your possession before making an application. Please contact Chris Wade at the Delaware Department of Agriculture (Christonpher.Wade@state.de.us) or Bill Cissel (bcissel@udel.edu) for more information.

Reduced Fruit Size in Strawberries –*Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

Several growers have commented that fruit size in strawberries is smaller than normal in 2017. This poses the question "what affects strawberry fruit size?"

In plasticulture strawberries, one critical factor with varieties such as Chandler is the number of branch crowns that develop in the fall. Early planting or extended warm weather in the fall may cause plants to produce excess crowns leading to too many buds, flowers and fruits per plant in the spring and, consequently, small berries. This is also a common problem with carry-over plasticulture strawberries where crown thinning was not done or was inadequate.

Another cause of smaller sized strawberries is related to pollination. Strawberries are aggregate fruits. That is, they have multiple ovules per receptacle where the fruit is formed. The strawberry receptacle may have up to 500 ovules per berry. You will see these as "seeds" on the outside of the strawberry fruit which are called achenes. To have the largest berry possible, you need as many of these ovules to be successfully pollinated as possible. With pollination the receptacle tissue around the achenes will develop to form the strawberry fruit.

Strawberries have both male and female flower parts on the same flower and can self-pollinate. Wind and rain can move pollen within the flower. However this usually does not allow for full pollination of all the ovules. Bees such as honey bees or bumblebees are usually necessary to allow for complete pollination. Some flowers actually produce bigger berries with cross pollination with pollen from other flowers. Incomplete pollination will often result in smaller or misshapen berries.

Strawberry flowers are not heavy nectar producers. However, bees do visit the flowers and studies have shown that where native bees are limited, adding hives of honey bees or bumble bees increased productivity. It is recommended that each flower receive 16-25 bee visits. This is particularly true of the king berries, which form from the first flower to open on a fruiting truss.

This additional pollination by insects is limited when row covers are placed over fields for extended periods during flowering, by poor weather for honey bee flights (rainy, windy, cold), or by other actions affecting pollinator performance.

Agronomic Crops

True Armyworms in Small Grain – *Bill Cissel, Extension Agent – Integrated Pest Management*; bcissel@udel.edu

There have been numerous reports of small grain fields with armyworms this week. The threshold for armyworms is 1 per linear ft of row in barley and 1-2 per linear ft of row in wheat. Some fields may also have infestations of grass sawflies (wheat and barley: threshold 0.4/linear row ft). Keep in mind, not all insecticides labeled for armyworm control will provide grass sawfly control. With barley harvest right around the corner, also make sure you consider the days to harvest restrictions when making an insecticide application.

True Armyworm

Grass Sawfly

Here is a link to our Grass sawfly and True armyworm fact sheet for more info on sampling and decision making: http://extension.udel.edu/factsheets/grass-sawfly-and-true-armyworm-management-in-small-grains/

Here is a link to our Small Grain Insecticide Recommendations: https://cdn.extension.udel.edu/wp-content/uploads/2012/05/18063827/Insect-Control-in-Small-Grains-final-2017.pdf

Not sure how to identify true armyworms and grass sawflies? Here is a link to Guess the Pest Week #7 with information on identification: http://extension.udel.edu/weeklycropupdate/?p=10378

Slugs Continue to be a Concern in Corn Fields Throughout the Region? – *Bill Cissel, Extension Agent – Integrated Pest Management*; bcissel@udel.edu

I have gotten several calls this week about slug injury on corn. In Delaware and Maryland, we have two species of slugs that will feed on corn, the grey garden slug and the marsh slug. There are two reasons why we are seeing more damage from slugs this week, the first being weather. The cool, wet weather has slowed corn growth

down to a crawl and corn seedlings have not been able to stay ahead of the slugs. The second reason is that the grey garden slug hatch has occurred and, in the fields I have looked at, the juvenile grey garden slugs have contributed to most of the slug injury. Based on university trials, rescue treatments of slug bait have been successful in reducing slug populations and feeding damage on corn.

Here is a link to an article I wrote a couple weeks ago discussing slug management on corn: http://extension.udel.edu/weeklycropupdate/?p=10303

Slug feeding injury on seedling corn

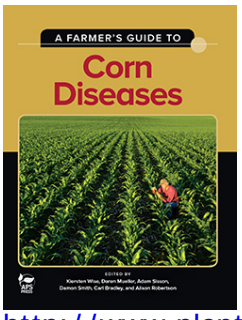
Juvenile Grey Garden Slug

Juvenile Marsh Slug

General

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

Congratulations to Chris Cawley for identifying the disease 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. Chris 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 #8, 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 #7 Answer: Stripe Rust -
Nathan Kleczewski, Extension Specialist – Plant Pathology; nkleczew@udel.edu; @Delmarplantdoc

Stripe rust is a fungal pathogen that requires a living host to survive. Consequently, this disease needs to blow in from southern areas every season. Following moderate winters, such as the past two years, the disease can overwinter further north, and, given appropriate weather conditions, can move into Delaware and Maryland early in the growing season. This is important, as the stripe rust pathogen grows very well under cool, wet conditions and can reproduce rapidly. Thus, if stripe rust is detected on your wheat, growers should consider within season management. Fungicides with a triazole active ingredient work well, and premix fungicides also will provide good control. In a season with persistent cool, wet weather, such as last year, severe outbreaks can occur. If stripe rust is detected in the region, ensure that you check your varieties' stripe rust ratings for resistance levels. Varieties with fair or poor stripe rust resistance may benefit from a fungicide application if stripe rust is detected nearby and wet, cool conditions persist. The guess the pest photos were acquired last week from our Middletown, Delaware Experimental site on a susceptible variety.

Guess the Pest # 8

Guess the Pest! Can you name this disease?

Announcements

New Soybean Field Crop Guide Available

A new Soybean Field Crop Guide is available. The guide was developed by UD and VT to assist growers in identifying and managing important soybean diseases in the mid-Atlantic. This guide can be acquired in print from your county extension office or downloaded from this site

http://reader.mediawiremobile.com/USB/issues/200013/viewer.

Twilight Tailgate Session

Thursday, June 8, 2017 6:00 p.m.
UD Cooperative Extension Research Demonstration Area
3/4 mile east of Armstrong Corner on
Marl Pit Road -Road 429
Middletown DE

Join your fellow producers and the UD Extension team for a discussion of this year's demonstration trials and current production issues. Other topics will include nutrient management, pest management and weed management.

Bring: A tailgate or a lawn chair.

Credits: DE Nutrient Management (1) and Pesticide (1) credits .

We will wrap up with the traditional ice cream treat.

Please call our office at (302) 831-2506 or email sharonlu@udel.edu to register by Thursday, June 1, for additional information, or if you require special needs assistance.

Dan Severson, Extension Agent – Agriculture, New Castle County Cooperative Extension

The meeting is free and everyone interested in attending is welcome. If you have special needs in accessing this program, please call the office two weeks in advance.

It is the policy of the Delaware Cooperative Extension System that no person shall be subjected to discrimination on the grounds of race, color, sex, disability, age or national origin.

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.

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.

Energize Delaware Farm Program

If you want to reduce your energy costs, the Energize Delaware Farm Program can benefit you! The program offers loans up to $400,000 and grants up to $100,000 per farm for qualified applicants.

The program provides:

- Energy audits provided by EnSave, Inc.
- Preliminary renewable energy assessments
- Cash incentives for qualifying equipment
- Project installation support
- Low-interests loans
- Support accessing additional financial assistance

The program is offered on a first-come, first-served basis with limited funding, so call EnSave at (800) 732-1399 today to get started!

Visit the Energize Delaware Farm Program website at: https://www.energizedelaware.org/energize-delaware-farm-program

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of May 18 to May 24, 2017

Readings Taken from Midnight to Midnight

Rainfall:

0.59 inch: May 22
0.16 inch: May 23
0.15 inch: May 24

Air Temperature:

Highs ranged from 91°F on May 19 to 65°F on May 21, May 23 and May 24.

Lows ranged from 72°F on May 18 and May 19 to 48°F on May 21.

Soil Temperature:

71.3°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.