



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 21, Issue 26

September 20, 2013

## Vegetable Crops

**Winter Squash for Winter Sales** - Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

Growers with CSAs, sales to schools and institutions, or restaurant customers should consider storing and marketing winter squash. Winter squash include a wide range of types including butternuts and neck pumpkins, acorns, spaghetti squash, buttercup and kabocha types, delicata and dumpling types, hubbards, cheese pumpkins, and others. Many of these have the ability to be stored for long periods, especially butternuts, buttercups, and spaghetti types. New England has a tradition of eating large quantities winter squash; however, the further south you get, the less they are eaten. This may require customer education in order to market successfully. For example, Butternut squash is great in soups, pastries, and casseroles and spaghetti squash is a fine low calorie, low carb, pasta substitute.

Having winter squash for winter sales requires proper handling and storage. Successful storage starts with harvesting disease free and undamaged fruit. Remove squash from the field before they have chilling injury - do not allow fruits to be exposed to extended periods below 50°F. Handle carefully to eliminate bruising or damage to fruit and remove stems from squash like butternuts that can poke holes in nearby fruit. Store winter squash in a cool, dry, well-ventilated area at a temperature around 60°F. A

ventilated storage shed with supplemental heat works well. Basements are ideal. Empty greenhouses can be used if fans are run to keep the heat down in the day and heat is run to keep the temperature above 50°F (a significant cost). A cold room/box kept at 55° F will also work. Under these conditions, the longer keeping winter squash types can be kept in saleable condition through late winter, into spring.

---

**Tomato Late Blight Identified in Allegany County, Maryland** - Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; [keverts@umd.edu](mailto:keverts@umd.edu)

Late blight on tomato was detected last week in Allegany County, Maryland. In addition, there have been recent reports from several counties in Pennsylvania. Tomato growers in Delaware and on the eastern shore of Maryland should scout the crop for late blight. The pathogen (*Phytophthora infestans*) strain present in Maryland is US23, which affects both tomato and potato. In addition, US23 is sensitive to fungicides which contain the active ingredient mefenoxam, such as Ridomil Gold Copper. It is late in the growing season and many growers may decide that it is not economically justified to spray for late blight. However, for those growers that want to extend the harvest, the following additional products are effective: Curzate, Forum, Presidio, Previcur Flex, Ranman, Reason, Revus Top and Tanos. These products should be applied with a protectant fungicide such as chlorothalonil.

Organic growers who want to extend their tomato harvest are advised to apply a copper

fungicide that is approved by your organic certifier.

### Characteristics of strains of *Phytophthora infestans* recently detected in the United States

Lineage	Mating type	Host specialization	Mefenoxam sensitivity
US8	A2	Potato	I-R
US11	A1	Potato/tomato	R
US22	A2	Potato/tomato	S
US23	A1	Potato/tomato	S
US24	A1	Potato	S (some I) <sup>a</sup>

<sup>a</sup>Most individuals of US24 appear sensitive (S) to mefenoxam, but others appear intermediate (I) in their sensitivity based on an in vitro assay using mefenoxam-amended plates. US11 has been consistently resistant (R).

---

### High Tunnel Tomatoes Outperforming Field

Tomatoes - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

Over the last 2 years - hot and dry in 2012 and cool and wet in 2013 - tomatoes grown in high tunnels have outperformed field tomatoes. The high tunnel environment provides more heat early in the season and therefore earlier harvests. In the summer, the high tunnel provides a rain shield and protection from storms, reducing disease pressure dramatically and eliminating fruit cracking. Later in the year, the tunnel again provides extra heat, extending fall production. While there is some loss of fruit set in the heat of the summer, reducing August production, fruit quality is still superior.

One researcher likened the high tunnel to a "desert environment". I like to think of it as creating a "Mediterranean climate" which is very conducive to growth of many vegetables. In addition to the reduction in disease pressure, insects are also less of a problem as many do not prefer the tunnel environment (spider mites are an exception to this and mite pressure often increases).

Single early spring tomato plantings will produce well into August, decline, and then pick up again in September with determinate slicer types. Indeterminate types (most cherry tomatoes, some slicers) may get so big that they are hard to manage late in the year. Replanting after early production peaks (late July) can be

another tool to get higher fall production and manage plant size.

For direct marketers, the high tunnel is becoming an essential tool for tomato production. We are fortunate to have several universities in the region that conduct tomato trials in high tunnels. In particular, Penn State has good trial data and resources for high tunnel tomato growers.

---

### 2013 Pumpkin Crop - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

The pumpkin crop has been reduced and is later this year. The reductions and delays are due to several factors: fewer acres were planted because of wet June conditions, areas of fields were drowned out with the heavy rains in June, some fields had poor stands due to heavy rains after planting, planting was delayed due to wet conditions in some fields, and cooler than normal temperatures is delaying maturity. In addition, size is down, most likely due to cloudy conditions during early fruit set and development, as well as disease pressure on foliage. Fruit rots have been a problem in low lying field areas and disease pressure was heavy through the middle of August. Drier weather over the last month has been welcomed, reducing additional disease pressure nearer to harvest. The best looking pumpkin fields this year are those that were planted on killed cover

crops (rye, rye-vetch, or vetch) on very well drained soils. On the positive side, prices are higher this year due to the shortage.

## Agronomic Crops

**Aphid Management in Small Grains** - *Joanne Whalen, Extension IPM Specialist;*  
[jwhalen@udel.edu](mailto:jwhalen@udel.edu)

As you make plans to plant wheat, you should consider the following factors when making a treatment decision for aphids. In general, cooler summer temperatures with adequate rainfall followed by a warm, dry fall favors aphid development in small grains, especially in early planted fields. Early fall infestations of the greenbug aphid are favored by cool, late summer conditions.

In the fall, the aphid that can cause direct damage to small grains is the greenbug aphid species. It can inject a toxin into the leaves and cause death of plants. In outbreak years, we have seen entire sections of fields killed by this aphid. When it comes to Barley Yellow Dwarf Virus (BYDV) and its spread, all aphid species occurring in Delaware small grain fields (English grain aphid, bird cherry-oat aphid, corn leaf aphid, and the greenbug) are capable of transmitting BYDV from infected grasses into small grain fields. In the fall, the 2 most common species encountered in Delaware small grain fields are the bird cherry-oat aphid and the greenbug aphid.

Aphid population densities in small grains in the fall are also affected by when the first hard frost occurs in relation to wheat seedling emergence. Crops that emerge long before a hard freeze have a greater potential for aphid infestation (and exposure to BYDV). Planting after the fly free date can help to help to manage aphids as long as the freeze occurs when expected. Aphids arriving in the fall will continue to feed and reproduce as long as temperatures remain above 48°F.

In areas where you have seen BYDV in the past, where you are planting early (before the Hessian fly-free date), or you have seen direct damage

by greenbug aphids, a commercial applied seed treatment which includes an insecticide would be a good control option for fall infestations. Another option would be to scout fields and apply a foliar insecticide. Information from Kentucky indicates that planting date is the most important factor determining the intensity of an aphid infestation. The most important time for controlling aphids in the fall is the first 30 days following emergence. The second most important time is the second 30 days following emergence. So it will be important to scout wheat starting at plant emergence if you plan to use a foliar insecticide for fall aphid management. The following link to a fact sheet from Kentucky provides more information on aphids and BYDV in wheat (<http://www.ca.uky.edu/entomology/entfacts/ef121.asp>).

Although we do not have current data from our area evaluating thresholds to time sprays for fall aphid management, we will be conducting a project for the next few years to evaluate thresholds developed in states in the southern region. The following thresholds from Kentucky (included in the above fact sheet) could be considered when making a decision to apply a fall foliar insecticide : (a) the first 30 days after planting treat if you find an average of three or more aphids per row-foot, (b) from 30-60 days after planting treat if you find six or more aphids per row-foot, and (c) more than 60 days after the plants emerge treat if you find ten or more aphids per row-foot. Depending on weather conditions, a second application could be needed, especially if temperatures remain warm. If weather conditions remain warm through the fall and early winter favoring increases in aphid populations, you will need to continue scouting for aphids.

The following links from southern states provide information on additional management considerations:

<http://www2.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1300.pdf>

<http://news.utcrops.com/2013/09/wheat-insect-control-begins-with-planting/>

---

**Management Steps to Minimize Grain Mold in Corn** - *Nathan Kleczewski, Extension Specialist - Plant Pathology; [nkleczew@udel.edu](mailto:nkleczew@udel.edu)*

Some ear rot causing fungi belonging members of the genera *Fusarium*, *Aspergillus*, and *Gibberella*, can produce mycotoxins. Mycotoxins can be harmful to humans or animals if consumed at certain quantities. Although most infections occur while corn is still in the field, continued growth of the pathogen and associated mycotoxin production can be reduced if the appropriate post-harvest management practices are followed.

1. Before harvest, clean grain bins and dryers inside and out.
2. Within 48 hours of harvest, reduce grain moisture to below 15% for shelled corn and below 18% for ear corn.
3. Store dried grain at cool temperatures (less than 40°F) in clean, dry bins. Grain mold fungi grow well at moderate to high temperatures.
4. Minimize mechanical damage to kernels. This includes harvest and postharvest grain handling and IPM for insect control during the growing season. Wounds facilitate infection of kernels by grain molds while in storage. There is some evidence that the use of Bt hybrids is associated with reduced mycotoxin levels through their effects on insect feeding. On August 29, Dr. Paul Vincelli wrote a nice review of this research in the Kentucky Grain crops Update: [http://graincrops.blogspot.com/2013/08/gmos-and-corn-mycotoxins.html?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+GrainCropsUpdate+%28Grain+Crops+Update%29](http://graincrops.blogspot.com/2013/08/gmos-and-corn-mycotoxins.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+GrainCropsUpdate+%28Grain+Crops+Update%29)
5. Check the bin every 2-3 weeks for temperature, moisture, and insects.
6. Assay moldy grain for mycotoxin contamination. Contaminated grain should be handled according to the recommendations for the toxin in question. An excellent factsheet on mycotoxin analysis can be found here: <http://www.extension.purdue.edu/extmedia/BP/BP-47.html>

The following sites provide additional information on mycotoxins in corn:

<http://www2.ca.uky.edu/agc/pubs/id/id121/id121.htm>

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-MISC-1.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-MISC-1.pdf)

<http://www.oardc.ohio-state.edu/ohiofieldcropdisease>

---

**Soybean Disease Update and Soybean Rust Scouting** - *Nathan Kleczewski, Extension Specialist - Plant Pathology; [nkleczew@udel.edu](mailto:nkleczew@udel.edu)*

A new post has been added to the Field Crops Disease Management Blog: [Sclerotinia Stem Blight of Soybeans](#)

**Soybean Rust**

On September 17, 2013 soybean (SBR) rust was observed and confirmed on soybean leaves (10/34 leaflets, 2% leaf coverage) collected from one of the Tidewater AREC sentinel plots located in Suffolk County, Virginia (Figure 1). In 2013, SBR has been detected in 185 counties in 10 states in the U.S. including 61 counties in AL, 38 counties in MS, 34 counties in GA, 22 counties in FL, 13 counties in SC, 11 parishes in LA, two counties in AR and NC, and one county in both TN and VA.

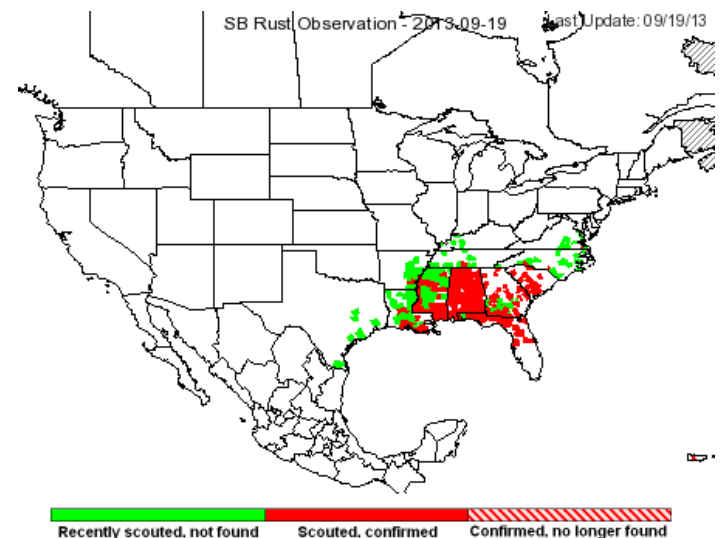


Figure 1. Current status of SBR as of September 19, 2013. SBR was reported in Suffolk County Virginia on September 17, 2013.

Most double crop beans are close to R6. Those at earlier stages of developmental stages may potentially be at risk if SBR makes it to Delaware very soon, or is already here at low levels, and the environment is conducive to disease development. However, these plants are also at risk for freeze injury. **Right now my recommendation is to scout your beans to ensure that SBR is not present.** I will gladly check out your fields upon request. Recent weather has not been conducive to disease development, but conditions could change in the near future. We are currently monitoring plots in Sussex and Newcastle Counties for SBR and I will post any updates as they occur on the Field Crops Disease Management Blog.

**The following is a repeat of my article on SBR that I wrote last week with some slight modifications:**

#### **How to Scout for SBR**

From R1 until R6 scout fields every week. Depending on the size of the field, five to 10 sections of 10-20 ft row length should be scouted. Ensure that sites are chosen throughout the field and are not focused on particular areas of the field (i.e. edges, areas near roads or entrance paths). One way to ensure that the field is properly covered is to scout in a zig-zag pattern. Pay attention to areas where humidity levels may be greater, such as those near tree lines, shaded locations, and bodies of water. Increase scouting frequency if forecasts indicate that SBR movement into the area is likely.

#### **What to Look For**

Focus on lower and middle portions of the canopy for symptoms of early stages of the disease. Using a hand lens, look for chlorosis and brown red-brown, or black pinpoint spots on the upper leaf surface. These are the early symptoms of the disease and they can be easily confused with other soybean diseases such as brown spot, frog-eye leaf spot, bacterial pustule, bacterial blight, and downy mildew. Older infections may have raised, dusty, brown to red brown pustules that contain spores of the fungus. Sometimes it is easier to see disease symptoms if the leaf is held up to the sky (Figure 2) A helpful key to differentiating SBR from these other diseases can be found here:

<http://ohioline.osu.edu/sbr-fact/pdf/0001->

[English.pdf](#). Hard copies of this document are also available at the UD Plant Diagnostic lab and our Kent and Sussex county locations.



Figure 2. Early symptoms of soybean rust may be easier to visualize if the leaf is backlit by sunlight. Image by Daren Mueller. Obtained from [www.ipmimages.org](http://www.ipmimages.org).

SBR cannot be diagnosed in the field and can only be diagnosed in the laboratory. If you find suspect plants, collect 10-20 leaves and place them in a sealed plastic bag. Place a moist, but not soaking wet, paper towel in the bag. That same day samples should be sent to the UD Plant Diagnostic Clinic or your local UD Cooperative Extension office. Samples can be kept in the refrigerator overnight if they cannot be delivered on the same day.

SBR updates can be found on <http://sbr.ipmpipe.org/cgi-bin/sbr/public.cgi>

## General

### **Two USDA-NRCS Conservation Grants to Impact Delaware Agriculture**

USDA Natural Resources Conservation Service (NRCS) recently announced that two

Conservation Innovation Grants (CIG) impacting Delaware, Maryland and Virginia were awarded to Virginia Tech and the National Fish and Wildlife Foundation (NFWF). Together, these two entities will receive \$1.5 million to demonstrate innovative approaches to improving soil health and managing nutrients for improved water quality as part of a productive agricultural system. These two entities were among the latest round of recipients for NRCS' National CIG program.

NRCS awarded a total of \$25 million to 33 entities across the nation to develop and demonstrate cutting-edge ideas to accelerate private lands conservation. The grants, which are funded through the Environmental Quality Incentives Program, assist grantees in working with producers who wish to develop and test new conservation technologies and approaches. At least 50 percent of the total cost of CIG projects must come from non-federal matching funds, including cash and in-kind contributions provided by the grant recipient.

"Conservation Innovation Grants help initiate creativity and problem-solving to benefit our farms and forests," said Sally Kepfer, Acting NRCS State Conservationist for Delaware. "These grants are critical for demonstrating and encouraging new ideas for conservation on our private lands and for strengthening rural communities. We are glad that the grant recipients will help USDA to advance agriculture and protect our natural resources."

***National Fish and Wildlife Foundation (DE, MD, VA, PA, NY) - \$821,384***

Public and private sectors will join with partners and producers to advance the use of manure injection technology in high-density animal production regions of the Chesapeake Bay Watershed to improve water quality.

***Virginia Polytechnic Institute and State University (DE, MD, VA) - \$748,648***

Producers on the Atlantic Coastal Plain will be encouraged to control nutrient loss with comprehensive drainage/ditch management systems that trap sediment and nutrients from artificially drained agricultural lands.

NRCS has offered CIGs since 2004. Since then, the grants have helped develop trading markets for water quality and have shown how farmers and ranchers may use fertilizer, water and energy more efficiently.

For a detailed list of summaries of selected projects, visit USDA's [Conservation Innovation Grants webpage](#). For additional information on NRCS conservation programs in Delaware, visit [www.de.nrcs.usda.gov](http://www.de.nrcs.usda.gov) or contact your local USDA Service Center. In Sussex County, call 302-856-3990, ext 3; in Kent County, call 302-741-2600, ext. 3; and in New Castle County, call 302-832-3100, ext. 3.

## Announcements

### Health Insurance: Making a Smart Choice in Delaware

Experts at Delaware Cooperative Extension are available to help the public make informed choices concerning their health care insurance needs.

Extension personnel and volunteers have received specialized training in the content of health insurance and can provide resources that will help individuals and families to be more confident in making decisions about health care insurance.

Workshops are being held in New Castle, Kent and Sussex Counties in September through December.

*For more information go to:*

<http://extension.udel.edu/fcs/family-and-consumer-sciences/insure/>

*The workshop brochure is online at:*

<https://extension.udel.edu/fcs/files/2013/08/SCHI-flyer-fall-2013-final2.pdf>

*Or call the New Castle Co. Extension Office at (302) 831-1239 or email: [twocenttips@udel.edu](mailto:twocenttips@udel.edu)*

## DSU Pole Lima Bean Fall Field Day

Wednesday, October 2, 2013 5:30-7:30 p.m.

Council Farm  
98 Sharon Hill Rd.  
Dover, DE 19904

This program is organized by the Delaware State University Small Farms Program and is being held at the farm of a long-time pole lima bean producer.

### Topics & Tour:

- Pest issues, including stink bugs
- Weather conditions affecting growth and yield
- Tour of the Council's bean patch

*To register, for location information, and if you have any questions or special needs, please contact Ileana Garcia at (302) 857-6366 or [imayes@desu.edu](mailto:imayes@desu.edu).*

---

## Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of September 12 to September 18, 2013

Readings Taken from Midnight to Midnight

### Rainfall:

0.31 inch: September 12

### Air Temperature:

Highs ranged from 89°F on September 12 to 64°F on September 17.

Lows ranged from 69°F on September 12 to 43°F on September 18.

### Soil Temperature:

71.6°F average

Additional Delaware weather data is available at [http://www.deos.udel.edu/monthly\\_retrieval.html](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, Extension Agent - Vegetable Crops*

Cooperative Extension Education in Agriculture and Home Economics, University of Delaware, Delaware State University and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Delaware Cooperative Extension, University of Delaware. 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.

Reference to commercial products or trade names does not imply endorsement by University of Delaware Cooperative Extension or bias against those not mentioned