



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Vegetable Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Cabbage

Continue to scout all fields for harlequin bugs, beet armyworm, fall armyworm, diamondback and cabbage looper larvae.

Lima Beans

Continue to scout all fields for lygus bugs, stinkbugs, corn earworm, soybean loopers and beet armyworm.

Peppers

Be sure to maintain a 7-day spray schedule for corn borer, corn earworm, beet armyworm and fall armyworm control. You should also watch for flares in aphid populations.

Snap Beans

All fresh market and processing snap beans will need to be sprayed from the bud stage through harvest for corn borer and corn earworm control.

Spinach

Continue to sample for webworm and beet armyworm larvae. Controls should be applied when worms are small and before webbing occurs.

Sweet Corn

Our last trap catches for the season will be Thursday, September 12. If you have questions

about spray intervals, please call Joanne Whalen at 302-831-1303 for more information.

Lima Bean Harvest Progress and Disease Update - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Lima bean harvest is about one third completed on Delmarva. Early planted yields have been variable, as is often the case. Dryland lima fields have been yielding similar to irrigated fields and this is likely due to the plentiful rains received during the summer. Split sets and delayed sets are less severe this year in the early limas compared to the last 2-3 years.

So far, diseases have been moderate to low. White mold is widespread but at low levels and *Phytophthora capsici* has been less severe than expected. While some downy mildew has been found at low levels across a number of fields, only a handful of fields have been severely affected. This is because wet conditions have not persisted in most areas (fields have dried out) as well as preventative sprays going out in high risk fields. Where downy mildew has been found at high levels is in areas with higher rainfall in later August and with a history of lima bean production.

As rains return, scout fields closely for these three diseases and plan for preventative applications in high risk fields with young pods.

Overwintering Onions - Gordon Johnson,
Extension Vegetable & Fruit Specialist;
gcjohn@udel.edu

Research has shown that there is a potential to grow overwintering bulb onions on Delmarva. In the U.S., a center of overwintering onion production is the eastern part of the Pacific Northwest and northern California. Overwintering onions are winter hardy varieties that initiate bulbs in the shorter days of late winter or early spring and mature in late spring. They are not the same as the short day onions in southern latitudes of the U.S. in Georgia, Texas and the southwest that are planted in October through December and harvested in the mid-spring (Granex or "Vidalia" types). Overwintering onions in our area are direct seeded in late August through the middle of September. Specific overwintering varieties are used. Most overwintering varieties offer 5-7 month storage but still can be mild in taste. Varieties include T-420, Bridger, and HiKeeper. There are shorter keeping sweet onions types that are also overwintered (the WallaWalla types).

Bolting can be a problem and research is underway to identify best planting date/variety combinations to reduce bolting problems.

Fusarium Foot Rot/Dry Rot of Beans -

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

Fusarium foot rot or dry rot (FDR) of beans is commonly found in fields where beans are grown worldwide. FDR does not often result in significant yield losses, and damage is negligible in vigorously growing, stress-free plants. This disease can be part of a root rot complex along with *Rhizoctonia* and *Pythium*. This year we have seen instances of both the root-rot complex as well FDR in snap beans. In the field plants may appear wilted, yellow, or stunted. Typically these symptoms are not apparent until 14-21 days after planting. If symptomatic plants are uprooted, the root system may be decayed and brown/red-brown lesions may be apparent on the taproots (Figure 1). As the disease progresses, the cortex becomes red/brown and

the lower stem can become hollow and have a corky texture (Figure 2). The internal portions of the stem may be filled with white/pink fungal growth. In some cases, particularly under high moisture environments, plants may develop adventitious roots along the soil surface.



Figure 1. Snap beans with brown/red roots presenting symptoms of root rot



Figure 2. A snap bean sliced to show hollowing of tap root and presence of white/pink fungal mycelia

FDR grows in/on soil residue, and produces thick-walled resting spores that allow it to survive in soils for extensive periods of time. Although the pathogen that causes FDR can grow on residue of, for example, corn, it only causes disease on beans. Any factor that reduces root growth can increase FDR incidence and severity. Examples of these factors include low soil temperatures, nutrient stress, soil compaction, flooding, drought, and injury caused by cultivation, herbicides, or fertilizer.

The following management practices should be considered in FDR is/has been an issue for you:

- Plant beans into warm soils. When soil temperatures are 68°F and higher, levels of FDR are negligible.
- Deep plow to invert bean residue and promote tissue decomposition
- If possible, rotate away from beans (including soybean) for 3 years or more.
- Avoid soil compaction
- Avoid damaging roots via cultivation. Wounds provide easy entry sites for *Fusarium* as well as other root infecting pathogens.
- Manage water to avoid water excess or deficiency
- Maintain adequate nutrient levels
- Use FDR-tolerant varieties. No bean line is immune to this disease.

Agronomic Crops

Agronomic Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Alfalfa

Continue to sample fields on a weekly basis for defoliators including earworm, webworms and all armyworm species. We received a few reports this past week of fields with economic levels of defoliation. Although we have limited experience at this time of year with damage to re-growth, be sure to check re-growth if worms were present at harvest to determine if larvae are still present and holding back the re-growth.

Soybeans

Corn Earworm - Although corn earworm levels still remain low, late planted soybean fields that still have susceptible pods are still at risk from pod damage. There have been reports of newly hatched larvae in a few fields.

Defoliators - This past week the predominant defoliators we found were soybean looper, grasshoppers and newly hatched green cloverworm. If economic levels are present, you will also need to consider the maturity of the crop as well as the health of the leaf canopy to

make a treatment decision. In an article printed in 2010 regarding defoliation from soybean loopers, entomologists and agronomists in the south suggested that if economic levels of defoliation are present, fields will need to be protected as long as the pods are still green and until the lower leaves are just beginning to yellow. This should correspond, more or less, with the R6.5 stage (10 days after R6.0 = full green seed). If leaves are beginning to yellow up the stem from the maturity process, and there are any pods on the plant that are beginning to yellow, the field should be safe, that is no need to treat. Next you have to determine the health of the leaf canopy: is it robust, average, or thin. Each can tolerate different amounts of leaf loss before reducing yield potential. Robust fields (mid chest or higher) can tolerate a lot of feeding. Average fields (upper thigh to mid chest) can tolerate normal amounts of feeding. Thin canopy fields (mid thigh or below) cannot tolerate additional leaf loss. Also you need to estimate defoliation. Be sure to look at the entire canopy from top to bottom not just the more affected top leaves to come up with an overall average.

Stinkbugs - When it comes to stinkbugs, you should continue scouting until the latest planted fields reach the R7 growth stage, when beans should no longer be susceptible to stink bug feeding. Once soybeans reach mid R-6 and R-7 (beginning seed maturity) , studies from the south say that scouting is still needed to avoid quality damage from stinkbugs which can include underdeveloped or aborted seeds, green stem syndrome, reductions in pod fill, seed vigor and viability, yield loss and a reduction in the storage stability of harvested seeds

Pod Scarring - You also need to consider the potential for grasshoppers and bean leaf beetles to feed on pods. Although bean leaf beetle populations have been generally low this past season, there are still some hot spots of activity so you will need to examine pods for feeding damage. During the last wet fall, we did see significant pod scarring late in the season that resulted in moldy beans. Information from Ohio indicates that a “treatment is usually indicated when pod feeding reaches 10-15% and beetles are still present and actively feeding. In fields

where the pods have started turning yellow and brown, the adults will be leaving in search of greener pastures”.

Soybean Aphid - We continue to find and here reports of economic levels. To review treatment decision making (information developed in the Midwest):

(a) The current economic threshold for aphids is still set at 250 aphids per plant through the R5 growth stage (3 mm long seed in the pod at one of the four uppermost nodes on the main stem) with an increasing population.

(b) You should check fields at least twice before making a treatment decision. If you find 250 per plant you need to re-check in 3-4 days to see if the population is increasing.

(c) When beans reach the R6 and later stages, the thresholds increase to 1,000 aphids per plant. This insect can be controlled by beneficial insects so be sure to watch for natural enemies including lady beetles, parasitized aphids and fungal pathogens that can help to crash populations.

Reminder -- If you do need to treat for any of the above insects, be sure to check the label for the pre-harvest interval (time needed between last application and harvest) as well as other restrictions, including rotational restrictions.

Exciting Topics for Agronomy/Soybean Day During Delaware Ag Week on January 16, 2014 - *Richard Taylor, Extension Agronomist;* rtaylor@udel.edu

In last week's issue, I wrote about [Dr. Bob Nielsen's Wednesday evening program](#) on corn growth and development with emphasis on diagnosing corn problems. This week I want to cover the program we've put together for growers for Agronomy/Soybean Day on Thursday, January 16, 2014.

The morning program will start at 9 am with Dr. Mark VanGessel discussing corn and soybean weed control options for 2014. Mark will be followed by Dr. Doug Beegle from The Pennsylvania State University who will cover the importance of sulfur, lime, and soil pH in crop

production. Dr. Beegle supplied the following short abstract for what will be covered in his talk. "Supplying adequate sulfur and maintaining a proper pH are both critical to successful crop production. While these two important management considerations are really independent, there are connections between them. For example, some sulfur materials, like ammonium sulfate, are acidifying and while gypsum is a good source of sulfur and calcium it is not a liming material. The management of sulfur and soil pH and how they might be linked will be discussed."

Following Dr. Beegle, Dr. Bob Nielsen from Purdue University will speak on 'Reading Corn Ears'. Dr. Nielsen will show and discuss many of the problems we see on the ears of corn with particular emphasis on some of the problems that have been seen this year. After Dr. Nielsen, the morning program will be closed out by Dr. Nathan Kleczewski, the new Extension Plant Pathologist at University of Delaware. Dr. Kleczewski will talk about scab control in small grains and be relating the latest available information on this topic. We'll break for lunch following Dr. Kleczewski's presentation.

After lunch, we'll have the usual Delaware Soybean Board update and then the presentation of the Environmental Stewardship Awards. Following that, Ms. Joanne Whalen will give everyone an update on field crop insect management. Then, Dr. Jim Glancey will discuss the latest information on new poultry manure calculation revisions and how they may impact the Chesapeake Bay Model update. Finally, Mr. Dave Mayonado of Monsanto will talk about the interaction of dicamba resistant soybeans and herbicide resistant weeds and what this may mean for control of some of these resistant weeds.

I hope you agree that we have an exciting, quality, jam-packed program for the Agronomy/Soybean Day this coming January and will mark your calendars so you can attend. See you there!

Soybean Rust Update and Scouting Tips -
Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu

Over the last week Mississippi has really lit up, and there have been an increased number of SBR reports in South Carolina. One southern county in North Carolina reported SBR. The weather over the next 4-5 days does not suggest any great chance for northern spread. There are no reports of SBR in Kentucky, Maryland, or Virginia at this time. So far this year SBR has been detected in 154 counties in eight states including Alabama, Mississippi, Florida, Georgia, Louisiana, South Carolina, Arkansas, and North Carolina (Figure 1). The current SBR risk in Delaware is still low. Remember, if spores of SBR would make it into Delaware it will likely take 2-3 weeks before inoculum will build up to detectable levels, and then another 3 weeks under optimal environmental conditions before inoculum levels would likely reach levels where we might expect reductions in yield. The likelihood of all of these factors occurring are low, but we still need to keep SBR in the back of our minds as we scout double crop beans through R6. For this reason I am including some information on SBR scouting in this update.

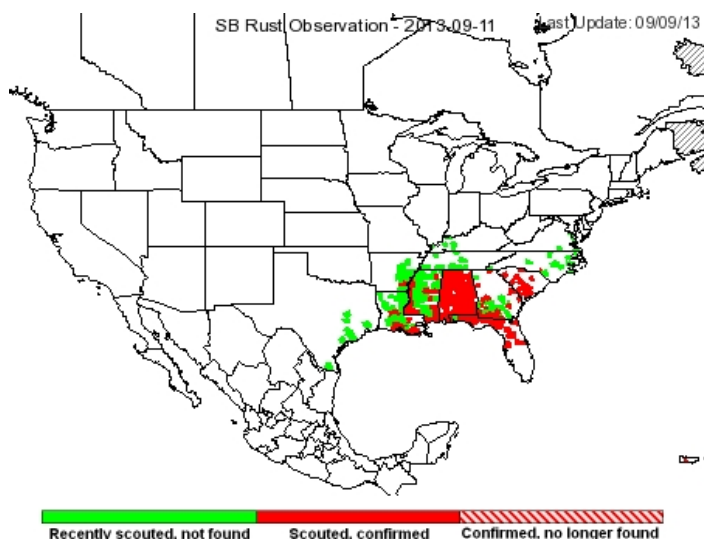


Figure 1. Soybean rust confirmations as of September 9th, 2013. Image obtained from <http://sbr.ipmpipe.org/cgi-bin/sbr/public.cgi>

How to Scout for SBR

From R1 to R6 scout fields every other 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.

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, frogeye 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.

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>.



Figure 2. Early symptoms of soybean rust may be easier to visualize if the leaf is backlit by sunlight. Image by Daren Mueller and obtained from www.ipmimages.org.

A new post has been added to the Field Crops Disease Management Blog: [Identifying Stalk Rots in Corn](#)

General

Delaware Sea Level Rise Awareness Week Events September 14-22

Sediment analyses, tide gauges, and visual observations have all shown evidence that sea levels are rising along Delaware's coasts. In fact, the rate of rise in Delaware (about 13 inches over 100 years) is greater than the global average (about 7 inches over 100 years). This is because Delaware is also slowly sinking as the Earth's crust adjusts to the changing pressure of melting polar ice masses. And, projections indicate that sea levels will continue to rise. Under a 1.5 meter increase in sea level, up to 11% of the land area within Delaware could be inundated by water.

In May 2012, "[Preparing for Tomorrow's High Tide: Sea Level Rise Vulnerability Assessment for](#)

[the State of Delaware](#)," was published by Delaware's Sea Level Rise Advisory Committee. This document provides a comprehensive assessment of the extent of potential impacts that may impact our state.

Sea level rise may impact Delawareans in a number of ways. Roads and bridges may get flooded more frequently, impacting our transportation networks. Properties may experience water damage and the functionality of septic systems may be impaired by higher groundwater levels. Drinking water supplies may be more susceptible to contamination. And, natural ecosystems like our wetlands may change by higher water levels and saltier conditions altering habitats and wildlife present within our state.

In an effort to educate Delawareans about the potential impacts of sea level rise and options for adapting to changes and minimizing consequences, September 14-22, was declared Delaware Sea Level Rise Awareness Week! Events ranging from tree plantings and bird walks to panel discussions and film screenings are planned throughout the week! For complete details about Delaware's Sea Level Rise Awareness Week events, visit: <http://sosdelaware.org/>.

The week long events are sponsored by: Delaware Nature Society; Delaware Center for Horticulture; Delaware Wild Lands; Delaware Center for the Inland Bays; Partnership for the Delaware Estuary; the Nature Conservancy; Clean Air Council; Sierra Club; Delaware Interfaith Power & Light; Delaware Greenways; GreenWatch Institute; League of Women Voters; Delmarva Ornithological Society; Delaware Audubon.

Volunteers still needed for tree planting events!

September 14 - Blackbird Creek Wildlife Area, Townsend (9:30 a.m. - noon)
Join 150 volunteers to plant trees at Blackbird Creek Wildlife Area. These native trees will help restore the natural environment, improve soil fertility, and reduce water issues such as erosion and flooding. Bring your own shovel, gloves and a water bottle. Parking is provided in the lot

behind the truck weigh station at the intersection of Route 13 & Eagles Nest Landing Road (100 Eagles Nest Landing Rd, Townsend, DE). RSVP to hannah@delawarenaturesociety.org.

Lead organization: Delaware Nature Society. Co-sponsored by: Delaware Wild Lands, Delaware Audubon, Delaware Center for Horticulture, The Nature Conservancy - Delaware Chapter, Sierra Club - Delaware Chapter, Clean Air Council, Partnership for the Delaware Estuary, St. Jones Reserve, DNREC Fish & Wildlife Service, UD Cooperative Extension

September 21 - Poplar Thicket Preserve, Millsboro (9 a.m.- noon)
Join other volunteers as we begin restoration at the Marian R. Oakie Memorial Wildlife Preserve at Poplar Thicket in Millsboro. This 226-acre property, a mix of farmland, forest, and tidal marsh on the north shore of the Indian River was recently donated to the people of Delaware. Come see this new public preserve, slated to be a bird sanctuary, and lend a hand in planting 2,000 seedling trees, grasses and shrubs. Poplar Thicket is on Long Neck Road 4 ½ miles east of the intersection of Rt. 24 (John J. Williams Hwy) and Long Neck Road. Parking is provided at the end of the gravel drive leading to the site. (GPS Coordinates: 38 deg 37 min 27.6 sec North / -75 deg 07 min 9.9 sec West). RSVP to science@inlandbays.org.

Lead organization: Delaware Center for the Inland Bays; Co-sponsored by: ; DNREC Dept of Fish and Wildlife and the DNREC Non Point Source program; Delaware Nature Society, Delaware Center for Horticulture, Delaware Audubon, Delaware Wild Lands, Sierra Club - Delaware Chapter

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

Weather Summary	
Carvel Research and Education Center Georgetown, DE	
Week of September 5 to September 11, 2013	
Readings Taken from Midnight to Midnight	
Rainfall:	no rainfall recorded
Air Temperature:	Highs ranged from 91°F on September 11 to 73°F on September 6. Lows ranged from 71°F on September 11 to 49°F on September 7.
Soil Temperature:	75.3°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, Extension Agent - Vegetable Crops

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