



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 21, Issue 23

August 30, 2013

Vegetable Crops

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

Cole Crops

Continue to sample for cabbage looper, diamondback larvae, beet and fall armyworms and Harlequin bug. Although the pyrethroids will provide control of Harlequin bugs they are not effective on beet armyworm or diamondback. Be sure to scout and select controls options based on the complex of insects present in the field.

Lima Beans

Continue to scout for stink bugs, lygus bugs, and corn earworm. A treatment will be needed if you find one corn earworm larvae per 6 ft-of-row. We have also found soybean loopers in fields. Remember that they are a migratory pest, difficult to control and pyrethroid resistance has been documented in states to our south. If they are present in the mix, you will need to select a material labeled for soybean loopers. Be sure to check the label for rates, restrictions (including plant back/rotational crop restrictions) and days from last application to harvest.

Peppers

At this time of year, corn borer, corn earworm, beet armyworm and fall armyworm are all potential problems in peppers. So be sure to select the material that will control the complex of insects present in the field. Be sure to check local corn borer and corn earworm moth catches in your area by calling the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-

8851) or our webpage at <http://agdev.anr.udel.edu/trap/trap.php>.

We continue to see aphid populations increasing, especially in fields where pyrethroids have been used on a weekly basis. Labeled materials are only effective if applied before populations explode.

Snap Beans

At this time, you will need to consider a treatment for both corn borer and corn earworm. You should also watch for beet armyworms and soybean loopers. Sprays are needed at the bud and pin stages on processing beans for worm control. With the diversity of worm pest that may be present in fields, be sure to scout fields and select materials that will control the complex of insects present. You will need to check our website for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans:

<http://agdev.anr.udel.edu/trap/trap.php>

<http://extension.udel.edu/ag/insect-management/insect-trapping-program/ecb-and-cew-moth-catch-thresholds-for-processing-snap-beans/>

Spinach

Be sure to watch for webworms and beet armyworms. Both moths are active at this time and controls need to be applied when worms are small and before they have moved deep into the hearts of the plants. As a reminder, the pyrethroids have not provided effective beet armyworm control in past years. Remember that

both insects can produce webbing on the plants. Generally, at least 2 applications are needed to achieve control of webworms and beet armyworm.

Sweet Corn

With the increase in corn earworm trap catches, be sure that a spray is applied as soon as ear shanks are visible on plants. Once fields are silking, you will need to check both blacklight and pheromone trap catches for silk spray schedules since the spray schedules can quickly change. Trap catches are generally updated on Tuesday and Friday mornings

<http://agdev.anr.udel.edu/trap/trap.php>

<http://extension.udel.edu/ag/insect-management/insect-trapping-program/action-thresholds-for-silk-stage-sweet-corn/>

You can also call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851). Be sure to check all labels for days to harvest and maximum amount allowed per acre.

Notes on Lima Bean Diseases - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

We had over one inch of rainfall around the Ellendale area of eastern Sussex County. Again, conditions for the development of downy mildew are favorable in higher rainfall areas. We are finding white mold in a high percentage of canopied fields with a history of lima beans in the past and some *Phytophthora capsici* in a smaller percentage of fields at this time.

A note on temperature sensitivity of downy mildew: Races E and F (F is the prevalent race now) are tolerant of much higher temperatures than past races. The following is a comment from Dr. Tom Evans, plant pathologist at the University of Delaware "the temperature to affect *P. phaseoli* is now much higher than 90°F and we have not determined an exact number but 95°F didn't stop it in one experiment with Race E. Lab studies with Race E and F indicated that even 96°F didn't negatively affect their growth."

This means that we are not likely to see any help from high temperatures slowing downy mildew as we go into September even though we have few days in the 90s.

Fruit Crops

Bird Damage to Grapes - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

We have seen extensive bird damage in grapes in our vineyard at the UD Georgetown Research Farm over the last week. In particular, birds have devoured all the dark skinned Vinifera and some dark skinned hybrid wine grape varieties. Light skinned grapes have less damage and there is less damage in varieties with more leaf cover where it is harder for birds to see the fruit. Large flocks of migrating birds can devastate a vineyard in a short period of time.

Vineyard managers should take care to control birds at this time when sugar contents are peaking in grapes, making them a highly desirable food source. Netting is probably the most effective control method, followed by scaring devices.

Agronomic Crops

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

Soybeans

In general, corn earworm populations have not significantly increased since last week. You will need to watch double crop fields for the next couple of weeks since they will still be attractive to egg laying moths.

We continue to find economic levels of stinkbugs, especially in full season fields. The population levels as well as species vary from field to field depending on your location in the state. In Sussex County, the predominant species are native green and brown stink bugs, although brown marmorated (BMSB) are in the mix. From the Milford and Harrington areas in Kent County through New Castle County, the BMSB is more commonly found in the mix. BMSB populations

are once again highest along woods edges. You will need to continue to scout for stinkbugs in fields that are in the pod development and pod fill stages. Economic damage is most likely to occur during these stages. You will need to sample for both adults and large nymphs when making a treatment decision. Available thresholds are based on beans that are in the pod development and fill stages. Economic damage continues to occur on R-5 stage soybeans. Thresholds are based on numbers of large nymphs and adults (native green and/or brown stink bugs), as those are the stages most capable of damaging pods. As a general guideline, current thresholds are set at 2.5 per 15 sweeps in narrow-row beans, or 3.5 per 15 sweeps in wide-row beans. *In Virginia, the threshold has been increased to 5 stink bugs in 15 sweeps.*

In general, defoliating caterpillar populations, especially green cloverworm dropped off significantly this past week in full season soybeans. In many cases you can find diseased larvae both in the sweep net and sometimes attached to the leaves. In other cases, larvae present last week are gone this week. However, you will still need to watch double crop soybeans -- they cannot tolerate as much defoliation since they often do not reach the leaf area index needed for maximum yields. As a reminder, the pyrethroids have not provided effective control of beet armyworm or soybean loopers so a product labeled for these 2 species in soybeans will be needed if defoliation is present.

Favorable weather conditions have resulted in a continued increase in soybean aphid populations. The current economic threshold for aphids is an average of 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) and the population is increasing. If you find 250 per plant you need to re-check in 3-4 days to see if the population is increasing. As indicated in information from Ohio were this insect can be more of a problem "this number is the action threshold, it is not the economic injury level (EIL) at which soybean aphid causes yield loss. Yield loss occurs when aphids reach 500-600 aphids per plant. Furthermore, these numbers do not apply to beans at R6 and later. The

thresholds at these growth stages increase to over 1,000 aphids per plant." As a reminder, this insect can be controlled by beneficial insects. You should also watch for natural enemies including lady beetles, parasitized aphids and fungal pathogens that can help to crash populations.

Since many of our pests in soybeans migrate to us from the south at this time of year, the following two links provide information on what is occurring in Virginia and North Carolina.

<http://www.sripmc.org/Virginia/>

<http://www.nccrops.com/>

Soybean Disease Updates - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu

Frogeye Leaf Spot

Frogeye continues to be reported in double crop soybeans. As I have mentioned in the past, significant frogeye present in the mid canopy in the early reproductive stages (R1-R3) may warrant a spray. You should shoot for the R3 stage in terms of timing. Factors that increase your risk levels are: 1) a Frogeye susceptible variety planted; 2) Frogeye is detected at significant levels in the field; and 3) favorable weather in the future (warm, humid, foggy). See [last week's WCU article](#) for more information on Frogeye leaf spot on soybean.

Downy Mildew

Cool temperatures have resulted in greater than normal levels of downy mildew in Delaware soybeans (Figure 1). In fact, there are reports of higher than normal levels of downy mildew in several states this year. In general downy mildew is considered to be more of an annoyance than a major problem, but it can cause some defoliation in severe instances. In some cases seed and pods can become infected. The best way to manage downy mildew is by using clean, certified seed, not planting consecutive soybean crops in the same field, and, if available, using resistant varieties.



Figure 1. Underside of a soybean leaf showing signs of downy mildew

Nematode Damage

Keep your eye out for signs of nematode damaged soybeans in Kent and Sussex counties. Severely infected plants will often be stunted, chlorotic, and have a burned appearance (Figure 2). Other agents such as pH, nutrient deficiency/toxicity, and even chemical burn can give the appearance of nematode damage. If you have confirmed that your field is infested with nematodes you should strongly consider submitting end of the year soil samples to the UD clinic for nematode enumeration. This information will be useful for determining future management practices in the infested field. Often symptoms of nematode activity may not be present, but they can still cause significant reductions in yield. Keep this in mind when assessing yields during harvest.



Figure 2. A soybean field showing symptoms of nematode damage. Other agents can cause similar symptoms. Thus it is important to confirm the causal agent as this will impact management.

Soybean Rust Update

As of August 28th, 99 counties in seven states are reporting soybean rust, and several more counties in South Carolina reported the disease over the last week (Figure 3). The forecast is not calling for any Northward spread of soybean rust over the next 5 days. Visit the soybean rust ipmPIPE site (<http://sbr.ipmPIPE.org/cgi-bin/sbr/public.cgi>) for updates during the week.

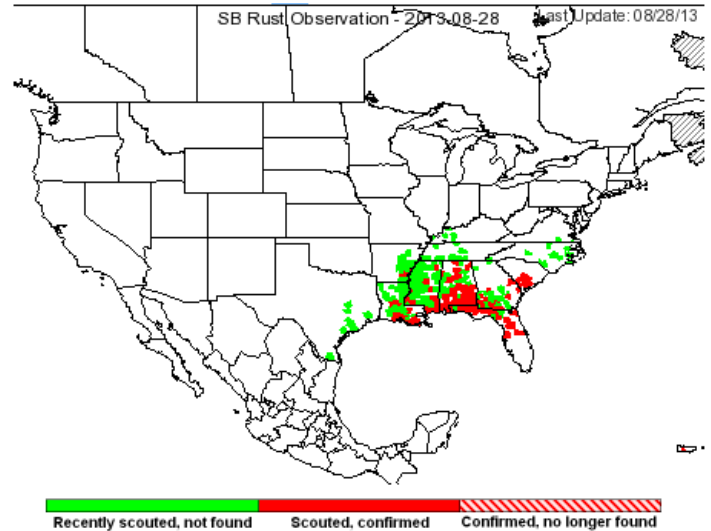


Figure 3. Soybean Rust observations as of 28-August-2013.

Corn Disease Updates - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu

Foliar Disease and Weakened Stalks

This year many growers experienced higher than normal levels of foliar diseases on corn, particularly Gray leaf spot and Northern corn leaf blight. One item to keep in mind as we approach harvest is the effect that foliar diseases can have on stalk health. Carbohydrates are translocated from foliage to developing kernels during grain fill. When carbohydrates are in short supply the plant uses available carbohydrates in stalks to meet demands of grain fill (Figure 1). This weakens the stalks and can predispose them to stalk rotting pathogens. Foliar diseases of corn reduce photosynthesis and therefore carbohydrate production in corn and thus, can impact stalk strength. Now is a good time to start to check stalk strength and lodging potential. This can be done by pinching

the lower stalk internodes or conducting a push test. In general, you should scout 10 stalks at 10 sites for every 10 acres of field. If you note that more than 10% of your corn exhibits the potential for lodging, consider an early harvest for that field.



Figure 1. Severely blighted corn has a difficult time meeting the carbohydrate requirements for grain fill. These needs are met by moving carbon stores from the stalks to the ear. This can weaken stalks and predispose them to stalk rots.

Corn Smut

Smut is common in field and sweet corn grown throughout the world, and can be economically important in some cases, resulting in yield losses approaching 20%. This disease is caused by a fungus (*Ustilago maydis*), and is easily identified by the large outgrowths found most often on corn ears (Figure 2) and tassels; however, any aboveground tissue can show symptoms. Galls initially appear white, and become black over time as the fungus produces spores (teliospores). If foliage is infected, pustules develop on the midrib. These pustules mature and release spore masses. Losses are greatest when the ear becomes infected or if the gall forms directly above the ear.



Figure 2. Smutted corn ear infected with *Ustilago maydis*

Corn can be infected at any time during the early stages of growth and is less susceptible to infection after pollination. The fungus often enters the plant through wounds, but it can also penetrate tissues directly under the appropriate environmental conditions. Developing silks are a prime target for infection and entrance into ears, but once pollination occurs infection and gall formation is unlikely.

Teliospores are the overwintering stage of the fungus and survive on crop debris or soil for several years. In the spring and summer these spores germinate and produce basidiospores, which are carried by wind or rain to corn plants. Teliospores can survive a trip through the gut of animals. Therefore, manure from animals fed infested corn material can serve as a source of primary inoculum.

The most effective management of corn smut is through the use of resistant varieties. Rotation out of severely infested fields may help reduce inoculum levels in subsequent years, although long distance dispersal and survival of spores in soils may limit the effectiveness of this practice. Minimizing plant damage when possible (i.e. insects, mechanical damage) may help minimize smut.

On a side note, our neighbors to the south consume immature smut galls from sweet corn. I've tried them before and they are quite good.

Late Season Palmer Amaranth Management

- *Mark VanGessel, Extension Weed Specialist;*
mjv@udel.edu

A number of calls have come in about Palmer amaranth in soybeans and what can be done. First of all, if the plants have been sprayed with glyphosate and they did not die, then they are likely to be glyphosate-resistant and spraying more glyphosate will not kill them. Products like Pursuit or Reflex will not control Palmer amaranth plants larger than 5 to 6 inches. Options are limited to Gramoxone, handweeding, or mowing.

After corn harvest, some fields may need to be mowed or sprayed with Gramoxone to prevent late-season seed production.

Late-season management of Palmer amaranth to reduce or prevent seed production is not easy or convenient, but it will pay dividends in the future. Removing the plants prior to harvest will reduce the spread of the seed within the field and from field to field. If a single plant can produce 500,000 seeds; spread over an acre that is 10 seeds per square foot. You can quickly see how eliminating seed production and preventing the spread of seed with equipment is a tremendous help.

Announcements

Organic/Sustainable Field Tour

Wednesday, September 4, 2013 3:00-5:00 p.m.
University of Delaware
Carvel Research & Education Center
16483 County Seat Highway (Route 9)
Georgetown, DE

University of Delaware Weed Science Program has been part of a multi-state project examining reduced tillage for organic corn and soybean production. We will be discussing our results and our experiences with this production system. Information is pertinent to both organic farmers as well as those incorporating cover

crops in conventional systems for weed control.

Researchers from Penn State and USDA-Beltsville will be on hand to share their experiences as well.

Some of the issues we will discuss and demonstrate include:

- Importance of cover crop management to maximize weed suppression
- Planting issues – setting up the planter to seed into heavy cover crop residues
- Incorporating cultivation with cover crops

Other ongoing sustainable agriculture projects will be discussed.

Credits will be available for Certified Crop Advisors (CCA CEU's).

Registration begins at 2:45 at the Grove near the farm buildings. There is no cost and no registration required.

MidAtlantic Women In Agriculture's Fall Farm Tour

Wednesday, September 18, 2013

MidAtlantic Women in Agriculture is hosting a Fall Farm Tour in Kent County, Maryland

9:00 a.m. Grand View Farm
Swine Operation: Operated by the 5th and 6th generations of the Langenfelder family.
11491 Still Pond Road Worton, MD

10:30 a.m. Mason's Dairy Farm & Eve's Cheese
www.evescheese.com
23991 Melitota Road Chestertown, MD

12:00 noon Lunch @ Crow Farm
Guest Speaker Judy Gifford– SARE

1:00 p.m. Crow Farm and Vineyard
www.crowfarmmd.com
Tour of the vineyard ending with wine tasting available
12441 Vansant's Corner Kennedyville, MD

Cost of the tour is \$20/person and will include lunch. * Wine Tasting will be an additional \$5*

RSVP by Sept. 11th to Victoria: vgc@umd.edu or 410-708-5578 or register online
www.midatlanticwomeninagriculture.eventbrite.com

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 22 to August 28, 2013

Readings Taken from Midnight to Midnight

Rainfall:

0.52 inch: August 22

0.06 inch: August 23

0.11 inch: August 11

Air Temperature:

Highs ranged from 86°F on August 27 to 78°F on August 24.

Lows ranged from 70°F on August 27 to 54°F on August 25.

Soil Temperature:

76.5°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*

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