



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 22, Issue 15

July 4, 2014

Vegetable Crops

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

Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. ***Be sure to read all labels carefully for rates and restrictions since some materials, especially miticides are restricted to only one application as well as ground application only.***

Lima Beans

Be sure to scout fields for leafhoppers, spider mites as well as plant bugs and stink bugs. As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs. As a general guideline, treatment should be considered if you find 15 adults and/or nymphs per 50 sweeps. The higher rates of labeled products will be needed if stinkbugs are the predominant insect present.

Peppers

As soon as the first flowers can be found, be sure to consider a corn borer treatment. Depending on local corn borer trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is $\frac{1}{4}$ - $\frac{1}{2}$ inch in diameter. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (302-831-8851) or visit our website at <http://agdev.anr.udel.edu/trap/trap.php>. At

this time, you will also need to consider a treatment for pepper maggot.

Potatoes

Continue to scout fields for Colorado potato beetle, leafhoppers, and aphids. We are seeing an increase in leafhopper populations and low levels of aphids can be found. Controls will be needed for green peach aphids if you find 2 aphids per leaf during bloom and 4 aphids per leaf post bloom. This threshold increases to 10 per leaf at 2 weeks from vine death/kill. If melon aphids are found, the threshold should be reduced by half.

Snap Beans

Continue to sample all seedling stage fields for leafhopper and thrips activity. As a general guideline, once corn borer catches reach 2 per night, fresh market and processing snap beans should be sprayed for corn borer. Once pins are present on fresh market snap beans and corn borer trap catches are above 2 per night, a 7 to 10-day schedule should be maintained for corn borer control. On processing snap beans, sprays will be needed at the bud and pin stages. Depending on trap catches of corn borer and corn worm, additional sprays may also be needed after the pin spray on processing beans. Since trap catches can change quickly, be sure to check our website for the most recent trap catches and information on how to use this information to make a treatment decision in processing snap beans after bloom. After the pin spray on processing beans, the spray schedule will be determined by a combination of both moth catches and field scouting.

<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/>

Sweet Corn

The first silk sprays will be needed for ear feeders as soon as ear shanks are visible. Be sure to check both blacklight and pheromone trap catches since the spray schedules can quickly change. Trap catches are generally updated on our website

(<http://agdev.anr.udel.edu/trap/trap.php>) and the Crop Pest Hotline (302-831-8851) by Tuesday and Friday mornings. Information on how to use the trap catch information in combination with field scouting can be found at

<http://extension.udel.edu/ag/insect-management/insect-trapping-program/action-thresholds-for-silk-stage-sweet-corn/>. In addition to corn borer and corn earworm, you will also need to start scouting whorl stage corn for fall armyworm larvae. We are starting to see a significant increase in fall armyworm whorl infestations. A treatment should be considered for whorl feeders when 12-15% of the plants are infested. Since fall armyworm feeds deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control.

Poor Watermelon Crown Fruit Set - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

Growers with early-planted watermelons (those planted the last week in April or first week in May) have been concerned about the lack of crown set in those fields. Some early set watermelons also have distinctive lobes (are noticeably triangular) and standard seeded pollenizers are showing pinched ends.

These are signs that pollination was lacking during early fruit set. This can occur when there is a lack of pollen - pollenizers have not produced enough male flowers or are delayed in producing male flowers. Another explanation could be a reduction in bee activity during the cold periods we had this spring. Other possible

causes would be delays in setting bee hives, damage to flowers, or chemical injury. Early plant stress can also cause abortion of flowers leading to reduced crown set. The earliest set watermelons often are misshaped and have a higher potential for hollow heart.

Management practices to improve early set include use of wind breaks, using pollenizers that produce large numbers of male flowers during the early period, using pollenizers that are the most stress resistant, and placing more bee hives. The University of Delaware vegetable program is currently conducting studies on over 30 pollenizers to evaluate pollen production and pollen viability in early planted conditions (cold weather) and late planted conditions (hot weather).

Cucumber Downy Mildew Confirmed on Delmarva - Kate Everts, *Vegetable Pathologist*, University of Delaware and University of Maryland; keverts@umd.edu

Downy mildew was confirmed June 2 in Maryland (Caroline County). In addition, I have unconfirmed, but credible, reports from Wicomico County. I believe that the strain that is present will only cause disease on cucumbers. Therefore only cucumbers should receive fungicides targeted for downy mildew. (All cucurbits should continue to receive protective fungicides). The conventional fungicides that have performed best in University trials in the past year are Ranman, Zampro, and Previcur Flex. Zampro is a newly registered product, which looked very good in my trial. Additional materials, which are targeted for downy mildew and can be used as tank mix or alternation partners include Tanos, Forum, Curzate, and Presidio.

In the summer of 2013, I performed a trial on fungicides that are commonly used in organic production (have an OMRI label). Downy mildew was heavy in this trial, and my results indicated that the available products performed very differently. I applied Champ alone on a weekly schedule, or every other week in alternation with Actinovate, Oxidate, Regalia or Serenade. Champ alone performed well in reducing disease, however phytotoxicity occurred. All of

the alternation treatments reduced downy mildew compared to no treatment. When Champ was alternated with another fungicide, downy mildew in August was reduced by 65% (Oximate), 76% (Actinovate), 77% (Regalia) and 85% (Serenade) compared to non-treated plots. Champ alternated with Serenade performed best over the season on downy mildew. (Note that where powdery mildew was severe, Regalia also performed well).

Fruit Crops

Section 18 for Brown Marmorated Stink Bug (BMSB) Management on Stone and Pome Fruit - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

As indicated last week, our Section 18 request for the use of three bifenthrin products (Brigade WSB - FMC Corporation; Bifenture EC and Bifenture 10DF - both from United Phosphorus) to control BMSB on apples, peaches and nectarines was approved by EPA. Here is the label for Bifenture products from UPI (<https://extension.udel.edu/weeklycropupdate/files/2014/07/Section-18-Bifenture-BMSB-DE-2014.pdf>). We will post the Brigade WSB from FMC as soon as it is available. Please contact either David Pyne at the Delaware Department of Agriculture (David.Pyne@state.de.us) or Joanne Whalen (jwhalen@udel.edu) for more information.

Agronomic Crops

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

Alfalfa

Continue to sample for potato leafhoppers on a weekly basis. We continue to see a few fields with yellowing. Once plants are yellow, yield loss has already occurred. The treatment thresholds are 20 per 100 sweeps on alfalfa 3 inches or less in height, 50 per 100 sweeps in 4-6 inch tall alfalfa and 100 per 100 sweeps in 7-11 inch tall alfalfa.

Field Corn

Over the past week, we have seen an increase in

Japanese beetle adults feeding on the leaves of field corn. Population levels are higher this year and it is thought to be a result of the wet weather last season. In general, leaf feeding from Japanese beetles has rarely caused economic loss in field corn and there are no thresholds for Japanese beetle defoliation. The next question I have received is if these beetles will move to the ears and clip the silks. The answer is yes it is possible and we have seen silk clipping in past years. Japanese beetles generally stay around longer in corn because they are attracted to the silks. In many years infestations are spotty and can be confined to field edges so once again scouting the entire field is needed to make a treatment decision. All of the information we have comes from the Midwest regarding when Japanese Beetles are most likely to cause damage. The following link to a fact sheet from Purdue provides good information on scouting and decision making. There is also an IPM tip at the end from Bob Nielsen about how to determine what percent of the pollen has been released.

<http://extension.entm.purdue.edu/fieldcropsipm/insects/corn-japanese-beetles.php> .

As a general rule, treatment for Japanese beetle may be needed if silks are clipped back to less than 1/2 inch when less than 50% of the plants have been pollinated and Japanese beetles are still present and actively feeding. Pollen shed for an individual tassel generally takes 2-7 days to complete and 1-2 weeks for an entire field (information from Bob Nielson, Purdue University).

Native brown stink bug populations are also starting to increase in field corn, we have not observed any Brown Marmorated stink bugs, so you should also be watching for stink bugs in corn. As a review, corn is most susceptible to stink bug injury during ear formation before the tassel stage (VT). Bugs feed through the sheath, causing a dead spot on the ear. As the ear expands it becomes distorted and curves, usually outward. Feeding during silking and pollen shed (R1) will also kill kernels on the ear. Once the ear has elongated, stink bug feeding during the blister and milk stages can blast individual kernels usually causing them to abort. Although we do not have any thresholds for our area, the

following thresholds from the South can be used as a guideline for treatment;

(a) When the ear is forming, during ear elongation, and during pollen shed, the treatment threshold is one stink bug per four plants (25% infested plants).

(b) From the end of pollen shed to blister/milk stage, the threshold is one stink bug for every two plants (50% infested plants).

Soybeans

Continue to watch for spider mites, thrips and defoliators (green cloverworm, bean leaf beetles, grasshoppers, etc.) as indicated in last week's newsletter. Another group of defoliators, the Japanese beetle and other look-a-like beetles all in the same insect family, are also starting to show up in soybeans. Before bloom in full season soybeans, the defoliation threshold should be used to make a decision on when to treat for defoliators (green cloverworm, Japanese beetles, grasshoppers, bean leaf beetles, etc.). The threshold on soybeans pre-bloom is 30% defoliation. There are also reports from the South of high fall armyworm populations in soybeans (with true armyworm in the mix). Since fall armyworm is a migratory pest, you will want to watch for this insect showing up earlier than normal in soybeans.

Weed Control Options for Double Cropped Soybeans - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

With small grain harvest underway, there are some questions about preplant weed control with double cropped soybeans. This has always been a challenging situation, and with the presence of herbicide-resistant weeds, it has become even more complicated and results are often less than satisfactory. Larger plants that have been cut off or damaged by the combine are going to be less susceptible to herbicides and achieving 100% control will require a lot of environmental factors falling in your favor -- the recent dry spell does not work in your favor.

A non-selective burndown herbicide and a residual herbicide for broadleaf weeds are needed for some situations. Remember, you

want to start "clean" and if the field has weed seedlings already present, they will have a growth advantage over that of the soybeans. In situations where grasses are present, glyphosate will be the best choice.

Residual products such as Canopy, Valor XLT, Envive, Prefix, and the Authority products are all options to assist with burndown control, but only in some situations due size of the weeds and limited spectrum of control. I list these products because they either do not have active ingredients that are Group 2 (ALS-inhibiting herbicides) or they do not rely only on Group 2 products. If your soybean planting is delayed, remember that Prefix, Valor XLT, Envive, Canopy, and the Authority products have a ten-month rotation to field corn.

Liberty Link soybeans are a tool for double cropped soybeans because they allow for a different mode of action and Liberty 280 has some activity on marestail (see below) and it is effective on small Palmer amaranth plants.

Control of horseweed (marestail) preplant is going to be quite challenging. I do not recommend 2,4-D because of off-target movement at this time of year and it is not effective on these large and damaged plants. I do not have experience with Sharpen under these conditions, but it can be used on medium textured soils at 1 oz/A, or 1.5 oz/A with a 14-day interval before planting (30-days for coarse-textured soils). The Sharpen label recommends horseweed height at 6 inches tall, and that is before it is cut off by the combine. Likewise, Liberty 280 will injure or suppress large horseweeds but often not kill them. Products with chlorimuron or cloransulam such as Canopy, Envive, Valor XLT, Authority First or Sonic may suppress horseweed plants if used at the full rate (although it will not kill them). Another complicating factor is that there are biotypes of horseweed that are resistant to chlorimuron and cloransulam in the region.

If you have Palmer amaranth that is resistant to glyphosate and/or Group 2 herbicides, your options are limited as well. If the Palmer amaranth plants are resistant to both glyphosate and Group 2, we do not have any products that will consistently control them. Gramoxone

(paraquat) or Liberty 280 are two options but regrowth is likely. These products will probably not control established grasses. After the beans are planted your options for postemergence activity on Palmer amaranth would include Blazer (use of Reflex will probably limit next year's rotation so be sure to check the label). If you used any of those Group 2 products mentioned earlier for burndown (Canopy, Valor XLT, Pursuit, Sonic etc.) do not use another group 2 herbicide postemergence.

Announcements

Small Fruit Educational Meeting and Tour

Thursday, July 10, 2014 5:00-8:00 p.m.
University of Delaware
Carvel Research & Education Center
16483 County Seat Highway
Georgetown, DE 19947

This meeting will highlight our extension IPM program addressing Spotted Wing Drosophila monitoring and management in small fruits as well as ongoing variety testing and other research with blueberries, blackberries and grapes.

- Tour the blueberry variety trial, mulch and soil amendment experiments.
- See and sample berries from the blueberry variety trial.
- Tour the primocane fruiting blackberry trial and sample berries from the trial.
- Tour the wine and table grape trial.

Dinner will be provided.

Please pre-register before July 3 by contacting Karen Adams at (302) 856-7303 or adams@udel.edu.

Job Posting: Agronomy Program Manager

Location: University of Maryland, Wye Research and Education Center, Queenstown, MD.

Duties: Working with scientists, coordinate and implement research, demonstration and educational projects for agronomic crops.

Minimum Qualifications: BS degree, prefer 10 years of farm-related experience including 3 years research plot design and staff supervision. Salary commensurate w/experience, with base salary \$48,320.

Details/Apply: <https://ejobs.umd.edu/> Position #103087.

Best consideration /closing date: July 14, 2014.

Contact: Barbara South (410) 827-6202. EEO/AA.

Field Day: Diagnosing Soybean Production Issues

Tuesday, August 12, 2014
University of Delaware
Carvel Research and Education Center
16483 County Seat Hwy
Georgetown, DE

The Delaware Soybean Board and University of Delaware Extension are cooperating on a field day designed to improve diagnostic skills and help troubleshoot production problems in the field. The Field Day will start in the late afternoon (exact time not yet set) and dinner will be provided.

There is no cost to attend but please RSVP by August 5 to Karen Adams at (302) 856-7303 ext 540 or adams@udel.edu.

A Day in the Garden—Open House

Saturday, July 12, 2014 10 a.m. - 2 p.m.
Sussex County Extension Office
16483 County Seat Hwy.
Georgetown, DE 19947
(Rain or Shine)

100th Anniversary Celebration for Cooperative Extension—Door Prizes, Miniature Garden display, Bonsai display, Ask an Expert—bring your plant problems to us for advice and enjoy other special activities. Bring your camera! Visit our website and view our YouTube invitation at <http://www.rec.udel.edu/> or contact Tammy Schirmer

at 302-856-7303 or tammys@udel.edu for more information.

Mini-Workshops include:

10:00 am - **Making Garden Signs.** A demo on making small garden signs from materials that you can find at home. Come see how easy it is to add interest in your own garden. By Lana Ward

10:30 am - **The Misadventures of Peter Rabbit in Farmer McGregor's Garden.** By Master Gardener Cast

11:00 am - **Making Stepping Stones.** Learn how to make stones that are fun, fast and economical using a real leaf from the garden and concrete. Easy to do and made from natural garden leaves. By Lisa Arni

11:30 am - **Insect Safari.** See bugs, bees, butterflies, and other lively creatures as we tour our Demonstration Garden. You just have to look! By Brent Marsh

12:00 pm - **How to Garden Working with Nature.** We will discuss using native plants and organic and chemical-free gardening, to attract birds, beneficial insects, and other wildlife to your yard. By Mary Hall and Cece Niemi

12:30 pm - **The Misadventures of Peter Rabbit in Farmer McGregor's Garden.** By Master Gardener Cast

1:00 pm - **What's Eating my Garden?** IPM Expert, Brain Kunkel, will lead a tour of the grounds to show you firsthand beneficial insects working in the garden along with pests that many are experiencing in their own garden this year. Find out what you can do in your landscape.

The famous ice cream from the UDairy Creamery will be available at the Open House via the Moo Mobile - 10 flavors! <http://ag.udel.edu/creamery/>

Advanced Training on Hot Water Seed Treatment

Hot Water Seed Treatment is a cultural practice that prevents disease causing organisms to be carried within or on the seed. Seed Treatment can also be useful to reduce the amount pesticide needed to

manage your crops. This is especially important for tomato and pepper seeds. If you save seeds each year, you should definitely attend this workshop.

Dr. Gordon Johnson will be presenting this interactive workshop to educate the participants on the correct way to disinfect seeds.

TWO Dates and Locations:

Tuesday, July 8, 2014 from 1:00-3:00 p.m.
Carvel Research & Education Center
16483 County Seat Highway
Georgetown, DE 19947

Please RSVP to Tracy Wootten at 302-856-7303 or wootten@udel.edu if you wish to attend on July 8.

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Monday, July 28, 2014 from 9:00-11:00 a.m.
Paradee Center
69 Transportation Circle Dover DE 19901

Please RSVP to Megan Pleasanton at 302-857-6438 if you wish to attend on July 28.

Weather Summary	
Carvel Research and Education Center Georgetown, DE	
Week of June 26 to July 2, 2014	
Readings Taken from Midnight to Midnight	
Rainfall:	0.06 inch: June 26
Air Temperature:	Highs ranged from 93°F on July 2 to 78°F on June 27. Lows ranged from 73°F on July 2 to 54°F on June 29.
Soil Temperature:	79.7°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, Associate Scientist - Vegetable Crops

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