WEEKLY CROP UPDATE
UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 22, Issue 21 **August 15, 2014**

Vegetable Crops

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

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

Lima Beans
Continue to scout for spider mites, stink bugs and lygus bugs. Be sure to sample for corn earworm larvae as soon as pin pods are present. A treatment will be needed if you find one corn earworm larvae per 6 ft-of-row. You will also need to watch for soybean loopers that can quickly cause defoliation.

Melons
Continue to scout all melons for aphids, cucumber beetles, and spider mites. We continue to see an increase in aphid populations. Treatments should be applied before populations explode and leaf curling occurs.

Peppers
Depending on local trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is ¼ - ½ 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. You will also need to consider a treatment for pepper maggot. Be sure to also watch carefully for beet armyworm larvae since they can quickly defoliate plants. In addition, be sure to use a material that provides beet armyworm control – the pyrethroids have not provided control of this insect in past years.

Snap Beans
You will need to consider a treatment for corn borer and corn earworm in processing and fresh market snap beans. Sprays are needed at the bud and pin stages on processing beans for corn borer control. An earworm spray may also be needed at the pin stage. You will need to check our website (http://agdev.anr.udel.edu/trap/trap.php) or call the Crop Pest Hotline (302-831-8851) for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans.

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

Once pin pods are present on fresh market snap beans, a 7 to 10-day schedule should be maintained for corn borer and corn earworm control.

Sweet Corn
Continue to sample all fields through pre-tassel stage for whorl feeders (corn borer, corn

earworm and fall armyworm). A treatment should be applied if 12-15% of the plants are infested with larvae (regardless of the species). The predominant whorl feeder continues to be the fall armyworm. Since fall armyworm (FAW) feed deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. FAW can also be a problem in silk stage sweet corn, especially in outbreak years. The first silk sprays will be needed 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 Tuesday and Friday mornings on our website (http://agdev.anr.udel.edu/trap/trap.php) and the Crop Pest Hotline (302-831-8851). Information on scouting sweet corn and how to use the trap catch information can be found at http://extension.udel.edu/ag/insect-management/insect-trapping-program/action-thresholds-for-silk-stage-sweet-corn/.

Fitting Forage Radish as a Cover Crop on Vegetable Farms

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

There has been considerable research in the region with forage radish as a cover crop. It produces a giant tap root that acts like a bio-drill, opening up channels in the soil and reducing compaction. When planted in late summer, it will produce a large amount of growth and will smother any winter annual weeds. It will then winter kill leaving a very mellow, weed-free seedbed.

For forage radish to be effective there are 3 keys:

1) Plant early. Late August through early September planting should be scheduled. Later plantings will not give the same benefits.
2) You need some nitrogen. Forage radish responds dramatically to fall nitrogen and 40-60 lbs. per acre are recommended either from carryover from the previous crop or as supplemental application.
3) Do not plant too thick. Aim for 4-6 inches between plants. Thick planting produces much smaller roots and does not give the best benefits.

Vegetable systems where forage radishes have shown great benefits.

1) Compaction mitigation for spring planted vegetables. Where there are compacted fields, the use of forage radishes has worked very well as a winter killed cover crop by "biodrilling". The extremely large taproot penetrates deep into the soil, and after winterkilling, will leave a large hole where future crop roots can grow. Winter killed radishes works well with spring planted crops such as peas and spinach.

2) Early planted vegetables. A wide range of early planted vegetables may benefit from winter killed radishes. For example, peas no-till planted or planted using limited vertical tillage after a winter killed cover crop of forage radish or oilseed radish have performed better than those planted after conventional tillage. Winter killed radishes also have the advantage of outcompeting winter annual weeds leaving relatively weed free fields and also in recycling nutrients from the soil so that they are available in the spring for early crops (decomposition has already occurred).

3) Mixed systems with windbreaks for plasticulture. By planting planned plasticulture bed areas with winter killed forage radish and areas in-between with cereal rye you can gain the benefits of these soil improving cover crops and eliminate the need make tillage strips early in the spring. The winter killed areas can be tilled just prior to laying plastic.

4) Bio-strip till. By drilling one or two rows of forage or oilseed radish and other adjacent rows with rye, you can create a biodrilled strip that winter kills and that can be no-till planted into the spring without the need for strip-till implements. This opens up dozens of options for strip tilling (seed or transplanted) spring vegetables. We have transplanted crops such as watermelons directly in to the holes left by the radishes with good success.

Update on Pumpkin Viruses – *Jerry Brust, IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

This is an additional bit of news about virus problems in our pumpkin fields that I did not include in last week's article. One thing I've seen that is new or at least different is severe distortions or deformities of pumpkin plants because of infection with just watermelon mosaic virus-2 (WMV). Normally this virus, if it is the only virus in the plant, results in mild mottling symptom. However, pumpkin plants I have seen in fields with severe deformities had **only WMV** in them. This is problematic as WMV is the most common pumpkin virus in our area. If this "strain" (I am calling it that because I am not sure what else to call it) becomes common then yields of pumpkin could be reduced by 20-35% each year. This 'strain' of WMV also was found in Utah.

Serious foliar deformations in pumpkin due to infection by a 'severe strain' of WMV.

Lima Bean Downy Mildew Alert

Lima Bean Downy Mildew has been confirmed in Sussex County near Milton. Weather conditions have been conducive for disease development. **Be sure to scout all limas for downy mildew from this point on until harvest.** Consult the Delaware Commercial Vegetable Production Recommendations for fungicide options: http://extension.udel.edu/ag/files/2012/03/Beans.pdf.

Downy mildew on limas is characterized by white downy growth on the pods, petioles and racemes. A reddish brown border often surrounds the infected area on the pods.

Downy mildew on petioles and stems often produces the distorted "crooks" seen in this picture.

Watermelon Downy Mildew

– *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland*; keverts@umd.edu

Watermelon downy mildew was confirmed in Wicomico County, MD on Aug 13, 2014. All watermelon crops in Maryland and Delaware, which will continue to be picked, should be protected with a downy mildew specific fungicide at this time. Downy mildew on watermelon looks different than downy mildew of other cucurbits (see Fig. 1.). This disease cannot overwinter here and must be reintroduced every year. This year has been very conducive to downy mildew, and our recent rain will increase disease.

Figure 1. Downy mildew on the upper (top) and lower (bottom) leaf surface. Lesions are dark brown, and irregular in shape. Larger lesions often have adjacent small, dark brown "dots."

Downy mildew is managed best with fungicides that are targeted for downy mildew. Targeted sprays that are applied on a 7-day schedule will be most effective in managing the diseases. The following are effective fungicides when applied with a protectant fungicide such as chlorothalonil: Ranman, Previcur Flex and Zampro. Products that are very good for use in a tank mix as a rotation partner are Forum, Tanos, Gavel (Gavel contains mancozeb, which is a protectant, and does not need a tank-mix partner), Curzate, and Presidio. Remember to alternate among products in different fungicide groups.

Note: Downy mildew is now confirmed on **pumpkin**, **cantaloupe**, **cucumber** and **watermelon** on Delmarva. **All cucurbit crops** should be protected with downy mildew targeted fungicide applications.

Basil Downy Mildew Update – *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland*; keverts@umd.edu

Basil downy mildew was confirmed in Wicomico county on Aug 13, 2014. The disease has been present in many other locations for some time, and was reported in both Sussex and New Castle Counties in Delaware in June. Our recent moderate temperatures and rainfall will spread the disease. For management information, see the article in Weekly Crop Update 22:13 from June 20, 2014: http://extension.udel.edu/weeklycropupdate/?p=7048.

Late Blight on Tomato – *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland*; keverts@umd.edu

Tomato crops across Delaware and Maryland are at risk of **late blight**. Late blight is now in commercial and home gardens in two counties in western Maryland, and I suspect that unreported late blight is present in additional counties. In addition, our current weather is highly favorable to this disease. Preventative fungicides should be applied. For current reported locations of late blight across the Eastern U.S., see http://www.usablight.org/

We are waiting for the determination of the genotype we have in Maryland. Isolates in nearby states have all been US-23, which means that they are sensitive to mefenoxam, the active ingredient in Ridomil Gold Bravo. Additional fungicides, which are effective on late blight when used in tank mix with a protectant fungicide, are Curzate, Forum, Presidio, Previcur Flex, Ranman, Reason, Revus Top, and Tanos. See the Delaware/Maryland Commercial Vegetable Recommendations for more information (http://extension.umd.edu/mdvegetables/2014-commercial-vegetable-production-recommendations or http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/).

Potato Disease Advisory #13 – August 13, 2014 – *Nathan Kleczewski, Extension Specialist - Plant Pathology*; nkleczew@udel.edu

Date	DSV	Total DSV	Accumulated P-Days	Recommended Spray Interval
6/6-6-13	21	64	280	5-days
6/13-6/19	5	69	329	10-days
6/19-6/27	6	75	398	10-days
6/27-7/4	4	79	446	10-days
7/5-7/11	3	82	492	10-days
7/12-7/18	7	89	541	7-days
7/19-7/23	3	92	592	10-days
7/24-7/31	5	97	643	7-days
8/1-8/9	23	120	740	7-days
8/10-8/13	8	128	775	7-days

***Red text indicates that a preventative fungicide application is recommended. Fungicides are most effective if applied prior to disease development. Follow all label directions regarding application methods, etc. Remember that the label is the law.**

Location: Leipsic, Kent Count, Delaware
Green row: May 12, 2013

Any suspect samples can be sent to the UD Plant Diagnostic Lab or dropped off at your local Extension office. See the 2014 Commercial Vegetable Production Recommendations-Delaware for recommended fungicides: http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/.

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.

Agronomic Crops

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

Soybeans
We continue to find a variety of defoliators present in full season and double crop fields. In some cases, we are finding that fungal diseases are starting to help reduce green cloverworm populations. As indicated in past newsletters, defoliation thresholds should be used to make a treatment decision for the complex of defoliators present in a field.

Corn earworm populations still remain low and spotty but can be found in full season and double crop fields in Kent and Sussex counties. Since population levels vary from field to field, the only way to know if you have an economic level will be to scout all fields. When looking at foliage feeding by corn earworm, you will need to use defoliation thresholds to make a treatment decision. Once pods are present, the best approach to making a decision on what threshold to use for corn earworm is to access the Corn Earworm Calculator developed at Virginia Tech (http://www.ipm.vt.edu/cew/) which estimates a threshold based on the actual treatment cost and bushel value you enter.

Be sure 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 and a combination of species can be found in fields throughout the state. You will need to sample for both adults and nymphs when making a treatment decision.

We are also getting reports of an increase in soybean aphid populations in a few fields throughout the state. The recent cooler weather pattern favors an increase in populations. The economic threshold for soybean aphid established in the Midwest is 250 aphids per plant. Populations should be increasing and most of the plants should be infested (>80 percent) in order to justify an application. This threshold is appropriate until plants reach mid-seed set (R5.5). Spraying at full seed set (R6) has not produced a consistent yield response in the Midwest. We are also seeing a high number of beneficial insects in fields with soybean aphids (lady beetles and parasitized aphids) so you should also consider beneficial insect activity before making a treatment decision. Most products labeled for soybean aphid will provide effective control.

Soybean Cyst and Root Knot Nematodes – *Nathan Kleczewski, Extension Specialist – Plant Pathology*; nkleczew@udel.edu

This year has thus far been excellent for soybeans in the region. With outstanding crop growth comes large, lush canopies that require a substantial amount of water and nutrients to meet the physiological demands of the plant. When the water and nutrient requirements for beans are high and water availability is low, root related issues tend to become more pronounced. This has been the case in some dryland fields in the region where aboveground symptoms of soybean cyst (SCN) or root knot (RKN) nematode are starting to appear. These nematodes reduce translocation of water and nutrients from roots to foliage by compromising the root system.

What do these symptoms look like from afar? You might notice yellowing of foliage in portions of the field, particularly raised, well drained areas (Fig. 1). In some cases you may notice plants are stunted to various degrees. To determine if SCN or RKN might be involved, use a shovel to dig up symptomatic plants. Carefully knock off as much soil as possible and examine the root system. SCN appears as small yellow or white lemon-shaped bumps on the roots (Fig. 2). These bumps are much smaller than nodules formed by nitrogen fixing bacteria which also will be present on the root. If RKN is present you will notice larger, irregularly formed growths on the root system (Fig. 3). The irregular shape and lack of a pink internal coloration further distinguish them from bacterial nodules. It's always a good idea to look at healthy plants for a comparison whenever possible.

Figure 1. Symptoms of nematode damage on soybean from afar. Symptoms may resemble several other biotic or abiotic issues. *Photo by E. Sikora obtained from Bugwood.org with permission.*

Figure 2. Small, white, lemon-shaped cysts from soybean cyst nematode. *Photo by P. Bachi obtained from Bugwood.org with permission.*

Figure 3. Large, irregular galls caused by Root knot nematode activity on soybean roots. *Photo by E. Sikora obtained from Bugwood.org with permission.*

Announcements

UD Extension Vegetable & Fruit Program Open House

Thursday, August 21, 2014 4:00 – 8:00 p.m.
Carvel Research and Education Center
16483 County Seat Highway
Georgetown, DE 19947

Come see and hear about many of the UD Extension Vegetable and Fruit Program's field research projects from the 2014 season.

Watermelons: seedless variety trial, pollenizers growth regulators, compost, irrigation, root stocks, hollow heart.

Sweet Corn: Processing corn nitrogen, tillage trials.

Lima Beans: tillage, stress mitigation, rhizobium inoculants, regrowth cropping, variety evaluation and breeding for pole, Fordhook and baby lima types will be discussed

Pickles: parthenocarpic and gynoecious variety trials.

Other: onion variety trials, zucchini variety trials

Fruit: blueberries, grapes, blackberries

We will also have graduate students on hand to discuss their research in these areas: *Phytophthora capsici* in lima beans, root knot nematodes in lima beans, and watermelon fruit set

Dinner featuring local produce will be served.

Sponsored by the Fruit and Vegetable Growers Association of Delaware.

Please pre-register by contacting Karen Adams at 302-856-2585 ext. 540 or adams@udel.edu.

University of Delaware Irrigation Field Day

Wednesday, August 20, 2014 10:00 a.m..
University of Delaware
Warrington Irrigation Research Farm
Corners of Rt 5 and DE 290 Cool Spring Rd/Hurdle Ditch Rd.
4 miles south of Harbeson, DE
signs will be posted

The University of Delaware Irrigation Program invites farmers, industry and the general public to tour UD's

Warrington Irrigation Research Farm. UD Personnel will be sharing their latest irrigation research findings:

• Irrigated corn, wheat full season and double crop soybean irrigation research plots

• Experiences with subsurface drip irrigation for agronomic crops (SDI)

• Soil moisture monitoring as a tool to refine irrigation management

• Variable rate center pivot irrigation (VRI)

For more information contact: Karen Adams at 302-856-2585 ext. 540

Research Sponsored by: DNREC, Delaware Soybean Board, MD Grain Producers, NRCS and Vincent Farms

Delaware Agricultural Financing Workshop "Show Me the Money"

Wednesday, August 20 5:00 p.m.-8:00 p.m.
Harrington Firehall
20 Clark St.
Harrington, DE 19952

The Environmental Finance Center (EFC) invites Delaware farmers to a FREE event to discover information and resources to fund effective agricultural best management practices that can improve water quality while also offering benefits to your operation.

The agenda can be previewed here. Two Nutrient Management credits will be available for attendees.

Free dinner will also be provided.

There is no cost to attend, but pre-registration is requested, and will open in July. Please register by August 14th at http://events.r20.constantcontact.com/register/event?oeidk=a07e9c5i6rof26dff2a&llr=bhiq8ucab

Walk-in's (no registration) will be accommodated as seating is available.

Please contact us with any questions:
Jill Jefferson
Environmental Finance Center
jilljeff@umd.edu
540-325-0151

2014 Maryland Crop Insurance Workshop

Tuesday, September 9, 2014
Doubletree Hotel
210 Holiday Ct
Annapolis, Maryland

AGENDA

8:45
Registration and Coffee

9:15
Welcome

9:30
Current MD Crop Conditions and Outlook
Pat McMillan
Assistant Secretary, Marketing, Animal Industries, & Consumer Services

10:00
Farm Safety Net Under the 2014 Farm Bill
Dr. Joe Glauber
Chief Economist, U.S. Department of Agriculture

11:00
Current Crop Insurance & Federal Policy Situation
Stephen Frerichs
Lobbyist, American Society of Farm Managers and Rural Appraisers

12:00
Lunch

1:15
Update on 2014-15 Educational and Promotion Program
Howard Leathers,
Associate Professor Agricultural and Resource Economics, University of Maryland
Steve Connelly
Maryland Dept. of Agriculture
Lucas Clifton,
Farmers First Services

2:15
TBA
Juan Garcia
Administrator, Farm Service Agency, USDA

2:30
Assembling the Pieces into a Reliable Risk Management Plan
Gene Gantz
Risk Management Agency

3:15
Adjourn

This workshop is sponsored by the University of Maryland Department of Agricultural and Resource Economics, Maryland Department of Agriculture, USDA's Risk Management Agency, University of Maryland Extension and the Delaware Department of Agriculture. The workshop is free. To register please go to https://cropinsuranceworkshop.eventbrite.com .

Association of Specialty Cut Flower Growers Conference: "Growing Growers"

October 19-22, 2014
Hilton Wilmington/Christiana
100 Continental Drive
Newark, DE 19713

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http://www.ascfg.org/images/stories/growinggrowers.pdf

Additional conference information at:
http://www.ascfg.org/index.php?option=com_content&task=view&id=503&Itemid=1014

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 7 to August 13, 2014

Readings Taken from Midnight to Midnight

Rainfall:

1.40 inch: August 12
0.26 inch: August 13

Air Temperature:

Highs ranged from 83°F on August 10 to 72°F on August 12.

Lows ranged from 67°F on August 12 to 57°F on July 8.

Soil Temperature:

74.1°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