



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 20, Issue 14

June 22, 2012

Vegetable Crops

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

Lima Beans

We are starting to find the first spider mites in dry land fields. Dimethoate and bifenthrin are labeled for spider mite control in lima beans. Controls are only effective if treatments are applied before populations explode.

Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mite. With the recent hot weather, we are finding an increase in spider mite activity. The threshold for mites is 20-30% infested crowns with 1-2 mites per leaf. Acramite, Agri-Mek, bifenthrin, Danitol, Oberon, Portal and Zeal are labeled on melons for mite control. *Be sure to read all labels carefully for rates and restrictions since some are restricted to only one application as well as ground application only.*

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 7-10 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 (instate: 800-345-7544; out of state: 302-831-8851) or visiting our website at: <http://ag.udel.edu/extension/IPM/traps/latestblt.html>. You will also need to consider a

treatment for pepper maggot. Since beet armyworm moths have already migrated to our area, be sure to watch for small beet armyworm since larvae can quickly cause defoliation.

Potatoes

Continue to scout fields for Colorado potato beetle and leafhoppers. We have seen an increase in leafhopper populations and low levels of aphids have also been 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 ½.

Snap Beans

Continue to sample all seedling stage fields for leafhopper and thrips activity. We have seen an increase in leafhopper activity this past week. As a general guideline, once corn borer catches reach 2 per night, fresh market and processing snap beans in the bud to pin stages should be sprayed for corn borer. Sprays will be needed at the bud and pin stages on processing beans. Additional sprays may 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 (<http://ag.udel.edu/extension/IPM/traps/latestblt.html> and <http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>). 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.

Sweet Corn

Continue to sample all fields from the whorl through pre-tassel stage for corn borers, fall armyworm and corn earworm. A treatment should be applied if 12 to 15% of the plants are infested with larvae. Since fall armyworm feeds deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. The first silk sprays will be needed for corn earworm 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

(<http://ag.udel.edu/extension/IPM/traps/latest/blt.html>) and

(<http://ag.udel.edu/extension/IPM/thresh/silksp/laythresh.html>). You can also call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851).

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

Downy mildew was confirmed on cucumber in Sussex County, Delaware this week. Continue with a good preventative program. The hotter weather is not as conducive to disease development.

Fusarium Crown Rot on Watermelon - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland;*
keverts@umd.edu, *Jerry Brust, IPM Vegetable Specialist, University of Maryland;*
jbrust@umd.edu and *Karen Rane, Extension Specialist Entomology, University of Maryland*
rane@umd.edu

Fusarium crown rot on watermelon, caused by *Fusarium solani*, was observed this past week in

one field on Delmarva and is suspected in others. The first sign of an affected plant is leaf wilt, which is eventually followed by vine wilt and plant death. However, unlike Fusarium wilt caused by *F. oxysporum* f. sp. *niveum*, the vascular system in crown rot infected plants is not discolored. Examination of the stems reveals dark reddish to brown surface discoloration and a restriction of growth at the soil line. (The external stem discoloration is not diagnostic though, as several diseases and non pathogenic causes can lead to similar symptoms). Fusarium crown rot is more common on squash and pumpkin than watermelon and muskmelon, but all cucurbits are susceptible. However stress can lead to high disease levels in watermelon some years. For example the disease was prevalent on watermelon in 2008. The pathogen that causes Fusarium crown rot will not survive more than three years in soil. Fields with confirmed crown rot should not be planted to any cucurbit for four years.



Figure 1. Fusarium crown rot on a watermelon plant.

Leaf Aging in Cucurbits - Gordon Johnson,
Extension Vegetable & Fruit Specialist;
gcjohn@udel.edu

We are starting to see the oldest leaves (crown leaves) in watermelons, cantaloupes, squash, cucumbers, and pumpkins with large areas that are discolored (white, tan, or bronze). These leaves will be brittle to the touch and may start to tear or shred with high winds and storms. This condition is common in cucurbit crops and can be due to a number of leaf aging factors including mineral nutrient scavenging (export of mobile nutrients from oldest leaves to newer leaves), ozone air pollution damage, chemical phytotoxicity, repeated stress cycles, and wind injury. Leaf cells that die will leak their contents, releasing enzymes and oxidizing chemicals affecting nearby cells thus accelerating the "aging" process. This results in large patches of dead leaf cells that then dry, making the leaf feel brittle. If leaf veins are damaged, water and food transport will be compromised, accelerating leaf decline. This leaf aging is not to be confused with damage from mite feeding which is also concentrated on oldest leaves.

Weed Control for Succulent Beans - Mark
VanGessel, Extension Weed Specialist;
mjv@udel.edu

There is some overlap of herbicide options for snap beans and lima beans, but growers need to pay particular attention that a product is labeled for snaps or lima beans and do not assume if it is labeled for one, it is labeled for both. One thing that is consistent for both lima and snap beans is that postemergence herbicides need to be applied to small weed seedlings (3 inches tall or less).

Snap Beans

Weed control in snap beans starts with a good soil-applied program. The regional recommendations include Eptam, Treflan or Prowl, applied pre-plant incorporated; Dual, which can be applied preemergence or pre-plant incorporated; or Command or Sandea applied preemergence. Early postemergence treatments

for broadleaf weeds include Basagran, Reflex, or Sandea. Select Max, Targa/Assure II, or Poast are labeled for postemergence grass control. UD research has seen consistent control with Dual used at planting followed by a timely (1 to 2 trifoliate stage of the beans) application of Reflex and Basagran. If there are concerns about timely application of the postemergence herbicides, consider use of a broadleaf weed herbicide at planting.

Lima Beans

The biggest difference from snap bean herbicides is Reflex. Snap beans tolerate Reflex quite well, but lima beans are very sensitive to Reflex. In fact, Reflex applied earlier in the season than lima beans planted as a second crop can also result in lima bean injury. A soil-applied herbicide program for lima beans is very important due to the lack of effective postemergence herbicides. Herbicides listed in the regional vegetable guide for lima beans include:

Pre-plant incorporated: Prowl or Treflan

Pre-plant incorporated or preemergence: Dual or Pursuit

Preemergence only: Sandea or Spartan Charge (only labeled in DE)

Postemergence: Basagran or Raptor for broadleaf weeds; Select Max or Poast for grasses.

UMD Researchers Seek Tomato and Leafy Greens Farm Participants - Sasha Marine,
UMD Postdoctoral Research Associate;
scmarine@umd.edu

In recent years, outbreaks of *Salmonella*, *Listeria* and *E. coli* in fresh vegetables and the resulting public concern over food safety has prompted regulators to re-evaluate production and post-harvest practices. Research has demonstrated the importance of Good Agricultural Practices (GAPs) and Good Hygienic Practices (GHPs) for preventing contamination and the subsequent growth of pathogenic microorganisms. As a result, protocols (referred

to as “metrics” by the food industry) have been established by specific commodity groups and retailers, as well as by state and federal organizations. However, knowledge gaps remain as to the risk factors and adaptability of these protocols to different climates, regions and types of farming operations. It is important that any protocols be suited to implementation on small- and medium-sized farms, which are typical to Maryland and Delaware.

Thanks to a multi-state grant from the USDA National Institute of Food and Agriculture, University of Maryland researchers Kathryne Everts and Christopher Walsh will be collecting data from several small- and medium-sized farms in Maryland and Delaware to examine the

influence of water sources and environmental parameters on the microflora on tomatoes and leafy greens. The scientific and technological knowledge gained from the 3-year project will be used to develop, refine and defend national food safety protocols for domestic and imported produce. Data generated from this project will also be incorporated into an upper-division undergraduate course being developed by Walsh and faculty at the University of Delaware and the University of Florida.

Farmers wishing to participate in this project may contact Sasha Marine (scmarine@umd.edu).

Potato Disease Advisory #14 - June 21, 2012 - *Phillip Sylvester, Kent Co., Ag Agent;*
phillip@udel.edu

Late blight Advisory

Location: Art and Keith Wicks Farm, Rt 9, Leipsic, Kent County, Delaware
Greenrow: April 20

Date	DSV	Total DSV	Accumulated P-Days	Spray Interval Recommendation
5/20-5/22	11	55	229	5-days
5/22-5/23	2	57	238	5-days
5/24-5/28	8	65	279	5-days
5/28-5/30	3	68	294	5-days
5/31-6/3	3	71	331	7-days
6/4-6/6	0	71	355	10-days
6/7-6/11	0	71	395	10-days
6/11-6/14	8	79	424	7-days
6/15-6/18	0	79	460	10-days
6/19-6/20	1	80	474	10-days

The spray interval recommendation has been set at 10 days. The hot and dry weather we are experiencing should reduce the threat of late blight. There are no reports in Delaware. Visit <http://www.usablight.org/> to see where late blight has been found on potato and tomato in the region.

Commercial fungicide recommendations can be found in the 2012 Delaware Commercial Vegetable Recommendations Guide at: <http://ag.udel.edu/extension/vegprogram/pdf/potatoes.pdf>.

Fruit Crops

Spotted Wing Drosophila Infestations Found in Blueberry Fields in Maryland -

Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

I have gotten three reports in just the last few days and have confirmed two of them as Spotted Wing Drosophila (SWD, *Drosophila suzukii*) infestations in blueberries in South Central and Southern Maryland. These infestations started out just like they did last year in blackberries and raspberries. Growers noticed that berries were starting to rot prematurely on the plant and after a short time the berries fell to the ground (Fig. 1). If you look closely at some berries you can see tiny puncture marks in the fruit where the female SWD fly used her ovipositor to saw into the ripening fruit and place her egg inside the berry (Fig. 2). This egg then hatches and the maggot feeds in the berry. The maggots will feed for about one week and then pupate either in the berry or just outside of it. On one farm there is probably going to be about a 20-25% fruit loss and on the others it could be somewhere between 35-60%. The question then becomes what can be done now? Unfortunately there is not much that can be done other than try to reduce the amount of berries that become infested by spraying every 5-7 days. The infestation will be slowed, but the fly population will be very difficult to control because there will be so many other sources of rotting fruit for the adults to lay their eggs and the larvae to develop in.

What needed to be done was for growers to use SWD traps to try to detect the presence of the adults BEFORE they laid eggs in the fruit. Detecting the larvae in the infested fruit is too late to implement an effective management program. If the adults are found early enough insecticide applications can be timed better and can prevent or at least slow an infestation. I can't emphasize enough that growers of small fruit anywhere in Maryland or the Mid-Atlantic need to have the SWD traps out NOW in their small fruit and they need to check them twice per week for the adult males (Fig. 3). We are not sure why these particular farms have these bad

infestations; the growers did not do anything to bring about the problem. Some insecticides that have been shown to work include: Pyrethroids: fenpropathrin, zeta-cypermethrin, and lambda-cyhalothrin; Neonicotinoids: acetamiprid and imidacloprid; Spinosyns: Radiant and spinetoram and the organophosphate Malathion, which has a short postharvest interval (PHI), making it useful to use during harvest (fenpropathrin (Danitol) also has a short PHI). Be sure to READ THE LABEL before applying any insecticide to your crop as some chemicals can be used on some fruit, but not others and postharvest intervals can also vary by fruit crop. Pesticide applications should be rotated to reduce the chance of resistance developing. A more detailed description of the SWD fly, its biology and how to monitor and manage it can be found at the UME fact sheet: <http://www.agnr.umd.edu/Extension/agriculture/mdvegetables/files/spottedwingedfly.pdf>



Figure 1. Blueberries on ground from SWD damage



Figure 2. Blueberry with SWD punctures (arrows)



Figure 3. SWD adult male

Scout Small Fruit for Spotted Wing *Drosophila* - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Spotted Wing *Drosophila* (SWD)

The first flies are being caught in traps in Central MD as well as other areas in the region. As a reminder, this pest was confirmed in Delaware in 2011 so be sure to consider this pest when making treatment decisions in small fruit, grapes and stone fruit. For more information on monitoring, identification and control of this insect pest, please check the following links:
<http://www.ncipmc.org/alerts/drosophila.cfm>
<http://horticulture.oregonstate.edu/group/spot-ted-wing-drosophila>

Agronomic Crops

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

Soybeans

Early in the season there were a few reports of millipedes feeding on field corn and this week we have received reports of millipedes feeding on soybeans. In some cases, these same fields were also affected earlier by slugs. Similar to slugs, millipedes can feed on the cotyledons and stems prior to emergence resulting in death of seedlings. Unfortunately, there is little information available on the efficacy of chemical controls. Please refer to the following link for

pictures and comments on what has been observed in other areas of the country.
<http://cropwatch.unl.edu/web/cropwatch/archive?articleID=4837611>

With the recent hot weather, be sure to watch for an increase in both grasshopper and spider mite activity. Early control is needed with both of these pests. Some consultants are also seeing an increase in leafhopper populations in seedling stage soybeans. As a general guideline, a control may be needed for leafhoppers if you see plant damage and you find 4 leafhoppers per sweep in stressed fields and 8 per sweep in non-stressed fields.

Grain Marketing Highlights - Carl German, Extension Crops Marketing Specialist; clgerman@udel.edu

Crop Conditions Deteriorate Again

The nation's 2012 corn crop is now rated as 63% good to excellent, a three point drop from the week before and the second consecutive week that conditions have declined. Meanwhile, soybean conditions dropped four points with 56% of the crop now rated as good to excellent, week ending June 17. Eleven of eighteen states that make up 95% of the nation's soybean production have double digit ratings for soybeans in the poor to very poor categories. The National Weather Service forecast for the next seven to ten days suggests that conditions could deteriorate further this week. Bottom line - a 166 bushel per acre national corn yield is not likely to be attainable. Old crop domestic soybean supplies might need to be rationed thereby providing support to prices.

Market Strategy

U.S. farmers can count on an early harvest for the 2012 crop. This means that the window of opportunity for advancing pre-harvest sales for both corn and soybeans is likely to close much earlier than normal. Since the first of the month through the beginning of the third week of June new crop Dec '12 corn futures prices have rallied by about 60 cents per bushel. New crop Nov '12 soybean futures prices have rallied by nearly \$1.50 per bushel. Old crop July '12 corn futures rallied by about 60 cents per bushel and old

crop July '12 soybeans rallied by almost \$1.00 per bushel. New crop July '12 SRW wheat futures have rallied 50 cents per bushel over the past week due to dry conditions in parts of the world e.g., Russia and the Black Sea region. As of Monday, June 18 about 50% of the U.S. winter wheat crop was reported as harvested.

Considering the magnitude of the recent rally which appears to be largely weather related, it might be wise to consider advancing both new crop and old crop sales for both corn and soybeans. How much? To some degree that depends upon the amount that one has previously booked. The recent rally presents an opportunity to bring new crop sales up to the 50% to 75% level and too complete old crop sales in the event one is holding onto old crop corn or soybeans. If the rally continues then additional opportunities will be presented for forward pricing remaining pre-harvest new crop sales needs and to begin pricing a portion of intended 2013 production. Currently in e-trade, Dec '12 corn futures are at \$5.63; Nov '12 soybean futures at \$13.92; and July '12 SRW wheat futures are trading at \$6.77 per bushel.

The next round of trade data will be released on June 29 when USDA releases the Quarterly Grain Stocks in All Positions and the Planted Acreage reports.

For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

General

NRCS Encourages Use of the Delaware Irrigation Management System: Local Irrigators are Needed to Use and Test the System

State Conservationist Russell Morgan, USDA Natural Resources Conservation Service (NRCS), encourages Delaware irrigators to use the recently released Delaware Irrigation Management System (DIMS). DIMS is an online tool designed to provide members of the Delaware agricultural community access to

irrigation scheduling software that is streamlined and tailored to Delaware.

This system, which utilizes input from the user, input from existing DEOS weather stations, and physical data from the environment, is designed for several irrigated crops in Delaware: corn, soybean, sweet corn, cucumbers, watermelons, cantaloupes, lima beans, and peas. Developed by staff at the University of Delaware's Delaware Environmental Observing System (DEOS), the project was funded by grants from the USDA Natural Resources Conservation Service and the Delaware Department of Natural Resources and Environmental Control.

"Growers using DIMS will be able to manage their irrigation water more efficiently, which has a multiplying effect on an operation," said Morgan. "Results include increased yields which lead to higher profits; there's improved water quality resulting from efficient utilization of nutrients; and also water conservation, which reduces water waste and can lower operating costs."

Irrigation scheduling software is nothing new; however, this software was written specifically for Delaware. Also, many software applications often require the manual entering of weather data. DIMS is the only current software for Delaware that is automatically updated with weather data.

DIMS uses an irrigation scheduling method based on a basic water balance. The amount of water lost from the soil surface (evaporation) plus the amount of water used by the crop (transpiration) is calculated and tracked and compared to inputs from rainfall, soil moisture measurements, and irrigation to determine the amount of water available in the soil to a particular crop. Through this method, which is generally referred to as the "checkbook" method, a user hopes to optimize the amount of soil water available to the crop, thus reducing crop stress, improving crop yield, and maximizing nutrient uptake by the crop.

DIMS is streamlined and tailored to Delaware and was created to reduce the amount of effort required of the user both before and during the growing season. DIMS provides a straightforward,

online interface that allows users to quickly determine if a field has adequate soil moisture to satisfy the crop's water requirements and make immediate irrigation decisions.

"By automatically integrating weather and climate data and soil property data, DIMS takes existing irrigation tools up a notch," according to Kevin Brinson, DEOS Systems Manager.

A more thorough explanation of the system and how to use it is available on line:
http://www.deos.udel.edu/docs/DIMS_User_Guide.pdf.

The USDA NRCS has financial assistance available for Irrigation Water Management.

For more information regarding DIMS contact Kevin Brinson, DEOS Systems Manager, at kbrinson@udel.edu or by phone at 302-831-6906. For more information on NRCS programs and services in Delaware, visit www.de.nrcs.usda.gov or contact your local USDA Service Center. In Sussex County, call 302-856-3990 x 3; in Kent County, call 302-741-2600 x 3; in New Castle County, call 302-832-3100 x 3.

USDA is an equal opportunity provider and employer.

Announcements

2012 Weed Science Field Day

Wednesday, June 27, 2012 8:15 a.m.
University of Delaware
Carvel Research and Education Center
16483 County Seat Highway
Georgetown, DE

The 2012 Weed Science Field Day is approaching. The day will begin with **registration beginning at 8:15** at the Grove near the farm buildings and new office building on the north side of the road. We will start to view the plots at 8:45 am. Coffee, juices, and donuts will be provided. We will also provide sandwiches for lunch.

Pesticide credits and Certified Crop Advisor credits will also be available.

2012 University of Delaware Horticulture Short Course:

Pest and Beneficial Insect Walk

Tuesday, June 26, 2012 6:00-8:00 p.m.
Carvel Research and Education Center
16483 County Seat Hwy
Georgetown, DE

Using Integrated Pest Management (IPM) in your business? Correct I.D. is key to control of pests in the landscape.

Enhance your skills at identifying both beneficial insects and pests in the landscape. Tour the grounds of the Carvel Research & Education Center in Georgetown to identify pests AND beneficial insects in the landscape. Learn how to encourage beneficials into your landscape.

Cost is \$10.

Instructors: Brian Kunkel, and Tracy Wootten

Credits: 2 Pest., 1 CNP

Sussex County Master Gardeners Present "You Just Have to Look" Insect Workshop

Tuesday, June 26, 2012 1:00 p.m.

Meeting Room 3

Carvel Research and Education Center

16483 County Seat Hwy

Georgetown, DE

Families are invited:

The Sussex County Master Gardeners are pleased to invite the public to a presentation titled "You Just Have to Look".

Watch Our YouTube Invitation:

<http://www.youtube.com/watch?v=4GsfP0Dnfy4&list=UU33k01VkmUc8Nouei10rKug&index=1&feature=plcp>

The insects in our backyard are just as exciting as the wild animals in the jungle, but because they are so small, you just have to look. Grownups, kids and grandkids will enjoy this lively presentation. We'll end up with a safari outside to our Demonstration Garden. Bring the kids and grandkids or come by yourself. Brent Marsh will be presenting this workshop.

The workshop is free. Please pre-register by contacting Tammy Schirmer at (302) 856-2585 x 544 or by email: tammys@udel.edu.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of June 14 to June 20, 2012

Readings Taken from Midnight to Midnight

Rainfall:

0.01 inch: June 14

0.05 inch: June 19

Air Temperature:

Highs ranged from 95°F on June 20 to 71°F on June 17.

Lows ranged from 65°F on June 20 to 46°F on June 18.

Soil Temperature:

74.3°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 Associate - 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.