Western Bean Cutworm
Found in New Jersey
Joseph Ingerson-Mahar, Vegetable IPM Program Coordinator

We have been anticipating the arrival of this insect pest for a couple of years. July 16, 2012, one specimen of this moth was found in a blacklight in Hammonton. It will be sent to the USDA for official confirmation for a state record.

This is a western pest that has expanded its range eastward, much like the western corn rootworm did 25-30 years ago. WBC was found in most of the North Central states and Ontario by 2008, Pennsylvania in 2009, and Delaware by 2011. Now WBC has arrived in New Jersey. It is a pest of field corn, sweet corn, and popcorn, and dry beans. However, with its range expansion it may begin feeding on other crops, as well. The caterpillars feed primarily on the corn ears and on the developing pods of beans. Unlike corn earworm caterpillars, the WBC caterpillars are not cannibalistic and several can be found on a single ear.

The adult moth can be recognized by the broad light band along the leading edge of the front wing. Midway along this band there is a single white spot (with dark center) and beyond that a crescent shaped mark. The moth is medium sized, about the same size as corn earworm moths. There is one generation a year. Adult flight begins in late June or early July and caterpillars are present to feed on corn ears and bean pods from late July, August and early September. Egg masses are laid on the leaves of the corn and beans but are harder to detect on beans. Mature caterpillars will seek shelter in the soil and remain there through the winter and spring, emerging as adults around the end of June.

Most likely, this pest will be controlled in sweet corn with the usual tassel/silk sprays that are applied for managing corn earworm. Apparently the caterpillars are susceptible to some strains of Bt corn, but growers should check seed labels to see if WBC is included as one of the pests that are controlled with that strain of Bt. The larger question will be whether this invasive pest will feed on other crops.

Thresholds for control will evolve, but one extension bulletin (University of Wisconsin) suggests for processing sweet corn a threshold of 4% of the stand infested.
**IPM Update**  
*Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program*

**Sweet Corn**

*European corn borer (ECB)* adult catches are gradually increasing in most of the state. The highest catches at this time are in Gloucester County; although low-to-moderate catches are being recorded in many areas (see ECB Map). ECB injury is beginning to appear in whorl stage sweet corn. Consider treating if 12% or more plants exhibit the characteristic “shot-hole” type feeding on leaves and/or droppings or ECB larvae in emerging tassels. Remember to make a full-tassel application to control ECB larvae as they leave the tassel and travel down the stalk to re-enter the plant near the ear shank. This last application is often critical to controlling ear infestations from ECB. Consider weekly applications through the silk stage unless local corn earworm catches dictate a tighter schedule. This will help prevent ear infestations resulting from eggs laid on or near the developing ear. The highest nightly ECB catches for the previous week are as follows:

- **Downer** 10  
  - **Dayton** 2  
  - **Allentown** 1
- **Shirley** 3  
  - **Hackettstown** 2  
  - **Farmingdale** 1
- **Beemerville** 2  
  - **Lawrenceville** 2  
  - **Folsom** 1
- **Chester** 2  
  - **Tabernacle** 1  
  - **Long Valley** 1

*Corn earworm moth (CEW)* catches have declined slightly from the previous week, but remain variable. As yet, catches from North Carolina, Virginia and Maryland are relatively low. We look for significant increases in those areas as a signal that migratory populations could reach our area with the proper atmospheric conditions. In NJ, the highest catches are from Salem, Cumberland and Gloucester counties, with little activity north of Burlington County (see CEW Map). Pheromone catches near the Camden/Atlantic County border, as well as Salem and Cumberland counties have declined over the past week as well. These moths remain a threat to the sweet corn plantings now in the silk stage. As silks begin to appear, pay close attention to CEW catches in local blacklight traps, and treat silking plantings accordingly. Begin silk spray schedules as close to first silk as possible.

The highest nightly CEW catches for the previous week are as follows:

- **Centerton** 5  
  - **Downer** 1  
  - **New Egypt** 1
- **Shirley** 3  
  - **Folsom** 1  
  - **Pedricktown** 1
- **Woodstown** 2  
  - **Green Creek** 1  
  - **Shiloh** 1
- **Dayton** 1  
  - **Hackettstown** 1  
  - **Tabernacle** 1

**Silking Spray Schedules**:  
- **South** – 3-4 days  
- **Central** – 5-6 days  
- **North** – 6-7 days

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*Note: These are general recommendations. Local trap catches may indicate some variation in the frequency of insecticide applications to silking corn.*

**Peppers**

With the beginning of the second ECB flight, it is a good idea to scout fields at least weekly for the presence of ECB eggs. If 2 or more eggmasses are found in a 50 plant sample (2 leaves/plant), a foliar insecticide application should be considered. Generally, where blacklight trap catches average one or more ECB per night (shaded and crosshatched areas on the map, and blue and green areas on the web version, found at: [http://www.pestmanagement.rutgers.edu/IM/P/IM/VC/S%20Maps/maparchive.htm](http://www.pestmanagement.rutgers.edu/IM/P/IM/VC/S%20Maps/maparchive.htm)) and fruit are greater than \( \frac{1}{2} \)" in diameter, insecticides are warranted. See the 2012 Commercial Vegetable Production Recommendations for materials useful in controlling ECB. *Beet armyworm (BAW)* moths have been captured in southern NJ pheromone traps over the past week, although numbers have been quite low (see BAW map). This pest is typically a threat to peppers, and as new plantings become established, growers should be on the alert for this pest. BAW larvae feed on leaves near the growing points on plants, resulting in noticeable foliar injury in the upper canopy prior to fruit damage occurring. Like FAW, BAW can be difficult to control with older materials. See the 2012 Commercial Vegetable Production Recommendations for newer materials useful in controlling BAW.

**Brown Marmorated Stinkbug (BMSB)**

BMSB adult catches have declined again in all traps. At present, no traps are averaging over 5 BMSB per night. As such, no map will appear in this edition. One BMSB nymph group was discovered in a Warren County pepper field this week, but no injury was noted. BMSB has shown a preference for peppers in the past. Growers should pay close attention to activity from local traps to determine when to initiate field monitoring of this pest.

The highest nightly BMSB catches for the previous week are as follows:

- **Hammonton** 5  
  - **Denville** 3  
  - **East Vineland** 2
- **Springdale** 5  
  - **Green Creek** 3  
  - **Eldora** 2
- **Centerton** 3  
  - **Burlington** 2  
  - **Oxford** 2
- **Chester** 3  
  - **Downer** 2  
  - **Tabernacle** 2

**Tomatoes**

With prolonged hot, dry weather, *thrips* populations are moderate (>2/flower cluster in more than 50% of samples) in a number of scouted tomato fields. Flower thrips may be found by tapping upper level fresh flower clusters over an index card. This should be done at least once a week. If there is a sharp increase in the number of flower clusters having thrips, consider an insecticide to suppress their numbers. These insects can cause a golden colored “fleck” to the surface of fruit. This injury is largely cosmetic, but can result in unmarketable fruit.

*See IPM on page 3*
Generally, if thrips are found in less than 50% of flower clusters, the threat is low. However, if multiple thrips are found in more than half of the samples, and numbers have increased, an insecticide may be warranted. See the 2012 Commercial Vegetable Production Recommendations for newer materials useful in controlling flower thrips.

**Pumpkins and Winter Squash**

Pumpkins and winter squash vines are running at this time, although most do not have much fruit yet. As fruit develop and begin to enlarge, powdery mildew (PM) will appear on older leaves. It is possible to begin a protectant fungicide program for PM when the disease first appears, without sacrificing quality or yield. It is imperative, however, to scout for PM lesions. If the disease is caught too late, some loss of quality may result. Check 5 consecutive plants each in 10 random locations. Check two older leaves per plant (top and bottom) for the presence of PM lesions. These will initially be about the size of a dime, and are white, and granular in appearance. When 2 lesions are found per 50 plants, consider beginning the protectant fungicide rotation. See the 2012 Commercial Vegetable Production Recommendations for newer materials useful in managing PM.

A sentinel plot containing susceptible and resistant cucumber varieties, as well as muskmelons, watermelons, acorn and butternut squash and pumpkins has been established at the Snyder Research and Extension Farm in Hunterdon County. This purpose of this plot is to detect the presence of downy mildew (DM) in northern NJ. As yet, the plot is unaffected by DM. Any occurrence will be reported in this newsletter and will also generate an alert to all subscribers. For more information on the regional presence of DM as well as comprehensive, weekly forecasts, see the following website:


**New Pest Capture**

Joe Mahar captured a western bean cutworm (WBC) moth this week in a blacklight trap near Hammonton (see article on page 1). This individual is the first recorded moth of a species that is expanding its’ range eastward from the Western and Midwestern U.S. Where WBC is common, it feeds primarily on field and sweet corn, although its’ host range includes various bean crops. At this time, we do not consider it to be a threat to our crops. For more information on WBC, see the following site:

Disease Briefs
Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology

● There have been no new reports of Late blight on potato or tomato in New Jersey.

● **Basil - Downy mildew** - Basil downy mildew has been reported in the Vineland area. Basil downy mildew was also confirmed on June 28 in Morris County. All basil growers should scout on a daily basis and should add a labeled downy mildew specific fungicide to their weekly fungicide program. Phosphite fungicides (FRAC code 33) have shown the best efficacy in trials at RAREC. Both ProPhyt and K-Phite have downy mildew labels under herbs. Actinovate (OMRI approved) is also labeled for downy mildew control. Please remember, all abandoned basil fields should be sprayed with gramoxone or worked under immediately after last harvest to kill the foliage! Abandoned fields left unattended after use will only serve as a source of inoculum for other fields.

● **Cucurbit downy mildew** has already been reported and is active on cucumber in New Jersey. Please see the 2012 Commercial Vegetable Recommendations Guide for specific fungicide recommendations. To track the progress of cucurbit downy mildew please visit North Carolina State University's Cucurbit Downy Mildew Forecasting Center at http://www.ces.ncsu.edu/depts/pp/cucurbit.

● **Cucurbit powdery mildew** has been found in New Jersey. Cucurbit growers should adjust fungicide programs accordingly.

● **Peppers and Tomatoes** - Bacterial leaf spot has been reported on both crops. Heavy winds and rains, along with hail, are all forecasted for areas of New Jersey this afternoon. Remember that all bacteria need a natural opening (i.e., stomata) or a wound to enter a plant and severe weather can predispose plants to bacterial infection.

● **Peppers - Anthracnose fruit rot** - is being reported. Heavy rain and wind can cause pepper anthracnose to flare up. Growers with peppers in fields, with a history of pepper anthracnose should scout on a daily basis and apply fungicides preventatively. Pepper anthracnose can be very difficult to control once established in fields. Strip picking and removing all fruit from ‘hot spots’ when they first appear may help suppress spread of the pathogen. Preventative fungicide applications should begin shortly before or at flowering. Use a heavy volume of water and make sure coverage is extremely good. Apply high rates of chlorothalonil or Manzate weekly and/or rotate weekly with Quadris (azoxystrobin, 11) or Cabrio (pyraclostrobin, 11). Please see the 2012 New Jersey Commercial Vegetable Production Recommendations Guide for more information.

● **Peppers - Sunscald** - The recent storms have caused pepper plants in some fields to lay over, exposing fruit to direct sunlight leading to sunscald injury. In some cases, over 50% of harvestable fruit were lost. Staking, and/or re-staking and tying plants that have fallen over to get the plants back in the upright position and increasing N fertility to help promote foliage growth should be considered. Shading products, such as Surround (95% Kaolin), which help protect fruit from direct sunlight should also be considered.

For the most up-to-date information fast, please sign up for the Jersey Vegetable Crop Ag Updates at: http://jerseyvegcropsagupdates.blogspot.com.

From the Veg Blog

**New Smartphone App to Prevent Heat Stress Illnesses**
Rick VanVranken, Atlantic County Agricultural Agent

According to OSHA’s website, “Outdoor workers who are exposed to hot and humid conditions are at risk of heat-related illness. The risk of heat-related illness becomes greater as the weather gets hotter and more humid. For people working outdoors in hot weather, both air temperature and humidity affect how hot they feel. The “heat index” is a single value that takes both temperature and humidity into account. The higher the heat index, the hotter the weather feels, since sweat does not readily evaporate and cool the skin. The heat index is a better measure than air temperature alone for estimating the risk to workers from environmental heat sources.

To compliment their Heat Stress Prevention Campaign, the Occupational Safety and Health Administration developed a smartphone app that calculates the heat index and displays a risk level for workers. The Heat Safety Tool, available for both iPhones and Android devices, along with other useful information about heat related illness awareness and prevention, is available at the OSHA website, www.osha.gov. Sign up for the Jersey Vegetable Crops Ag Updates at: http://jerseyvegcropsagupdates.blogspot.com.
Leaf Scald in Sweet Corn
Again in 2012
Gordon Johnson, Extension Vegetable & Fruit Specialist, University of Delaware Cooperative Extension

Reprinted from Weekly Crop Update, University of Delaware Cooperative Extension, July 13, 2012

Several sweet corn varieties in our fresh market bicolor variety trial are showing leaf scald symptoms in 2012. We saw similar leaf scald last year in processing varieties. Leaf scald is a physiological disorder similar to necrotic sunburn in fruits and vegetables. It occurs when leaf temperatures rise above a critical level, cells die rapidly, leaving a bleached white appearance. While newly emerged leaves in the upper canopy of susceptible varieties that are the most exposed are the most likely to scald, some of the leaf scald we are seeing this year has progressed deeper into the canopy, even showing up on some of the corn husks. Leaf scald occurs most commonly when temperatures are in the high 90s or over 100, skies are clear (high solar radiation), and humidity is low. While effect on yield is usually minimal, leaf scorch at the ear leaf level can affect kernel fill.

Pollination Disorders in Cucurbits
Gordon Johnson, Extension Vegetable & Fruit Specialist, University of Delaware Cooperative Extension

Reprinted from Weekly Crop Update, University of Delaware Cooperative Extension, July 13, 2012

Watermelon harvest is underway on Delmarva; cantaloupe harvest started early this year, squash and cucumbers have been producing for over a month; and pumpkins and winter squash are setting fruit in earlier plantings. Each year, we see pollination problems with vine crop fruits, especially when weather conditions are unfavorable.

Signs of incomplete pollination in cucurbits include bottlenecked fruit or fruit with a pinched end, crooked or lopsided fruit, fruit small in size or nub-like; and fruits with prominent lobes or that are triangular in shape. Causes of incomplete pollination may be inadequate pollen transfer by pollinating insects; inadequate pollen sources (pollinizers); or hot, dry weather that reduces pollen viability or that desiccates flower parts during pollination. Research has shown that a minimum of 1,000 grains of pollen are required to be distributed over the three lobes of the stigma of the female flower of a watermelon to produce a uniformly shaped fruit.

Hollow cavities in fruit and vacant seed cavities are related to lack of seed formation, again traced back to poor pollination. Fruit tissue separation, such as hollow heart in watermelon, may also be due to inadequate pollination and may be worsened by rapid fluctuation in environmental conditions affecting fruit development.
Preparing Your Farm Food Safety Plan

Harmonized Audit – What is it and will it affect me?
Meredith Melendez, Mercer County Senior Program Coordinator and Wesley Kline, Ph.D., Cumberland County Agricultural Agent

The past 13 issues of the PPA have focused on the current USDA food safety audit. Those who may be affected by a future food safety audit are most likely exasperated at the number of policies, logs, and documents that are required. If you have only just realized that an audit may be in the future we urge you to start thinking about and begin working towards creating a farm food safety plan. It does not happen overnight and time spent piecing it together now will make the entire process easier. The previous articles can act as your guide to creating the foundation of your plan. Wes Kline and I are committed to educate and assist growers through this process. As a reminder: in order to avoid a future audit you would need to answer YES to each of the following questions.
1. Farm sales average of less than $500,000 a year.
2. The majority of products sold are via direct sales.
3. Products are sold within a 275 mile radius of the farm

If you answered NO to any of the above questions you should be in the process of or beginning to prepare for a farm food safety audit.

Some of you may have already experienced an audit due to the requirements of your buyers. You may be preparing and updating your farm food safety plan so that you are ready for the harmonized audit when it goes into effect. The harmonized audit is an attempt to combine several audits from different auditing companies. It is hoped that more retailers will accept the harmonized audit, thus reducing the need for multiple audits. This may reduce some costs for growers. Various audit firms will offer the harmonized audit in the future. The harmonized audit will be put into effect by the USDA next year, and some grocery stores are already requiring it this year. The harmonized audit has more emphasis on risk assessment at all levels of the operation. This emphasis includes: additional questions, increased documentation and recordkeeping, corrective action procedures and a clear written recall program. In addition to these changes the operation will need to: review their food safety plan annually, conduct an annual self-audit, conduct a pre-plant assessment around production fields to determine potential animal intrusion, assess the water system, document water system preventative control procedures, document monitoring procedures and document corrective measures. The point structure, used in the current USDA audit, is not used in the harmonized audit. The operation will need to pass at least 80% of the total audit questions. Several things will cause an automatic failure of the audit:
● Falsification of records
● No documented food safety program (written plan)
● No designated person to implement and oversee the established plan
● An immediate food safety risk is present
● The presence of evidence of excessive pests
● Observation of employee practices that jeopardize or may jeopardize the safety of produce
● No written corrective action reports for questions marked “Corrective Action Needed” or “Immediate Action Required”
● No traceability program in place
● No demonstrated recall program (mock audit must be demonstrated at least annually that includes trace back and trace forward exercise)

The next several articles will detail the differences between the regular and the harmonized audit and help you prepare your farm food safety plan accordingly.

NJ Direct Marketing Association Meeting

You are invited to the NJ Direct Marketing Association’s Meeting on Tuesday, July 24, 2012 at 6:00 p.m. at Giamarese Farm, 155 Fresh Ponds Road, East Brunswick, NJ.

In Cooperation with Rutgers NJAES Cooperative Extension

Agenda
Farm Tour
Update from the Agritourism Working Group
Update on web presence and statewide marketing and promotion efforts
Brief Association Meeting

We look forward to seeing you at the meeting.

Please R.S.V.P. by July 17th to Carol Richiusa, Rutgers Cooperative Extension of Middlesex County Secretary at 732-398-5262 or email carol.richiusa@co.middlesex.nj.us.

Hope to see you there!
Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal, averaging 75 degrees north, 77 degrees central and 77 degrees south. Extremes were 93 degrees at Hammonton on the 16th, and 56 degrees at Charlotteburg on the 11th. Weekly rainfall averaged 1.10 inches north, 0.46 inches central, and 0.16 inches south. The heaviest 24 hour total reported was 1.07 inches at Newton on the 15th to 16th. Estimated soil moisture, in percent of field capacity, this past week averaged 76 percent north, 54 percent central, and 42 percent south. Four inch soil temperatures averaged 76 degrees north, 77 degrees central and 77 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/16/12

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IPNI would like to thank our contributors for providing the images used in our collections, who are part of a worldwide network of agricultural researchers, extension staff, field scouts, and farmers.

Submitted by Joseph Heckman, Ph.D., Specialist in Soil Fertility.

Crop Nutrient Deficiency ID App

A new mobile device app called Crop Nutrient Deficiency Photo Library has been released by the International Plant Nutrition Institute (IPNI).

“This is our first venture into mobile apps, and we think this offering will generate a lot of interest by crop advisers, consultants, farmers, students, and anyone wanting help in identifying nutrient deficiency symptoms in common crops,” said Dr. Terry Roberts, President, IPNI.

Based on IPNI’s popular Crop Nutrient Deficiency Image Collection (http://info.ipni.net/nutrientimagecollection), the app contains key photos of classic nutrient deficiency documented from research plots and farm fields for 14 common crops. It also provides supporting text and illustrations of nutrient deficiencies.

The app can be downloaded and viewed on iPhone, iPad, or iPod Touch devices.