

Vegetable Crops IPM Update, Week Ending 8/28/13

Kristian Holmstrom and Joe Ingerson-Mahar

Sweet Corn

European corn borer (ECB) adult activity remains moderate in the Gloucester-Salem county area as well as in a band from Mercer County southeast toward the shore (see ECB map). At this time of the year, flights become less distinct, and activity typically continues at low levels until mid-September. Egg hatch is now occurring in all counties, and infestations above 12% have been found. 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:

Mullica Hill	4	Downer	1	Matawan	1
Lawrenceville	2	Farmingdale	1	New Egypt	1
Allentown	1	Flanders	1	Pedricktown	1
Blairstown	1	Georgetown	1	Woodstown	1

Fall armyworm (FAW) infestations are present throughout the state. Infestation percentages are highest in coastal and southern areas. FAW caterpillars consume corn foliage, and produce large quantities of feces that pile up within the whorl. FAW larvae typically have light and dark brown bands, and the head capsule has a distinctive upside-down “Y” pattern on it. Unlike ECB, FAW will feed on corn plantings in the seedling stage, although whorl stage is usually the first to be affected. Consider treating if the number of plants infested with FAW either alone, or in combination with ECB exceeds 12%. *As in recent years, FAW has proven to be difficult to control with some pyrethroid insecticides.* Newer materials, including spinosad-based insecticides, as well as those including active ingredients chlorantraniliprole and flubendiamide are effective against FAW.

Corn earworm moth (CEW) numbers have stabilized at low-to moderate levels throughout the state, although the northernmost areas are still recording only sporadic catches. Overall, the CEW adult population is quite low for this time of year, but growers should remain vigilant. Southerly low pressure systems could bring larger populations to our area, should they occur. The population is still high enough to cause damaging infestations if not managed properly.

Blacklight: The most consistent **blacklight** catches continue to be from Middlesex County southward (see CEW Blacklight Map). In this blacklight-based map, the blue area relates to a 4-5-day silk spray schedule and green areas represent a 3-4 day silk spray

schedule. In general, where 3-4 day zones exist within larger 4-5 day areas, it is advisable to defer to the more conservative schedule.

Pheromone: CEW **pheromone** catches have declined somewhat in southern NJ over the past week (see CEW pheromone map). The CEW pheromone map is indicating a silk spray schedule of 3-days. The broad areas of a single color are the result of the few number of pheromone sites relative to blacklight sites.

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

Downer	2	RAREC	2	Green Creek	1
East Vineland	2	Cedarville	1	Milltown	1
Indian Mills	2	Centerton	1	New Egypt	1
Pedricktown	2	Denville	1	Woodstown	1

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

Hammonton	32	Woodstown	11
Springdale	20		
Eldora	19		
Green Creek	18		

Silking Spray Schedules*:

South – 3 days

Central – 3-4 days

North – 4-5 days

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

Cooler evening temperatures and longer dew periods through August result in favorable conditions for **northern corn leaf blight (NCLB)**. This foliar disease of corn causes elongated, gray lesions on older leaves. As the infection progresses, lesions occur higher on the plant, and can result in unattractive or even under sized ears. **Corn leaf rust**, which can also reduce marketable yield, may also be present at this time. These diseases may require fungicide applications if they appear prior to tassel development. Infections that first appear in the whorl stage may be particularly destructive. Consult the *2013 Commercial Vegetable Production Recommendations* for labeled materials.

The Armyworms

At this time, New Jersey is experiencing infestations of 3 major armyworm species. These are **fall armyworm (FAW)**, **beet armyworm (BAW)**, and **yellow-striped armyworm (YSAW)**. While FAW is predominantly a corn pest, BAW and YSAW both feed on peppers, tomatoes, and in the case of BAW, cole crops. It is important to recognize when these pests are feeding on the various crops because in most cases, they are more difficult to control than some more common caterpillar pests, owing to their relative resistance to pyrethroid insecticides. Please see the photos below for help in identifying these pests.

Tomatoes

Two-spotted spider mite (TSSM) infestations are increasing in frequency in tomatoes at this time. Check 2 complete leaves each on 5 consecutive plants in 10 random locations in the planting. Look for the presence of whitish “pin-spots” on the upper surface of leaves. These spots appear in response to TSSM feeding on the lower surface. As TSSM increase, spots will coalesce to form a yellow area on the leaf surface. If not managed, TSSM will cause leaves to become bronze in color and may kill the plants. Make sure some samples are from field edges or where the tomato crop borders other favored hosts like eggplant and watermelon. Spot treat, if possible. Do not wait until TSSM is widespread throughout the field, as it will become more difficult to manage. Consult the *2013 Commercial Vegetable Production Recommendations* for labeled materials.

Tomato fruitworm (corn earworm - CEW) continues to injure tomato fruit in some local areas. CEW moths lay eggs around blossoms in the upper canopy of plants. Infested fruit are typically in the same area. Consider treating if fresh injury is present in more than two sample sites out of ten. This injury may increase with late-season increases in CEW adults. In addition to CEW, YSAW is now causing injury.

Late blight was identified on tomatoes in Hunterdon County this week. All growers should include fungicides with specific activity against late blight (if not already doing so) with their regular protectant program immediately. Consult the *2013 Commercial Vegetable Production Recommendations* for labeled materials.



From top: fall armyworm, beet armyworm, yellow-striped armyworm

Peppers

Beet armyworm (BAW) is a pest that could occur in peppers at any time, and fields from Hammonton on south should be scouted weekly. Catches have dropped somewhat since the previous week, but are moderately high in some areas. These caterpillars generally feed on young foliage before entering fruit. Early infestations may be identified by foliar feeding near growing points. BAW is resistant to a number of synthetic pyrethroid insecticides. Newer materials, including spinosad-based insecticides, as well as those including chlorantraniliprole and flubendiamide are effective against BAW. YSAW is now impacting pepper some pepper fields in central NJ, and may be controlled with materials that are effective against BAW.

The highest nightly BAW pheromone trap catches in southern NJ are as follows:

Cedarville	21	Hammonton	7
Mullica Hill	13		
Elm	8		

Pepper weevil:

From August 22 to 26 the number of weevils being caught remained high, and two new field sites were found to be infested; Logan Township and a new location in Vineland. Heavy infestations are now being found in some fields in Woolwich Township. Non-farm traps yielded 31 weevils while farm traps had 122 weevils.

Woolwich Township – 102 weevils
Logan Township – 3
Vineland – 1

In a separate 2 acre pepper plot in Woolwich Twp. where 10 traps are set, 155 weevils were trapped.

New infestations occurring this late in the season may not decrease yields substantially. New fields just coming into production are at highest risk of loss. Older plantings that have been subject to disease and have been picked several times are at lower risk for loss. As always, economics is the basis for making decisions on spraying for weevils; ignoring their presence, or plowing up the fields.

Brown Marmorated Stinkbug (BMSB)

BMSB adult catches have again declined to low levels. With numbers below 5 in all traps, no map will appear in this update. **This pest is still a threat to host crops!** BMSB adults and nymphs continue to be found in peppers, sweet basil, soybeans and other crops by scouts throughout northern and central NJ. It is important to note that the nymphs cannot fly, and will feed continuously on plants and fruit. BMSB has shown a preference for peppers (especially taller plants like frying peppers) in the past. Growers in areas of higher activity who grow tree fruit, or other preferred crops like peppers and legumes should scout crops frequently for signs of infestation or damage. Adult BMSB are very difficult to detect in crops due to their ability to detect movement. They will hide or drop to the ground if the plant they are on is disturbed. One good way to spot adults is to slowly walk pepper fields before mid-morning. Observe plants approximately 10-15 feet in front of you as you walk. Adults frequently bask in the upper portion of the canopy at this time of day. Consider treating if damage on harvested fruit is increasing, nymph groups are found in the field, or adults are present in multiple sites within a planting. Pepper plants too young to have fruit will not be affected.

The link for the Vegetable IPM Map Archive is:

<http://www.pestmanagement.rutgers.edu/IPM/Vegetable/Pest%20Maps/maparchive.htm>

This site contains all current pest maps as well as those from previous years, back to 1999.

Pumpkins and Winter Squash

Cucurbit downy mildew (CDM) is active on pumpkins and winter squash throughout the state. *Fungicides that specifically target CDM must be included in with the regular protectant fungicide program.* Where untreated, DM will quickly defoliate

host crops. DM infections result in sharp yellow lesions on the upper leaf surface. On the lower surface, dark sporulation will be apparent as long as conditions are moist. Consult the *2013 Commercial Vegetable Production Recommendations* for specific fungicide recommendations and rotations to minimize the threat of resistance. For more information on the regional presence of DM as well as comprehensive, weekly forecasts, see the following website: <http://cdm.ipmpipe.org/>

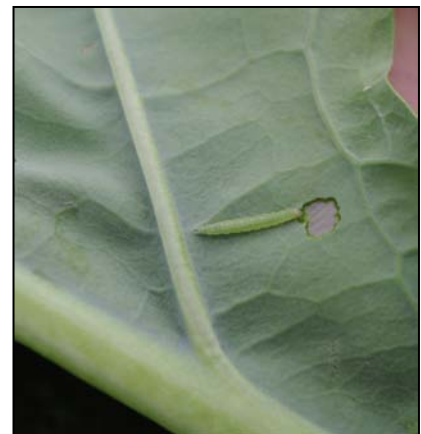
All plantings are infected to some degree with **powdery mildew (PM)**. When scouting for other pests, be sure to look at 2 older leaves per plant on each of 5 consecutive plants. Do this at 10 sites throughout the planting for a total of 100 leaves. If 2 or more PM lesions are found in this sample, it is time to begin the regular protectant fungicide program. Consult the *2013 Commercial Vegetable Production Recommendations* for specific fungicide recommendations and rotations to minimize the threat of resistance.

This is the time of the season when **striped cucumber beetles** begin to cause injury to maturing pumpkins as they feed on the rinds of the fruit. If cucumber beetles are found at more than two sites out of 10 in a planting, consider treating to limit scarring of the pumpkin rinds. Be aware that the use of synthetic pyrethroid insecticides for cucumber beetle control may result in dramatic increases in **melon aphid** populations. These aphids generally do not do extensive damage to plants (except under extreme infestation pressure), but their presence on the underside of leaves results in the deposition of sticky droppings on the surface of fruit. This can become an economic issue should fruit need to be cleaned prior to sale, or if affected fields are to be opened for U-pick. Materials that specifically target aphids (pymetrozine) and neonicotinoid insecticides are effective against melon aphid. Consult the *2013 Commercial Vegetable Production Recommendations* for specific materials and rates.

Cole Crops

Cabbage looper (CL) infestations are now common, as well as **diamondback moth (DBM)**, **imported cabbage worm (ICW)**, and in some cases **BAW**. Scout plantings weekly. Check 5 consecutive plants each in 10 random locations throughout the planting, paying particular attention to the innermost leaves where ICW often feed. Consider treating if caterpillars are found on 10% or more plants that are in the 0-9 true leaf stage. From 9-leaf to the early head stage (in broccoli, cauliflower and cabbage) infestations up to 20% may be tolerated. Once heads begin to form, a 5% threshold should be observed to protect the marketable portion of the plant. For leafy greens such as collards and kale, 10% plants infested is the threshold throughout.

It is important to identify DBM and BAW correctly, because if it present, synthetic pyrethroid insecticides may not provide acceptable control.



Diamondback moth larva