

Vegetable Crops IPM Update, Week Ending 9/04/13

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Sweet Corn

European corn borer (ECB) adult activity remains low-to-moderate in Gloucester and Salem counties as well in the Trenton area (see ECB map). At this time of the year, flights become less distinct, and activity typically continues at low levels until mid-September. 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	3	Blairstown	1	Georgetown	1
RAREC	2	Centerton	1	Hillsborough	1
Woodstown	2	Dayton	1	Little York	1
Belvidere	1	East Vineland	1	Phillipsburg	1

Fall armyworm (FAW) infestations are present throughout the state. Infestation percentages remain 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 increased sharply over the past several days. Although still lower than is typical for this time of year, the population is high enough to cause extreme damage if not managed properly.

Blacklight: The highest **blacklight** catches are from Middlesex County southward, and throughout the Musconetcong river valley on the Hunterdon-Morris-Warren County border (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 day silk spray schedule. In general, where 3 day zones exist within larger 4-5 day areas, it is advisable to defer to the more conservative schedule.

Pheromone: CEW **pheromone** catches have increased as well 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:

East Vineland	5	Hackettstown	4	Crosswicks	3
Medford	5	Indian Mills	4	Matawan	3
Downer	4	Phillipsburg	4	Pedricktown	3
Green Creek	4	Woodstown	4	Tabernacle	3

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

Green Creek	47	Eldora	20
Hammonton	38		
Woodstown	33		
Springdale	31		

Silking Spray Schedules*:

South – 3 days

Central – 3 days

North – 3-4 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.

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 recently. 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.

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 remained steady over the past week. 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:*

East Vineland	18	Cedarville	11
Elm	18	Hammonton	11
Mullica Hill	13		

Pepper weevil:

Weevil trap catches have increased, with additional farm fields being infested for the period of August 20 to September 3. New infestations were found in the Berlin area and Mullica Hill and a weevil was found at a second packing shed in East Vineland. Woolwich Township remains the epicenter of number of weevils caught and number of infested fields.

Woolwich Township – 668	Cherry Hill – 2
Logan Township – 9	Mannington – 2
Berlin – 7	Vineland – 2
Pittsgrove Township – 3	East Vineland - 1

The fields in Berlin have been infested for at least 2 months, judging from the adult exit holes in the fallen fruit. The Mullica Hill fields have been infested for at least 3 weeks and probably longer – most likely these infestations were the result of weevils being transported in on produce bins.

Control recommendations remain the same, but as we approach mid-September, if pepper fields have not become infested at that point then there is little concern of an economic loss from weevils.

Brown Marmorated Stinkbug (BMSB)

BMSB adult catches have increased, but only in specific areas. At present, high catches have occurred in Warren County (see BMSB map), but smaller increases have

occurred in Hunterdon and Monmouth counties as well. **This pest continues to be 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.

Crucifer downy mildew (left) has appeared on broccoli and collard plantings in northern NJ this week. This fungal infection can cause significant damage to all foliage, and is particularly problematic on leafy greens because of the direct injury to the marketable portion of the plant. Crucifer downy mildew is characterized by yellow lesions on the upper leaf surface, with pale lavender colored sporulation below. Be sure to inspect plantings weekly for the appearance of this disease. Longer periods of leaf wetness favor the development of this disease. Consult the *2013 Commercial Vegetable Production Recommendations* for fungicides and rates.



Crucifer downy mildew, showing sporulation on lower leaf surface.