

**Title:** 2013 New York Sweet Corn Pheromone Trap Network (SCPTN)

**Project leader(s):** Marion Zuefle and Abby Seaman

**Cooperator(s):**

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**Abstract:**

Three important insect pests of sweet corn, European corn borer, corn earworm, and fall armyworm, cause damage to sweet corn ears in their larval stage. These pests are moths in their adult stage and can be monitored using traps baited with pheromone lures specific for each species. The trap catch information allows growers, consultants, and Cooperative Extension and vegetable processor field staff to track the flights of the adults of these three pests, and trap numbers contribute to making informed decisions about when sweet corn fields need to be scouted or treated with an insecticide. Starting in 2010, traps for a new pest, the western bean cutworm, were added to the trap network to track its' movement and numbers

**Background and justification:**

Sweet corn for the fresh and processing markets is an important crop throughout NY. Three major pests of sweet corn, European corn borer (ECB-E and ECB-Z), corn earworm (CEW), and fall armyworm (FAW) can be monitored in their adult stage using pheromone traps. A new pest, the western bean cutworm (WBC), is moving into the area from its historic range in the west and has the potential to be an economically important pest of sweet corn, field corn, and dry beans. Pest management is an especially important aspect of fresh market sweet corn production because the unhusked ear is marketed, and buyers are frequently very sensitive to insect damage or the presence of larvae in the ear. Harvest quality requirements are different for processing corn, which usually receives fewer insecticide applications than fresh market corn. Integrated pest management practices are widely used on both crops to determine the need for insecticide applications. Pheromone trap catches provide valuable information to growers, consultants, and processor field staff making pest management decisions. Pheromone trap catches help growers and consultants decide when to start scouting fields for ECB, reinforce what scouts are finding, help choose the best spray materials for the pest complex that's present, and alert the industry to the arrival of the two migratory pests, CEW and FAW. Pheromone Trap catches are an integral part of weekly pest update newsletters sent by the Cornell Vegetable Extension Program to approximately 260 subscribers in nine counties. The Trap catches are posted weekly to the sweet corn pheromone trap network blog and linked to on the NYS IPM Program Web site, the Northeast Weather Association Web site, and posted to a regional web

site that includes trap catches from several northeastern states, making the information available to a large number of growers and extension personnel.

### **Objectives:**

- 1) Establish and maintain networks of pheromone traps for sweet corn pests in NY.
- 2) Provide regional trapping information and recommendations to Extension field staff, and consultants working with sweet corn growers.
- 3) Provide regional trapping information to growers, along with scouting and threshold recommendations.

### **Procedures:**

1) Sets of one each of ECB-E, ECB-Z, CEW, FAW, and WBC traps were placed at each of 37 trapping locations, 22 sites in western NY and 15 sites in eastern NY. Scentry Heliothis net traps were used to trap ECB and CEW. The BCS/Agrisense Unitrap was used for FAW and WBC. Lures from Trece Inc. were used for both races of ECB. Lures from Hercon Inc. were used for CEW. Lures from Scentry Inc. were used for FAW and WBC. All lures were replaced every two weeks.

ECB and some CEW traps were set up in mid-May at fresh market locations, and as processing fields approached tassel emergence in other locations. WBC traps were set up in mid June and remaining CEW, and FAW traps were set up in early to mid-July.

Traps were placed at least 40 meters apart in grassy areas near cornfields, avoiding areas near hedgerows where air circulation is poor. Heliothis traps were mounted on posts such that the bottom of the trap is ~6" above the grassy canopy. Unitraps were hung from short stakes to which angle brackets had been attached and were placed either in the field or at the edge of the field. Whenever possible, traps were moved to new fields as the previous fields matured and became less attractive to moths.

2) In Western NY, cooperators checked traps weekly on Monday or Tuesday and sent catch numbers to Marion Zuefle via phone or email. Weekly catches for each location were collated and posted, along with interpretation, and scouting and thresholds recommendations for fresh market sweet corn, on Tuesday evening on the [sweetcorn.nysipm.cornell.edu](http://sweetcorn.nysipm.cornell.edu) web site. In eastern NY, traps were checked weekly and numbers included newsletters and posted to a regional website, [PestWatch](#).

3) Information posted on the web site was used directly by subscribing growers, incorporated into crop and pest updates distributed weekly by regional extension programs to approximately 260 subscribers, or provided to growers via direct contact with collaborating consultants. All catches are also posted on the [PestWatch](#) web site.

### **Results and discussion:**

Results for the 22 sites in western NY are given here. European corn borer numbers remained low throughout the season with ECB-E experiencing a small initial flight in early June followed by a larger second flight in mid to late July (Figures 1 and 2). Western bean cutworm numbers peaked the first week of August with three sites (Bellona, Plessis, and Williamson) seeing a seasonal combined total of over 100 moths per site. It has been recommended that scouting for WBC egg masses begins when cumulative trap catch numbers reach 100 moth/trap for field corn. Whether this guideline also pertains to sweet corn is not known. We are still seeing an early season (June) catch of corn earworm at some locations that indicates either early

migrations or some overwintering in our area. Fall armyworm numbers remained low for most of the season. The greatest trap catches of FAW were seen on September 9<sup>th</sup> with an average trap catch of 7 moths.

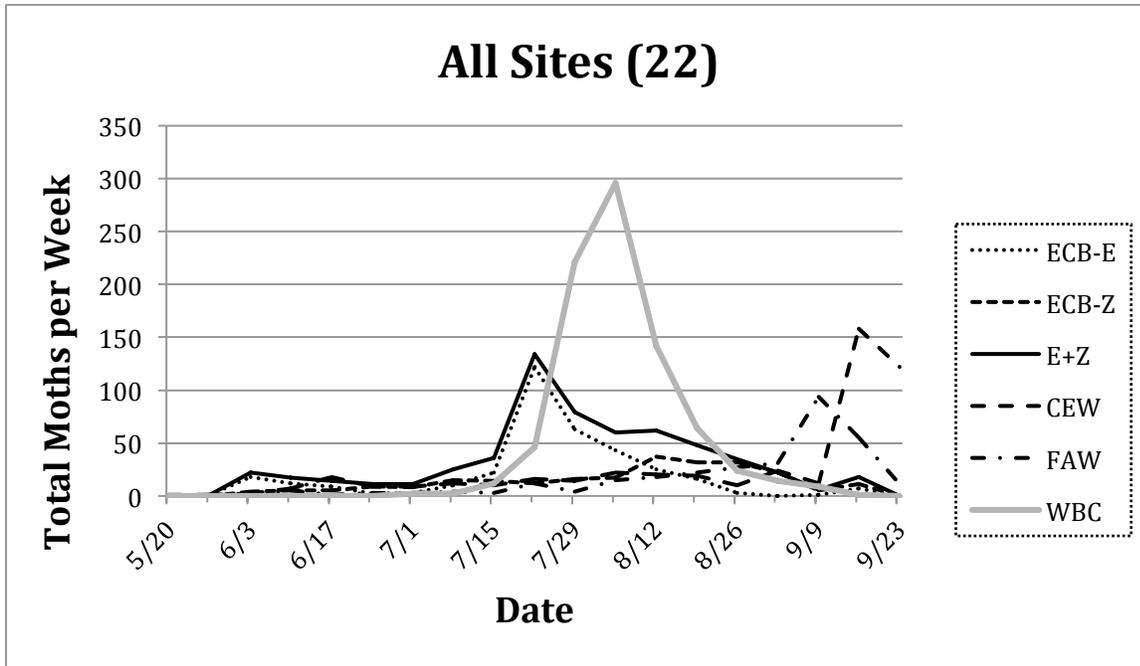


Figure 1. Total moths caught per week for all 22 Eastern NY sites

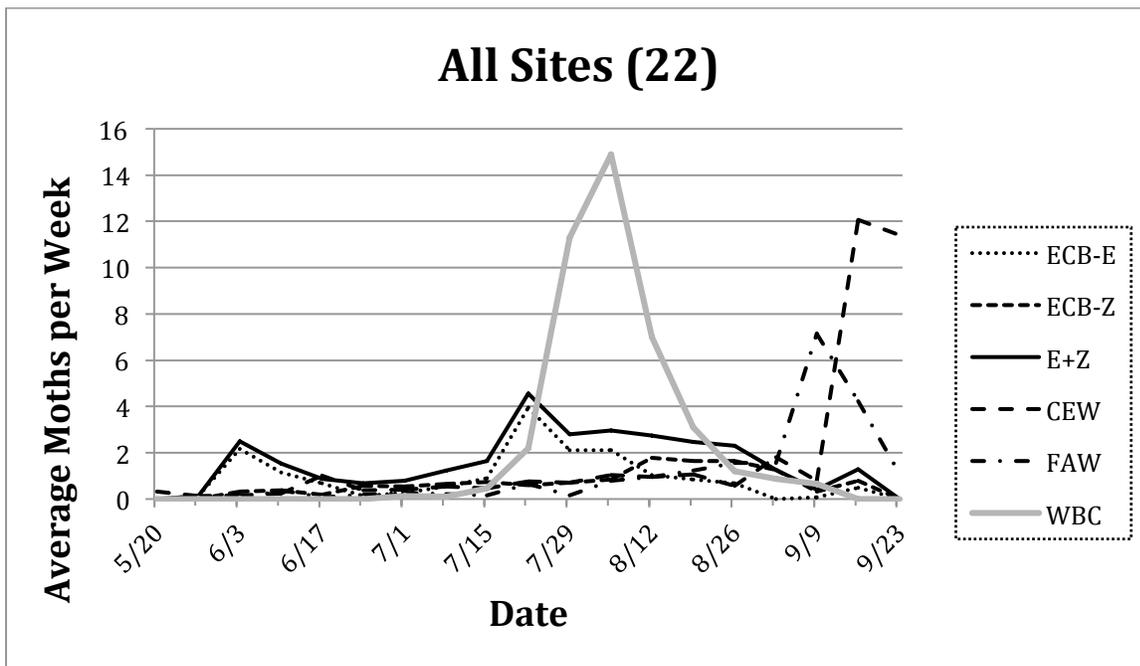


Figure 2. Average number of moths caught per week for all 22 Eastern NY sites.

**Project location(s):**

Avoca, Steuben Co.; Avon, Livingston Co.; Baldwinsville, Onondaga Co.; Batavia, Genesee Co.; Bellona, Yates Co.; Eden, Erie Co.; Farmington, Ontario Co.; Hamlin, Monroe Co.; Interlaken, Seneca Co.; Kennedy, Chautauqua Co.; King Ferry, Cayuga Co.; Kirkville, Madison Co.; LeRoy, Genesee Co.; Lockport, Niagara Co.; Oswego, Oswego Co.; Owego, Tioga Co.; Penn Yan, Yates Co.; Plessis, Jefferson Co.; Preble, Cortland Co.; Spencerport, Monroe Co.; Waterport, Orleans Co.; and Williamson, Wayne Co.

**Samples of resources developed:**

Weekly blog posts from 5/21/13 to 9/24/13 posted to the Sweet Corn Pheromone Network Report blog found at <http://sweetcorn.nysipm.cornell.edu/>

Developed a trap setup and monitoring video for cooperators:

<http://www.youtube.com/watch?v=i7r96MRix2I>