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● **Agricultural Research and Extension on Tree Fruits and Vegetables** ●

Sweet Corn Pest Report

Tuesday, August 13

Corn earworm (CEW) adult populations are increasing this week with trap captures ranging from 1 to 30 per trap in 4 sites. CEW trap counts in Florida (1 per trap), Hurley (30 per trap over two weeks) New Paltz (14 per trap per week) suggest a 4-5-day spray (Table 2). A tighter schedule may be required in sites where ECB and CEW larva populations are experiencing increasing numbers and continued larval emergence. Fall armyworm adults have yet to be observed in our traps. Very high populations have been observed in Montgomery, Lancaster and Bucks County southeast PA and Suffolk County in eastern Long Island. Recent field research in WNY demonstrated the efficacy of a number of newer materials on CEW (Table 1).

Fall army worm (FAW) captures have been observed this week for the first time this season from New Paltz.

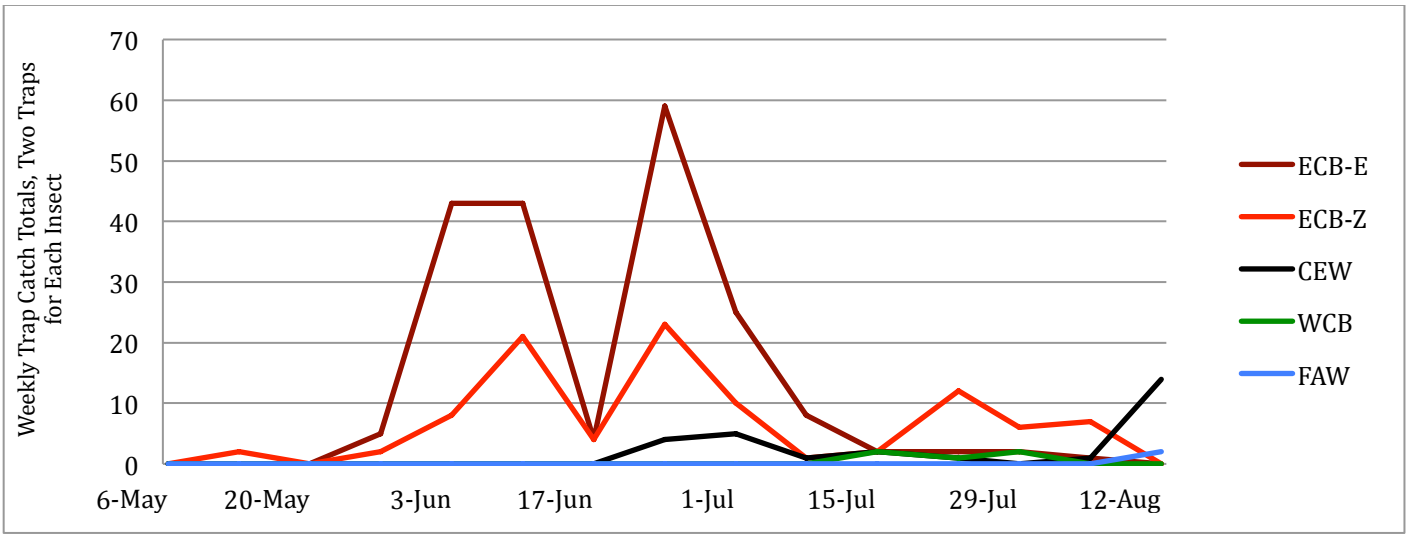
The trap catch data from New Paltz this week indicates that the 2nd generation European corn borer adults are rapidly declining. Multiple sites including Ulster and Orange counties also have ECB present with numbers also declining in the Rondout Valley of Stone Ridge and Sccord, yet in Florida and noth central PA numbers remain high and will be controlled along with CEW in scheduled management. Regional ECB including WNY, central PA and NJ continue to see moderate to low ECB trap numbers. It's important to assume that variable population levels are present in the Hudson Valley. That said, maintain trap locations in corn developing to tassle and silk so as to optimize adult captures. Relocated as needed

From the onset of ECB sustained flight we can predict the development of larval hatch based on degree day accumulations (Table 3.) Given extensive rainfall over the past two weeks, we can expect some reduction in larva. However, increasing CEW and warm dry weather is forecast for the upcoming week. Keep in mind that higher temperatures are less conducive to effective larva control using pyrethroids. However, The OP's and carbamates are less prone to loss of efficacy from high temperatures then are the pyrethroids. The spinosdad Entrust and spinetoram Radiant SC is only moderately reduced by increased temperature. Field scouting should be ongoing in all fields that are in the whorl and silk stage for the presence of newly emerging ECB-E and other insect pests. Damage threshold for fresh market sweet corn in the silk stage is 5%.

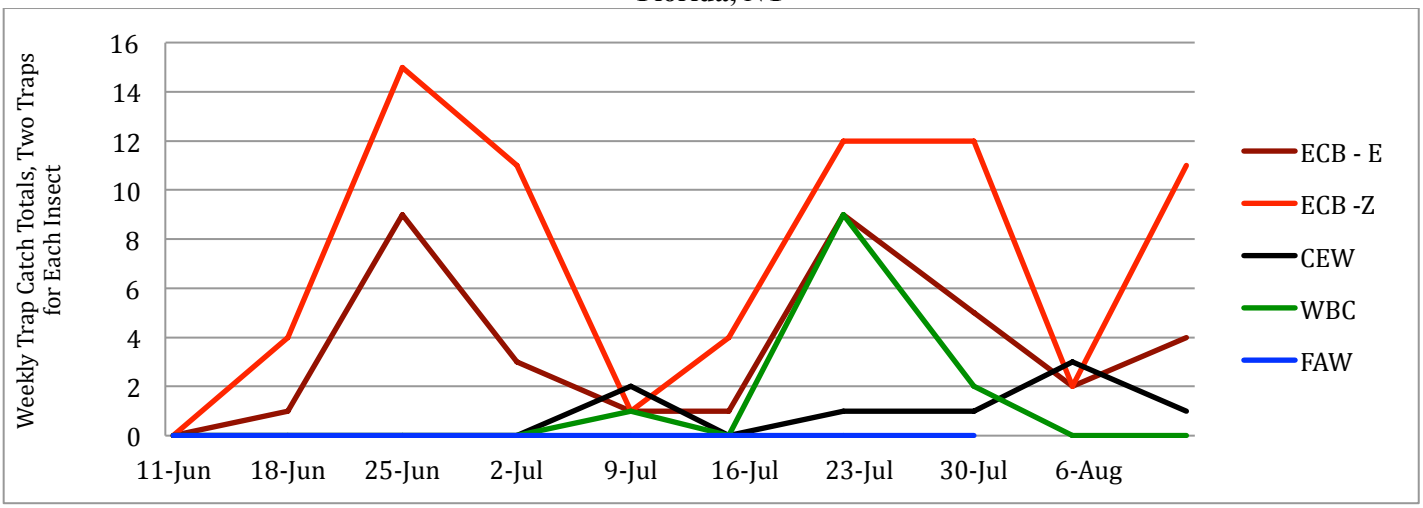
Western bean cutworm (WBC) adults are still present throughout the state with nearly all sites in WNY finding adult captures in traps. Highest trap numbers of WBC can be found in W.NY Yates County and Jefferson County. This week we observed 0 WBC adults in three HV locations.

2013 European corn borer (ECB), Fall Armyworm (FAW), and Corn Earworm (CEW) Adult Flight Data

Wallkill View Farms, New Paltz, NY



Florida, NY



Hurley, NY

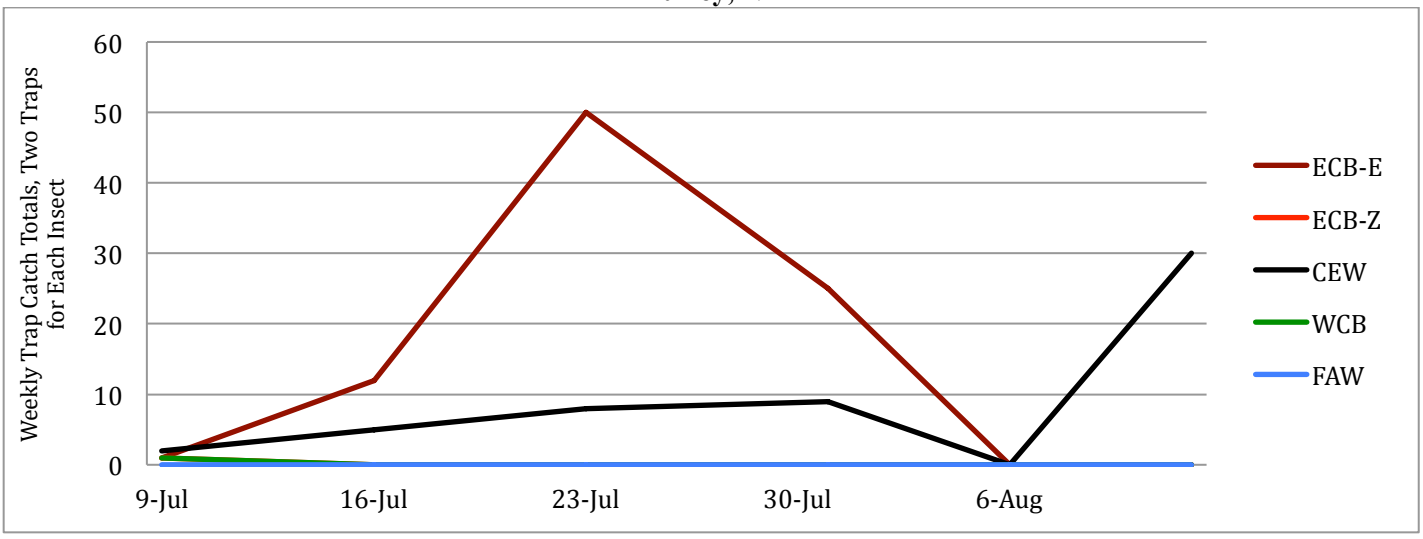


Table 3. Degree day accumulations for predicting ECB activities in the field.*

Degree days from event (F°)	Life stage
0	Increasing moth flight (peak)
100	Peak egg hatch
200+	1st - 2nd instar larvae
350+	3rd instar larvae
400+	4th instar larvae
550+	5th instar larvae
900+	Pupation
1150 - 1700	Adult moths

* from: European Corn Borer Development and Management, USDA NC Reg. Ext. Pub. No. 327, May 1989. Threshold = 50°F (10°C)

Table 2. CEW spray schedule based on pheromone trap captures.

Per Day	**Per Five Days**	**Per Week**	**Days Between Sprays**
<0.2	<1.0	<1.4	No Spray(for CEW)
0.2-0.5	1.0-2.5	1.4-3.5	6 days
0.5-1.0	2.5-5.0	3.5-7.0	5 days
1-13	5-65	7-91	4 days
over 13	over 65	over 91	3 days

CEW adult on ear of corn.

CEW Eggs on silk.

ECB "window pane" damage

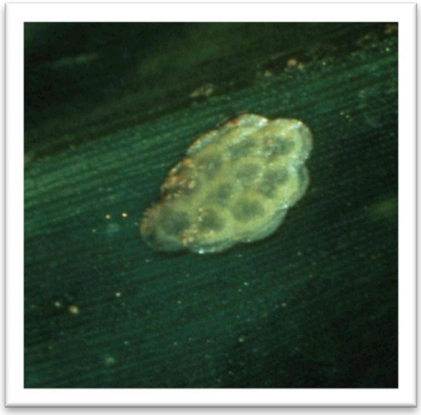
ECB feeding on emerging tassel

ECB pinhole damage

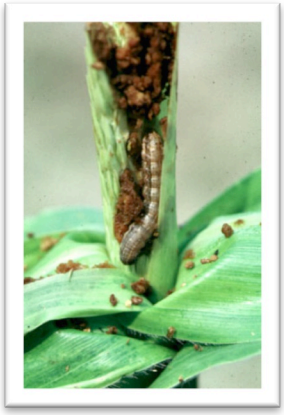
CEW and FAW feeding damage

Fall Army Worm (FAW): The FAW typically survives only in the southern gulf region on the Unites States. However, the ability to overwinter depends on the severity of the winter, but the excellent flying ability of the moth allows the fall armyworm to migrate north every year from overwintering spots in the south and from more northern locations, such as Indiana. First generation adults can be seen flying north about May.

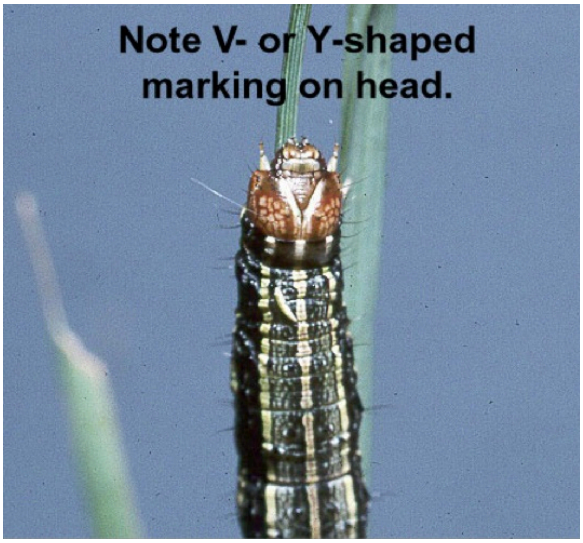
The adult moth is similar in appearance to many of the cutworm moths. The wingspan is about 1-1/2 inches (36 mm); the hind wings are grayish white and the first pair are dark gray mottled with light and dark patches and with a noticeable whitish spot near the extreme tips.



Eggs of the FAW (left) and European corn borer (right).



Injury to tassel by FAW larva.



Fall army worm adult (Left) and life stages from left to right of 1st through 5th instar and pupa.
The young larvae feed in concealed locations on the corn plant such as in the whorl. Larvae become full grown (about 1-1/2 inches or 30 mm) in approximately 20 days. They vary in color from light tan or green to

nearly black. Fall armyworm larvae are similar to the true armyworm in appearance but can be distinguished by the more prominent white inverted Y on the front of the head.

Research on CEW Insecticide efficacy: In a field study conduced by Tony Shelton in 2010 on the sweet corn variety 'Peaches and Cream' he found the the untreated control with only 5% of ears unaffected by feeding damage caused by lepidopteran larvae (Table 1). In contrast, only the high rate of Voliam Express was able to produce >90% clean ears which was statistically higher than several other treatments, including the commonly used Warrior II. Across all treatments, in the ears that were injured 98% of the injury occurred in the tip of the ear, with similar trends (97% to 100%) in the other treatments. CEW had an average density of 22.3 larvae per 25ears in the untreated control, a number considered to be high in the region of New York State where this trial was completed, and represented 98.5% (n=191) of the total Lepidoptera collected across all treatments. We attribute nearly all of the ear damage to CEW. Fisher's LSD did reveal differences among treatments for CEW. In contrast, ECB averaged 0.5 larvae per 25 ears in the untreated control and comprised only 1.5% of the total larval population collected from all plots (n=3). All treatments significantly reduced ear damage compared to the control and significantly reduced the number of CEW. ECB pressure was low and significant differences between the control and treatments were not detected. No phytotoxicity was observed.

Table 1.

Treatment/ Formulation	Rate amt product (fl oz)/acre	lb (AI)/acre	% Clean Ears	Mean Larvae/ 25 ears	
				CEW	ECB
Untreated	---		5.0a	22.3a	0.5a
Voliam Xpress 0.417 +0.8 3 SC	9.0		92.4d	0.5e	0.0a
Belt 480 SC	3.0		86.3cd	2.0cde	0.0a
+ Baythroid XL	2.4				
Coragen 1.67SC	3.5		85.0cd	2.0cde	0.0a
Voliam Xpress 0.417 +0.83SC	7.0		85.0cd	1.3cde	0.0a
Radiant SC	4.0		76.2bc	4.8b	0.0a
Belt 480 SC	3.0		74.7bc	3.8bc	0.0a
Hero EW	6.0		73.9bc	2.8cd	0.0a
Warrior II CS	1.92		70.5bc	4.0bc	0.3a
Baythroid XL	2.4		63.7b	4.5bc	0.0a

Means followed by the same lower-case letters within a column are not significantly different (Fisher's LSD means separation test, $P>0.05$).