

New York Western Bean Cutworm, Black Cutworm, and True Armyworm in Field Corn Monitoring Program, Progress Report 2019

Project Leaders

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The Pest Problem

Western bean cutworm (*Striacosta albicosta* [Smith]) attacks corn (*Zea mays* L.; including field, sweet and popcorn) and dry beans (*Phaseolus vulgaris* L.), feeding on developing kernels or beans inside husks and pods, respectively. Western bean cutworm (WBC) infestations can cause significant yield losses and may facilitate subsequent colonization by pathogens, furthering damage and impacts. This pest has become an economic issue for many growers ranging from the Midwest through the Northeast US and Southern Ontario and Quebec. Losses from this insect can be as high as 8-10% in dry beans and 40% or more in field corn grain yields. WBC was first found in New York in 2009. This pest has expanded and has steadily increased across the state since first discovered. A trapping network was established in 2010 to monitor WBC populations as they invade NYS. There were not a lot of reports of economic damage by WBC this year. The fact that corn planting was delayed in much of the state may have avoided the peak flight of moths laying eggs on pre-tassel corn. We also established a migratory insect pest-monitoring network for black cutworm (BCW) and true armyworm (TAW) with 16 locations in 2019. This was useful for knowing when BCW and TAW arrived in New York, and could potentially be used to calculate degree-day models from the biofix dates.

Monitoring Procedure

WBC, BCW and TAW male moths are trapped using a green “universal” bucket trap hung on posts at the edge of cornfield sites. Traps contain the pheromone lure that mimics a female scent to attract male moths. In addition, an insecticide strip is placed in the trap to kill the moths once inside. WBC trapping was initiated the second week of June and continued until early September. BCW and TAW traps were established in the field in late April. Traps were checked weekly, and the number of moths collected was recorded. Moth capture data shared with the local and regional agricultural community through timely newsletters including the NYS IPM Field Crops Pest Report.

WBC 2011-2019 Results

Since the discovery of western bean cutworm in New York in 2009, we have monitored its progression across the state. In 2010, we established a WBC pheromone trap monitoring network. This network of Cornell Cooperative Extension Educators, crop consultants and agricultural professionals placed bucket pheromone traps to capture moths each year, targeting June through August. Each week the number of moths is reported by the location. These traps are deployed to monitor moth presence and determine the peak flight. Traps help us identify fields

at risk and when scouting should take place, but we cannot use trap counts to determine when a field should be sprayed with an insecticide. In 2019, we had 22 volunteers and 66 traps in 27 counties.

Table 1. New York Western Bean Cutworm 2011 – 2019 Collection Data Summary*

	2011	2012	2013	2014	2015	2016	2017	2018	2019
No. Counties	25	23	27	32	25	25	27	27	27
No. Traps	29	27	42	52	53	48	52	70	66
Avg. No. WBC / Trap	17	69	115	169	363	310	569	479	536
Range in Totals	0 - 165	0 - 344	0 – 853	0 – 1019	0 – 1688	0 – 1662	0-2464	0-2964	0-2812
Peak Flight	2-Aug	25-Jul	21-28-Jul	3-Aug	2-Aug	31-Jul	8-Aug	1-Aug	15-Aug

The total number of WBC moths captured per trap in New York by year are depicted in Table 1. In 2019, we had 66 traps (Figure1) that caught 35,538 moths with an average of 536 moths per trap. Some traps in northern NY caught from 1000 to almost 3000 moths in a single trap. Northern NY is the hot spot for WBC, and the number of moths caught in this region of the state far exceeds the rest.

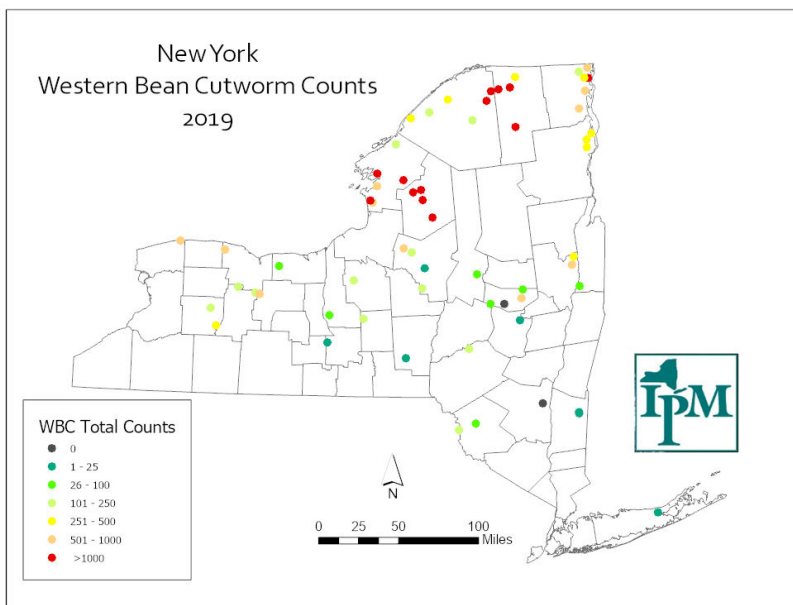


Figure 1: WBC trap locations and number of moths caught per trap

When looking at the average number of moths caught per trap in 2019, 76% of the traps caught more than 100 moths and only 11% caught less than 20 moths. Jefferson County had a single

seasonal trap accumulation of 2,812 moths. The range of trap counts were 0 to 2,812. The average as 536 moth/trap. The average increased compared to 2018 at 479 moths/trap.

A very important aspect of managing WBC is knowing when peak flight occurs. The annual peak flights are outlined in table 1. From 2011 to present, the peak flight has ranged from the last week in July to the first week in August, until 2019 where it was August 15th. By knowing the peak flight, you know when most of the moths will be laying eggs in pre-tassel corn, because the female moths prefer to lay eggs on this stage of corn growth. And this peak flight time is when we should be vigilant about scouting for WBC egg masses and small larva.

We did have high trap counts in 2019 year in Northern NY and to a lesser degrees in Western NY. There was also a hot spot in Washington County in Eastern NY on sandy soils. There were not a lot of reports of economic damage by WBC this year in NY. The fact that corn planting was delayed in much of the state may have avoided the peak flight of moths laying eggs on pre-tassel corn.

Migratory Insect Pest Monitoring Network-Black Cutworm and True Armyworm

Black Cutworm was found at moderate to high levels around NYS in forage grasses, small grains and corn this growing season in several areas of NY (table 3). This is a migratory insect pest that travels on weather fronts from the South and Midwest. We developed a pheromone trapping network to better understand when they arrived and at what levels. We were able to alert farmers, extension field staff and crop consultants about the potential infestations. Many extension educators and crop consultants educated the growers on correct identification and how to assess a population in the field to determine when management efforts might be needed. Armyworm was less of a problem in NYS in 2019. There are generally isolated fields that have armyworm infestations each year. Table 3 indicates the number of BCW and TAW moths caught in 16 traps across the state by week.

Table 3: The number of BCW and TAW moths caught per week in traps across the state.

County	Town	April 21-28	Apr. 30 - May 5	May 6-12	May 13-19	May 20-26	May 27- June 2	June 3-9	June 10-17
Delaware	Davenport Center	NA	0	6	16	NA	104	24	
Dutchess	Amenia	NA	5	29	45	18	5	3	33
Lewis	Martinsburg	NA	0	93	84	102	74	84	67
Livingston	Caledonia	NA	0	4	4	21	10	5	8
Livingston	Lima	3	5	10	30	15	5	4	
Oneida	Kirkland	NA	4	4	35	0	0	3	0
Oneida	Westmorland	0	8	35	28	30	13	6	
Onondaga	Memphis	0	0	0	20	0	0	0	
Seneca	Seneca Falls	12	29	64	35	26	17	45	42

County	Town	April 21-28	Apr. 30 - May 5	May 6-12	May 13-19	May 20-26	May 27-June 2	June 3-9	June 10-17
Tompkins	Ulysses	NA	5	6	0	1	2	3	5
Washington	Argyle	NA	0	0	0	1	2	0	1
Washington	Easton	NA	0	4	3	5	2	0	0
Washington	Fort Edward	NA	1	3	2	6	7	0	
Washington	Stillwater	NA	3	4	3	16	10	3	
Wayne	Ontario	1	1	5	4	7	0	0	0
Wyoming	Castile	0	19	42	15	13	18	10	8
	TOTAL	16	80	309	324	261	269	73	164

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