



Northern NY Agricultural Development Program 2018-2019 Project Report

Insecticide Timing Trial for Control of Western Bean Cutworm in Field Corn in Northern New York

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Cooperating Producer(s):

- Ja-Ze Farm, Lewis County

Background:

Western Bean Cutworm (WBC) is becoming a notable pest to watch in field corn in New York State. The Cornell Cooperative Extension North Country Regional Ag Team continues to participate in the statewide NYS Integrated Pest Management WBC monitoring network. The purpose of the deployed traps is to monitor moth presence and determine the peak flight, not as a tool to determine when a field should be sprayed with an insecticide. Traps help identify fields at risk and when scouting should take place. Management of the WBC is based on corn growth stage, number of egg masses, and small larva present on the corn.

There were 52 WBC traps located in 27 NYS counties in 2017. Twenty-seven WBC traps were monitored weekly in corn fields in NNY (Jefferson, Lewis, St. Lawrence, Franklin, Clinton,

Essex counties). The 27 WBC traps in NNY caught 23,658 total moths, averaging 876 moths per trap. To illustrate how much of a Western Bean Cutworm “hotspot” exists in NNY, the other 25 WBC traps located throughout NYS caught a total of 5,915 moths, averaging 236 moths per trap.

Midwestern US entomologists suggest monitoring for the presence WBC egg masses once trap counts reach 100 moths. We focus our scouting on fields that are in the pretassel or newly tasseling corn as the moths prefer these corn growth stages for egg laying. The action threshold used for WBC in field corn is based on a cumulative count. Once counts reach 5% of egg masses and/or small larva on the corn plants an insecticide application is necessary.

The timing of the insecticide application is more important than the insecticide used. The timing of the insecticide application needs to coincide with the WBC egg hatch. **Insecticides are only effective if applied before the WBC larva enter the ear.** The larva must come in contact with the insecticide directly during application or through residue insecticide material on the plant surface. Once in the ear of corn, the WBC larva are protected from insecticide applications; thus growers have a small window for insecticide treatment.

WBC eggs can hatch over a several week period, adding to the complexity of scouting and controlling WBC with insecticides. It is not uncommon to find fields in NNY with new WBC egg masses, eggs ready to hatch within 24 hours, and eggs that have already hatched. Young WBC larva feed on tassel tissue and pollen tissue before migrating down to the ear.

Methods:

A replicated, field-scale insecticide timing trial for the control of Western Bean Cutworm was conducted in a corn field in NNY. Three side-by-side insecticide timings — an early application, the recommended timing (based on protocols from other land grant universities), and a late application — were evaluated for effectiveness.

The location of the trial and the field selected were identified during the growing season. The field selected was not planted with a corn hybrid with any Bt trait capable of controlling the WBC. The field selected had reached a cumulative total of 5% of the corn plants having a WBC egg mass.

The insecticide used was a pyrethroid insecticide containing lambda-cyhalothrin. The first insecticide application was made with subsequent side-by-side applications. To determine if the insecticide applications were effective, approximately 21 days after the last insecticide was applied, the timing treatments were evaluated for the control of WBC.

Results:

Due to a slight delay in scheduling our first insecticide application, the treatment was applied about 2 days later than anticipated. The first, “early,” treatment was made on August 6, 2018, and the corn was in the late VT growth stage. The second, “recommended,” treatment was made on August 10, 2018, and the corn was in the R1 growth stage. The last, “late,” treatment was applied August 21, 2018, and the corn was approaching the R2 growth stage.

The early and recommended insecticide applications provided excellent control of the WBC larva with no WBC larva and/or feeding damage observed. Following the third treatment, or “late” application, 17% of the ears showed WBC larva and/or WBC feeding damage. The control or untreated check in the trial had 25% of the ears with WBC larva present and/or WBC feeding damage. (See Figure 1).

Insecticide Application Timing	WBC Damaged Ears %
Early- 8/6/18	0 c
Recommended- 8/10/18	0 c
Late- 8/21/18	17.0 b
Control- No Spray	25.0 a

Figure 1. WBC Insecticide Timing Trial Results, Lewis County, N.Y., summer 2018.

Ideally, the early treatment would have been made one week earlier, but the fields in this study did not reach high enough WBC levels. Even with the 0 percentage of damage in the applied early treatment, this timing is not suggested due to the risk that this level of control may not always be achieved.

The outcome of this on-farm research trial suggests that when insecticide applications are made at the recommended timing, WBC can be controlled in field corn.

Outreach:

The results from this on-farm research trial are being disseminated to crop growers, crop consultants, agribusinesses, and extension field crops staff members throughout Northern New York and statewide. As of March 28, 2019, the data from this project has been included in presentations at the 2019 North Country Crop Congresses in Chazy and Watertown, the Lowville Farmers Cooperative 2019 Winter Crop Meeting in Lewis County, the CCE Central NY Corn Day in Cooperstown in February 2019, and the DeRuyter Farm Co-Op Winter Grower Meeting in March 2019.

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For More Information:

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