



CORN

SECTION 6

Evaluation of transgenic hybrids and insecticidal seed treatments for control of black cutworm larvae (*Agrotis ipsilon*) in Illinois, 2008

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Location

We established one trial on 18 July at the University of Illinois Agricultural Engineering Farm near Urbana (Champaign County).

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 10 ft (four rows) x 30 ft. A 10-inch diameter, bottomless, plastic bucket was placed around each of approximately 20 plants in each plot to serve as a barrier to prevent escape of larvae. Two second- to third-instar black cutworms were introduced into each barrier on 30 July when corn plants were in the V2–V3 stage of development. The numbers of plants fed upon or cut by the larvae were recorded on 4, 6, 13, and 20 August (5, 7, 14, and 21 days after infestation, respectively).

Planting Information

The trial was planted on 18 July using a four-row, Almaco constructed planter with John Deere 7300 row units. Precision cone units were used to plant the seeds.

Active ingredients for all chemical insecticides, except those with experimental numbers, are listed in Appendix II.

Agronomic Information

Agronomic information is listed in Table 6.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix III.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.4.2. (Copyright© 1982–2008 Gylling Data Management, Inc., Brookings, SD).

Results and Discussion

The mean numbers of plants that were cut or fed upon by black cutworm larvae are presented in Table 6.2. Due to the relatively small numbers of cut plants, there were no significant differences in the amount of cutting caused by black cutworm larvae among any of the treatments. Although the percentages of plants that had been fed upon by black cutworm larvae were fairly large (approximately 51 to 82% over the course of evaluations), no treatment had greater efficacy than any other. Although each plant was exposed to two black cutworm larvae to increase the probability for injury, apparently there was a high level of larval mortality due to environmental conditions or other unknown factors.

TABLE 6.1 • Agronomic information for evaluation of transgenic hybrids and insecticidal seed treatments to control black cutworm larvae, Urbana, University of Illinois, 2008

Planting date	18 July
Row spacing	30 inches
Seeding rate	30,000/acre



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TABLE 6.2 • Evaluation of transgenic hybrids and insecticidal seed treatments to control black cutworm larvae, 18 July planting, Urbana, University of Illinois, 2008

Product	Rate ¹	4 August, 5 DAI ²	4 August, 5 DAI ²	6 August, 7 DAI ²	6 August, 7 DAI ²	13 August, 14 DAI ²	13 August, 14 DAI ²	20 August, 21 DAI ²	20 August, 21 DAI ²
		Mean percentage of cut plants ³	Mean percentage of plants with feeding injury ³	Mean percentage of cut plants ³	Mean percentage of plants with feeding injury ³	Mean percentage of cut plants ³	Mean percentage of plants with feeding injury ³	Mean percentage of cut plants ³	Mean percentage of plants with feeding injury ³
Poncho 600 5SC	0.25	0.00 a	70.00 a	0.00 a	71.25 a	3.75 a	73.75 a	6.25 a	73.75a
Cruiser 5FS	0.25	0.00 a	62.99 a	0.00 a	71.25 a	0.00 a	71.25 a	1.09 a	72.50 a
V-10170(1713) 5FS	0.25	1.04 a	56.04 a	2.08 a	61.04 a	5.83 a	64.58 a	5.83 a	67.92 a
V-10170(1729) 5FS	0.25	1.25 a	55.00 a	1.25 a	71.25 a	2.50 a	75.00 a	3.75 a	78.75 a
V-10170(1729) 5FS	0.35	0.00 a	55.71 a	0.00 a	65.82 a	1.09 a	69.24 a	2.34 a	72.99 a
V-10170(1729) 5FS	0.50	0.00 a	62.08 a	0.00 a	65.83 a	0.00 a	70.83 a	0.00 a	74.86 a
HxXtra (Mycogen 2T789) + Cruiser 5FS	— 0.25	0.00 a	51.25 a	0.00 a	61.25 a	0.00 a	65.00 a	0.00 a	66.25 a
UTC ^{4,5} (Mycogen 2T777) + Cruiser 5FS	— 0.25	0.00 a	62.20 a	0.00 a	68.45 a	1.39 a	73.45 a	1.39 a	77.20 a
UTC ⁴	—	0.00 a	70.00 a	0.00 a	76.25 a	3.75 a	81.25 a	5.00 a	82.50 a

¹ Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.

² DAI = days after infestation by third-instar black cutworms.

³ Means followed by the same letter do not differ significantly ($P = 0.05$, Duncan's New Multiple Range Test).

⁴ UTC = untreated check.

⁵ Mycogen 2T777 is the non-Bt near-isoline of Mycogen 2T789 HxXTRA