



CORN

SECTION 4

Evaluation of SmartStax to control corn earworm larvae (*Helicoverpa zea*) in Illinois, 2012

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Location

We established one trial 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. Plot size for each treatment was 10 ft (four rows) x 20 ft. Densities of corn earworm larvae were assessed on 22 August (at the R3 growth stage). Densities were estimated by counting the total number of larvae on 10 ears in each plot. The number of kernels consumed was recorded for each ear that was evaluated.

Planting Information

The trial was planted on 11 June using a four-row, vacuum style planter constructed by Seed Research Equipment Solutions (SRES). The planting date was later than normal to attract late-season flights of corn earworm. Seeds were planted in 30-inch rows at an approximate depth of 1.75 inches.

Agronomic Information

Agronomic information is listed in Table 4.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix III.

Statistical Analysis

Data were analyzed using ARM 8 (Agricultural Research Manager), revision 8.4.2 (Copyright© 1982–2012 Gylling Data Management, Inc., Brookings, SD).

Results and Discussion

The mean number of corn earworm larvae and kernels consumed per ear are reported in Table 4.2.

Moderate densities of corn earworm larvae were present at the time of sampling. The untreated check (UTC) had significantly more corn earworm larvae and kernels consumed per ear than SmartStax plants.

TABLE 4.1 • Agronomic information for efficacy trial of SmartStax to control corn earworm larvae, Urbana, University of Illinois, 2012

Planting date	11 June
Hybrids	Mycogen 2K591 RR2 Mycogen 2K594 SmartStax
Row spacing	30 inches
Seeding rate	36,000/acre
Previous crop	Corn
Tillage	Fall—chisel plow Spring—field cultivator

TABLE 4.2 • Evaluation of SmartStax to control corn earworm larvae, Urbana, University of Illinois, 2012

Product	Mean no. of CEW ¹ larvae per ear ^{2,3}	Mean no. of kernels consumed per ear ^{3,4,5}
SmartStax (Mycogen 2K594 ⁶)	0.18 b	0.68 b
UTC ⁷ (Mycogen 2K591 ⁶)	2.58 a	19.73 a

¹ CEW = corn earworm.

² Means were derived from the numbers of larvae on 10 ears per plot in each of four replications.

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

⁴ Data were analyzed using a square root transformation; actual means are shown.

⁵ Means were derived from the numbers of kernels consumed on 10 ears per plot in each of four replications.

⁶ Seed treated with Cruiser, 0.25 milligrams (mg) of active ingredient (a.i.) per seed.

⁷ UTC = untreated check.