



SOYBEANS

SECTION 6

Evaluation of seed-applied insecticides to control late season foliar-feeding insect pests of soybean in Illinois, 2012

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Location

We established one trial at the Adam Yoeckel Farm near Morrison (Whiteside 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 20 ft. Plant emergence was estimated by counting the number of plants in 20 feet of row per plot at the V2 growth stage on 6 June. Mean plant heights were determined by measuring three randomly selected plants per plot at the V3 growth stage on 21 June. Densities of late season foliar-feeding insect pests were determined by taking 20 sweeps per plot with a 15-inch diameter sweep net on 31 July.

Planting, Insecticide Application, and Yield

The trial was planted on 14 May using a four-row, ALMACO constructed planter with John Deere 7300 row units. Precision cone units were used to meter the seeds. Seeds were planted in 30-inch rows at an approximate depth of 1 inch. Active ingredients for all insecticides are listed in Appendix II.

Yields were estimated by harvesting the center two rows of each plot on 11 October. Weights were converted to bushels per acre (bu/A) at 13% moisture.

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

Results and Discussion

Mean plant stand counts, plant heights, densities of foliar-feeding insect pests, and yields are reported in Table 6.2. Although a number of insect pests were recovered in sweep samples, only bean leaf beetle, corn rootworm beetle, and Japanese beetle averages are presented.

Mean plant stand counts and plant heights were statistically similar across all treatments. Across all sampling dates, densities of bean leaf beetles and corn rootworm beetles were very low. No significant differences in mean densities of bean leaf beetles or corn rootworm beetles were observed. There were relatively large densities of Japanese beetle, which the insecticidal seed treatments had little effect on. Mean Japanese beetle densities were statistically similar across all treatments.

Mean yields ranged from 62.7 to 64.6 bu/A. Only slight numerical differences in mean yield were observed; there were no statistically significant differences.

TABLE 6.1 • Agronomic information for efficacy trial of seed-applied insecticides to control late season foliar-feeding insect pests of soybean, Morrison, University of Illinois, 2012

Planting date	14 May
Variety	Stine 29RB22
Row spacing	30 inches
Seeding rate	140,000/acre
Previous crop	Corn
Tillage	Fall—vertical tillage Spring—vertical tillage



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TABLE 6.2 • Evaluation of seed-applied insecticides to control late season foliar-feeding insect pests of soybean, Morrison, University of Illinois, 2012

Product	Rate ¹	Mean no. plants per 20 row-feet ^{2,3} 6 June	Mean plant height (in) ^{3,4} 21 June	Mean no. insects per 20 sweeps, 31 July ^{3,5}			Mean yield (bu/A) ^{6,7} 11 Oct
				Bean leaf beetles	Corn rootworm beetles	Japanese beetles	
Cruiser	50	126 a	13.67 a	0.25 a	0.00 a	10.75 a	62.7 a
Gaucho	62.5	126 a	12.92 a	0.00 a	0.25 a	15.50 a	63.4 a
Gaucho + Poncho VOTIVO	62.5 0.13	125 a	13.08 a	0.00 a	0.00 a	9.25 a	64.6 a
Poncho VOTIVO	0.13	120 a	13.25 a	0.00 a	0.50 a	11.75 a	63.6 a
UTC ⁸	—	124 a	13.04 a	0.00 a	0.50 a	13.25 a	63.6 a

¹ Rates of application for Cruiser and Gaucho are grams (g) active ingredient (a.i.) per 100 kilograms (kg) seed; rates of application for Poncho VOTIVO are milligrams (mg) active ingredient (a.i.) per seed.

² Means were derived by counting the number of plants in 20 ft of row in each 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 Means were derived by measuring the height of three randomly selected plants in each plot in each of four replications.

⁵ Means were derived from the numbers of insects per 20 sweeps in each plot in each of four replications.

⁶ Soybeans were harvested from the center two rows of each plot and converted to bushels per acre (bu/A) at 13% moisture.

⁷ Means followed by the same letter do not differ significantly ($P = 0.1$, Duncan's New Multiple Range Test).

⁸ UTC = untreated check.