



## SOYBEANS

### SECTION 12

## Evaluation of insecticidal seed treatments to control soybean aphids (*Aphis glycines*) and other insect pests of soybean in Illinois, 2011

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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 30 ft. Densities of soybean aphids were determined by counting the total number of soybean aphids on each of three plants in each plot. Densities of other insect pests were determined by taking 20 sweeps per plot with a 15-inch diameter sweep net. Densities of soybean aphids were assessed on 17 and 27 August, and on 3 and 10 September. Densities of other insect pests were assessed on 4, 11, 19, and 27 August.

### Planting and Yield

The trial was planted on 10 May using a four-row, vacuum style planter constructed by Seed Research Equipment Solutions (SRES). Seeds were planted in 30-inch rows at an approximate depth of 1 inch. Active ingredients for all insecticidal seed treatments are listed in Appendix II.

Yields were estimated by harvesting the center two rows of each subplot on 6 October. Weights were converted to bushels per acre (bu/A) at 13% moisture.

### Agronomic Information

Agronomic information is listed in Table 12.1.

### Climatic Conditions

Temperature and precipitation data are presented in Appendix III.

### Statistical Analysis

Data were analyzed using ARM 8 (Agricultural Research Manager), revision 8.3.4 (Copyright© 1982–2011 Gylling Data Management, Inc., Brookings, SD).

### Results and Discussion

Mean densities of soybean aphids, other insect pests, and yield are reported in Table 12.2. Although a number of insect pests were surveyed, only corn rootworm beetles, green stink bugs, and Japanese beetles were recovered in sweep samples.

Across all sampling dates, densities of soybean aphids were very low and never exceeded 66 soybean aphids per plant—no significant differences were observed among treatments, including the untreated check (UTC). Densities were well below the economic threshold of 250 soybean aphids per plant (Ragsdale et al. 2007). Across all sampling dates, no significant differences in mean densities of corn rootworm beetles, green stink bugs, and Japanese beetles were observed.

Although some significant differences in mean yield were observed, yields were most likely unaffected by the low densities of pests we observed.

**TABLE 12.1 • Agronomic information for efficacy trial of insecticidal seed treatments to control soybean aphids and other insect pests of soybean, Morrison, University of Illinois, 2011**

Planting date	10 May
Harvest date	6 October
Variety	Stine 27RA02
Row spacing	30 inches
Seeding rate	140,000/acre
Previous crop	Corn
Tillage	Spring—vertical tillage



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**TABLE 12.2** • Evaluation of insecticidal seed treatments to control soybean aphids and other insect pests of soybean, Morrison, University of Illinois, 2011

Product	Rate <sup>1</sup>	Mean no. soybean aphids per plant <sup>2,3</sup>				Mean no. corn rootworm beetles per plot <sup>3,4</sup>			
		17 Aug	27 Aug	3 Sep	10 Sep	4 Aug	11 Aug	19 Aug	27 Aug
Cruiser	0.5	5.5 a	19.5 a	29.8 a	55.3 a	0.8 a	0.3 a	0.3 a	0.0 a
Gaicho	0.63	3.4 a	13.3 a	33.1 a	52.2 a	0.8 a	0.8 a	0.3 a	0.3 a
Gaicho + Poncho VOTiVO	0.63 0.13	3.7 a	14.5 a	49.9 a	29.0 a	0.3 a	0.5 a	0.0 a	0.0 a
Poncho VOTiVO	0.13	3.8 a	12.7 a	47.4 a	65.7 a	0.5 a	0.3 a	0.3 a	0.3 a
UTC <sup>7</sup>	—	6.0 a	8.6 a	56.7 a	53.7 a	0.3 a	0.5 a	0.8 a	0.0 a

<sup>1</sup> Rates of application are milligrams (mg) active ingredient (a.i.) per seed.

<sup>2</sup> Means were derived from the numbers of soybean aphids on three plants in each plot in each of four replications.

<sup>3</sup> Means for the same date and followed by the same letter do not differ significantly ( $P = 0.05$ , Duncan's New Multiple Range Test).

<sup>4</sup> Means were derived from the numbers of insects per 20 sweeps in each plot in each of four replications.

<sup>5</sup> Soybeans were harvested from the center two rows of each plot and converted to bushels per acre (bu/A) at 13% moisture.

<sup>6</sup> Means followed by the same letter do not differ significantly ( $P = 0.10$ , Duncan's New Multiple Range Test).

<sup>7</sup> UTC = untreated check.

**TABLE 12.2 (CONTINUED)** • Evaluation of insecticidal seed treatments to control soybean aphids and other insect pests of soybean, Morrison, University of Illinois, 2011

Product	Rate <sup>1</sup>	Mean no. green stink bugs per plot <sup>3,4</sup>				Mean no. Japanese beetles per plot <sup>3,4</sup>				Mean yield (bu/acre) <sup>5,6</sup> 6 Oct
		4 Aug	11 Aug	19 Aug	27 Aug	4 Aug	11 Aug	19 Aug	27 Aug	
Cruiser	0.5	0.5 a	0.8 a	0.3 a	0.5 a	11.0 a	6.8 a	2.0 a	2.0 a	36 b
Gaicho	0.63	0.0 a	0.0 a	0.0 a	0.5 a	11.5 a	7.0 a	1.5 a	1.3 a	44 a
Gaicho + Poncho VOTiVO	0.63 0.13	0.0 a	0.0 a	0.0 a	0.3 a	10.5 a	6.5 a	3.8 a	2.3 a	36 b
Poncho VOTiVO	0.13	0.0 a	0.0 a	0.5 a	1.0 a	9.0 a	5.3 a	5.3 a	2.0 a	43 a
UTC <sup>7</sup>	—	0.0 a	0.3 a	0.3 a	0.5 a	9.5 a	5.5 a	3.3 a	1.3 a	40 a

<sup>1</sup> Rates of application are milligrams (mg) active ingredient (a.i.) per seed.

<sup>2</sup> Means were derived from the numbers of soybean aphids on three plants in each plot in each of four replications.

<sup>3</sup> Means for the same date and followed by the same letter do not differ significantly ( $P = 0.05$ , Duncan's New Multiple Range Test).

<sup>4</sup> Means were derived from the numbers of insects per 20 sweeps in each plot in each of four replications.

<sup>5</sup> Soybeans were harvested from the center two rows of each plot and converted to bushels per acre (bu/A) at 13% moisture.

<sup>6</sup> Means followed by the same letter do not differ significantly ( $P = 0.10$ , Duncan's New Multiple Range Test).

<sup>7</sup> UTC = untreated check.