## SECTION 6

# Evaluation of Warrior II and Warrior II + Quilt Xcel to control insect pests of soybean in Illinois, 2013

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## Location

We established one trial at the Northern Illinois Agronomy Research Center near DeKalb (DeKalb County). Funding for this experiment was provided by the Illinois Soybean Association.

## Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 20 ft (eight rows) x 100 ft. Densities of foliar feeding insects were determined by taking 20 sweeps per plot with a 15-inch diameter sweep net. Densities of soybean aphids were determined by counting the total number of aphids on three plants in each plot. The mean number of corn rootworm beetles per 20 sweeps was assessed on 8, 15, 22 and 29 August (0, 7, 14, and 21 days after treatment [DAT], respectively). Populations of soybean aphids were not present until late August; because of this, aphid densities were not evaluated until 22 August (14 DAT).

## Planting, Insecticide Application, and Yield

The trial was planted on 11 June using a four-row, John Deere 7300 planter. Seeds were planted in 30-inch rows at an approximate depth of 1 inch. Insecticides were applied on 8 August with a $CO_2$ backpack sprayer and a four-row boom. TeeJet TTJ60-11002 spray tips were calibrated to deliver a volume of 20 gallons per acre (gal/A). Active ingredients for all insecticides are listed in Appendix II.

Yields were estimated by harvesting the center two rows of each plot on 29 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 8.5.0 (Copyright© 1982–2012 Gylling Data Management, Inc., Brookings, SD).

## Results and Discussion

Very few insect pests were present in the trial area prior to the application of insecticides on 8 August. Detectable densities of soybean aphids appeared approximately 2weeks after the application of insecticides. Mean densities of corn rootworm and soybean aphid following the application of insecticides are presented in Table 6.2.

Mean densities of corn rootworm beetles were very low at the 8, 15, and 22 August sampling dates (0, 7, and 14 DAT); no significant differences among treatments were observed on these dates. On 29 August (21 DAT), Quilt Xcel and the untreated check (UTC) had significantly more corn rootworm beetles per 20 sweeps than the Warrior II + Quilt

**TABLE 6.1 • Agronomic information for efficacy trial of Warrior II and Warrior II + Quilt Xcel to control insect pests of soybean, DeKalb, University of Illinois, 2013**

| | |
|---|---|
| **Planting date** | 11 June |
| **Harvest date** | 29 October |
| **Variety** | NK S31-L7 |
| **Row spacing** | 30 inches |
| **Seeding rate** | 150,000/acre |
| **Previous crop** | Corn |
| **Tillage** | Fall—disc ripper<br>Spring—discovator |

Xcel combination treatment. Mean densities of soybean aphid were virtually undetectable at the 8 and 15 August sampling dates (0 and 7 DAT). On 22 August (14 DAT), the UTC had significantly more soybean aphids per plant than any other treatment. No significant difference in aphid densities were found on 29 August (21 DAT).

Mean yields are presented in Table 6.2. No significant differences in mean yields were observed; none of the insecticide, fungicide, or combination treatments yielded significantly more than the UTC.

**TABLE 6.2 • Evaluation of Warrior II and Warrior II + Quilt Xcel to control insect pests of soybean, DeKalb, University of Illinois, 2013**

| Product | Rate[1] | Mean no. corn rootworm beetles per 20 sweeps[2,3] | | | | Mean no. soybean aphids per plant[3,4] | | Mean yield[6,7] (bu/A) 29 Oct |
|---|---|---|---|---|---|---|---|---|
| | | 8 Aug (0 DAT[5]) | 15 Aug (7 DAT[5]) | 22 Aug (14 DAT[5]) | 29 Aug (21 DAT[5]) | 22 Aug (14 DAT[5]) | 29 Aug (21 DAT[5]) | |
| Warrior II | 1.6 | 1.3 a | 0.7 a | 0.3 a | 38.3 ab | 2.0 b | 0.6 a | 57.4 a |
| Quilt Xcel | 10.5 | 0.3 a | 2.0 a | 7.7 a | 84.7 a | 49.6 b | 52.0 a | 58.5 a |
| Warrior II + Quilt Xcel | 1.6 10.5 | 1.0 a | 0.0 a | 1.0 a | 27.0 b | 3.4 b | 3.6 a | 59.5 a |
| Untreated check | — | 0.3 a | 7.0 a | 11.3 a | 86.0 a | 152.9 a | 98.6 a | 55.4 a |

[1] Rates of application for foliar insecticide/fungicide are ounces (oz) of product per acre.
[2] Means were derived from the numbers of insects in 20 sweeps per plot in each of three replications.
[3] Means in the same column and followed by the same letter do not differ significantly ($P = 0.05$, Duncan's New Multiple Range Test).
[4] Means were derived from the numbers of soybean aphids on three plants in each plot of three replications.
[5] DAT = days after treatment (with insecticide/fungicide).
[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).