Residual Testing of Sefina™ Insecticide on Soybean Aphid

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Soybean, *Glycine max* (L.), grown in Iowa and most of the north central region of the United States has not required regular insecticide usage. Soybean aphid, *Aphis glycines* (Hemiptera: Aphididae), is the most important soybean insect pest in Iowa and is capable of reducing yield by 40 percent if left untreated. Some populations of soybean aphid have become resistant to pyrethroid insecticides. This creates a need to evaluate new insecticidal modes of action for crop protection.

Materials and Methods

Caged plants were established at the Iowa State University Johnson Research Farm in Story County, Iowa. Treatments were arranged in a randomized complete block design with eight replications, and soybean (AcresEdge 22R268) was planted May 25. Each plant was caged with a wire frame and mesh sleeve to prevent predation and aphid movement. In total, three treatments were evaluated (untreated control, Sefina™, and Warrior II with Zeon Technology®) and five residual testing dates (3, 7, 14, 21, and 28 days after treatment [DAT]).

Application techniques. Foliar applications were made to plants within treated cages at beginning pod set July 20. Foliar treatments were applied using a backpack sprayer and TeeJet (Springfield, IL) twinjet nozzles (TJ 11002) with 20 gallons of water/acre at 40 lb of pressure/square inch.

Estimation of insecticidal residual efficacy. For each residual testing date, 10 soybean aphids were placed on a treated leaflet, then counted five days later.

Statistical analysis. One way analysis of variance (ANOVA) was used to determine treatment effects within each experiment. Mean separation for each residual testing date was achieved using paired t-tests (alpha = 0.10).

Results and Discussion

There were significantly more aphids in the untreated control and Warrior II® treatments compared with the Sefina™ treatment on four residual testing dates (7, 10, 21, and 28 DAT; Figure 1). Few offspring were produced on plants treated with Sefina™, and aphids stayed on the treated leaflets. Sefina was an effective insecticide in this field-cage study. Treated leaflets have at least a 21-day residual.

Acknowledgements

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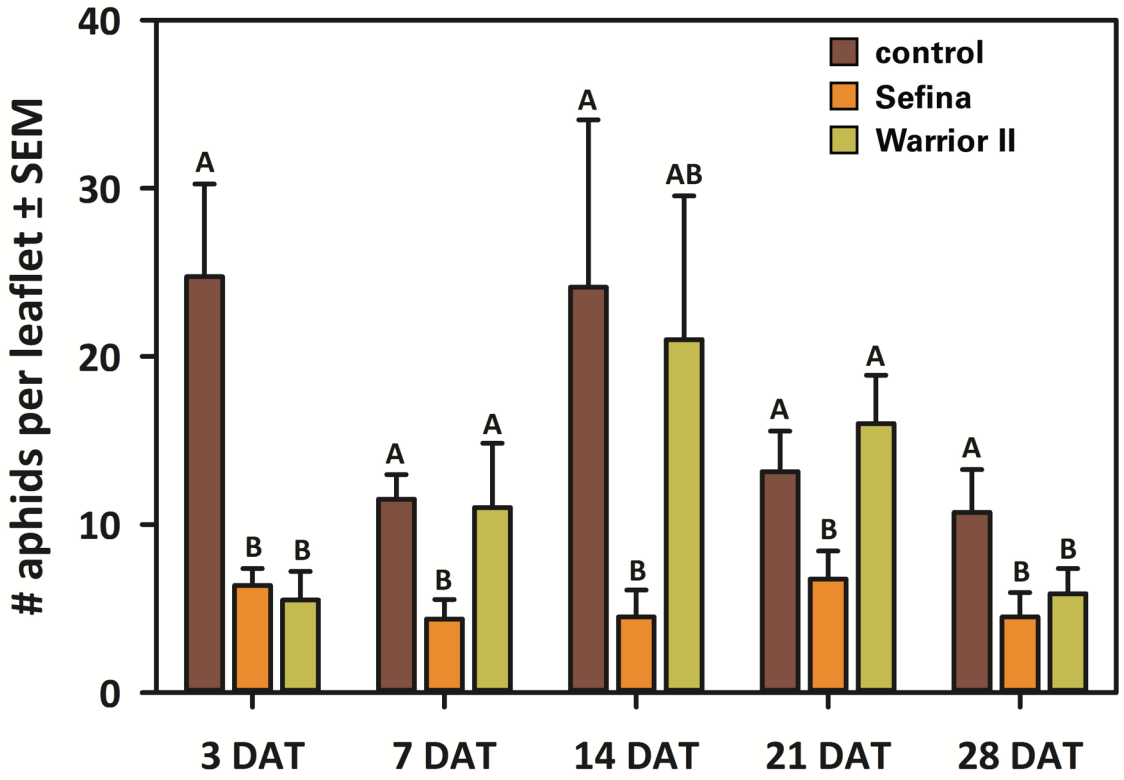

Figure 1. Comparison of soybean aphid densities for five residual testing dates (3, 7, 14, 21, and 28 days after treatment [DAT]) ± the standard error of the mean (SEM). Means with a unique letter are significantly different at alpha = 0.10.