

## Report

# Evaluation of Three Selected Insecticides Applied by Airplane to Large Fields of Soybeans

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Several insecticides were evaluated for control, duration of control, and rebound of pest species at Money, Mississippi on soybeans.

## Methods

Soybeans, *Glycine max* (L.) Merr., 'Delta King 4967,' were planted 13 April 2007. Plots were approximately 50 acres (20.2 hectares) being no less than 360 feet (110 m) wide (six airplane swaths). Within each plot four sample sites were identified by flags placed no closer than 200 feet (61 m) from the edge of any plot before treatments were made. The sample sites remained the same for the duration of the test. Sampling was done with 25 sweeps of a 15 inch (38 cm) diameter sweep net at each site starting on 25 July 2007 when the beans were just starting the R-5 stage of maturity. Insecticides were applied by airplane with 6 oz (177 mL) of Quadris in 5 gal (19 L) of total spray mixture per acre (hectare) on 28 July 2007. Rainfall was not measured at the site of the test, but little rain fell and temperatures reached at least 100 °F (38 °C) for several days in August. Center pivot irrigation occurred at least once a week and more frequently if possible during the test. Sweep netting was conducted and the numbers of six insects were tallied: green stinkbugs (Homoptera: Pentatomidae), brown stinkbugs (Homoptera: Pentatomidae), three-cornered alfalfa hopper (Homoptera: Membracida, *Spissistilus festinus* (Say)), bean leaf beetle (Coleoptera: Chrysomelidae, *Cerotoma trifurcata* (Förster)), grasshoppers (Orthoptera: Acrididae and Tettigoniidae), and loopers (Leptidoptera: Noctuidae).

## Results

All treatments gave good control of three-cornered alfalfa hoppers and kept the population below treatment levels until 18 days after treatment (DAT). The three-cornered alfalfa hopper population rebounded at 25 DAT in all treatments, but more so in the plots treated with Orthene. Excellent control of bean leaf beetles was obtained with all treatments, and only Baythroid, which initially had the highest population, slipped slightly below the 90% control level. Populations of bean leaf beetles were consistently lower in the pyrethroid plots than populations in the Orthene treated plots at 18 and 25 DAT. The pyrethroids gave only mediocre control of grasshoppers while Orthene gave an impressive display of grasshopper control. Field observations indicated that grasshopper nymphs were controlled by pyrethroids, but that adults were not. Populations of green stinkbugs, bean leaf beetles and loopers

increased after all treatments, but no trend can be seen that any insecticide influenced this increase more than any other insecticide.

**Table 1.** Sweep counts of selected insects from fields treated with the indicated insecticides.

Treatment	lb AI/ acre (g/h) <sup>2</sup>	Number of Three Cornered Alfalfa Hoppers/25 sweeps (standard deviation) <sup>1</sup>						
		Pre 7/25	4 DAT	11 DAT	18 DAT	25 DAT	32 DAT	39 DAT
Baythroid XL	0.02 (22g)	22.5(9.3)	0.8(0.5)	6.3(1.8)	6.3 (1.7)	12.3(4.2)	10.0(3.9)	8.8(3.3)
Mustang Max	0.02 (22g)	28.0(4.6)	3.5(1.7)	7.8(3.8)	10.3(3.8)	12.3(4.9)	10.3(3.0)	9.8(5.0)
Orthene 90s	0.9 (1kg)	18.5(4.5)	0.5(0.6)	4.3(5.9)	9..3(5.9)	18.5(11.5)	22.0(2.6)	2.0(1.4)

  

Treatment	lb (AI)/ acre (g/h) <sup>2</sup>	Number of Bean Leaf Beetles/25 sweeps (standard deviation) <sup>1</sup>						
		Pre 7/25	4 DAT	11 DAT	18 DAT	25 DAT	32 DAT	39 DAT
Baythroid XL	0.02 (22g)	22.0(9.0)	2.3(1.5)	10.3(12.1)	4.0 (4.3)	4.3(3.6)	1.5(1.8)	0.0(0)
Mustang Max	0.02 (22g)	16.0(7.8)	1.3(2.3)	4.8(2.4)	4.3(2.9)	3.8(3.8)	0.8(1.5)	0.0(0)
Orthene 90s	0.9 (1kg)	16.5(10.5)	0.3(0.5)	0.5(1.0)	15.5(2.1)	13(12.2)	1.0(1.2)	0.0(0)

  

Treatment	lb (AI)/ acre (g/h) <sup>2</sup>	Number of Grasshoppers/25 sweeps (standard deviation) <sup>1</sup>						
		Pre 7/25	4 DAT	11 DAT	18 DAT	25 DAT	32 DAT	39 DAT
Baythroid XL	0.02 (22g)	6.3(2.1)	2.3(2.6)	3.5(2.5)	3.5 (3.0)	1.3(1.0)	0.5(1.0)	5.5(3.0)
Mustang Max	0.02 (22g)	16.3(3.3)	3.8(1.3)	5.8(4.9)	6.5(3.0)	0.8(0.5)	2.5(0.6)	3.0(0.8)
Orthene 90s	0.9 (1kg)	8.8(1.5)	0.0(0)	0.0(0)	0.0(0)	0.0(0)	0.3(0.5)	1.5(1.9)

  

Treatment	lb (AI)/ acre (g/h) <sup>2</sup>	Number of Loopers/25 sweeps (standard deviation) <sup>1</sup>						
		Pre 7/25	4 DAT	11 DAT	18 DAT	25 DAT	32 DAT	39 DAT
Baythroid XL	0.02 (22g)	0.3(0.5)	0.0(0)	7.8(1.9)	7.3 (0.5)	3.8(2.2)	4.3(2.2)	0.5(1.0)
Mustang Max	0.02 (22g)	0.0(0)	0.0(0)	5.5(3.1)	6.3(2.5)	8.0(1.4)	10.8(3.1)	1.0(1.2)
Orthene 90s	0.9 (1kg)	0.0(0)	0.0(0)	4.3(2.9)	8.0(2.4)	10.3(6.1)	8.5(4.2)	1.5(1.9)

  

Treatment	lb (AI)/ acre (g/h) <sup>2</sup>	Number of Brown Stinkbugs/25 sweeps (standard deviation) <sup>1</sup>						
		Pre 7/25	4 DAT	11 DAT	18 DAT	25 DAT	32 DAT	39 DAT
Baythroid XL	0.02 (22g)	0.5(0.6)	0.0(0)	1.3(2.5)	1.0(1.4)	2.0(0.0)	3.5(3.9)	8.8(3.3)
Mustang Max	0.02 (22g)	0.0(0)	0.0(0)	0.8(1.0)	2.0(2.8)	2.8(1.9)	5.5(3.0)	9.8(5.0)
Orthene 90s	0.9 (1kg)	0.3(.5)	0.0(0)	0.5(1.0)	1.0(1.2)	0.5(0.6)	3.5(2.6)	2.0(1.4)

  

Treatment	lb (AI)/ acre (g/h) <sup>2</sup>	Number of Green Stinkbugs/25 sweeps (standard deviation) <sup>1</sup>						
		Pre 7/25	4 DAT	11 DAT	18 DAT	25 DAT	32 DAT	39 DAT
Baythroid XL	0.02 (22g)	0.0(0)	0.0(0)	0.0(0)	0.75(0.5)	2.0(0.8)	6.3(2.1)	8.5(1.9)
Mustang Max	0.02 (22g)	0.0(0)	0.25(0)	0.3(0.5)	0.5(0.6)	1.5(0.6)	6.3(6.1)	7.0(2.9)
Orthene 90s	0.9 (1kg)	0.3(0)	0.0(0)	0.0(0)	0.0(0)	1.0(1.2)	5.5(5.3)	3.0(2.3)

<sup>1</sup>Standard deviation of four samples of 25 sweeps

<sup>2</sup> Pounds active ingredient per acre (grams or kilograms active ingredient per hectare)

