

## Evaluation of Soybean Insecticide Seed Treatments. Beaumont, TX. 2003

P.I.: Dr. M.O. Way  
Technicians: M.S. Nunez and R.G. Wallace  
Graduate Students: L. Espino and B. Wolff  
Student Assistants: M. Aguillard, A. Brown, A. Easley, K. Jester, J. Lounsbery, J. Moore, J. Turner and M. Weiss  
Support: C.D. Tribble

### Introduction

The objective of this experiment was to evaluate selected soybean seed treatments for activity against early season pests of soybeans.

### Materials and Methods

The experiment was conducted at the Texas A&M University Agricultural Research and Extension Center at Beaumont in 2003. The experiment was designed as a randomized complete block with five treatments (see description of treatments in tables) and four replications. Plot size was 43 ft by four rows (30 inches between rows). Plots were planted 2 Jun with seed (soybean variety S73-Z5 RR) provided by Syngenta. Seeding rate was 8-10 seeds per linear foot of row. On 3 Jun, plots were sprayed with a tank-mix of First Rate at 0.75 oz/acre and Dual Magnum at 2 pt/acre. Soybeans emerged thought Morey Silt Loam (Typic Argiaquoll) soil 7 Jun. Ten days after emergence, plots were visually rated for vigor. Treatments were compared within each replication by assigning a 0 (least vigorous), 2 (most vigorous) or 1 (intermediate between 0 and 2) to each plot. On the same date, stand establishment was estimated for each plot by recording the no. of surviving, healthy plants per foot of row derived from four, 3 ft counts per plot. On 21 Jul when soybeans were R1, 10 plants from each plot were randomly removed and transported to the lab where the following plant characteristics and insect damage were recorded: 1) no. of nodes per plant, 2) height of each plant from base to uppermost node, and 3) sum of the no. of threecornered alfalfa hopper (TCAH) girdles per 10 plants. On 16 Oct when soybeans were R6/7, Karate CS was applied at 19 g (AI)/ha [0.017 lb (AI)/acre] to selected plots using a hand-held, three nozzle (tip size 800067, 50 mesh screens) spray rig pressurized with CO<sub>2</sub> (20-30 psi). Final spray volume was 28.8 gpa. Two days before, and 1 and 4 days after foliar treatment applications, each plot was sampled for arthropods using a 15 inch diameter sweep net. Twenty consecutive sweeps were taken in each plot. The contents of each 20 sweep sample were placed in a plastic bag, transported to the lab and frozen. At a later date, bags were thawed and the contents examined for arthropods (identified and counted). On 9 Nov, plots were harvested with a small combine. Yields were adjusted to 13% moisture. Seed quality was estimated for each plot using a visual rating system with 1 being excellent seed quality and 5 being very poor seed quality. Insect count data were transformed using  $\sqrt{x + 0.5}$  and all data analyzed by ANOVA and LSD.

## Results

The Cruiser 5FS and Gaucho 600FS treatments had significantly higher vigor ratings than the untreated (Table 1). The plots planted with insecticide-treated seed simply appeared more robust. Plant stands, no. of nodes per plant, plant height, no. of TCAH girdles per plant, yield and seed quality were not significantly different among all treatments in the experiment. Inspection of the plots 10 days after emergence revealed very little insect pressure. A few TCAH were observed in the plots. This is why TCAH girdles were counted. Basically, the results of the experiment are not very meaningful, because of very low insect pressure during early growth of soybeans.

In general, arthropod populations later in the season (relative to the foliar treatments with Karate CS) were very low or not significantly different among treatments. These arthropods included soybean looper, green cloverworm, velvetbean caterpillar, southern green stink bug, green stink bug, brown stink bug, TCAH, banded cucumber beetle, spotted cucumber beetle, grasshoppers, leafhoppers, assassin bugs and spiders.

**Table 1. Syngenta soybean insecticide treatments. Beaumont, TX. 2003.<sup>1</sup>**

Treatment/ Product name	Rate	Application method	Vigor rating	Stand estab.	Nodes/ plant	Plant height (cm)	TCAH girdles	Yield bu/A	Seed quality
Untreated	-	-	0.5b	6.2	12	58	5.5	29.0	3.0
Cruiser 5 FS	50 g (AI)/100 kg seed	Seed	1.8a	6.8	13	60	2.5	27.7	3.0
GaUCHO 600 FS	62.5 g (AI)/100 kg seed	Seed	1.8a	6.4	13	60	6.5	29.8	3.0
Cruiser 5 FS + Karate 2.08 CS	50 g (AI)/100 kg seed + 19.0 g (AI)/ha	Seed + foliar	1.5a	7.2	13	61	8.8	30.3	3.0
Karate 2.08 CS	19.0 g (AI)/ha	Foliar	0.5b	<u>6.5</u> NS	<u>13</u> NS	<u>59</u> NS	<u>5.8</u> NS	<u>28.6</u> NS	<u>3.0</u> NS

<sup>1</sup> **Vigor rating** recorded on June 17 (10 days after emergence). Treatments were compared within each rep and given a rating (0 = least vigorous, 2 = most vigorous, 1 = in between least and most). Means in this column followed by the same letter are not significantly different at the 5% level (ANOVA and LSD).

**Stand estab.** = stand establishment; number of surviving, healthy plants/foot of row derived from 4- 3 ft. counts/plot on June 17.

**Nodes/plant** = number of nodes per plant derived from 10 plants/plot on July 21 (all plants at growth stage V/R1).

**Plant height** = height of plant (cm) from base to uppermost node on July 21.

**TCAH girdles** = the sum of threecornered alfalfa hopper girdles recorded from 10 plants/plot on July 21.

**Yield (bu/A)** adjusted to 13% moisture and 60 lb/bu.

**Seed quality:** visual estimate (1.0 = excellent, 5.0 = very poor).