

Evaluation of Selected Insecticides for Control of Insect Pests of Soybeans. Beaumont, TX. 2003

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Introduction

Registration of new insect management tools for Texas soybean farmers requires a continual evaluation of novel insecticides for efficacy against soybean insect pests. The purpose of this experiment was to evaluate novel and standard insecticides for activity against the large array of insects attacking soybeans on the Texas Upper Gulf Coast.

Materials and Methods

The experiment was conducted at the Texas A&M University Agricultural Research and Extension Center at Beaumont in 2003. DP 7220 RR soybeans (Maturity Group VII) were planted into Levac soil on a 30 in. row width at 8-10 seeds per foot of row on 18 Jun. On the following day (19 Jun), First Rate @ 0.75 oz/A and Dual Magnum @ 2.5 pt/A were applied preemergence with a ground rig for early season weed control. Soybeans emerged to a good stand on 24 Jun. Plots were designated into eight row blocks and trimmed to 40 ft. long (0.018 acres). The experimental design was a randomized complete block with 14 treatments (see Tables for insecticides and rates) and four replications. Early season weed control was excellent and neither cultivation nor irrigation was required for the rest of the growing season.

On 4 Sep, 20 sweeps per plot with a 15 in. diameter sweep net were conducted to evaluate pretreatment insect populations. Lepidopteran larvae and stink bugs were present but only in low numbers. Contents of the sweep net were frozen and later identified and counted as time allowed. On 16 Sep, 20 sweeps were again collected. Lepidopteran larvae were noticeably on the increase (especially soybean looper) as well as stink bugs. Insecticide treatments were applied 3 days later on 19 Sep with a two person CO₂-pressurized spray boom (13- 80015 nozzles, 50 mesh screens, 22 ft. spray swath, 13 gpa). Soybeans were at R6 growth stage. Twenty sweeps were again collected on 22 Sep, 29 Sep and 6 Oct (3, 10, and 17 days following treatment), frozen, and later identified and counted to determine efficacy of the treatments. On 30 Oct, the two middle rows (40 ft. long) of each plot were harvested with an Almaco SPC20 plot combine. Yields were determined (adjusted to 13% moisture and 60 lb/bu) and seed quality assessed for each plot.

Results

Three days after treatment, Tracer provided excellent control of soybean looper (SL), green cloverworm (GCW) and velvetbean caterpillar (VBC) (Tables 1-3). Steward, regardless of rate, also provided excellent control of these three defoliating insects. Intrepid 2F at the high rate gave slightly better control of SL than at the low rate, but both rates performed equally well against GCW and VBC. Lannate LV provided excellent control of all three lepidopteran species. Karate Z, Orthene 90S, GF-317, Warrior and Asana XL did not perform well against SL 3 days after treatment, about 7 days later, Orthene 90S gave good control.

Most of the stink bugs collected in the experiment were southern green stink bug (SGSB) (Tables 5-13). At 3, 10 and 17 days after treatment, Karate Z, GF-317 and Warrior provided excellent control of SGSB nymphs and adults (Table 7). This long residual activity was somewhat unexpected. Populations of brown stink bug (BSB) were relatively low throughout the experiment, but data suggest that GF-317 performed better against BSB nymphs and adults than all other treatments (Tables 8-10). Populations of green stink bug (GSB) were too low and variable for meaningful interpretation of the data (Tables 11-13). When total phytophagous stink bugs (nymphs and adults) are considered, Karate Z, GF-317 and Warrior provided the best and longest-lasting control compared to the remaining treatments (Table 14).

Most of the threecornered alfalfa hoppers (TCAH) collected in the experiment were adults (Tables 15 and 16). Best control of TCAH (nymphs and adults) was provided by Karate Z, GF-317, Warrior and Asana XL (Table 17). Populations of cucumber beetles, grasshoppers, leafhoppers, assassin bugs and spiders were too low for meaningful evaluation (Tables 18-23).

Yield and seed quality were not significantly different among treatments (Table 24 and 25). This is surprising, given the above threshold populations of stink bugs recovered in untreated plots. However, pressure from lepidopteran larvae was lower than normal. Perhaps the DP 7220 RR variety is somewhat tolerant to stink bug injury.

Table 1. Mean no. soybean looper. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	2.5	7.8	2.3bcd	2.3abc	0.5
Intrepid 2F ^d	0.063 lb (AI)/acre	4.3	7.5	1.8bcd	1.5bcd	0
Tracer	0.063 lb (AI)/acre	3.3	6.8	0.5d	2.8abc	0.8
Lannate LV	0.400 lb (AI)/acre	1.3	5.3	1.3cd	0.3d	0
Karate Z	0.020 lb (AI)/acre	3.3	5.0	4.5ab	4.3a	0.8
Orthene 90S	1.0 lb product/acre	3.8	4.0	4.0ab	1.0cd	0
GF-317	3.8 fl oz/acre	2.3	5.3	4.0ab	2.8abc	1.0
Warrior	3.8 fl oz/acre	3.8	7.3	4.8ab	3.3ab	0.5
Steward	0.045 lb (AI)/acre	3.0	7.8	1.3cd	0.8cd	0
Steward	0.055 lb (AI)/acre	3.0	5.3	1.3cd	0.8cd	0
Steward	0.065 lb (AI)/acre	2.0	4.5	1.3cd	1.3bcd	0.3
Steward	0.075 lb (AI)/acre	2.5	4.3	1.0cd	0.5cd	0
Asana XL	0.036 lb (AI)/acre	4.3	6.8	2.8abc	2.5abc	0.3
Untreated	-	<u>2.0</u>	<u>2.5</u>	5.5a	4.8a	<u>0.8</u>
		NS	NS			NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 2. Mean no. velvetbean caterpillar. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.8	2.8	1.0b	0c	0.3
Intrepid 2F ^d	0.063 lb (AI)/acre	1.0	1.3	0.3b	0c	0
Tracer	0.063 lb (AI)/acre	0.5	1.3	0b	0c	0.3
Lannate LV	0.400 lb (AI)/acre	1.3	1.8	0b	0c	0
Karate Z	0.020 lb (AI)/acre	1.0	1.3	0.3b	0c	0
Orthene 90S	1.0 lb product/acre	0	1.8	0.3b	0.3bc	0
GF-317	3.8 fl oz/acre	0.8	1.5	1.5b	0.5abc	0
Warrior	3.8 fl oz/acre	0	1.0	0.8b	0c	0
Steward	0.045 lb (AI)/acre	0.3	1.0	1.0b	0.3bc	0
Steward	0.055 lb (AI)/acre	0.5	1.0	1.0b	1.5a	0.3
Steward	0.065 lb (AI)/acre	0.5	1.0	0.5b	1.0abc	2.8
Steward	0.075 lb (AI)/acre	0.5	2.3	0.8b	0.5abc	0.3
Asana XL	0.036 lb (AI)/acre	0.8	2.0	0.3b	0c	0
Untreated	-	<u>0</u>	<u>1.5</u>	4.3a	1.5ab	<u>0.8</u>
		NS	NS			NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 3. Mean no. green cloverworm. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	1.8	1.0	0.8bc	0b	0
Intrepid 2F ^d	0.063 lb (AI)/acre	2.0	0	0c	0b	0
Tracer	0.063 lb (AI)/acre	1.8	0.3	0c	0.3b	0
Lannate LV	0.400 lb (AI)/acre	1.3	1.5	0c	0.3b	0
Karate Z	0.020 lb (AI)/acre	1.8	3.0	1.0abc	0.3b	0
Orthene 90S	1.0 lb product/acre	2.0	0.5	1.3abc	0b	0.5
GF-317	3.8 fl oz/acre	1.5	0.8	2.0ab	0b	0
Warrior	3.8 fl oz/acre	1.3	0.5	0.8bc	0b	0.3
Steward	0.045 lb (AI)/acre	2.0	0.8	0.8bc	0.5b	0
Steward	0.055 lb (AI)/acre	1.8	0	0.3c	0b	0.3
Steward	0.065 lb (AI)/acre	1.3	0.8	0c	0.5b	0
Steward	0.075 lb (AI)/acre	2.0	0.5	0c	0b	0
Asana XL	0.036 lb (AI)/acre	2.8	0	0c	0.8b	0
Untreated	-	<u>2.3</u>	<u>0.5</u>	2.3a	3.3a	<u>0</u>
		NS	NS			NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 4. Mean no. lepidopterous larvae. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	5.0	11.5	4.0bcde	2.3bcd	0.8
Intrepid 2F ^d	0.063 lb (AI)/acre	7.3	8.8	2.0def	1.5cd	0
Tracer	0.063 lb (AI)/acre	5.5	8.3	0.5f	3.0bc	1.0
Lannate LV	0.400 lb (AI)/acre	3.8	8.5	1.3ef	0.5d	0
Karate Z	0.020 lb (AI)/acre	6.0	9.3	5.8bcd	4.5ab	0.8
Orthene 90S	1.0 lb product/acre	5.8	6.3	5.5bcd	1.3cd	0.5
GF-317	3.8 fl oz/acre	4.5	7.5	7.5ab	3.3bc	1.0
Warrior	3.8 fl oz/acre	5.0	8.8	6.3bc	3.3bc	0.8
Steward	0.045 lb (AI)/acre	5.3	9.5	3.0bcdef	1.5cd	0
Steward	0.055 lb (AI)/acre	5.3	6.3	2.5cdef	2.3bcd	0.5
Steward	0.065 lb (AI)/acre	3.8	6.3	1.8ef	2.8bcd	3.0
Steward	0.075 lb (AI)/acre	5.0	7.0	1.8ef	1.0cd	0.3
Asana XL	0.036 lb (AI)/acre	7.8	8.8	3.0bcdef	3.3bc	0.3
Untreated	-	<u>4.3</u>	<u>4.5</u>	12.0a	9.5a	<u>1.5</u>
		NS	NS			NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 5. Mean no. southern green stink bug nymphs. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.8	1.0	3.5ab	4.3abc	11.3a
Intrepid 2F ^d	0.063 lb (AI)/acre	0	2.0	5.0a	5.0ab	18.5a
Tracer	0.063 lb (AI)/acre	0.5	0.3	0.8ef	3.8abcd	14.8a
Lannate LV	0.400 lb (AI)/acre	0.3	1.0	3.5abc	2.3bcdef	8.8ab
Karate Z	0.020 lb (AI)/acre	0.3	1.5	0.8ef	0.5f	2.3bc
Orthene 90S	1.0 lb product/acre	0	2.0	0.5f	2.0cdef	10.5a
GF-317	3.8 fl oz/acre	0	1.0	0.8ef	0.8ef	1.3c
Warrior	3.8 fl oz/acre	0	1.3	1.0def	1.3def	2.5bc
Steward	0.045 lb (AI)/acre	0	1.0	2.3bcde	3.3abcd	16.3a
Steward	0.055 lb (AI)/acre	0.3	0.8	1.0def	2.8abcde	15.0a
Steward	0.065 lb (AI)/acre	0.3	1.5	1.5cdef	5.3a	18.0a
Steward	0.075 lb (AI)/acre	0	0.8	1.8bcde	3.0abcde	17.5a
Asana XL	0.036 lb (AI)/acre	0	1.5	2.5bcd	5.5a	13.0a
Untreated	-	<u>0.5</u>	<u>2.5</u>	2.8abcd	4.8ab	14.5a
		NS	NS			

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 6. Mean no. southern green stink bug adults. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.3	1.0	1.8ab	0.5	0.5
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3	1.0	3.0a	0.3	0.3
Tracer	0.063 lb (AI)/acre	0.3	1.3	2.8a	0.8	0
Lannate LV	0.400 lb (AI)/acre	0	1.3	1.3abc	1.3	0
Karate Z	0.020 lb (AI)/acre	0.3	1.0	0c	0.3	0
Orthene 90S	1.0 lb product/acre	0	0.5	0.8bc	0.5	0.3
GF-317	3.8 fl oz/acre	0	0	0c	0	0
Warrior	3.8 fl oz/acre	0.3	0.8	0c	0.8	0
Steward	0.045 lb (AI)/acre	0	1.3	1.5ab	0	0
Steward	0.055 lb (AI)/acre	0	0.8	1.0abc	0.5	0
Steward	0.065 lb (AI)/acre	0	0.3	1.0bc	0.3	0
Steward	0.075 lb (AI)/acre	0.3	0.3	0.5bc	0.5	0
Asana XL	0.036 lb (AI)/acre	0	0.5	0.8bc	0.8	0
Untreated	-	<u>0.3</u>	<u>0.3</u>	1.3abc	<u>0.8</u>	<u>0.3</u>
		NS	NS		NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 7. Mean no. southern green stink bug (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	1.0	2.0	5.3ab	4.8ab	11.8a
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3	3.0	8.0a	5.3ab	18.8a
Tracer	0.063 lb (AI)/acre	0.8	1.5	3.5bcd	4.5abc	14.8a
Lannate LV	0.400 lb (AI)/acre	0.3	2.3	4.8abc	3.5abc	8.8ab
Karate Z	0.020 lb (AI)/acre	0.5	2.5	0.8f	0.8d	2.3bc
Orthene 90S	1.0 lb product/acre	0	2.5	1.3def	2.5bcd	10.8a
GF-317	3.8 fl oz/acre	0	1.0	0.8f	0.8d	1.3c
Warrior	3.8 fl oz/acre	0.3	2.0	1.0ef	2.0cd	2.5bc
Steward	0.045 lb (AI)/acre	0	2.3	3.8bc	3.3abc	16.3a
Steward	0.055 lb (AI)/acre	0.3	1.5	2.0cdef	3.3abc	15.0a
Steward	0.065 lb (AI)/acre	0.3	1.8	2.5cdef	5.5a	18.0a
Steward	0.075 lb (AI)/acre	0.3	1.0	2.3bcde	3.5abc	17.5a
Asana XL	0.036 lb (AI)/acre	0	2.0	3.3bcde	6.3a	13.0a
Untreated	-	<u>0.8</u>	<u>2.8</u>	4.0bc	5.5ab	14.8a
		NS	NS			

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 8. Mean no. brown stink bug nymphs. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0	1.0	1.5	2.3	1.3
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3	2.5	3.3	3.5	3.3
Tracer	0.063 lb (AI)/acre	0	1.3	0.8	1.5	1.8
Lannate LV	0.400 lb (AI)/acre	0	0.8	0.5	0.8	2.5
Karate Z	0.020 lb (AI)/acre	0	0.5	0.3	1.3	0.8
Orthene 90S	1.0 lb product/acre	0	0.3	0.5	1.3	3.3
GF-317	3.8 fl oz/acre	0	1.8	0.5	0.5	0.3
Warrior	3.8 fl oz/acre	0	0.8	0.3	0.3	0.3
Steward	0.045 lb (AI)/acre	0.3	1.0	0.3	1.8	1.3
Steward	0.055 lb (AI)/acre	0.5	0.3	2.8	0.5	1.8
Steward	0.065 lb (AI)/acre	0	0.5	2.8	2.3	0
Steward	0.075 lb (AI)/acre	0	0.8	0	3.0	5.0
Asana XL	0.036 lb (AI)/acre	0	0.8	1.0	1.5	2.0
Untreated	-	<u>0.5</u>	<u>0.3</u>	<u>1.5</u>	<u>0.8</u>	<u>1.0</u>
		NS	NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 9. Mean no. brown stink bug adults. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.5	2.0	1.5	1.3	5.5
Intrepid 2F ^d	0.063 lb (AI)/acre	1.0	1.5	1.5	1.3	4.8
Tracer	0.063 lb (AI)/acre	1.0	1.3	1.3	1.3	4.8
Lannate LV	0.400 lb (AI)/acre	0.8	0.8	0.5	0.3	3.8
Karate Z	0.020 lb (AI)/acre	1.0	0.5	2.8	1.3	3.0
Orthene 90S	1.0 lb product/acre	0.3	0.8	0.3	0	3.3
GF-317	3.8 fl oz/acre	0.5	1.3	2.0	0.3	1.5
Warrior	3.8 fl oz/acre	0.8	0.5	2.3	0.8	2.8
Steward	0.045 lb (AI)/acre	1.8	0.3	0.5	1.3	3.5
Steward	0.055 lb (AI)/acre	1.3	0.8	1.0	1.8	4.0
Steward	0.065 lb (AI)/acre	2.0	1.3	1.0	1.0	7.5
Steward	0.075 lb (AI)/acre	1.0	1.0	2.0	1.5	1.5
Asana XL	0.036 lb (AI)/acre	1.3	0.3	0.8	0	4.0
Untreated	-	<u>1.0</u>	<u>0.3</u>	<u>1.3</u>	<u>1.0</u>	<u>5.3</u>
		NS	NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 10. Mean no. brown stink bug (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.5	3.0	3.0	3.5	6.8
Intrepid 2F ^d	0.063 lb (AI)/acre	1.3	4.0	4.8	4.8	8.0
Tracer	0.063 lb (AI)/acre	1.0	2.5	2.0	2.8	6.5
Lannate LV	0.400 lb (AI)/acre	0.8	1.5	1.0	1.0	6.3
Karate Z	0.020 lb (AI)/acre	1.0	1.0	3.0	2.5	3.8
Orthene 90S	1.0 lb product/acre	0.3	1.0	0.8	1.3	6.5
GF-317	3.8 fl oz/acre	0.5	3.0	2.5	0.8	1.8
Warrior	3.8 fl oz/acre	0.8	1.3	2.5	1.0	3.0
Steward	0.045 lb (AI)/acre	2.0	1.3	0.8	3.0	4.8
Steward	0.055 lb (AI)/acre	1.8	1.0	3.8	2.3	5.8
Steward	0.065 lb (AI)/acre	2.0	1.8	3.8	3.3	7.5
Steward	0.075 lb (AI)/acre	1.0	1.8	2.0	4.5	6.5
Asana XL	0.036 lb (AI)/acre	1.3	1.0	1.8	1.5	6.0
Untreated	-	<u>1.5</u>	<u>0.5</u>	<u>2.8</u>	<u>1.8</u>	<u>6.3</u>
		NS	NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 11. Mean no. green stink bug nymphs. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0	0	0	2.0	3.3
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3	0	0.5	2.8	2.8
Tracer	0.063 lb (AI)/acre	0	0	1.0	1.5	1.0
Lannate LV	0.400 lb (AI)/acre	0.5	0	0	1.0	4.0
Karate Z	0.020 lb (AI)/acre	0	0	0	0	1.0
Orthene 90S	1.0 lb product/acre	0.5	0	1.8	0	1.0
GF-317	3.8 fl oz/acre	0	0	0.3	0.5	1.0
Warrior	3.8 fl oz/acre	0	0.3	0	0	1.3
Steward	0.045 lb (AI)/acre	0	0	0	2.3	0.5
Steward	0.055 lb (AI)/acre	0	0	0.3	3.5	1.5
Steward	0.065 lb (AI)/acre	0	0	0.8	1.5	2.8
Steward	0.075 lb (AI)/acre	0	0	0.5	2.3	12.8
Asana XL	0.036 lb (AI)/acre	0.3	0	0	0.5	1.5
Untreated	-	<u>0</u>	<u>0</u>	<u>0.8</u>	<u>2.5</u>	<u>4.8</u>
		NS	NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 12. Mean no. green stink bug adults. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0b	0.3	1.3	0	0
Intrepid 2F ^d	0.063 lb (AI)/acre	0b	1.3	1.0	0.5	0.5
Tracer	0.063 lb (AI)/acre	0b	0.5	0.8	0.8	0.5
Lannate LV	0.400 lb (AI)/acre	0.8a	0	0	0	0.3
Karate Z	0.020 lb (AI)/acre	0.3b	0	0	0	0
Orthene 90S	1.0 lb product/acre	0b	0	1.0	0	0.3
GF-317	3.8 fl oz/acre	0b	0.3	0	0	0.3
Warrior	3.8 fl oz/acre	0b	0	0	0	0
Steward	0.045 lb (AI)/acre	0b	0	0	0	0
Steward	0.055 lb (AI)/acre	0b	0	0	0	0.5
Steward	0.065 lb (AI)/acre	0b	0	0	0	2.5
Steward	0.075 lb (AI)/acre	0.3b	0	0.3	0	0.3
Asana XL	0.036 lb (AI)/acre	0.3b	0	0	0	0.8
Untreated	-	0b	<u>0.3</u>	<u>2.0</u>	<u>0</u>	<u>0.3</u>
			NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 13. Mean no. green stink bug (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0b	0.3	1.3	2.0	3.3
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3b	1.3	1.5	3.3	3.3
Tracer	0.063 lb (AI)/acre	0b	0.5	1.8	2.3	1.5
Lannate LV	0.400 lb (AI)/acre	1.3a	0	0	1.0	4.3
Karate Z	0.020 lb (AI)/acre	0.3b	0	0	0	1.0
Orthene 90S	1.0 lb product/acre	0.5b	0	2.8	0	1.3
GF-317	3.8 fl oz/acre	0b	0.3	0.3	0.5	1.3
Warrior	3.8 fl oz/acre	0b	0.3	0	0	1.3
Steward	0.045 lb (AI)/acre	0b	0	0	2.3	0.5
Steward	0.055 lb (AI)/acre	0b	0	0.3	3.5	2.0
Steward	0.065 lb (AI)/acre	0b	0	0.8	1.5	5.3
Steward	0.075 lb (AI)/acre	0.3b	0	0.8	2.3	13.0
Asana XL	0.036 lb (AI)/acre	0.5b	0	0	0.5	2.3
Untreated	-	0b	<u>0.3</u>	<u>2.8</u>	<u>2.5</u>	<u>5.0</u>
			NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 14. Mean no. total phytophagous stink bugs. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	1.5	5.3	9.5ab	10.3ab	21.8a
Intrepid 2F ^d	0.063 lb (AI)/acre	1.8	8.3	14.3a	13.3a	30.0a
Tracer	0.063 lb (AI)/acre	1.8	4.5	7.3bc	9.5ab	22.8a
Lannate LV	0.400 lb (AI)/acre	2.3	3.8	5.8bcde	5.5bcd	19.3a
Karate Z	0.020 lb (AI)/acre	1.8	3.5	3.8cde	3.3d	7.0bc
Orthene 90S	1.0 lb product/acre	0.8	3.5	4.8cde	3.8cd	18.5ab
GF-317	3.8 fl oz/acre	0.5	4.3	3.5de	2.0d	4.3c
Warrior	3.8 fl oz/acre	1.0	3.5	3.5e	3.0d	6.8c
Steward	0.045 lb (AI)/acre	2.0	3.5	4.5cde	8.5abc	21.5ab
Steward	0.055 lb (AI)/acre	2.0	2.5	6.0bcde	9.0ab	22.8a
Steward	0.065 lb (AI)/acre	2.3	3.5	7.0bcd	10.3ab	30.8a
Steward	0.075 lb (AI)/acre	1.5	2.8	5.0bcde	10.3ab	37.0a
Asana XL	0.036 lb (AI)/acre	1.8	3.0	5.0bcde	8.3ab	21.3a
Untreated	-	<u>2.3</u>	<u>3.5</u>	9.5ab	9.8ab	26.0a
		NS	NS			

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 15. Mean no. threecornered alfalfa hopper nymphs. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0c	0.5	1.5	0.8	0
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3bc	0.5	1.3	0.5	0.3
Tracer	0.063 lb (AI)/acre	0c	0.3	0.3	1.3	0.5
Lannate LV	0.400 lb (AI)/acre	0c	0.5	0.8	0.3	0.8
Karate Z	0.020 lb (AI)/acre	0c	0.3	0.8	0	0
Orthene 90S	1.0 lb product/acre	0c	0.5	0.3	0	0
GF-317	3.8 fl oz/acre	0.3bc	1.5	0	0.3	0
Warrior	3.8 fl oz/acre	0c	0.3	0.3	0	0
Steward	0.045 lb (AI)/acre	0c	0	1.0	0.8	0.8
Steward	0.055 lb (AI)/acre	1.0a	2.0	0.5	0.8	0.3
Steward	0.065 lb (AI)/acre	0.3bc	1.3	0.8	0.8	0.3
Steward	0.075 lb (AI)/acre	0c	0.3	2.3	1.0	0.8
Asana XL	0.036 lb (AI)/acre	0c	1.8	0.3	0.8	0
Untreated	-	0.5ab	<u>0.3</u>	<u>0.8</u>	<u>1.3</u>	<u>0.8</u>
			NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 16. Mean no. threecornered alfalfa hopper adults. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	1.5	5.3ab	6.3ab	10.5	15.3abcd
Intrepid 2F ^d	0.063 lb (AI)/acre	1.3	0.3f	9.0a	4.5	23.3a
Tracer	0.063 lb (AI)/acre	2.8	3.5abcde	7.0bc	14.5	18.0ab
Lannate LV	0.400 lb (AI)/acre	2.3	4.5abc	2.3bcde	8.5	16.3abc
Karate Z	0.020 lb (AI)/acre	1.3	2.0bcdef	1.8cde	3.5	5.8cd
Orthene 90S	1.0 lb product/acre	2.3	1.3ef	1.5cde	5.3	10.0abcd
GF-317	3.8 fl oz/acre	2.5	2.3abcdef	2.3de	3.3	3.3d
Warrior	3.8 fl oz/acre	1.0	5.3a	3.3e	5.8	6.8bcd
Steward	0.045 lb (AI)/acre	1.8	2.0cdef	6.3cde	10.8	13.8abcd
Steward	0.055 lb (AI)/acre	2.8	0.3f	8.5bcde	8.8	22.5a
Steward	0.065 lb (AI)/acre	1.8	4.0abcd	6.3bcd	12.5	13.3abcd
Steward	0.075 lb (AI)/acre	2.3	4.8abc	8.5bcde	12.0	18.3abc
Asana XL	0.036 lb (AI)/acre	1.8	1.8def	1.8bcde	4.5	3.3d
Untreated	-	<u>2.5</u>	4.5abc	8.5ab	<u>9.5</u>	17.3abc
		NS			NS	

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 17. Mean no. threecornered alfalfa hopper (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	1.5	5.8	7.8abc	11.3	15.3abcd
Intrepid 2F ^d	0.063 lb (AI)/acre	1.5	0.8	10.3a	5.0	23.5a
Tracer	0.063 lb (AI)/acre	2.8	3.8	7.3abcd	15.8	18.5a
Lannate LV	0.400 lb (AI)/acre	2.3	5.0	3.0cde	8.8	17.0abc
Karate Z	0.020 lb (AI)/acre	1.3	2.3	2.5de	3.5	5.8cd
Orthene 90S	1.0 lb product/acre	2.3	1.8	1.8e	5.3	10.0abcd
GF-317	3.8 fl oz/acre	2.8	3.8	2.3cde	3.5	3.3d
Warrior	3.8 fl oz/acre	1.0	5.5	3.5bcde	5.8	6.8bcd
Steward	0.045 lb (AI)/acre	1.8	2.0	7.3abcd	11.5	14.5abcd
Steward	0.055 lb (AI)/acre	3.8	2.3	9.0abc	9.5	22.8a
Steward	0.065 lb (AI)/acre	2.0	5.3	7.0abcd	13.3	13.5abcd
Steward	0.075 lb (AI)/acre	2.3	5.0	10.8a	13.0	19.0abc
Asana XL	0.036 lb (AI)/acre	1.8	3.5	2.0e	5.3	3.3d
Untreated	-	<u>3.0</u>	<u>4.8</u>	9.3ab	<u>10.8</u>	18.0ab
		NS	NS		NS	

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 18. Mean no. banded cucumber beetle. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.3	0.3	0	0	0
Intrepid 2F ^d	0.063 lb (AI)/acre	0.8	0	0	0.3	0
Tracer	0.063 lb (AI)/acre	1.0	0.3	0	0.3	0
Lannate LV	0.400 lb (AI)/acre	0.5	0	0	0.3	0.3
Karate Z	0.020 lb (AI)/acre	0.5	0	0	0	0
Orthene 90S	1.0 lb product/acre	0.8	0	0	0.3	0
GF-317	3.8 fl oz/acre	0	0.3	0	0	0
Warrior	3.8 fl oz/acre	0.5	0.5	0	0.3	0
Steward	0.045 lb (AI)/acre	0.8	0.3	0	0	0.3
Steward	0.055 lb (AI)/acre	0	0	0	0.5	0
Steward	0.065 lb (AI)/acre	0.8	0	0	0	0
Steward	0.075 lb (AI)/acre	1.3	0	0	0	0.3
Asana XL	0.036 lb (AI)/acre	0.8	0	0.3	0	0
Untreated	-	<u>0.3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
		NS	NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 19. Mean no. spotted cucumber beetle. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0	0.5a	0	0	0
Intrepid 2F ^d	0.063 lb (AI)/acre	0	0b	0	0	0
Tracer	0.063 lb (AI)/acre	0.3	0b	0	0	0
Lannate LV	0.400 lb (AI)/acre	0	0.3ab	0	0	0
Karate Z	0.020 lb (AI)/acre	0	0b	0	0	0
Orthene 90S	1.0 lb product/acre	0	0b	0	0	0
GF-317	3.8 fl oz/acre	0	0b	0	0	0
Warrior	3.8 fl oz/acre	0	0b	0	0	0
Steward	0.045 lb (AI)/acre	0	0b	0	0	0
Steward	0.055 lb (AI)/acre	0	0b	0.3	0	0
Steward	0.065 lb (AI)/acre	0	0b	0	0	0
Steward	0.075 lb (AI)/acre	0.5	0b	0	0	0
Asana XL	0.036 lb (AI)/acre	0	0b	0	0	0
Untreated	-	<u>0</u>	0b	<u>0</u>	<u>0</u>	<u>0</u>
		NS		NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 20. Mean no. grasshoppers (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	1.0	0	7.0	0.5	1.5
Intrepid 2F ^d	0.063 lb (AI)/acre	1.0	0.5	1.0	0.3	0.3
Tracer	0.063 lb (AI)/acre	0.8	0.5	0.8	0.8	0.3
Lannate LV	0.400 lb (AI)/acre	0.5	0.8	0	0.3	1.8
Karate Z	0.020 lb (AI)/acre	0.8	0.5	0	0	1.0
Orthene 90S	1.0 lb product/acre	0.8	0	0	0.3	0.8
GF-317	3.8 fl oz/acre	1.0	1.0	0.8	0.3	0.3
Warrior	3.8 fl oz/acre	0.8	0.5	0.8	0	0.3
Steward	0.045 lb (AI)/acre	1.3	0.5	0.8	0.8	1.5
Steward	0.055 lb (AI)/acre	0.8	1.0	0.5	0.3	0.5
Steward	0.065 lb (AI)/acre	1.3	0.8	0	0.3	0
Steward	0.075 lb (AI)/acre	1.0	0.5	0.3	0	0.3
Asana XL	0.036 lb (AI)/acre	0.8	1.0	0.3	0.5	0.3
Untreated	-	<u>0.8</u>	<u>0</u>	<u>3.0</u>	<u>0.8</u>	<u>1.0</u>
		NS	NS	NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 21. Mean no. leafhoppers (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0	0b	0	0	0
Intrepid 2F ^d	0.063 lb (AI)/acre	0	0b	0.3	0	0
Tracer	0.063 lb (AI)/acre	0.3	0b	0	1.0	0
Lannate LV	0.400 lb (AI)/acre	0	0.3ab	0	0.3	0
Karate Z	0.020 lb (AI)/acre	0	0b	0	0	0
Orthene 90S	1.0 lb product/acre	0	0b	0	0	0
GF-317	3.8 fl oz/acre	0	0b	0	0	0
Warrior	3.8 fl oz/acre	0	0.5a	0.3	0	0
Steward	0.045 lb (AI)/acre	0	0b	0	0	0
Steward	0.055 lb (AI)/acre	0	0b	0	0	0
Steward	0.065 lb (AI)/acre	0	0b	0	0	0.5
Steward	0.075 lb (AI)/acre	0	0b	0.8	0	0.5
Asana XL	0.036 lb (AI)/acre	0	0b	0	0	0
Untreated	-	<u>0</u>	0b	<u>0.3</u>	<u>0</u>	<u>0.5</u>
		NS		NS	NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 22. Mean no. assassin bugs (nymphs + adults). MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	0.8	1.0	0.3	0.3	1.3abc
Intrepid 2F ^d	0.063 lb (AI)/acre	0.3	1.5	0.8	0	3.3bc
Tracer	0.063 lb (AI)/acre	0.5	0.8	1.0	1.5	1.8bc
Lannate LV	0.400 lb (AI)/acre	0.3	1.0	0	0.8	2.5c
Karate Z	0.020 lb (AI)/acre	0.8	0.3	0.3	1.3	0.8c
Orthene 90S	1.0 lb product/acre	0.5	0.5	0.3	1.3	3.3c
GF-317	3.8 fl oz/acre	1.3	0	0.3	0.5	0.3c
Warrior	3.8 fl oz/acre	0.3	0.3	0.5	0.3	0.3c
Steward	0.045 lb (AI)/acre	1.0	0.5	0.8	1.8	1.3a
Steward	0.055 lb (AI)/acre	0.3	0	1.8	0.5	1.8abc
Steward	0.065 lb (AI)/acre	0	0	1.0	2.3	0c
Steward	0.075 lb (AI)/acre	1.8	0.3	0.5	3.0	0.5bc
Asana XL	0.036 lb (AI)/acre	0.3	1.0	1.8	1.5	0.3bc
Untreated	-	<u>0.5</u>	<u>0.8</u>	<u>0</u>	<u>0.8</u>	1.3ab
		NS	NS	NS	NS	

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 23. Mean no. spiders. MGVII soybean insecticide test. Beaumont, TX. 2003

Treatment	Rate	Mean ^a no. per 20 sweeps				
		15dbt ^b	3dbt	3dat ^c	10dat	17dat
Intrepid 2F ^d	0.031 lb (AI)/acre	2.0	0	0b	0	0.5
Intrepid 2F ^d	0.063 lb (AI)/acre	0.8	0	0.3b	0.8	1.5
Tracer	0.063 lb (AI)/acre	2.0	0	0b	0	0.3
Lannate LV	0.400 lb (AI)/acre	1.3	0.5	0.8b	1.5	1.0
Karate Z	0.020 lb (AI)/acre	0.8	0.3	0.8b	0.3	0
Orthene 90S	1.0 lb product/acre	0.5	0.5	0b	0.8	0
GF-317	3.8 fl oz/acre	1.5	0.8	0b	0.3	0.3
Warrior	3.8 fl oz/acre	1.8	0	2.0a	0.5	0.3
Steward	0.045 lb (AI)/acre	0.5	0.5	0b	0.5	1.3
Steward	0.055 lb (AI)/acre	0.8	0	0b	0.8	0.3
Steward	0.065 lb (AI)/acre	2.0	0	0b	0	1.5
Steward	0.075 lb (AI)/acre	1.3	0	0b	0	0.8
Asana XL	0.036 lb (AI)/acre	1.0	0	0b	0	0.5
Untreated	-	<u>1.3</u>	<u>0.5</u>	0b	<u>0</u>	<u>2.0</u>
		NS	NS		NS	NS

^aMeans in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bdbt = days before treatment.

^cdat = days after treatment.

^dLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 24. Yield data for MGVII soybean insecticide screening test. Beaumont, TX. 2003

Treatment	Rate	Yield (bu/acre)				
		I	II	III	IV	O ^a
Intrepid 2F ^b	0.031 lb (AI)/acre	34.9	42.5	39.9	39.8	39.3
Intrepid 2F ^b	0.063 lb (AI)/acre	38.6	40.9	39.4	39.5	39.6
Tracer	0.063 lb (AI)/acre	39.6	37.0	35.7	44.4	39.2
Lannate LV	0.400 lb (AI)/acre	36.2	35.9	40.5	47.6	40.0
Karate Z	0.020 lb (AI)/acre	40.1	39.2	39.7	43.7	40.7
Orthene 90S	1.0 lb product/acre	40.6	39.9	39.5	44.5	41.1
GF-317	3.8 fl oz/acre	39.8	31.3	41.4	41.8	38.6
Warrior	3.8 fl oz/acre	40.3	39.7	34.5	42.5	39.3
Steward	0.045 lb (AI)/acre	35.8	36.5	42.2	41.3	39.0
Steward	0.055 lb (AI)/acre	38.2	38.9	39.0	46.2	40.6
Steward	0.065 lb (AI)/acre	39.3	42.1	39.0	45.2	41.4
Steward	0.075 lb (AI)/acre	41.2	38.9	38.4	47.0	41.4
Asana XL	0.036 lb (AI)/acre	40.9	38.2	37.6	44.7	40.3
Untreated	-	36.5	40.0	41.8	33.9	<u>38.0</u>
						NS

^aMeans in this column are not significantly (NS) different at the 5% level (ANOVA, LSD).

^bLatron CS-7 added to tank at 1.0 pt/100 gals.

Table 25. Seed quality data for MGVII soybean insecticide screening test. Beaumont, TX. 2003

Treatment	Rate	Seed quality (1-5) ^a				
		I	II	III	IV	O ^b
Intrepid 2F ^c	0.031 lb (AI)/acre	2.5	2.5	2.5	2.5	2.5
Intrepid 2F ^c	0.063 lb (AI)/acre	2.5	2.5	2.5	2.5	2.5
Tracer	0.063 lb (AI)/acre	2.5	2.5	2.5	2.5	2.5
Lannate LV	0.400 lb (AI)/acre	2.5	2.5	2.5	2.5	2.5
Karate Z	0.020 lb (AI)/acre	2.5	2.5	2.5	2.0	2.4
Orthene 90S	1.0 lb product/acre	2.5	2.5	2.5	2.5	2.5
GF-317	3.8 fl oz/acre	2.5	2.5	2.5	2.0	2.4
Warrior	3.8 fl oz/acre	2.0	2.5	2.0	2.5	2.3
Steward	0.045 lb (AI)/acre	2.5	2.5	2.5	2.0	2.4
Steward	0.055 lb (AI)/acre	2.5	2.5	2.5	2.0	2.4
Steward	0.065 lb (AI)/acre	2.0	2.0	2.5	2.5	2.3
Steward	0.075 lb (AI)/acre	2.5	3.0	2.5	2.0	2.5
Asana XL	0.036 lb (AI)/acre	2.5	2.5	2.5	2.0	2.4
Untreated	-	2.5	2.5	3.0	3.0	<u>2.8</u>
						NS

^aSeed quality (1-5): visual estimate, 1 = excellent, 5 = very poor.

^bMeans in this column are not significantly (NS) different at the 5% level (ANOVA, LSD).

^cLatron CS-7 added to tank at 1.0 pt/100 gals.