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Applied Research Report

Evaluation of Seed Treatments for Early Season Insect Control in Cotton

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Summary

A field trial was conducted to evaluate efficacy of cotton seed treatments for early season insect control. Both Gaucho Grande and Cruiser performed well and maintained control of thrips and aphids. No differences in yield were found.

Objectives

This trial was conducted to evaluate the efficacy of Cruiser and Gaucho Grande cotton seed treatments on early season pest insects.

Materials and Methods

A trial was planted on 4 April 2005 to evaluate early season pest insect control with Cruiser and Gaucho Grande cotton seed treatments. The variety DP&L 444BR was treated with Cruiser at 0.3 mg a.i./seed or Gaucho Grande at 12.8 fl. oz/cwt. Two treatments of treated seed were compared with an untreated variety from a different seed lot. The seeding rate was 3.5 seed per foot. Plot size was 6 field length rows with a 38 inch width. Row lengths varied from 200-500 feet.

Evaluations of pest insect populations were made on 18 and 27 April and 3 May by counting the number of thrips and aphids on 5 plants from each of two rows per plot. Plots were rated for damage on 3 May. Harvest occurred by hand picking two sub-samples of 13 feet of row.

Results

At 14 and 31 days after planting (DAP), both seed treatments were effective at reducing thrips numbers (Table 1). The seed treatments held aphid numbers well

below the untreated control at 14 and 23 DAP (Table 2). However, the Gaucho Grande treated plants were not different from the untreated at 31 DAP. Both seed treatments had less plant damage than the untreated plants at 31 DAP (Table 3). No differences occurred with respect to lint yield, loan value or gross return (Table 4)

Discussion

Both seed treatments held pest populations below economic thresholds. The lack of statistical differences in the thrips counts at 23 DAP can be explained by the high aphid population on the untreated plants. Plants with high aphid populations tend to have few thrips due to interspecies competition. This created increased variation in the data for this date resulting in a loss of significant difference between treatments.

While the Gaucho Grande treatment was not different from the untreated plots for aphid numbers at 31 DAP, the aphid populations were not high enough to cause concern.

While this trial did not show a statistical difference in lint yield, one problem with this test is that the seed for untreated treatment came from a different source and was from a different seed lot than the other seed. It is know that seed from different seed lots may have different yield potentials in some environments. Thus, the unresolved question is the effect of seed lot on yield in this trial.

Table 1. Number of thrips per 10 plants for seed treatments and untreated control.

			4/18/2005 <1 TL 14 DAP		4/27/2005 2 TL 23 DAP		5/3/2005 4 TL 31 DAP	
Untreated			10.5	a	35	a	46	a
Gaucho Grande	12.8	FL OZ/CWT	2	b	18.5	a	14.8	b
Cruiser	0.3	MG A/SEED	1.5	b	16	a	16.8	b
LSD (P=.10)			2.71		17.86		16.66	
Treatment Prob(F)			0.0011		0.1603		0.0186	

Table 2. Number of aphids per 10 plants for seed treatments and untreated control.

			4/18/2005 < 1 TL 14 DAP		4/27/2005 2 TL 23 DAP		5/3/2005 4 TL 31 DAP	
Untreated			20	a	372.3	a	38.5	a
Gaucho Grande	12.8	FL OZ/CWT	0.8	b	14.8	b	21.3	ab
Cruiser	0.3	MG A/SEED	1.8	b	16.5	b	5.3	b
LSD (P=.10)			9.21		317.01		22	
Treatment Prob(F)			0.0111		0.1141		0.0690	

Table 3. Damage ratings for seed treatments and untreated control.
(1 = no damage, 5 = plant death).

			5/3/2005 4 TL 31 DAP	
Untreated			4.13	a
Gaucho Grande	12.8	FL OZ/CWT	2.75	b
Cruiser	0.3	MG A/SEED	2.63	b
LSD (P=.10)			0.64	
Treatment Prob(F)			0.0068	

Table 4. Lint yield (lb/A), loan value ($/100 lbs) and lint value ($/A) for seed treatments and untreated control.

			Lint Yield lb/A 8/5/2005		Loan Value $/100LBS		Lint Value $/A	
Untreated			729	a	55.51	a	404.92	a
Gaucho Grande	12.8	FL OZ/CWT	772	a	56.14	a	433.10	a
Cruiser	0.3	MG A/SEED	785	a	56.59	a	443.37	a
LSD (P=.10)			80.24		2.87		39.66	
Treatment Prob(F)			0.4208		0.7742		0.2291	

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