CONTROL OF THE COTTON FLEAHOPPER (*PSALLUS SERALTUS*) IN SOUTH TEXAS WITH REGENT® BRAND INSECTICIDE

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Abstract

In 1994 and 1995, fipronil (Regent®) insecticide was applied in small plot evaluations to determine its effectiveness in controlling cotton fleahoppers. In 1994, under moderate insect pressure, Regent® at .038 and .05 lb ai/A performed as well as the commercial Curacron standard. There was no apparent rate response. In 1995, under lighter insect pressure, Regent® at .05 lb ai/A reduced the number of nymphs over both the untreated and the Orthene standard. The Regent® treatments showed a rate response over the entire trial with the .05 lb ai/A rate outperforming the .038 lb ai/A rate.

Introduction

Cotton fleahoppers (*Psallus seraltus*) are a primary early season pest throughout south Texas. Fleahoppers move from weeds (especially *Croton sp*.) to cotton in the early season. Both the adults and immatures attack young plants, feeding on tender vegetation and small squares. This can cause square loss and terminal damage that can result in abnormal growth, a delayed harvest and reduced yields.

Regent® is a new insecticide currently under development for use in cotton in the U.S. The active ingredient, fipronil, is the first of a new family of insecticides called phenylpyrazoles. This family works by interfering with the binding of GABA to its target site, causing hyperexcitement of the nervous system and subsequent death of the pest. It has shown excellent activity on a number of important cotton insects throughout the world, including boll weevils, thrips and plant bugs. Based on this activity, and the materials's apparent low impact on beneficials, we began evaluating Regent® against cotton fleahoppers in the Coastal bend of Texas near Corpus Christi. The results of two years of work are summarized in this paper.

Materials and Methods

The 1994 study was conducted in a commecial cotton field of DP&L 50 near Austwell, TX. The plots were 4 rows by 50 feet long on 38 inch rows, replicated 4 times in a randomized complete block design. The application was made with a CO2 backpack sprayer in 10 gallons of water per acre through TX003 nozzles at 40 PSI. No additional surfactant was used in this study. The cotton was planted on 4/16/94 and a single application was made on 6/2/94. In the week following application the plot received 9.7 inches of rain and the plants were completely submerged for approximately 24 hours on 6/10/94.

In 1995, the trials were put out on a commercial field of DP&L 50 near Tivoli, TX. The plots were 4 rows by 50 feet long on 38 inch rows, replicated 4 times in a randomized complete block design. The application was made with a CO2 backpack sprayer in 4.2 gallons of water peracre through TX002 nozzles at 40 PSI. No additional surfactant was used in this study. The cotton was planted on 5/9/95 and a single application was made on 6/15/95. The plot received 8.0 inches of rainfall in the next 12 days, but the plants were never submerged as in 1994.

In 1994, the treatments were rated by visually inspecting 25 terminals per plot. In 1994 ratings were made at 4, 7 and 11 DAT and in 1995 the plots were examined at 3, 7 and 14 DAT. The results were analyzed with Duncan's Multiple Range Test at the .05 level. The results are tabulated in Tables 1 and 2 below. In 1995, the total counts and nymphal counts were tabulated over four ratings (3, 7, 14 and 28 DAT) and are expressed as a season average over 25 terminals (Table 3).

Results and Discussion

In 1994, under moderate pest pressure, the Regent® treatments and the Curacron standard reduced the number of fleahopper nymphs per 25 terminals at both the 4 and 7 DAT ratings. This is exceptional performance in light of the heavy rainfall the day after application. By 11 DAT, there was no difference in nymphal populations (Table 1). The total fleahopper populations followed the same trends (Table 2). No rate response was evident with the Regent® treatments.

In 1995, the fleahopper populations were lighter. However, both Regent® rates reduced the number of nymphs as compared to the untreated. The .05 lb ai/A rate of Regent® also reduced the nymphal populations as compared to the commercial Orthene standard. Overall, all treatments reduced the total number of fleahoppers when compared tor the untreated over the entire season. There was a clear rate response between the Regent® treatments with the .05 lb ai/A outperforming the .038 lb ai/A rate.

Summary

Cotton fleahoppers are a frequently treated pest in south Texas cotton. Based on the two trials summarized above, Regent® at the .038 and .050 lb ai/A rates shows excellent promise as a control measure for this pest. Further work is

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necessary to look at the efficacy of lower rates of Regent® and to further quantify it's effect on beneficial insects.

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Table 1. Control of Cotton Fleahoppers nymphs with insecticides in South Texas - 1994

Treatment (lb ai/A) terminals	Fleahoppers 4 DAT	nymphs 7 DAT	per 25 11 DAT
UTC	6.0a	6.8a	8.0a
Regent® 80 WG (.038)	0.0b	0.8b	8.3a
Regent® 80 WG (.050)	0.3b	1.3b	5.0a
Curacron (0.25)	0.3b	1.0b	7.5a

Numbers with the same letters beside them are not significantly different using DMRT at the .05 confidence level

Table 2. Control of Cotton Fleahoppers with insecticides in South Texas - 1994

Treatment (lb ai/A)	Total fleahoppers per 25 terminals		
	4 DAT	7 DAT	11 DAT
UTC	22.0a	11.8a	21.8a
Regent® 80 WG (.038)	1.0b	5.3b	26.3a
Regent® 80 WG (.050)	1.3b	4.3b	17.5a
Curacron (0.25)	2.3b	4.5b	16.5a

Numbers with the same letters beside them are not significantly different using DMRT at the .05 confidence level

Table 3. Control of Cotton Fleahoppers with insecticides in South Texas - 1995

Treatment (lb ai/A)	Season average per 25 terminals	
	Nymphs	Total
UTC	5.4a	13.8a
Regent® 80 WG (.038)	3.4bc	7.6b
Regent® 80 WG (.050)	1.8c	4.8c
Orthene 75WP (0.2)	3.8ab	6.6bc

Numbers with the same letters beside them are not significantly different using DMRT at the .05 confidence level