MANAGEMENT OF THE TARNISHED PLANT BUG, *LYGUS LINEOLARIS*, WITH TRADITIONAL AND NEW INSECTICIDES

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Abstract

Selected insecticides were evaluated in 1999 for efficacy against the tarnished plant bug in three studies. Traditional insecticides used for plant bug control such as Orthene (acephate), Bidrin (dicrotophos), and Vydate provided good control in late-season studies. Newer insecticides such as Steward (indoxacarb), Regent (fipronil), and Actara (thiamethaoxam) provided control of plant bugs equal to traditional insecticides.

Introduction

The tarnished plant bug, *Lygus lineolaris*, is the predominant plant bug specie in Arkansas and is considered an economical pest of cotton. In recent years insecticide resistance or tolerance has been observed with the tarnished plant bug to all traditional classes of insecticides, including organophosphates, pyrethroids, and cyclodienes (to varying degrees) in Arkansas and Mississippi (Hollingsworth et. al., 1997, Snodgrass, 1996).

The objective of these studies was to evaluate the efficacy of traditional and new insecticides for the control of the tarnished plant bug in cotton.

Materials and Methods

Three small plot studies were conducted in 1999. Two of the studies were conducted in grower fields planted to DPL NuCotn 33B, in Jefferson Co., AR, another study was conducted in Lonoke Co. in a field planted to Paymaster 1220 BG RR. A randomized complete block design with 4 replications was used on all studies. In both Jefferson Co. studies a JD Hi-cycle sprayer was used delivering 8.5 GPA. A tractor mounted sprayer was used in the Lonoke Co. study delivering 10 GPA. Treatment dates were 3 Aug at Jefferson Co. and 13 Aug for Lonoke Co. Counts were taken 3 days after treatment with shake sheets. A total of 12 row feet was counted in the Jefferson County studies while 18 row feet were counted at Lonoke County. Data were subjected to analysis of variance and mean separation.

Results and Discussion

In the first study (Table 1) no significant differences were observed for all treatments for the number of adult plant bugs. However, differences did occur among treatments for immature plant bugs. Bidrin (dicrotophos) 0.5 lb/ A, Leverage (cyfluthrin and imidicloprid) 3.75 oz/ A, and Steward (indoxacarb) 0.065 lb/ A had significantly fewer immature plant bugs than both of the controls. In the second Jefferson Co. study (Table 2), no differences were observed between treatments for adults. However, nymphal counts indicated that all treatments with the exception of Regent (fipronil) at the 0.038 lb/ A rate were significantly lower than the control. Total plant bug counts indicated a similar trend. In the Lonoke Co. study all treatments were significantly lower than the control and all treatments with the exception of Tracer (spinsosad) had lower nymphal counts than Pirate (chlorfenapyr). Adult counts indicated that Tracer, Karate (cyhalothrin), and Pirate treatments were not significantly different than the untreated control. Total plant bug counts indicated all treatments were significantly lower than the check. Steward at the 0.09 lb/ A rate appeared to provide adequate control of plant bugs in all three studies. Regent performed to standards in the first two studies at the 0.05 lb/ A rate, although the 0.038 lb/ A rate in the second study was not statistically different than the check. The new formulation of Orthene (acephate) (97% ai) in the second study reduced plant bug numbers equal to or better than most treatments. Leverage, Provado, and Actara (thiamethaoxam) were also equal to or better than standard treatments.

References

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Table 1. Control of plant bugs in cotton with selected insecticides. Jefferson Co., AR. 1999.

		Mean Per 12 row ft[1]	
Treatment	**Rate/Acre**	**Imm. PB**	**Adult PB**
Regent	0.038 lb	6.5 ab	1.0 a
Regent	0.05 lb	4.0 ab	0.0 a
Bidrin	0.5 lb	1.3 b	0.3 a
Provado	0.047 lb	7.0 ab	1.0 a
Leverage	3.75 oz	1.8 b	0.3 a
Actara	0.062 lb	7.3 ab	1.8 a
Steward[2]	0.065 lb	2.3 b	0.3 a
Steward[2]	0.09 lb	3.5 ab	1.0 a
Untreated 1		16.0 a	1.3 a
Steward[2]	0.11 lb	5.5 ab	0.3 a
Denim	0.01 lb	8.0 ab	0.5 a
Untreated 2		16.3 a	1.3 a

[1]Means followed by the same letter are not significantly different (P=0.05).
[2]All Steward treatments had surfactant Dyne-Amic added at 0.5% v/v.

Table 2. Control of plant bugs in cotton with selected insecticides. Jefferson Co., AR. 1999.

	Rate	Mean Per 12 row ft[1]		
Treatment	**lb ai/Acre**	**Imm. PB**	**Adult PB**	**Tot. PB**
Regent	0.038	15.00 a	1.25 a	16.25 ab
Regent	0.05	3.75 b	1.75 a	5.50 bc
Provado	0.047	5.25 b	1.25 a	6.50 bc
Steward[2]	0.09	2.50 b	0.75 a	3.25 c
Steward[2]	0.11	6.75 b	0.75 a	7.50 bc
Vydate	0.33	4.00 b	0.00 a	4.00 c
Orthene 97	0.25	4.75 b	0.75 a	5.50 bc
Orthene 97	0.50	4.25 b	0.25 a	4.50 c
Untreated		16.75 a	2.25 a	19.00 a

[1]Means followed by the same letter are not significantly different (P=0.05).
[2]All Steward treatments had surfactant Dyne-Amic added at 0.5% v/v.

Table 3. Control of plant bugs in cotton with selected insecticies.
Lonoke Co., AR. 1999.

	Rate	Mean Per 18 row ft[1]		
Treatment	**lb ai/Acre**	**Imm. PB**	**Adult PB**	**Tot. PB**
Steward[2]	0.09	5.60 c	0.0 b	5.60 c
Steward[2]	0.09	5.60 c	0.0 b	5.60 c
Steward	0.11	5.60 c	4.2 b	9.70 c
Vydate	0.25	5.60 c	7.0 b	12.50 c
Tracer	0.08	12.50 bc	22.3 a	34.80 b
Karate	0.028	2.80 c	16.7 ab	19.50 bc
Orthene	0.50	1.40 c	2.8 b	4.20 c
Pirate	0.35	19.50 b	20.9 a	40.30 c
Untreated		33.30 a	36.2 a	69.50 a

[1]Means followed by the same letter are not significantly different (P=0.05).
[2] Steward treatments had surfactant Dyne-Amic added at 0.5% v/v.