

EFFICACY OF SELECTED INSECTICIDES FOR CONTROL OF TARNISHED PLANT BUG IN ARKANSAS, 2004

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Abstract

Three studies were conducted to evaluate selected insecticides for efficacy against tarnished plant bugs. The studies were conducted in Lonoke and Woodruff Counties in Arkansas during the 2004 growing season. Studies indicated considerable variations in levels of control.

Introduction

Tarnished Plant Bugs are troublesome pest in cotton (Hollingsworth et. al, 1995; Kharboutli et. al, 1998; Robbins et. al 1998). Plant bugs feed on a variety of plant fruiting structures including squares, blooms and bolls. Typically they damage young squares by puncturing and feeding on the tissue. In white flowers the damage will cause a “dirty” appearance by feeding on the anther of the bloom. When plant bugs feed on young bolls they puncture the boll wall which can result in damaged lint and seed. Boll feeding usually results in the formation of wart-like scars and causes off color lint.

Methods and Materials

Test one was conducted on Chappell Farms, Woodruff County, Arkansas. The study was conducted in a grower field planted with Paymaster 960 RR. Plot size was four rows by 50 ft. Plots were sprayed with a Multi-Task spray tractor at 9.7 GPA using compressed air on July 22, 2004. Observations were made on July 26 (4 DAT), and July 30 (8 DAT) using a beat cloth. Two samples were taken in each plot for a total of 10 row feet.

Test two was conducted at Brantley farms, Lonoke County, Arkansas. The Variety of cotton was DPL 444 BRR, planted on May, 10. Plots size was four rows by 50 ft. Each plot was sprayed with a Multi-Task spray tractor at 9.7 GPA using compressed air on June 28, and July 7, 2004. Observations were conducted on July 1 (3 DAT), 7 (8 DAT), 9 (2 DAT), and 14 (7 DAT) using a beat cloth. Two samples were taken in each plot for a total of 10 row feet.

Test three was conducted at the same location as Test two on Brantley farms, Lonoke County, Arkansas. The cotton was mowed, fertilized, and watered on July 21, 2004. Plot size was four rows by 50 ft. Each plot was sprayed with a hand boom system using compressed CO2 delivery on August 31, and September 10, 2004. The boom was fitted with TX6 hollow cone nozzles at 20in. spacing. Spray volume was 9 GPA, at 45 PSI. Data was collected on September 3 (3 DAT), 7 (7 DAT), 10 (10 DAT), 13 (3 DAT), and 17 (7 DAT) using a beat cloth. Each plot was sampled twice for a total of 10 row feet.

Results and Discussion

Test1

The results of Test 1 (Table 1) indicated at 4 DAT that only Trimax at 1.5 oz and Orthene had significantly fewer plant bugs than the untreated check. At 8 DAT Intruder at 0.6 oz/a, Vydate, Trimax at 1 oz/a, Bidrin, and Diamond at 6 oz/a had significantly fewer plant bugs than the untreated check.

Test 2

In Test 2 (Table 2), following the initial application very little difference was observed between all treatments. After the second application at 2 DAT the untreated check had significantly more plant bugs compared to the Vydate and the Centric at 0.031 lb ai/a. At 7 DAT of the second application, all treatments had significantly fewer plant bugs than the untreated check with the exception of Intruder + Vydate.

Test 3

In Test 3 (Table 3) following the initial application at 3 DAT, all treatments had significantly fewer plant bugs than the untreated check with Diamond at 0.039 lb ai/a and Karate Z having significantly more plant bugs than all other treatments. At 7 DAT of the first application, all treatments had fewer plant bugs than the untreated check with the exception of Karate Z. Bidrin and Diamond + Bidrin had significantly fewer plant bugs than the low rate of KN-128. At 10 DAT only Vydate + Intruder, Bidrin, Orhtene, and Diamond + Bidrin had fewer plant bugs than the untreated check. Following the second application, at 3 DAT, Karate Z and the untreated check had significantly more plant bugs compared to all other treatments. The same trend was observed at 7 DAT.

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References

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Table 1. Summary of results of Test 1 Per 10 row feet, Wodruff, County AR, 2004

Trt No.	Treatment Name	Rate	Rate Unit	(4 DAT)		(8 DAT)		Seasonal Totals	
1	INTRUDER COC	0.4 1	oz/a pt/a	6.5	a	5	ab	11.5	ab
2	INTRUDER COC	0.6 1	oz/a pt/a	6	ab	2.5	bc	8.5	abc
3	CENTRIC	1.25	oz/a	3	abc	3.75	abc	6.75	bc
4	VYDATE C-LV	0.31	lb ai/a	4.5	abc	2.25	bc	6.75	bc
5	VYDATE C-LV INTRUDER	0.25 0.4	lb ai/a oz/a	3	abc	4	abc	7	bc
6	TRIMAX	1.5	oz/a	1.75	c	3.75	abc	5.5	c
7	TRIMAX	1	oz/a	4.5	abc	2.75	bc	7.25	bc
8	LEVERAGE	3.75	oz/a	2.75	abc	4.5	abc	7.25	bc
9	DIAMOND	6	oz/a	3	abc	1.75	c	4.75	c
10	ORTHENE	0.33	lb ai/a	2.25	bc	3.75	abc	6	c
11	BIDRIN	0.33	lb ai/a	2.75	abc	2	c	4.75	c

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12	Untreated Check		6.5	a	5.75	a	12.25	a
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Table 2. Summary of results of Test 1 Per 10 row feet, Lonoke, County AR, 2004

Trt No.	Treatment Name	Rate	Rate Unit	3 DAT	8 DAT	2 DAT	7 DAT	Seasonal Total
1	INTRUDER COC	0.033 1	lb ai/a pt/a	0.5 ab	2 b	0.75 abc	3.5 b	6.75 bc
2	INTRUDER COC	0.039 1	lb ai/a pt/a	0.75 ab	3.5 ab	2.25 ab	3 b	9.5 bc
3	INTRUDER COC	0.05 1	lb ai/a pt/a	0 b	3.25 ab	0.75 abc	4.5 b	8.5 bc
4	INTRUDER VYDATE C-LV COC	0.018 0.25 1	lb ai/a lb ai/a pt/a	0.5 ab	4.5 ab	1.75 abc	5.5 ab	12.25 ab
5	INTRUDER VYDATE C-LV COC	0.025 0.25 1	lb ai/a lb ai/a pt/a	0.25 ab	3.25 ab	1.25 abc	2.75 b	7.5 bc
6	VYDATE C-LV COC	0.25 1	lb ai/a pt/a	0.75 ab	3.75 ab	0.25 bc	2.5 b	7.25 bc
7	CENTRIC	0.031	lb ai/a	0.25 ab	6 a	0 c	2 b	8.25 bc
8	CENTRIC	0.037	lb ai/a	0.25 ab	3.5 ab	1.25 abc	2.75 b	7.75 bc
9	CENTRIC	0.05	lb ai/a	0.25 ab	2.5 ab	0.75 abc	2.75 b	6.25 c
10	TRIMAX	1.5	oz/a	0.5 ab	3.75 ab	1.5 abc	3.75 b	9.5 bc
11	DIAMOND	6	oz/a	0.5 ab	4.25 ab	0.75 abc	3.75 b	9.25 bc
12	CHECK			1.25 a	3.75 ab	2.75 a	8.25 a	16 a

Table 3. Summary of results of Test 1 Per 10 row feet, Lonoke, County AR, 2004

Trt No.	Treatment Name	Rate	Rate Unit	(3DAT)	(7DAT)	(10DAT)	(3DAT)	(7DAT)	Seasonal Total TPB
1	STEWARD	0.09	lb ai/a	2.5 c	10.8 bc	28 ab	3.25 d	9.5 c	54 bcd
2	STEWARD	0.104	lb ai/a	6 c	9.25 bc	21 abc	6 cd	9.75 c	52 bcd
3	KN-128	0.09	lb ai/a	5 c	13.5 b	27.3 ab	5.75 cd	10 c	61.5 bc
4	KN-128	0.104	lb ai/a	3.5 c	9.5 bc	19.3 abc	4.75 cd	3.75 c	40.8 b-e
5	VYDATE	0.31	lb ai/a	2.5 c	6.25 bc	27 ab	3 d	5.5 c	44.3 b-e
6	VYDATE	0.31	lb ai/a	5 c	7.5 bc	16.3 bc	3 d	6 c	37.8 cde
	INTRUDER	0.018	lb ai/a						
7	BIDRIN	0.5	lb ai/a	2 c	4 c	18.5 bc	1 d	2.5 c	28 de
8	ORTHENE	0.5	lb ai/a	2.5 c	3.75 c	13 c	2.5 d	2 c	23.8 e
9	DIAMOND	0.039	lb ai/a	12 b	14.5 b	20.3 abc	10.5 c	8.25 c	65.5 b
10	DIAMOND	0.039	lb ai/a	1 c	5 c	11 c	0.75 d	1.75 c	19.5 e
	BIDRIN	0.5	lb ai/a						
11	KARATE Z	0.033	lb ai/a	13.8 b	29.8 a	28.3 ab	39.5 a	45 a	156 a
12	UTC			31.5 a	36 a	31.3 a	32.5 b	26 b	157 a