EVALUATION OF EARLY SEASON APPLICATIONS OF INSECTICIDE ON COTTON

Jack T. Reed, D. Bao, and C. S. Jackson

Department of Entomology & Plant Pathology; Mississippi State University; Mississippi State, 39762

ABSTRACT: Three scheduled applications of Trimax (imidacloprid), Bidrin (dicrotophos), Orthene (acephate) and Vydate (oxamyl) were applied to cotton to evaluate efficacy on thrips and other early season pests. In this trial, only thrips were present in sufficient numbers to provide statistical differences between the insecticide treatments and the untreated check. Tobacco thrips were the dominant species and were present at moderately high numbers at the beginning of the trial. No treatment reduced thrips numbers below threshold (1 thrips per plant), even after 3 applications. There was a trend for increased efficacy of Trimax at the higher application rate of 1.5 oz per ac compared with the lower rate. There were no significant differences within the 7 week period of sampling in any of the following insect parameters: heliothine eggs, heliothine larvae in squares, bolls or terminals, heliothine damaged terminals or squares, tarnished plant bug adults or nymphs per 25 sweeps, aphids per 5 leaves, shed squares, or yield.

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MATERIALS AND METHODS: Cotton, variety ST4892 BG/RR, was planted at the Plant Science North Farm at Mississippi State, MS, on 5/09/02 at a rate of 3 seed per ft. No insecticide was used on the seed or in-furrow at the time of planting. Plots were 4 rows wide and 50 ft long with a 10 foot buffer at the end of each plot and 4 rows of untreated cotton between each plot. Row spacing was 38 in. The insecticide applications were made 6/5/02, 6/19/02 and 7/10/02 with a high clearance plot spray tractor equipped with a compressed air spray system and Spray Systems TX4 nozzles spaced at 19 in. The experimental design was randomized complete block. The volumetric application rate was 10 gal/ac applied at 40 psi and 2.0 mph. Thrips were sampled by cutting 5 plants from the center 2 rows of each plot, transporting the plants in sealed plastic bags to the laboratory, washing the thrips onto filter paper for identification and counting by use of a microscope. Beneficial insects and tarnished plant bugs were sampled weekly by sweeping 25 times with a 15 in diameter sweep net. Twenty-five terminals, squares and bolls (if present) were examined for heliothine larvae and damage. Aphid populations were monitored by counting the number of aphids per 5 leaves located at about the fourth node down from the terminal on randomly chosen plants. Yield was estimated by harvesting the cotton from the center 2 rows by machine.

RESULTS AND DISCUSSION: Only thrips were present in sufficient numbers to provide statistical differences between the insecticide treatments and the untreated check. Tobacco thrips were the dominant species and were present at moderately high numbers at the beginning of the trial. No treatment reduced thrips numbers below threshold (1 thrips per plant), even after 3

applications. There was a trend for increased efficacy of Trimax at the higher application rate of 1.5 oz per ac compared with the lower rate. There were no significant differences within the 7 week period of sampling in any of the following insect parameters: heliothine eggs, heliothine larvae in squares, bolls or terminals, heliothine damaged terminals, squares or bolls, tarnished plant bug adults or nymphs per 25 sweeps, aphids per 5 leaves, shed squares, or yield. Thrips sample data and yield results are presented in Tables 1 and 2.

Table 1. Mean thrips per 5 plants on 4 sample dates.

		Tobacco Thrips	**Eastern Flower Thrips**	**Western Flower Thrips**	**Immature Thrips**
Treatment	Rate	5/30/02	5/30/02	5/30/02	5/30/02
UNTREATED		7.3 a	0.0 a	0.0 a	40.5 a
TRIMAX	1 FL OZ/A	4.8 a	0.0 a	0.0 a	32.0 a
TRIMAX	1.5 FL OZ/A	7.0 a	0.3 a	0.0 a	35.0 a
BIDRIN	0.25 LB A/A	9.3 a	0.0 a	0.0 a	44.3 a
ORTHENE	0.25 LB A/A	8.0 a	0.0 a	0.0 a	32.5 a
VYDATE CLV	0.25 LB A/A	7.8 a	0.0 a	0.0 a	37.0 a
LSD (P=.05)		6.87	0.31	0.00	32.21
Prob(F)		0.8233	0.4509	1.0000	0.9577
		6/6/02	6/6/02	6/6/02	6/6/02
UNTREATED		3.3 a	0.0 a	0.3 a	43.5 a
TRIMAX	1 FL OZ/A	4.3 a	0.3 a	1.0 a	32.5 ab
TRIMAX	1.5 FL OZ/A	3.0 a	0.3 a	0.0 a	8.3 b
BIDRIN	0.25 LB A/A	3.8 a	0.5 a	0.5 a	6.5 b
ORTHENE	0.25 LB A/A	1.5 a	0.0 a	0.0 a	9.8 b
VYDATE CLV	0.25 LB A/A	4.0 a	0.0 a	0.3 a	11.5 b
LSD (P=.05)		4.25	0.62	1.32	29.56
Prob(F)		0.7742	0.4509	0.6059	0.0787
		6/21/02	6/21/02	6/21/02	6/21/02
UNTREATED		2.3 a	0.8 a	1.5 a	22.5 a
TRIMAX	1 FL OZ/A	2.3 a	0.3 b	1.3 a	10.5 b
TRIMAX	1.5 FL OZ/A	1.5 ab	0.3 b	1.0 a	11.0 b
BIDRIN	0.25 LB A/A	1.3 ab	0.0 b	0.0 a	1.5 b
ORTHENE	0.25 LB A/A	0.3 b	0.0 b	0.3 a	1.8 b
VYDATE CLV	0.25 LB A/A	2.3 a	0.0 b	0.0 a	4.8 b
LSD (P=.05)		1.75	0.47	1.94	10.82
Prob(F)		0.1535	0.0266	0.4167	0.0075
		7/14/02	7/14/02	7/14/02	7/14/02
UNTREATED		6.3 bc	0.3 a	0.0 a	12.8 a
TRIMAX	1 FL OZ/A	8.5 ab	0.5 a	0.0 a	3.5 b
TRIMAX	1.5 FL OZ/A	11.3 a	0.0 a	0.0 a	2.3 b
BIDRIN	0.25 LB A/A	5.5 bc	0.3 a	0.0 a	3.0 b
ORTHENE	0.25 LB A/A	3.3 c	0.5 a	0.0 a	1.3 b
VYDATE CLV	0.25 LB A/A	3.5 c	0.8 a	0.0 a	2.5 b
LSD (P=.05)		3.46	0.76	0.00	8.76
Prob(F)		0.0013	0.4065	1.0000	0.1167
Means within a column and date not sharing common letters differ significantly (LSD; p=0.05).					

Table 2. Mean Lb seed cotton per acre.

		Lb Seed Cotton /Acre
Treatment	Rate	12/2/02
UNTREATED		2162
TRIMAX	1 FL OZ/A	2232
TRIMAX	1.5 FL OZ/A	2100
BIDRIN	0.25 LB A/A	2214
ORTHENE	0.25 LB A/A	2175
VYDATE CLV	0.25 LB A/A	2364
LSD (P=.05)		252
Prob(F)		0.3830
There were no significant differences between means (LSD; p=0.05).		