

EVALUATION OF CENTRIC INSECTICIDE FOR THRIPS MANAGEMENT ON COTTON IN MISSISSIPPI, 2001

Jack T. Reed¹, D. Bao¹, and C. S. Jackson¹

¹Department of Entomology & Plant Pathology; Mississippi State University; Mississippi State, MS 39762

ABSTRACT: The purpose of this trial was to evaluate foliarly applied insecticides for control of thrips on cotton. The test was planted at the Plant Science Research Farm at Mississippi State University. The average number of immature thrips before treatment with insecticide was 17.2 thrips per 5 plants and that of tobacco thrips was 8.6 thrips per 5 plants. Tobacco thrips were the dominant species. There were no significant thrips-related effects (i.e. stunting, reduced yield) on the cotton. Treatments included in the trial with their respective application rate (lb ai/ac) are: Centric 40 WP, 0.047; Centric 40 WP, 0.063; Orthene 97 SP, 0.2; Bidrin 8E, 0.2; and KarateZ 2.08 SC, 0.015. All insecticide treatments reduced immature thrips and adult thrips equally 2 days after treatment, however by 7 days after treatment only Orthene, Bidrin and KarateZ reduced immature populations near acceptable levels.

There were no statistically significant differences in yield.

CITATION: Reed, J.T., D. Bao, and C. S. Jackson. 2002. Centric evaluation of insecticides for thrips management on cotton in Mississippi. Annual Report of the North Mississippi Research & Extension Center, Miss. Agric. & For. Expt. Info. Bull. 386 pp. 137-138.

MATERIALS AND METHODS: The statistical design was randomized complete block with 4 replicates. Cotton, variety ST 4892 BR, was planted with seed without insecticide treatment at the Plant Science North Farm at Mississippi State University on 5/03/01 at a seed rate of 3 per ft. Plots were four rows wide and 50 (15.24 m) ft long arranged with four rows of cotton between plots and a planted buffer of 10 feet at the end of each plot. Insecticides were applied 6/12/01 with a high-clearance plot spray tractor with nozzles (Spray Systems, Tx4, hollow cone) spaced for a 38-in (96.5 cm) row spacing at 19-in (48.3 cm) centers with one nozzle directly over the row and one directly between rows. The carrier was water, and the volumetric application rate was 15 gallons (56.8L) per acre. Wind speed, temperature and relative humidity at time of application was 0-0.3 mph, 89⁰F and 47.0%, respectively. After 48hr, five plants from each plot were cut and transferred into a plastic bag for transport to the lab. The samples were then washed in a Clorox-detergent solution to remove the thrips from the plants. Thrips and other arthropods were then transferred onto a filter paper for identification and counting by use of a dissection microscope. Yield was estimated by mechanically harvesting the center two rows of each plot and converting the yield to pounds of seed cotton per acre.

RESULTS AND DISCUSSION: Table 1 indicates results of this trial. After 48hr, adult thrips were reduced significantly in all plots as compared with untreated plots. All treated plots had significantly reduced number of immature thrips. There were no significant differences in thrips numbers between any of the insecticide treatments on 14 June. Immature thrips numbers for the treatment plots were significantly reduced as compared with the untreated plots through 19 June (7 days after treatment). There were significantly more thrips in plots treated with Centric at the 0.047 lb ai/ac rate than in plots treated with organophosphates or the pyrethroid 7 days after treatment. There were no statistically significant differences in yield (lb seed cotton per acre).

Table 1. Mean insects per five plants June 14, 2001, MSU location.

Treatment	Lb ai/ac	Immature thrips	Tobacco Thrips	Flower thrips	Western flower thrips	Soybean thrips
		Jun-14-01	Jun-14-01	Jun-14-01	Jun-14-01	Jun-14-01
Water		37.8 a	5.5 a	1.5 a	0.3 a	9.0 a
Centric 40 WP	0.047	3.3 b	2.3 b	0.5 ab	0.5 a	1.3 b
Centric 40 WP	0.063	3.5 b	1.5 b	0.0 b	0.8 a	0.8 b
Orthene 97 SP	0.2	3.8 b	2.8 b	0.3 b	0.8 a	0.8 b
Bidrin 8E	0.2	2.8 b	0.5 b	0.0 b	0.0 a	0.8 b
Karate 2.08 SC	0.015	3.8 b	0.8 b	0.3 b	0.3 a	0.3 b
LSD (P=.05)		6.48	2.55	1.00	0.97	3.90
Treatment Prob(F)		0.0001	0.0093	0.0528	0.5109	0.0017

Means within a column not sharing a common letter differ significantly (LSD; P=0.05).

Table 2. Mean insects per five plants June 19, 2001, MSU location.

Treatment	Lb ai/ac	Immature thrips	Tobacco Thrips	Flower thrips	Western flower thrips	Soybean thrips
		Jun-19-01	Jun-19-01	Jun-19-01	Jun-19-01	Jun-19-01
Water		53.0 a	1.0 b	5.3 a	1.5 a	2.3 a
Centric 40 WP	0.047	24.8 b	3.5 a	5.5 a	1.5 a	0.5 a
Centric 40 WP	0.063	14.0 bc	1.0 b	4.3 a	1.3 a	0.0 a
Orthene 97 SP	0.2	4.5 c	1.0 b	3.5 a	0.8 a	1.0 a
Bidrin 8E	0.2	8.3 c	1.5 b	3.0 a	1.5 a	2.8 a
Karate 2.08 SC	0.015	6.3 c	1.8 b	2.5 a	0.8 a	0.5 a
LSD (P=.05)		14.15	1.54	3.03	2.39	2.20
Treatment Prob(F)		0.0001	0.0239	0.2620	0.9507	0.1031

Means within a column not sharing a common letter differ significantly (LSD; P=0.05).

Table 3. Mean and yield treatment effects on plant parameters affected by thrips, MSU location.

Treatment	Lb ai/ac	Plant height (cm)	Yield (lb seed cotton/ac)
		Jun-14-01	Sep-28-01
Water		12.95 a	1398 a
Centric 40 WP	0.047	13.50 a	1431 a
Centric 40 WP	0.063	11.84 a	1401 a
Orthene 97 SP	0.2	12.77 a	1332 a
Bidrin 8E	0.2	11.23 a	1384 a
Karate 2.08 SC	0.015	12.05 a	1339 a
LSD (P=.05)		2.073	118.19
Treatment Prob(F)		0.2581	0.4772

Means within a column and date not sharing a common letter differ significantly (LSD; P=0.05)