

EVALUATION OF INSECTICIDES FOR CONTROL OF TARNISHED PLANT BUG CAGED ON COTTON

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ABSTRACT: Mortality of third and fourth instar tarnished plant bug nymphs in cloth sleeve-cages on cotton, variety ST4892 BG/RR, was determined for 5 insecticides (Bidrin [dicotophos]; Centric [thiamethoxam]; dimethoate [generic]; Intruder [acetamiprid]; Trimax [imidacloprid]) at the Plant Science North Farm, Mississippi State, MS. Insecticides were applied 8/20/02 and 8/28/02. Following each application, 10 nymphs were caged on the treated cotton and allowed to remain for 48h. Results indicate that the 2 organophosphates, dicotophos, and dimethoate, were generally superior to other compounds in the trial except for Centric in the absence of rain. Rainfall following the application on 8/28/02 appears to have reduced the efficacy of all treatments slightly, but that of Centric was reduced from 95% on 8/22/02 to 64% on 8/30/02 following the rain.

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KEY WORDS: Tarnished plant bug, *Lygus lineolaris*, insecticide, cage.

MATERIALS AND METHODS: Cotton, variety ST4892 BG/RR was planted 5/09/02 at the Plant Science North Farm, Mississippi State, MS. Plots were 4 rows wide and 50 ft long, separated at each end by a 10 ft alley and on the sides by 4 unsprayed rows of cotton. Sleeve-cages made from a light, nylon mesh material (Tule) was slipped over the upper third of each of 2 cotton plants in the center 2 rows of each plot and the bottom of each sleeve fastened around the stem with an elastic fastener (pony-tail holder). The cages were then gathered around the fastener and covered with aluminum foil to protect the cages from insecticide spray. Insecticide was then applied, in a randomized complete block design, with a high-clearance spray tractor equipped with a compressed-air spray system through a boom with TX4 nozzles spaced at 19 in at a volumetric application rate of 10 gal/ac. As soon as the spray dried, the aluminum foil was removed, the sleeve was extended over the upper third of the plant, and 5 tarnished plant bug third or fourth instar nymphs were placed on the terminal leaves in each cage and the cage was sealed at the top with a second elastic fastener. After 48h, the plants with the cages were cut below the cage and taken to a laboratory where the cages were removed and the live and dead bugs were counted. Results were calculated on the total number of bugs found in cages. Applications of insecticides and nymphs were made on 8/20/02 and 8/28/02. Analysis of variance was used to analyze data.

RESULTS AND DISCUSSION: Results (Table 1) indicate that in the absence of rain the 2 organophosphates, Bidrin, and dimethoate, were generally superior to other compounds in the

trial except for Centric. Rainfall (0.61 in), the evening after insecticide application, on 8/28/02 appears to have reduced the efficacy of all treatments slightly, but that of Centric was reduced from 95% on 8/22/02 to 64% on 8/30/02, a reduction of 31% following the rain indicating that it may be less rainfast than other treatments that ranged from 19% to 5% reduction in efficacy following rain.

The tarnished plant bug has risen in status as a major pest in cotton since the advent of transgenic (Bt) cotton and the implementation of boll weevil eradication. Lack of insecticide applications for heliothines and weevils that secondarily reduced tarnished plant bug numbers, has caused a greater need for insecticide applications targeted specifically for tarnished plant bugs. This trial has evaluated compounds that may be recommended for plant bug management.

Table 1. Mean percent mortality of third or fourth instar tarnished plant bug nymphs (f2 generation from wild-collected adults) caged for 48h on cotton plants treated with insecticide on 8/20/02 and 8/28/02.

Treatment	Lb (Ai) / Ac	8/22/02	8/30/02
Bidrin 8EC	0.5 LB A/A	95.00 a	88.65 a
Centric 25WG	0.047 LB A/A	95.00 a	63.93 b
Dimethoate 4EC	0.5 LB A/A	91.88 ab	87.22 a
Intruder 70WP	0.05 LB A/A	76.25 bc	57.74 b
Trimax 480SC	1.5 FL OZ/A	64.17 c	52.5 b
Water		26.18 d	15.89 c
LSD (P=0.10)		17.817	23.229
Treatment Prob(F)		0.0001	0.0007
Means within a column not sharing a common letter differ significantly (LSD; p=0.10).			