

COTTON APHID INSECTICIDE EFFICACY TRIALS IN THE MISSISSIPPI DELTA IN 1995

R. E. Furr, Jr. and F. A. Harris
Mississippi State University
Delta Research and Extension Center
Stoneville, MS

Abstract

Results of three small plot efficacy trials on cotton aphid from 1995 are reported. In 1995 two products, Bidrin and Furadan, gave significantly better control of cotton aphid than other materials. A third insecticide, Provado, showed good control. Cottonseed oil (CSO) soap was evaluated and gave no control. Sweepnet samples were made in large fields in Sunflower Co., MS, following Furadan, Bidrin, and Provado. Results from these studies showed that fields treated with Furadan had more convergent lady beetles than those treated with Bidrin or Provado.

Introduction

Three small plot field trials were conducted at Stoneville on the Delta Research and Extension Center (DREC) or on land rented by DREC at Tribbett, MS, in 1995. Objectives were to evaluate treatments for aphicidal efficacy during high aphid populations. Trends from 1993 and 1994 aphid efficacy trials showed that two compounds, Bidrin and Furadan, gave significantly better control of cotton aphid than other materials. This was consistent in the 1995 trials.

Materials and Methods

Treatments in all trials were arranged in randomized complete blocks replicated three or four times. Cotton variety was DES 119. Plot size was either 13.3 feet or 26.6 feet (four or eight rows) by 50 feet. List of treatments, dates of application, and number of sampling dates are included with the table for each test. In all trials treatment applications were made with a Melroe Spracoupe, Model 230 at 5.5 mph. Sprayer nozzles were Conejet TX-8 arranged flat on the boom at 20-inch spacings between nozzles. The boom was elevated about 18 inches above the crop canopy during spraying. Spray mixtures were water-diluted and sprayed at an operating line pressure of 46 psi which delivered a spray volume of 6.0 gallons per acre. Spray tanks were 3-gallon stainless steel tanks. The spray system was operated with compressed air with which spray tanks were pressurized to deliver spray mix to the boom. Treatments were water-diluted and pre-mixed within 30 minutes of application. Aphid counts were made pretreatment and post-treatment. Counts were made on one terminal leaf (1st fully expanded leaf from the terminal

bud) on ten plants per plot. All test sites had very high aphid infestation levels and counts were limited to one square inch per leaf on ten plants per plot.

Results and Discussion

The first aphid efficacy trial was conducted on DREC and consisted of nine entries. Table 1 lists the treatments and rates and shows the aphids per 10 square inches. Only Furadan (0.25 and 0.5 lbs ai/A) and Bidrin (0.4 lbs ai/A) gave acceptable control of cotton aphids. The results of the second aphid efficacy trial are presented in Table 2. Provado (0.047 lbs ai/A), Orthene (1.0 lbs ai/A), and Bidrin (0.4 lbs ai/A) all gave acceptable results and CSO-Soap gave no control of cotton aphid. The results of the third aphid efficacy trial are presented in Table 3. Provado (0.047 lbs ai/A), Bidrin (0.3 lbs ai/A), and all combinations with Bidrin gave acceptable control of the cotton aphid. Table 4 shows results from sweepnet collections of beneficial insects. All fields treated with Furadan had more convergent lady beetles than those treated with either Provado or Bidrin. However, this sampling was done at the request of the grower and his consultant, and past history of these fields was not known. This was a non-replicated sampling and no statistical analysis was done.

Conclusions

Bidrin and Furadan were the most reliable fast-acting aphicides for use in chemical control for aphids. Provado provides good aphid control but is not as fast-acting as Bidrin and Furadan and shows some inconsistency when a single application is applied in small plot experiments.

Approved for publication as Journal Article No. PS-8893 of the Mississippi Agricultural and Forestry Experiment Station, Mississippi State University. This project is supported under MAFES Project Number MIS-2130.

Table 1. Cotton aphids per 10 square inches 3 days post-treatment Trial I.

<u>Treatment</u>	<u>Rate (lbs ai/A)</u>	<u>Aphids/10 sq. in.</u>
Furadan	0.25	37.7
Furadan	0.5	47.3
Phaser	0.75	1178.3
MP-Thiodan	1.25	220.3
Bidrin	0.4	82.3
Dimethoate	0.4	878.0
Capture	0.06	888.7
Provado	0.045	680.3
Provado + Kinetic	0.045 + 0.125%	296.0
Untreated Check		1395.0
LSD (0.05)		657.5

Treatment application date: 6/27.

Table 2. Cotton aphids per 10 square inches 3 days post-treatment Trial II.

Treatment	Rate (lbs ai/A)	Aphids/10 sq. in.
CSO-Soap	1:12 Ratio	13.5
CSO-Soap	1:1 Ratio	19.5
Provado	0.047	1.0
Orthene	1.0	1.5
Bidrin	0.4	2.0
Untreated Check		13.5
LSD (0.05)		15.9

Treatment application date: 7/11.

Table 3. Cotton aphids per 10 square inches 3 days post-treatment Trial III.

Treatment	Rate (lbs ai/A)	Aphids/10 sq. in.
Vydate + Bidrin	0.25 + 0.3	275.5
Orthene + Bidrin	0.33 + 0.3	187.5
Provado	0.047	44.0
Karate + Bidrin	0.03 + 0.3	22.8
Bidrin	0.3	18.3
Untreated Check		1583.8
LSD (0.05)		297.7

Treatment application date: 6/23.

Table 4. Beneficial insects from sweepnet collections Sunflower County, MS, Furadan and untreated sites 1 and 2 from Walter Pitt farms, Furadan, Bidrin, and Provado treatments from Lawrence Long Farms (LLF). All data per 200 sweeps.

Location	Lady Bugs	Spiders	Big-Eyed Bugs
Furadan Site 1	16	1	0
Untreated Site 1	8	2	0
Furadan Site 2	22	0	2
Untreated Site 2	13	0	1
Furadan (LLF)	35	0	0
Bidrin (LLF)	8	1	1
Provado (LLF)	28	3	0