

EFFICACY OF LEVERAGE ON A MIXED INSECT POPULATION IN ARKANSAS

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Abstract

LEVERAGE™ insecticide treatments were made on five demonstration plots each by a different agricultural consultant. Treatments were evaluated for efficacy against cotton aphids, tarnish plant bugs, bollworms, and boll weevils. All of these are key pests in Arkansas and with the Boll Weevil Eradication Program starting in most of the state we can expect to see more aphid problems in the first years of the program (M.B. Layton 1999). Year after year there are times when cotton fields have a complex of insects at threshold levels.

Introduction

During the course of cotton production there are several pest that can cause crop injury and yield loss. The yield loss can be from excessive fruit damage to a delay in crop maturity. Aphids alone have been documented to reduce yields by as much as 220 pounds of lint/acre (G. Andrews 1996). Many times, when treating a field for aphids there are other crop pests in the field that are just below or at threshold level. Leverage is a broad-spectrum insecticide that does a good job of controlling plant bugs, bollworms, aphids, and boll weevils. Leverage can be used safely without consultants having to change scouting schedules due to a short re-entry interval for Leverage compared to other insecticides. Keep in mind, timing is everything in a good scouting program.

Discussion

Leverage was evaluated on four key pests in cotton: aphids, plant bugs, bollworms, and boll weevils. Agricultural consultants in Arkansas used the insecticide on mixed populations of these pests to evaluate them in different situations. In the demonstration by Eddy Cates (Table 1), targeted pests were a combination of all four (aphids, plant bugs, bollworms, and boll weevils). Leverage was applied at 3.75 oz/acre. *Note that four days after treatment all four pests were well under any thresholds for treatment.

In the demonstration by Tom Davis (Table 2) targeted pests were plant bugs, bollworms, and boll weevils. These pests were reevaluated three and seven days after the treatment of Leverage applied at 3.75 oz/acre. Notice that even after three days, insect levels had drastically declined. All pests were

controlled. The plant bug levels continued to decline, which is a very important observation from this demonstration.

In the demonstration plot by Chuck Farr (Table 3) targeted pests were bollworms and plant bugs. Leverage at 3.75 oz/acre was applied and compared to 8oz. of Curacron plus 2.1 oz/acre of Baythroid. Note that in Farr's demonstration he estimated by an Agdia ID Kit that there was 25% tobacco budworm in the population. Leverage did control the 75% bollworm population and showed good plant bug efficacy.

In the demonstration plot by Jim Kimbrough (Table 4) targeted pests were bollworms and boll weevils. Leverage was applied on two separate occasions at 3.75 oz/acre and efficacy evaluated individually. These plots also compared Baythroid at 2.1 oz/acre. In this demonstration, five days after treatment both pests were controlled and evaluated as equal to or better than Baythroid alone.

In the demonstration plot by Danny Moore (Table 5) the targeted pests were a complex of insects (aphids, plant bugs, bollworms, and boll weevils) in mid July. This is where Leverage really demonstrated its broad-spectrum of insect control. Leverage was applied at 3.75 oz/acre and evaluated six days later. Moore's demonstration did an excellent job of controlling this situation of complex insects. The amount of control obtained on aphids and plant bugs with the added bollworm pressure in the field is a very important aspect of Leverage. Six days after treatment all pests evaluated were well under threshold levels.

Summary

The demonstrations of all plots with Leverage insecticide obtained good to excellent control of all pests evaluated. Leverage will be an effective tool for Arkansas consultants as a broad-spectrum insecticide for cotton pest management. When appropriate rates of active ingredients (imidacloprid and cyfluthrin) are applied consultant confidence and safety are effectively obtained. (University of Arkansas Cotton Insect Management)

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References

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Table 1. Cates Demonstration.

Target Pest	Pre-Treatment	Post-Treatment 4 (DAT)
Bollworm	18% eggs 1 larvae/3 feet	4% eggs 1 larvae/8 feet
Boll weevil	8% damaged squares or small bolls	5% damaged squares or small bolls
Plant bug	1 plant bug/6 feet	1 plant bug/12 feet
Aphids	Moderate	Very light

8/12: Leverage @ 3.75 oz/A (1 gal/34 A)

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Table 2. Davis Demonstration.

Target Pest	Pre-Treatment	Post-Treatment (3 DAT)	Post-Treatment (7 DAT)
Bollworm	14% eggs 6% live larvae	5% eggs 5% live larvae	1% eggs 1% live larvae
Boll weevil	18% damaged squares	10% damaged squares	12% damaged squares
Plant bug	1 plant bug/6 feet	1 plant bug/10 feet	1 plant bug/30 feet

7/5: Leverage @ 3.75 oz/A (1gal/34 A).

Yield: 932 lbs. Lint/A.

Table 3. Farr Demonstration.

Target Pest	Treatment	Pre-Treatment (8/1)	Post-Treatment (3 DAT)	Post-Treatment (6 DAT)
Bollworm & Tobacco	Leverage		3% live larvae*	2% live larvae*
Budworm	Baythroid Plus	42% live larvae	6% live larvae*	2% live larvae*
Plant bug	Curacron	(75% bollworm: 25% budworm)	0/25	0/25
	Leverage		Sweeps	Sweeps
	Baythroid plus Curacron		0/25 Sweeps	0/25 Sweeps

8/1 Leverage @ 3.75 oz/A (1 gal/34 A).

Baythroid plus Curacron (1 gal/60 plus 1 gal/16/A).

*Live larvae from terminals, squares and bolls.

Table 4. Kimbrough Demonstration.

Target Pest	Treatment	Pre-Treatment	Post-Treatment (5 DAT)
Bollworm Treated 8/4 Eval.: 8/9	Leverage	1 larvae/3.5 feet	1 larvae/14 feet
Boll weevil Treated: 8/9 Eval.: 8/14	Baythroid	1 larvae/4 feet	1 larvae/7 feet
	Leverage	1.3 damaged squares/ft.	0.8 damaged squares/ft.
	Baythroid	1.5 damaged squares/ft.	0.8 damaged squares/ft.

Leverage @ 3.75 oz/A (1 gal/34 A).

Baythroid @ 2.1 oz/A (1 gal/60 A).

Table 5. Moore Demonstration.

Target Pest	Pre-Treatment	Post-Treatment (6 DAT)
Bollworm	1 larvae/2.8 feet	0 larvae/14 feet
Boll weevil	6% damaged squares or small bolls	4% damaged squares or small bolls
Plant bug	1 plant bug/3 feet	1 plant bug/24 feet
Aphids	Moderate	Very light

7/16: Leverage @ 3.75 oz/A (1 gal/34 A).