EFFICACY OF SELECTED INSECTICIDES FOR THE CONTROL OF COTTON APHID IN THE NORTHERN TEXAS BLACKLANDS

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Abstract

Provado, Leverage, and Furadan were compared for efficacy in both 1999 and 2000. Calypso was added to the test in 2000. Calypso was shown to be as efficacious as Furadan in controlling cotton aphid in the Northern Texas Blacklands in 2000. Provado and Leverage were somewhat less efficacious than Furadan in 2000, but performed as well as Furadan in 1999.

Introduction

The cotton aphid, *Aphis gossypii,* is considered to be a secondary pest of cotton in the Northern Texas Blacklands. Normally, the aphid populations are suppressed by beneficial arthropods such as ladybeetles and lacewings. In this region, an aphid problem is most often associated with an in season bollworm/tobacco budworm or boll weevil control program. Aphid populations can "explode" when a non-selective insecticide is used to control one of these primary pests. High populations that are not controlled will cause a reduction in both boll size and lint yield.

Materials and Methods

In both 1999 and 2000, a block of cotton was planted late on the Texas A&M University-Commerce research farm near Commerce, Texas. The sites were sprayed weekly with a rotation of pyrethroid insecticides starting at the 5-leaf stage to suppress beneficials and encourage the development of aphid infestations. In both years, when cotton aphid populations had reached levels in excess of 100 aphids per leaf, the insecticide treatments were applied.

Insecticide Treatment	Formulated Rate/Acre
Provado 1.6F	3.75 fluid ounces
Leverage 2.7SE	3.75 fluid ounces
Calypso 480 SC	3 fluid ounces
Furadan 4F	8 fluid ounces
Bidrin 8E	8 fluid ounces

Each plot consisted of one 38" row, 20 feet long. An untreated row was left between treatments to minimize border effect. The experimental design was a randomized complete block with six replications. The applications were made using a three-nozzle boom with 19 inch nozzle spacing. The center nozzle was held directly over the row. The insecticides were applied with flat fan nozzles in 12 - 15 gallons of water per acre. In the 1999 test, some of the treatments were banded. A baseline count was made on the uppermost fully expanded leaf of twenty plants in all of the untreated check plots to determine the aphid population at each rating date. Following this, all plots were rated for percent aphid control by a consensus of two individuals. Aphid populations were then calculated by subtracting percent control from 100, and multiplying that number by the baseline aphid number. Ratings were made at 4, 8, and 12 DAT in 2000 and 3, 7, and 12 DAT in 1999.

Results and Discussion

Leverage performed as well as Provado in both 1999 and 2000. Leverage and Provado were as efficacious as Furadan in 1999, but did not perform as well as Furadan in 2000. Calypso was as effective as Furadan in 2000. Banding proved to be as effective as broadcasting in small cotton.

References

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Table 1. Number of cotton aphids per leaf on uppermost fully expanded leaf. 1999.

Treatment	Application	3 DAT	7 DAT	12 DAT
Furadan 4F	Band	12.8a	10.5a	30.5
Bidrin 8E	Broadcast	20.0a	25.2ab	35.7
Leverage 2.7SE	Band	22.0a	9.5a	24.0
Provado 1.6F	Band	28.3a	17.8ab	39.7
Untreated check	-	108.5c	1.4.5d	79.5
P value		<.001	<.001	.042

Table 2. Number of cotton aphids per leaf on uppermost fully expanded leaf. 2000.

Treatment	4 DAT	8 DAT	12 DAT
Furadan 4F	9.0a	10.0a	33.0a
Provado 1.6F	20.0b	19.0b	63.0b
Leverage 2.7SE	25.0b	25.0b	61.0b
Calypso 480 SC	28.0b	9.2a	39.0a
Untreated check	142.0c	92.0c	93.0c
P value	<. 001	<.001	<.001

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