

Evaluation Of Various Insecticides For Control Of Cotton Aphid

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SUMMARY:

Assail 70WP (1.1 oz./a and 2.3 lbs/a), Bidrin 8E (8oz./a) and Furadan 4F all provided excellent control of cotton aphids throughout the duration of this study. Actara 25 WG provided acceptable aphid control but Centric 40WG which has the same active ingredient (thiamexotham) as Actara performed poorly in this test. Although Capture 2E provided some initial control, this product flared the aphids resulting in a higher number of aphids per leaf and a lower yield when compared to the untreated check.

Assail 70WP (2.3 oz./a) had the highest lint yield followed by Bidrin 8E (8.0 oz./a) and Assail 70WP (1.1 oz./a) with 361, 357 and 353 pounds of lint, respectively. However, these yield were not significantly different from Provado 1.6F and Furadan 4F.

PROBLEM:

Cotton aphid populations generally increase following insecticide applications targeting boll weevil and or bollworms. The materials of choice to control cotton aphids are Bidrin 8E and Furadan 4F. The efficacy of Bidrin 8E is questionable against resistant aphids and in order to use Furadan 4F the EPA has to grant a section 18 emergency use exemption or the TDA has to issue a section 24c exemption thus causing doubt as to the continued future use of this product. Therefore, efficacy data concerning new insecticides for controlling aphids in cotton are needed.

OBJECTIVE:

The objective of this study is to test the efficacy of various insecticides for control of cotton aphids.

MATERIALS AND METHODS:

Experimental design consisted of a randomized complete block design with three replications. Plot size was four 40-inch rows by 50 ft in length. The cotton variety was Paymaster RR2200 and was row irrigated. The insecticides were applied using a CO₂ backpack sprayer calibrated at 35 psi and 18 gpa total volume. Aphids were counted on five top and bottom main stem leaves per plant. Hand harvests were conducted on 1/1000 acre areas and cotton samples were ginned at the Texas Agricultural Research and Extension Center at Lubbock.

RESULTS AND DISCUSSION:

No significant differences occurred between treatments on the zero day post treatment counts (Table 1). On the five day post treatment count, all treatments were significantly different from the untreated check. Furadan 4F, Bidrin 8E (8oz./a), both rates of Assail 70WP and Actara 25WG gave 85 percent or higher control at five days post treatment with both rates of Assail 70WP giving the highest with 99 percent control. The nine day post treatment counts show that Capture 2E and Provado 1.6F were not significantly different than the untreated check and all remaining treatments provided greater than 85 percent control with both rates of Assail 70WP providing the highest percent control. The 15 day post treatment counts showed that the aphid population dramatically declined and, therefore, no treatments were significantly different when compared to the untreated check.

Assail 70WP (2.3 oz./a) had the highest lint yield followed by Bidrin 8E (8.0 oz./a) and Assail 70WP (1.1 oz./a) with 361, 357 and 353 pounds of lint, respectively. However, these yield were not significantly different from Provado 1.6F and Furadan 4F.

CONCLUSION:

Assail 70WP (1.1 oz./a and 2.3 oz./a), Bidrin 8E (8.0 oz./a) and Furadan 4F all provided excellent control of cotton aphids throughout the duration of this study. In addition, Actara 25WG provided acceptable aphid control but Centric 40WG which has the same active ingredient (thiamexotham) as Actara performed poorly in this test. Although Capture 2E provided some initial control, this product flared the aphids resulting in a higher number of aphids per leaf and a lower yield when compared to the untreated check.

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Table 1. Control of cotton aphids with various insecticides, RR2200, Rex Isom Farm, Idalou, Texas. 2000

Treatment ^{2/}	Formul- -ated amount per acre	Average number of aphids per leaf ^{1/}							Lint wt./a (Pounds)
		0 dpt	5dpt	% control ^{3/}	9 dpt	% control	15dpt	% control	
Actara 25WG	3.0 oz.	109.43 a ^{4/}	22.70 c	93.67	4.87 c	86.98	2.83 a	-456.97	266.5 d
Assail 70WP	1.1 oz.	105.73 a	1.30 c	99.59	0.30 c	99.08	1.27 a	-184.00	353.3 ab
Assail 70 WP	2.3 oz.	147.90 a	3.35 c	99.32	0.53 c	98.96	0.00 a	100.00	361.4 a
Bidrin 8E	5.3 oz	156.83 a	142.47 bc	64.19	4.57 c	88.98	0.50 a	11.36	276.4 d
Bidrin 8E	8.0 oz	163.40 a	68.73 c	84.80	2.07 c	95.61	0.07 a	89.60	357.4 a
Capture 2E	4.0 oz	159.87 a	239.73 b	63.01	63.30 a	6.23	4.17 a	-353.39	292.2 d
Centric 40WG	1.9 oz.	112.20 a	89.20 bc	79.70	3.70 c	91.91	0.33 a	46.50	311.2 bcd
Fulfill 50WG	2.7 oz.	126.47 a	117.40 bc	62.87	1.47 c	95.55	0.07 a	85.13	290.1 d
Furadan 4F	8.0 oz.	97.03 a	46.87 c	86.66	3.13 c	91.44	0.00 a	100.00	343.3 abc
Provado 1.6F	3.8 oz	73.97 a	148.33 bc	28.77	12.93 bc	40.37	2.80 a	-848.21	338.0 abc
UTC	-----	125.83 a	402.00 a	-----	41.87 ab	-----	0.57 a	-----	301.2 cd
LSD(P=.10)		NS	152.465		30.965		NS		44.6663
P>F		0.1431	0.0082		0.0324		0.3041		0.0164

1/ Average of total number of aphids on five top and bottom leaves per plot.

2/ Treatments were applied with with a CO₂ back pack sprayer at 40 psi and 15 GPM.

3/ Percent control was adjusted using Henderson's formula.

4/ Means in a column followed by the same letter are not significantly different by ANOVA (P = 0.10 LSD)