

Cotton Aphid Efficacy Study - 2001

Alton N. Sparks, Jr. and John W. Norman, Jr.
Texas A&M Research and Extension Center
Weslaco, Texas

A small plot study was conducted at the Texas A&M Research and Extension Center's Hiler Farm in Weslaco, Texas, to evaluate the efficacy of selected insecticides against the cotton aphid on cotton. The primary emphasis of this study was to compare efficacy of various neonicotinoid insecticides. Plots were established in a field of Stoneville 474 cotton grown on 40 inch rows.

Plot size: 3 rows by 25 feet.

Experimental design: Randomized complete block with 4 replications.

Treatments:

- Provado 1.6F at 3.75 fl oz/ac
- Centric 40WG at 2 oz/ac
- Centric 40 WG at 2.5 oz/ac
- Assail 70WP at 0.0375 lb AI/ac
- Assail 70WP at 0.05 lb AI/ac
- Calypso 4SC at 1.15 fl oz/ac
- Calypso 4SC at 1.5 fl oz/ac
- Leverage 2.7SE at 3 fl oz/ac
- Furadan 4F 0.25 lb AI/ac
- Bidrin 8EC at 8 fl oz/ac
- Phaser 3EC at 0.75 lb AI/ac
- Non-treated check

All insecticides + Silwet L-77 at 8 oz/100 gal.

Application methodology:

- CO₂ pressurized backpack sprayer
- 40 PSI
- 3 TX5 hollow cone nozzles per row (1OT, 2 on drops)
- 10 GPA

Application date: May 8, 2001.

Sampling:

Five plants were randomly selected from each plot on each sample date. All aphids on the first fully expanded leaf from the terminal were counted on each plant.

Statistical analyses: PROC GLM of PC-SAS; DMRT; P<0.05.

Results:

Pest pressure was moderate to heavy at the time of application, with over 100 aphids per leaf in the check. Pest pressure was stable through 3 days after treatment (5/11), but decreased dramatically by 6 days after treatment (5/14).

All insecticide treatments significantly reduced aphids on all three sample dates. In looking at the trends between May 9 and 11: Bidrin appears to have allowed some rebound of aphid densities; Leverage, Phaser and Furadan held densities steady; and the neonicotinoid insecticide treatments appeared to cause additional reductions between these two sample dates. None of the neonicotinoid insecticides showed a rate response with the rates tested. The combination treatment (Leverage) did show promise at suppression of aphid flaring normally associated with pyrethroid use.

These data support earlier work with neonicotinoid insecticides against aphids which general shows relatively slow activity (to reach maximum reduction), but excellent efficacy, as compared to older chemistries.

Mean number of aphids per leaf on the first fully expanded leaf from the plant terminal, Weslaco, Texas, 2001.

| Treatment | Rate | Number of aphids per leaf | | |
|--------------|----------|---------------------------|-----------|--------|
| | | 5/9 | 5/11 | 5/14 |
| Check | | 122.4 a | 130.3 a | 40.2 a |
| Phaser 3EC | 1 qt. | 36.8 bcde | 36.8 b | 7.5 cd |
| Leverage | 3 oz. | 25.8 cdef | 28.2 bc | 23.5 b |
| Bidrin 8EC | 8 oz. | 14.2 f | 25.0 bcd | 5.6 cd |
| Calypso 4SC | 1.15 oz. | 47.5 b | 28.3 bc | 11.3 c |
| Calypso 4SC | 1.5 oz. | 39.6 bcd | 19.7 bcde | 7.8 cd |
| Provado 1.6F | 3.75 oz. | 30.6 bcdef | 15.5 cde | 8.5 cd |
| Furadan 4F | 8 oz. | 15.3 f | 13.0 cde | 5.0 cd |
| Centric 40WG | 2 oz. | 41.4 bc | 7.0 de | 2.7 d |
| Centric 40WG | 2.5 oz. | 39.6 bcd | 6.3 de | 4.1 cd |
| Assail 70WP | 0.86 oz | 22.4 def | 1.65 e | 2.3 d |
| Assail 70WP | 1.14 oz | 19.5 ef | 1.75 e | 1.9 d |