

## Evaluation of Whitefly Control

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### Summary

An evaluation of seven insecticides used in the control of whitefly nymphs indicated that high mortality occurred to the nymphal population but that this population reduction was not effective in controlling a late season infestation.

The 24-hour post-treatment samples, shown in Table 1, indicated that all seven insecticides showed some degree of activity against whitefly nymphs. Vydate, at 91.1, had the highest percent reduction and Meta-Systox-R the lowest. However, after 6 days Meta-Systox-R had maintained the populations at near the 24-hour level and was the only material to suppress the population for that length of time.

On the basis of this one experiment, it is difficult to determine which of these insecticides are the most effective in controlling whitefly nymphs. First, leaves sampled were pulled from the terminal area where better plant coverage would be expected. Observations of the lower portions of the plant seemed to indicate less control. It must also be considered that the majority of nymphs are in the bottom portion of the plant. Secondly, not all leaves on a plant contain nymphal populations and random sampling of those leaves appear to be very erratic in determining population levels. Thirdly, it appears that most affected nymphs do not fall from the leaves and the difficulty in determining the mortality status of several thousand nymphs makes control assessment very difficult and somewhat unreliable.

It does appear that some of the insecticides used have the potential to be used in a management system to control whiteflies. More research is needed to learn how to properly evaluate control efforts and how to best utilize the insecticides that do show promise.

Table 1. Mean Nymphs per Leaf and Percent Reduction.

Treatment	Lbs./A.	Pre-Treatment Nymphs/Leaf	1-Day Post-Trtmt.		6-Day Post-Trtmt.	
			Nymphs	% Reduction	Nymphs	% Reduction
Check		12.9	15.5		22.1	
Pydrin 2.4	0.2	14.6	2.0	86.7	13.5	7.5
Vydate 2.0	0.375	16.3	1.5	91.1	11.9	27.0
Monitor 4.0	1.0	28.4	6.6	76.7	17.1	39.8
Supracide 2.0	0.5	18.6	2.9	84.7	13.2	29.0
Bolstar 6.0	1.5	17.9	6.8	62.3	16.9	5.6
Meta-Systox-R 2.0	0.5	13.0	6.2	52.8	6.5	50.0
Furadan 4.0	1.0	19.9	2.8	85.9	12.4	37.7

## Effects of Plant Coverage in Whitefly Control

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### Summary

Evaluation of plant coverage by insecticide applications indicated that insecticide coverage was not adequate in controlling whitefly nymphs in the bottom portion of the plant.

In an effort to evaluate portions of the plant receiving spray material, ten plants were selected in each of 4 replications. Three leaves were then selected on each plant. One leaf from the terminal area, one from mid-plant and one from near the bottom. Pre-treatment counts were made on each selected leaf in the field and tagged so that post-treatment counts could be made on the same leaf. Post-treatment counts were taken 1 and 4 days after treatment.

Plots were treated with Vydate at 0.375 lb./A. with a ground applicator. Three nozzles per row were utilized, one directly over the plant and two on 12-inch drops on the sides of the plant.

Results shown in Table 1 indicate that effective plant coverage was not obtained in the bottom half of the plant. One day after treatment, nymphs in the terminal area had been reduced by 83.1 percent. However, at mid-plant and bottom plant, the reduction was only 33.2 and 22.5 percent, respectively. It can be assumed that the lack of adequate control in the lower plant portions was due, at least in part, to ineffective plant coverage.

The 4-day post-treatment counts show an increase in larval numbers and indicate that residual longevity was not apparent with Vydate. This expresses a need to determine an application frequency

to maintain effective nymphal control.

Table 1. Mean Nymphs per Leaf

Area of Leaf Sample	Pre-Treatment	24-Hour Post-Treatment		4-Day Post-Treatment	
		Nymphs	% Reduction After Trtmt.	Nymphs	% Reduction After Trtmt.
Terminal leaf	6.5	1.1	83.1	4.5	30.8
Mid-plant leaf	19.3	12.9	33.2	16.5	14.5
Bottom leaf	23.1	17.9	22.5	20.5	11.3

Treated with Vydate at 0.375 lbs./acre.

### Efficacy Evaluation of Pink Bollworm Control

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#### Summary

A field evaluation of 4 experimental insecticides for the control of pink bollworms showed that U-56295 did not perform as effectively as the standard control or the remaining insecticide treatments in either yield production or reduction of boll infestations. S-3206 at the high rate appeared more effective than the low rate in terms of yield increases. No effective differences occurred between the rates of Ammo. Cymbush, which had a lower yield than the high rate of S-3206, effectively reduced both pink bollworms and stink bugs but still maintained an adequate production of seed cotton.

The initial treatment for pink bollworm control was done on June 25 when pre-treatment boll infestations averaged 10 percent in the test area. Table 1 shows the percent pink bollworm infested bolls for each sampling date after the initial application. The first treatment occurred at peak oviposition and/or egg hatch as indicated by the increase in infested bolls at the first post-treatment sample. Although U-56295 had significantly more infested bolls than the remaining treatments on that date, two applications are usually required to determine conclusive population or damage differences.

Subsequent samples showed that the untreated check and U-56295 consistently had significantly higher boll infestations than the four synthetic pyrethroid treatments. No differences occurred between the pyrethroids or between rates, indicating a consistent level of control for those insecticides based on the amount of boll infestation. When compared with the standard insecticide, Pydrin, both rates of S-3206 and Ammo and the single rate of Cymbush showed effective and adequate control of pink bollworms. U-56295 at the rate used did not reduce boll infestations to the economic level and thus did not compare favorably as a potential control for pink bollworms.

Table 1. Percent Pink Bollworm Infested Bolls.

Treatments	Rate Lbs./A.	Date Bolls Collected					
		6/29	7/7	7/14	7/22	7/30	8/7
Check	--	30 b*	79 a	77 a	60 a	57 a	48 a
U-56295	0.5	47 a	65 a	43 a	36 a	47 a	40 a
Pydrin	0.1	26 bc	18 b	9 b	6 b	5 b	3 b
Ammo	0.05	20 bc	11 b	7 b	3 b	4 b	3 b
Ammo	0.025	19 bc	11 b	9 b	7 b	6 b	4 b
Cymbush	0.6	20 bc	10 b	7 b	2 b	4 b	2 b
S-3206	0.05	18 bc	8 b	8 b	9 b	6 b	3 b
S-3206	0.1	15 c	6 b	6 b	2 b	4 b	2 b

Pre-treatment counts taken on June 24 averaged 10 percent boll infestation.

Treated: June 25, July 2, 9, 16, 23 and 31.

\*Means followed by the same letter are not significantly different at the 5% level.