

CHEMICAL CONTROL OF THE SWEETPOTATO WHITEFLY IN COTTON

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Abstract

*Various registered and experimental insecticides were evaluated for sweetpotato whitefly (*Bemisia tabaci* Gennadius) control in several field experiments at Yuma, Arizona in 1993. Best controls were obtained with insecticide mixtures, particularly a pyrethroid and an organophosphate, rather than with individual materials. Results of these experiments indicate that severe population densities can be controlled using insecticide combinations, even though sustained use of these insecticides would probably lead quickly to the development of resistance.*

Introduction

Seven field experiments were conducted at Yuma, Arizona in the summer of 1993, to evaluate insecticidal control of the sweet potato whitefly. Four of these experiments (1-F, 2-F, 6-F, NTN GAUCHO) were conducted on cotton planted on March 18th and two (7-FL, 9-FL) on cotton planted beyond the normal planting period, planting date of June 1, 1993. Several of the insecticides in these trials were included primarily for evaluation of efficacy against the pink bollworm. Therefore, their lack of efficacy against the sweetpotato whitefly should not reflect adversely on their overall potential as useful cotton insecticides.

Materials and Methods

The methods utilized were the same for all the experiments except the one with NTN GAUCHO which was a seed treatment without foliar applications. The rest of the experiments were done in a randomized complete block design with four replications. Plots were 4 rows wide and 60 feet long with a 5-foot alley between the ends of plots, and 2 rows were skipped between adjacent plots (4x2 planting pattern); the cotton variety was DPL-5415.

Applications were made with a tractor-mounted CO₂-powered sprayer, using 3 nozzles per row and 40 psi pressure to deliver 20 gal. total spray per acre. Weekly applications were made with sampling occurring weekly beginning after the first application.

Whitefly sampling consisted of randomly pulling 5 fully-expanded leaves near the fifth node from the terminal from each plot. A 1" diameter leaf disc was cut from each leaf for the microscopic counting of eggs and immature whiteflies. Adult whitefly sampling was conducted differently. A small rectangular pan (Ca 6x9) was marked near both ends with a 50cm² area. The entire bottom of the pan was coated with a light vegetable oil or cottonseed oil and a plant terminal was slapped across the pan to constitute a sample. Therefore, each sample consisted of 2, 50cm² areas where adult whiteflies were trapped.

Results

When these tests were initiated the cotton was growing well and had a healthy appearance (test 1-F, 2-F, 6-F, NTN GAUCHO). A low to fair whitefly infestation was present at the beginning of the season, and subsequently developed into high population levels. Tests 7-FL, and 9-FL were conducted on poorly growing cotton plants due to a previous high whitefly infestation.

Results are presented in tabular form. The tables present infestation counts on a weekly basis as well as yield data. For most of the tests individual tables are presented for each whitefly stage-eggs, immatures and adults.

Results are referenced on the tables by both a test number and letter. The test number was used to distinguish tests during the conduct of the research and these numbers are equated to letter designation for purposes of the discussion in this report. Thus tests were 1-F(A), 2-F(B), 6-F(C), NTN GAUCHO [Seed treatment](D), 7-FL(E), 9-FL(F).

For purposes of brevity, only the more effective whitefly control materials will be discussed in each test. No discussion will be made of the efficacy of the various treatments on pink bollworm and lygus bugs.

Test A(1-F)

Table 1 presents the treatments and rates and tables 2, 3, & 4 present weekly counts of whitefly eggs, immatures and adults, respectively.

Table 5 presents treatment yields and statistics (Randomized Complete Block four replications, ANOVA/COSTAT, Duncan's Multiple Range Test $P < .05$). Data of the following tests will be presented in the same order. In all tests it was apparent that individual insecticides were not nearly as efficacious as certain combinations. For example in test A, the most efficacious treatments were the following: Danitol+Orthene at the two different rates, also the same mixture with KP7100, Asana XL+Orthene, Asana XL+Thiodan, Asana XL+Vydate, Asana XL+Lannate LV, Asana XL+Ovasyn Vydate+Ovasyn and Vydate+Thiodan. All of these insecticide combinations showed good control on the distinct life stages of the sweetpotato whitefly.

Test B (2-F)

Results of this experiment are presented in tables B-1 through B-5. As in the previous test the most effective treatments were not chemicals applied individually. Several combinations gave good to excellent control. These were Capture+Thiodan, Capture+Orthene, Pennncap+Danitol, Pennncap+Asana, Pennncap+Ovasyn, Mustang+Orthene, Mustang+M.P.+Thiodan, and Baythroid+Monitor. All of the treatments showed some type of control of the SPWF.

Test C (6-F)

Results of this trial are found in tables C-1 through C-5. Insecticide combinations proved to be the most effective treatments against the SPWF. The best treatments were: Lorsban+Capture, Karate+Pennncap-M, and Karate+Lorsban. All of these treatments displayed effective control compared to the untreated.

Test D (NTN GAUCHO)

Tables D-1 through D-4 present the results of this seed treatment experiment. The intermediate and high treatment rates gave the best overall control although no treatment was completely satisfactory. The low rate of Gaucho gave results little different from those in the untreated check.

Test E (7-FL)

Test E (7-FL)

Results of test E are given in tables E-1 through E-4. Practically all treatments except the untreated check gave fairly effective control, especially against the immature stage. They varied somewhat against the egg and adult stages as shown in Tables E-2 and E-4.

Test F (9-FL)

Conclusions of this test are presented in tables F-1 through F-4. Best controls were Danitol+Orthene, Karate+Orthene, Karate+Lorsban, Karate+PennCap-M, and Karate. All treatments had good control compared to the untreated check.

Summary:

These experiments show several things of importance. First, sweetpotato whitefly can be controlled in cotton at the present time with quite a number of commercially-available insecticides and some that are in the process of being registered. Second, in general, the most effective control is achieved with insecticide combinations, especially a pyrethroid with some other class of chemistry. And third, these materials controlled the whitefly when applications were initiated on either low or high SPWF infestations, although when control was initiated on high populations, overall control was not as satisfactory as when initiated at low levels.

Although there are several very effective combinations of insecticides that can now be used to control the SPWF on cotton, resistance is an ever-present threat and their utilization must be made with this in mind.

Table A-1

Yuma Valley Agricultural Center
The University of Arizona
1993 Chemical Efficacy Trials

Whitefly Test 1-F

TREATMENT NUMBER	CHEMICAL	RATE (a.i./acre)
1	Danitol + Orthene	0.2+0.5
2	Danitol + Orthene + KP7100	0.2+0.5+.5%
3	Danitol + Orthene	0.1+0.5
4	Danitol + Orthene + KP7100	0.1+0.5+.5%
5	Asana XL + Orthene + Kinetic	0.05+0.5+.125%
6	Asana XL + Thiodan + Kinetic	0.05+0.75+.125%
7	Asana XL + Vydate + Kinetic	0.05+0.5+.125%
8	Asana XL + Lannate LV + Kinetic	0.05+0.5+.125%
9	Asana XL + Ovasyn + Kinetic	0.05+0.25+.125%
10	Vydate C-LV + Ovasyn + Kinetic	0.75+0.25+.125%
11	Vydate C-LV + Thiodan + Kinetic	0.75+0.75+.125%
12	Scout X-tra + Phaser	0.022+0.75
13	Scout X-tra + Phaser	0.022+0.5
14	Scout X-tra + Phaser	0.02+0.75
15	HR-20900	0.023
16	CHECK	UNTREATED

Application dates: 6/9, 6/15, 6/22, 6/29, 7/7, 7/13, 7/20.

Table A-2

Summary of SPWF eggs per 1" cotton leaf circle
in field "A", test 1-F, Yuma Arizona 1993.

Mean No.SPWF Eggs / 1"leaf disc.

TREATMENT	RATE(A./A)	SEASON								
		06/08	06/14	06/21	06/28	07/06	07/12	07/19	07/26	MEAN
1 DANITOL+ORTHENE	.2+.5	0.6	1.7	1.0	0.9	0.3	2.2	0.5	1.1	1.1
2 DANITOL+ORTHENE+KP7100	.2+.5+.5%	0.8	1.3	0.7	0.5	0.2	1.5	0.8	1.2	0.9
3 DANITOL+ORTHENE	.1+.5	0.5	1.3	1.0	0.1	0.3	1.3	0.4	1.1	0.8
4 DANITOL+ORTHENE+KP7100	.1+.5+.5%	0.4	0.8	1.2	0.3	0.2	0.8	0.6	0.8	0.6
5 ASANA XL+ORTHENE	.05+.5+.125%KINETIC	0.2	1.0	2.8	0.4	1.5	2.4	1.9	0.2	1.3
6 ASANA XL+THIODAN	.05+.75+.125%KINETIC	0.1	0.7	1.5	1.5	1.1	2.4	1.3	1.9	1.3
7 ASANA XL+VYDATE	.05+.5+.125%KINETIC	0.5	1.5	1.7	1.7	2.8	4.1	2.0	1.8	2.0
8 ASANA XL+LANNATE LV	.05+.5+.125%KINETIC	0.5	1.0	2.2	2.9	1.6	3.4	1.3	0.5	1.7
9 ASANA XL+OVASYN	.05+.25+.125%KINETIC	0.8	1.4	3.3	7.9	2.8	4.6	4.6	4.0	3.7
10 VYDATE C-LV+OVASYN	.75+.25+.125%KINETIC	0.8	2.3	4.4	7.0	4.2	4.0	3.1	2.2	3.5
11 VYDATE C-LV+THIODAN	.75+.75+.125%KINETIC	0.6	1.7	5.8	10.6	2.0	4.5	3.4	1.7	3.8
12 SCOUT X-TRA+PHASER	.022+.75	1.3	2.6	14.4	10.4	6.9	9.8	4.1	1.3	6.4
13 SCOUT X-TRA+PHASER	.022+.5	0.7	1.4	4.2	7.6	14.7	11.5	3.9	5.7	6.2
14 SCOUT X-TRA+PHASER	.02+.75	1.1	2.3	3.5	2.4	11.0	9.6	6.8	4.0	5.1
15 HR-20900	.023	0.4	0.7	5.5	4.9	8.4	18.2	13.4	11.3	7.9
16 CHECK	UNTREATED	0.2	1.8	5.0	20.5	66.1	83.2	102.1	100.5	47.4

Note: Numbers of eggs are the mean of four replications.

Table A-3

Summary of immatures per 1" cotton leaf circle
in field "A", test 1-F, Yuma Arizona 1993.

Mean No.SPWF Immatures / 1"leaf disc.

TREATMENT	RATE(A./A)	SEASON								
		06/08	06/14	06/21	06/28	07/06	07/12	07/19	07/26	MEAN
1 DANITOL+ORTHENE	.2+.5	0.9	0.6	0.5	0.2	0.0	0.2	0.6	0.1	0.4
2 DANITOL+ORTHENE+KP7100	.2+.5+.5%	0.2	0.6	0.0	0.6	0.2	0.0	0.3	0.4	0.3
3 DANITOL+ORTHENE	.1+.5	0.7	0.2	0.4	0.2	0.0	0.6	0.0	0.1	0.3
4 DANITOL+ORTHENE+KP7100	.1+.5+.5%	1.1	0.7	0.6	0.3	0.0	0.3	0.6	0.1	0.5
5 ASANA XL+ORTHENE	.05+.5+.125%KINETIC	0.6	1.1	1.8	0.4	0.3	1.2	3.2	0.5	1.1
6 ASANA XL+THIODAN	.05+.75+.125%KINETIC	0.3	0.4	1.3	1.5	1.2	1.6	2.3	1.1	1.2
7 ASANA XL+VYDATE	.05+.5+.125%KINETIC	1.2	1.2	1.1	1.9	1.2	2.2	2.0	2.0	1.6
8 ASANA XL+LANNATE LV	.05+.5+.125%KINETIC	1.0	0.8	2.6	3.2	3.7	1.5	1.5	0.8	1.9
9 ASANA XL+OVASYN	.05+.25+.125%KINETIC	1.0	0.9	1.0	2.7	1.3	2.1	4.6	1.3	1.9
10 VYDATE C-LV+OVASYN	.75+.25+.125%KINETIC	0.6	0.5	1.6	6.0	4.0	2.3	4.2	2.4	2.7
11 VYDATE C-LV+THIODAN	.75+.75+.125%KINETIC	0.7	1.3	1.7	5.7	1.4	2.6	3.6	1.2	2.3
12 SCOUT X-TRA+PHASER	.022+.75	0.6	1.7	2.8	4.0	7.5	2.0	5.9	1.1	3.2
13 SCOUT X-TRA+PHASER	.022+.5	0.8	1.7	2.8	9.7	8.0	5.2	7.6	5.2	5.1
14 SCOUT X-TRA+PHASER	.02+.75	8.5	0.6	1.2	3.1	7.5	4.0	5.3	5.0	4.4
15 HR-20900	.023	0.6	1.3	1.6	2.7	5.9	7.0	9.6	4.3	4.1
16 CHECK	UNTREATED	0.7	0.9	3.1	8.3	20.6	26.3	62.8	26.0	18.6

Note: Numbers of immatures are the mean of four replications.

Table A-4

Summary of SPWF adults per 50 square cm. oily pan sample
in field "A", test 1-F, Yuma Arizona 1993.

Mean number of Whitefly adults/50 square cm:

TREATMENT	RATE(A.I./A)	SEASON								
		06/08	06/14	06/21	06/28	07/06	07/12	07/19	07/26	MEAN
1 DANITOL+ORTHENE	.2+.5	0.8	3.0	0.0	0.0	1.3	1.8	0.9	1.4	1.2
2 DANITOL+ORTHENE+KP7100	.2+.5+.5%	0.6	0.8	1.3	0.3	0.5	0.6	0.4	0.6	0.6
3 DANITOL+ORTHENE	.1+.5	1.0	2.0	2.0	0.0	0.8	0.0	0.4	1.1	0.9
4 DANITOL+ORTHENE+KP7100	.1+.5+.5%	0.5	0.5	1.5	0.0	0.5	0.3	0.5	1.3	0.6
5 ASANA XL+ORTHENE	.05+.5+.125%KINETIC	0.6	1.3	3.5	0.4	1.8	1.0	0.4	1.8	1.4
6 ASANA XL+THIODAN	.05+.75+.125%KINETIC	1.1	2.3	2.5	0.5	4.0	2.9	1.6	1.1	2.0
7 ASANA XL+VYDATE	.05+.5+.125%KINETIC	0.3	4.0	4.8	1.1	4.8	3.1	2.5	1.4	2.8
8 ASANA XL+LANNATE LV	.05+.5+.125%KINETIC	0.4	3.5	8.3	0.5	3.5	3.9	2.1	0.6	2.9
9 ASANA XL+OVASYN	.05+.25+.125%KINETIC	0.6	2.5	5.3	0.9	4.5	7.1	3.0	16.8	5.1
10 VYDATE C-LV+OVASYN	.75+.25+.125%KINETIC	0.6	3.3	10.5	1.5	4.5	7.8	5.6	19.0	6.6
11 VYDATE C-LV+THIODAN	.75+.75+.125%KINETIC	0.9	1.8	4.0	2.8	3.3	10.6	4.0	9.6	4.6
12 SCOUT X-TRA+PHASER	.022+.75	0.8	1.3	15.5	1.9	8.8	5.1	3.4	17.4	6.8
13 SCOUT X-TRA+PHASER	.022+.5	1.6	1.5	9.3	3.1	4.3	5.4	3.4	21.4	6.3
14 SCOUT X-TRA+PHASER	.02+.75	0.6	5.3	12.8	1.8	3.3	6.1	3.5	8.1	5.2
15 HR-20900	.023	1.5	3.3	8.8	3.8	6.5	4.8	3.8	18.4	6.4
16 CHECK	UNTREATED	1.4	5.5	6.5	8.8	28.5	18.5	24.8	56.1	18.8

Note: Adult numbers are the mean of four replications.

Table A-5

Cotton yields, Lbs. of seedcotton per replicate (2 rows x 60')
in field "A", test 1-F, Yuma Arizona 1993.

Yields were taken on: September 21, 1993.

TREATMENT	RATE(A.I./A)	R E P S.						MEAN	
		I	II	III	IV	SUM			
1 DANITOL+ORTHENE	.2+.5	47.5	54.0	46.0	58.0	205.5	51.4	a	
4 DANITOL+ORTHENE+KP7100	.1+.5+.5%	41.5	54.0	52.0	53.0	200.5	50.1	ab	
5 ASANA XL+ORTHENE	.05+.5+.125%KINETIC	46.5	42.0	47.0	55.0	190.5	47.6	abc	
7 ASANA XL+VYDATE	.05+.5+.125%KINETIC	44.5	42.0	45.0	56.0	187.5	46.9	abcd	
3 DANITOL+ORTHENE	.1+.5	34.5	42.0	48.0	60.0	184.5	46.1	abcd	
2 DANITOL+ORTHENE+KP7100	.2+.5+.5%	35.5	44.0	44.0	50.0	173.5	43.4	abcde	
11 VYDATE C-LV+THIODAN	.75+.75+.125%KINETIC	41.5	36.0	34.0	55.0	166.5	41.6	bcd	
6 ASANA XL+THIODAN	.05+.75+.125%KINETIC	33.0	38.0	39.0	54.0	164.0	41.0	cdef	
8 ASANA XL+LANNATE LV	.05+.5+.125%KINETIC	30.0	38.0	43.0	50.0	161.0	40.3	cdef	
14 SCOUT X-TRA+PHASER	.02+.75	35.0	42.0	34.0	45.0	156.0	39.0	cdefg	
10 VYDATE C-LV+OVASYN	.75+.25+.125%KINETIC	38.0	40.0	35.0	39.0	152.0	38.0	defg	
12 SCOUT X-TRA+PHASER	.022+.75	30.5	23.5	45.0	44.0	143.0	35.8	efg	
15 HR-20900	.023	41.0	24.0	36.0	35.0	136.0	34.0	fg	
13 SCOUT X-TRA+PHASER	.022+.5	39.5	32.0	32.0	31.5	135.0	33.8	fg	
9 ASANA XL+OVASYN	.05+.25+.125%KINETIC	28.0	29.5	25.0	41.0	123.5	30.9	g	
16 CHECK	UNTREATED	10.0	10.0	23.0	27.0	70.0	17.5	h	

NOTE: Treatments followed by the same letter are not statistically significant, using ANOVA/COSTAT Duncan's Multiple Range Test (P<.05)

Table B-1

Yuma Valley Agricultural Center
The University of Arizona
1993 Chemical Efficacy Trials

Whitefly Test 2-F

TREATMENT NUMBER	CHEMICAL	RATE(a.i./acre)
1	ATI-720S +Kinetic	20gr.+40ml.
2	Thiodan Alt.w/ATI-720S(1+2)	.75 Alt.w/above
3	Penncap-M + Danitol	1.0+0.2
4	Penncap-M + Danitol	0.5+0.2
5	Penncap-M + Pounce	0.5+0.2
6	Penncap-M + Asana	0.5+0.05
7	Penncap-M + Ovasyn	0.5+0.25
8	AC303630	0.4
9	AC303630 + Danitol	0.2+0.2
10	Mustang + M.P. + Thiodan	0.0375+0.5+0.75
11	Mustang + Orthene	0.0375+0.5
12	Mustang + Orthene	0.05+0.5
13	Capture + Thiodan	0.7+1.0
14	Capture + Orthene	0.7+0.5
15	Bayrhroid + Monitor	0.05+0.5
16	CHECK	UNTREATED

Application dates: 6/15, 6/22, 6/29, 7/7, 7/13, 7/21.

Table B-2

Summary of SPWF eggs per 1" cotton leaf circle
in field "A", test 2-F, Yuma Arizona 1993.

Mean No.SPWF Eggs / 1"leaf disc.

TREATMENT	RATE(A.I./A)	06/14	06/21	06/28	07/06	07/12	07/19	07/26	SEASON
									MEAN
1 ATI-720S + KINETIC	20grms + 40ml	1.5	12.3	21.3	4.8	87.4	62.2	12.2	28.8
2 THIODAN ALT.W/ATI-720S(1+2)	.75 ALT.W/ABOVE	1.8	5.2	9.2	8.6	11.6	4.1	24.9	9.3
3 PENNCAP-M + DANITOL	1.0 + 2	2.8	1.8	1.1	0.0	0.3	0.2	0.3	0.9
4 PENNCAP-M + DANITOL	.5 + 2	1.2	1.7	0.8	0.4	0.7	0.4	0.3	0.8
5 PENNCAP-M + POUNCE	.5 + 2	2.0	4.2	3.9	6.0	5.1	1.6	3.1	3.7
6 PENNCAP-M + ASANA	.5 + .05	1.4	2.6	2.2	4.2	2.4	3.2	0.7	2.4
7 PENNCAP-M + OVASYN	.5 + .25	1.6	1.8	1.4	3.7	2.3	0.2	1.4	1.8
8 AC303630	.4	0.7	10.4	5.0	7.8	10.5	3.9	7.8	6.6
9 AC303630 + DANITOL	.2 + 2	2.0	1.8	3.0	0.5	1.1	0.4	0.2	1.3
10 MUSTANG + M.P. + THIODAN	.0375 + .5 + .75	3.4	2.7	1.9	1.8	1.3	0.7	0.2	1.7
11 MUSTANG + ORTHENE	.0375 + .5	1.1	2.9	0.7	1.1	0.7	0.8	0.4	1.1
12 MUSTANG + ORTHENE	.05 + .5	3.5	4.5	0.8	0.8	0.8	0.7	1.3	1.8
13 CAPTURE + THIODAN	.07 + 1.0	2.3	2.3	1.2	0.1	0.8	0.1	1.2	1.1
14 CAPTURE + ORTHENE	.07 + .5	5.1	0.5	0.7	0.6	0.2	0.3	1.2	1.2
15 BAYTHROID + MONITOR	.05 + .5	2.1	2.8	1.2	1.6	0.5	0.1	1.8	1.4
16 BAYTHROID + MONITOR	.05 + 1.0	3.2	1.7	1.7	0.4	0.4	0.6	0.9	1.3
17 CHECK	UNTREATED	8.3	13.1	59.6	11.7	21.9	11.1	22.1	21.1

Note: Numbers of eggs are the mean of four replications.

Table B-3

Summary of SPWF immatures per 1" cotton leaf circle
in field "A", test 2-F, Yuma Arizona 1993.

Mean No.SPWF Immatures / 1"leaf disc.

TREATMENT	RATE(A.I./A)	06/14	06/21	06/28	07/06	07/12	07/19	07/26	SEASON
									MEAN
1 ATI-720S + KINETIC	20grms + 40ml	1.5	2.4	9.7	9.1	8.0	24.0	8.8	9.1
2 THIODAN ALT.W/ATI-720S(1+2)	.75 ALT.W/ABOVE	1.8	4.7	3.4	5.2	5.5	5.3	4.1	4.3
3 PENNCAP-M + DANITOL	1.0 + 2	2.8	2.8	2.3	0.6	0.2	0.2	0.1	1.3
4 PENNCAP-M + DANITOL	.5 + 2	1.2	1.6	2.9	0.3	0.2	0.1	0.1	0.9
5 PENNCAP-M + POUNCE	.5 + 2	2.0	3.2	3.7	3.9	1.0	2.5	7.1	3.3
6 PENNCAP-M + ASANA	.5 + .05	1.4	3.3	0.9	1.7	0.7	0.8	0.8	1.4
7 PENNCAP-M + OVASYN	.5 + .25	1.6	2.5	1.5	3.6	0.2	1.5	0.6	1.6
8 AC303630	.4	0.7	5.0	2.0	4.1	2.1	4.6	8.3	3.8
9 AC303630 + DANITOL	.2 + 2	2.0	2.3	2.0	0.9	0.2	0.9	0.0	1.2
10 MUSTANG + M.P. + THIODAN	.0375 + .5 + .75	3.4	2.5	2.3	2.6	1.1	0.9	0.1	1.8
11 MUSTANG + ORTHENE	.0375 + .5	1.1	3.3	2.0	0.6	0.2	0.2	0.0	1.1
12 MUSTANG + ORTHENE	.05 + .5	3.5	2.8	3.1	0.5	0.9	0.1	0.0	1.6
13 CAPTURE + THIODAN	.07 + 1.0	2.3	3.4	1.7	0.4	0.5	0.1	0.2	1.2
14 CAPTURE + ORTHENE	.07 + .5	5.1	2.0	1.6	0.4	0.1	0.0	0.0	1.3
15 BAYTHROID + MONITOR	.05 + .5	2.1	3.6	3.1	0.8	0.2	0.0	0.2	1.4
16 BAYTHROID + MONITOR	.05 + 1.0	3.2	2.5	4.4	0.4	0.4	0.4	0.0	1.6
17 CHECK	UNTREATED	8.3	2.9	39.9	15.4	9.8	10.7	9.3	13.8

Note: Numbers of immatures are the mean of four replications.

Table B-4

Summary of SPWF adults per 50 square cm. oily pan sample
in field "A", test 2-F, Yuma Arizona 1993.

Mean number of Whitefly adults/50 square cm:

TREATMENT	RATE(A.I./A)	SEASON A							MEAN
		06/14	06/21	06/28	07/06	07/12	07/19	07/26	
1 ATI-720S+KINETIC	20grms+40ml	1.8	5.4	3.1	4.0	15.0	4.4	28.8	8.9
2 THIODAN ALT.W/ATI-720S(1+2)	.75 ALT.W/ABOVE	2.6	3.0	3.6	14.0	14.3	4.1	16.5	8.3
3 PENNCAP-M+DANITOL	1.0+.2	6.4	2.3	0.0	0.5	0.3	0.3	0.1	1.4
4 PENNCAP-M+DANITOL	.5+.2	3.0	1.3	0.1	1.5	0.8	0.1	0.0	1.0
5 PENNCAP-M+POUNCE	.5+.2	3.9	6.3	1.1	1.8	3.3	2.1	10.5	4.1
6 PENNCAP-M+ASANA	.5+.05	3.9	4.8	1.0	1.5	2.3	0.5	1.4	2.2
7 PENNCAP-M+OVASYN	.5+.25	4.4	5.3	1.1	1.0	1.1	2.4	1.6	2.4
8 AC303630	.4	2.9	3.5	2.0	4.8	8.3	1.1	5.6	4.0
9 AC303630+DANITOL	.2+.2	5.9	2.5	1.3	2.0	0.3	1.0	0.9	2.0
10 MUSTANG+M.P.+THIODAN	.0375+.5+.75	3.4	1.9	0.6	2.0	1.3	0.5	0.5	1.5
11 MUSTANG+ORTHENE	.0375+.5	3.8	1.3	0.1	0.3	0.8	0.5	0.3	1.0
12 MUSTANG+ORTHENE	.05+.5	3.9	2.4	0.4	0.8	1.5	0.6	0.9	1.5
13 CAPTURE+THIODAN	.07+1.0	2.6	1.0	0.3	0.5	0.8	0.6	0.8	0.9
14 CAPTURE+ORTHENE	.07+.5	3.4	1.8	0.1	1.8	0.8	0.4	0.8	1.3
15 BAYTHROID+MONITOR	.05+.5	2.8	1.9	0.6	1.8	0.8	0.5	0.9	1.3
16 BAYTHROID+MONITOR	.05+1.0	2.1	1.4	0.5	0.8	0.6	0.5	0.8	1.0
17 CHECK	UNTREATED	4.6	5.5	10.8	22.1	28.5	12.9	53.8	19.7

Note: Adult numbers are the mean of four replications.

Table B-5

Cotton yields, Lbs. of seedcotton per replicate (2 rows x 60')
in field "A", test 2-F, Yuma Arizona 1993.

Yields were taken on: September 22, 1993.

TREATMENT	RATE(A.I./A)	R E P S.				SUM	MEAN	
		I	II	III	IV			
16 BAYTHROID+MONITOR	.05+1.0	30.0	42.0	44.0	48.0	164.0	41.0	a
12 MUSTANG+ORTHENE	.05+.5	42.0	28.0	38.0	38.0	146.0	36.5	ab
11 MUSTANG+ORTHENE	.0375+.5	34.0	35.0	36.0	39.0	144.0	36.0	ab
15 BAYTHROID+MONITOR	.05+.5	34.0	38.0	43.0	25.0	140.0	35.0	ab
13 CAPTURE+THIODAN	.07+1.0	30.0	34.0	33.0	41.0	138.0	34.5	ab
14 CAPTURE+ORTHENE	.07+.5	31.0	37.0	26.0	33.0	127.0	31.8	bc
10 MUSTANG+M.P.+THIODAN	.0375+.5+.75	32.0	34.0	34.0	26.0	126.0	31.5	bc
3 PENNCAP-M+DANITOL	1.0+.2	31.0	32.0	36.0	25.0	124.0	31.0	bc
9 AC303630+DANITOL	.2+.2	30.0	28.0	28.0	35.0	121.0	30.3	bc
4 PENNCAP-M+DANITOL	.5+.2	27.0	29.0	29.0	35.0	120.0	30.0	bc
6 PENNCAP-M+ASANA	.5+.05	27.0	26.0	21.0	25.0	99.0	24.8	cd
2 THIODAN ALT.W/ATI-720S(1+2)	.75 ALT.W/ABOVE	23.0	21.0	23.0	24.0	91.0	22.8	de
7 PENNCAP-M+OVASYN	.5+.25	24.0	25.0	14.0	22.0	85.0	21.3	de
5 PENNCAP-M+POUNCE	.5+.2	28.0	20.0	16.0	15.0	79.0	19.8	de
1 ATI-720S+KINETIC	20grms+40ml	16.0	22.0	15.0	18.0	71.0	17.8	def
8 AC303630	.4	15.0	20.0	19.0	8.5	62.5	15.6	ef
17 CHECK	UNTREATED	10.0	11.0	10.0	16.0	47.0	11.8	f

NOTE: Treatments followed by the same letter are not statistically significant, using ANOVA/COSTAT Duncan's Multiple Range Test (P<.05)

Table C-1

Yuma Valley Agricultural Center
The University of Arizona
1993 Chemical Efficacy Trials

Whitefly Test 6-F

TREATMENT NUMBER	CHEMICAL	RATE(a.i./acre)
1	Karate	0.3
2	Karate + Lorsban	0.03+0.75
3	Karate + Penncap-M	0.03+0.5
4	Karate + Ovasyn	0.03+0.125
5	Confidor	0.7
6	Lorsban	0.75
7	Lorsban + Capture	0.75+0.06
8	CHECK	UNTREATED

Application dates: 6/23, 6/29, 7/7, 7/14, 7/28.

Table C-2

Summary of SPWF eggs per 1" cotton leaf circle
in field "A", test 6-F, Yuma Arizona

Mean No.SPWF Eggs / 1"leaf disc.

TREATMENT	RATE(A.I./AC)	SEASON						MEAN
		06/28	07/06	07/12	07/19	07/26	08/02	
1 KARATE	.03	15.1	7.5	8.7	8.3	9.0	14.2	10.5
2 KARATE+LORSBAN	.03+.75	7.0	2.2	4.4	5.3	5.0	22.3	7.7
3 KARATE+PENNCAP-M	.03+.5	8.9	3.9	6.3	4.5	3.6	29.6	9.5
4 KARATE+OVASYN	.03+.125	14.4	4.4	5.3	8.2	8.7	23.8	10.8
5 CONFIDOR	.7 OZ.	16.4	10.2	4.1	3.1	7.2	11.4	8.7
6 LORSBAN	.75	4.9	4.6	8.2	2.5	9.1	38.7	11.3
7 LORSBAN+CAPTURE	.75+.06	9.8	5.4	2.2	2.0	2.7	7.0	4.9
8 CHECK	UNTREATED	26.6	52.2	59.3	18.8	23.3	129.5	51.6

Note: Numbers of eggs are the mean of four replications.

Table C-3

Summary of SPWF immatures per 1" cotton leaf circle
in field "A", test 6-F, Yuma Arizona

Mean No.SPWF Immatures / 1"leaf disc.

TREATMENT	RATE(A.I./AC)	SEASON						MEAN
		06/28	07/06	07/12	07/19	07/26	08/02	
1 KARATE	.03	14.7	7.5	3.0	12.7	4.4	4.5	7.8
2 KARATE+LORSBAN	.03+.75	11.2	1.0	0.9	4.4	0.9	3.9	3.7
3 KARATE+PENNCAP-M	.03+.5	6.8	2.5	1.0	2.7	1.0	4	3.0
4 KARATE+OVASYN	.03+.125	8	4.7	1.9	7.5	1.1	7.6	5.1
5 CONFIDOR	.7 OZ.	19.7	9.0	1.5	3.4	1.7	4.5	6.6
6 LORSBAN	.75	11.4	2.7	1.6	4.4	5.0	9.1	5.7
7 LORSBAN+CAPTURE	.75+.06	12.1	2.2	0.8	1.0	2.0	1.9	3.3
8 CHECK	UNTREATED	8.3	59.0	14.2	18.5	16.1	51.5	27.9

Note: Number of immatures are the mean of four replications.

Table C-4

Summary of SPWF adults per 50 square cm. oily pan sample
in field "A", test 6-F, Yuma Arizona

Mean number of Whitefly adults/50 square cm:

TREATMENT	RATE(A.I./AC)							SEASON
		06/28	07/06	07/12	07/19	07/26	08/02	MEAN
1 KARATE	.03	5.3	19.9	32.5	5.4	11.6	19.9	15.8
2 KARATE+LORSBAN	.03+.75	2.3	10.5	31.8	2.1	3.6	8.9	9.9
3 KARATE+PENNCAP-M	.03+.5	2.4	4.8	8.3	1.1	2.2	3.5	3.7
4 KARATE+OVASYN	.03+.125	2.4	14.5	25.5	2.4	9.5	15.1	11.6
5 CONFIDOR	.7 OZ.	5.4	7.8	21.3	2.8	7.0	4.4	8.1
6 LORSBAN	.75	1.1	10.0	10.5	3.6	9.6	9.8	7.4
7 LORSBAN+CAPTURE	.75+.06	4.6	6.0	5.8	0.8	3.2	2.3	3.8
8 CHECK	UNTREATED	5.0	20.6	64.0	13.9	30.2	82.4	36.0

Note: Adult numbers are the mean of four replications.

Table C-5

Cotton yields, Lbs. of seedcotton per replicate (2 rows x 60')
in field "A", test 6-F, Yuma Arizona

Yields were taken on: September 27, 1993.

TREATMENT	RATE(A.I./A)	REPS.				SUM	MEAN	
		I	II	III	IV			
2 KARATE+LORSBAN	.03+.75	39.5	40.5	39.0	39.7	158.7	39.7	a
7 LORSBAN+CAPTURE	.75+.06	38.0	42.0	36.0	37.0	153.0	38.3	a
5 CONFIDOR	.7 OZ.	38.5	36.5	40.0	36.0	151.0	37.8	a
3 KARATE+PENNCAP-M	.03+.5	29.0	42.5	34.0	36.0	141.5	35.4	ab
6 LORSBAN	.75	33.0	36.0	32.5	37.5	139.0	34.8	ab
4 KARATE+OVASYN	.03+.125	39.5	36.0	23.0	32.8	131.3	32.8	ab
1 KARATE	.03	34.0	28.0	35.5	20.0	117.5	29.4	b
8 CHECK	UNTREATED	22.0	14.5	23.0	22.0	81.5	20.4	c

NOTE: Treatments followed by the same letter are not statistically significant, using ANOVA/COSTAT Duncan's Multiple Range Test (P<.05)

Table D-1

Yuma Valley Agricultural Center
The University of Arizona
1993 Chemical Efficacy Trials

Whitefly Test: NTN (Gaucho) seed treatment

TREATMENT No.	CHEMICAL	RATE(per cwt.)
1	NTN	8 OZ.
2	NTN	10 OZ.
3	NTN	12 OZ.
4	UNTREATED	

Table D-2

Summary of SPWF eggs per 1" cotton leaf circle
in field "A", NTN (Gaucho) cottonseed treatment trial, Yuma Arizona 1993.

Mean No.SPWF Eggs / 1"leaf disc.

TREATMENTS	SEASON												MEAN
	5/3	5/10	5/17	5/24	6/01	6/07	6/14	6/21	6/28	07/06	07/12	07/19	
1.-NTN 8 oz.	1.5	1.2	1.7	0.6	0.4	0.6	2.3	10.3	8.2	102.6	304.7	82.8	43.1
2.-NTN 10 oz.	0.9	1.4	1.7	1.0	0.3	0.3	4.8	13.1	17.2	90.4	52.1	78.1	21.8
3.-NTN 12 oz.	1.0	1.6	1.4	0.6	0.5	0.2	6.1	16.3	19.4	68.4	164.3	78.6	29.9
4.-UNTREATED	0.7	2.2	2.2	1.5	0.3	0.4	3.4	18.0	23.2	117.5	213.5	113.5	41.4

Note: Number of eggs are the mean of four replications.

Table D-3

Summary of immatures per 1" cotton leaf circle
in field "A", NTN (Gaucho) cottonseed treatment trial, Yuma Arizona 1993.

Mean No.SPWF Immatures / 1"leaf disc.

TREATMENTS	SEASON												MEAN
	5/3	5/10	5/17	5/24	6/01	6/07	6/14	6/21	6/28	07/06	07/12	07/19	
1.-NTN 8 oz.	0.0	0.0	0.2	0.9	0.6	0.6	0.7	5.2	16.0	13.4	64.7	92.5	16.2
2.-NTN 10 oz.	0.3	0.2	0.2	0.3	0.1	0.5	0.9	6.2	14.9	17.1	20.3	35.3	8.0
3.-NTN 12 oz.	0.1	0.3	0.1	0.8	0.6	0.4	0.5	5.9	12.2	11.1	34.7	85.0	12.6
4.-UNTREATED	0.2	0.1	0.2	0.7	0.5	1.1	0.9	7.9	30.0	18.7	72.8	88.1	18.4

Note: Numbers of immatures are the mean of four replications.

Table D-4

Summary of SPWF adults per 50 square cm. oily pan sample
in field "A", NTN (Gaucho) cottonseed treatment trial, Yuma Arizona 1993.

Mean number of Whitefly adults/50 square cm:

TREATMENTS	SEASON										MEAN
	6/01	6/07	6/14	6/21	6/28	07/06	07/12	07/19			
1.-NTN 8 oz.	0.8	1.1	10.3	13.9	13.9	45.6	67.1	45.0	24.7		
2.-NTN 10 oz.	1.0	1.5	8.1	13.4	13.4	44.0	84.0	36.8	25.3		
3.-NTN 12 oz.	0.3	0.4	12.8	13.6	13.6	48.1	42.6	42.1	21.7		
4.-UNTREATED	0.5	0.8	13.5	9.5	9.5	58.6	83.3	47.1	27.9		

Note: Adult numbers are the mean of four replications.

Table E-1

Yuma Valley Agricultural Center
The University of Arizona
1993 Chemical Efficacy Trials

Whitefly Test 7-F

TREATMENT NUMBER	CHEMICAL	RATE (a.i./acre)
1	Admire	0.043
2	Admire + Monitor	0.043+0.5
3	Admire + Guthion	0.043+0.5
4	Admire + Baythroid	0.043+0.035
5	Mustang + Capture + Orthene	0.0375+0.5+0.5
6	Mustang + Orthene	0.0375+0.5
7	Mustang + Orthene + FMC5273	0.0375+0.5+0.3
8	Mustang + Lorsban	0.0375+0.5
9	Danitol + Orthene	0.2+0.5
10	Danitol + Orthene	0.1+0.25
11	V-10009	0.7
12	V-10009	0.375
13	S-71639	30gr (1Appl.)
14	S-71639	30gr (2Appl.)
15	S-71639	30gr (4Appl.)
16	CHECK	UNTREATED

Application dates: 8/18, 8/26 (Exc.T#13), 9/1 (Exc.T#13&14),
9/8 (Exc.T#13&14), 9/15 (Exc.T#13-15) and
9/22 (Exc.T#13-15).

Table E-2

Summary of SPWF eggs per 1" cotton leaf circle
in field "A", test 7-F, Yuma Arizona

Mean No.SPWF Eggs / 1"leaf disc.

MATERIAL	RATE(A.I./ACRE)	SEASON							MEAN
		8/23	08/30	09/07	09/13	09/20	09/27		
1 ADMIRE	0.043	159.7	133.0	11.5	4.0	3.1	1.4	52.1	
2 ADMIRE+MONITOR	0.043+0.5	48.8	76.1	4.0	3.6	3.4	1.2	22.9	
3 ADMIRE+GUTHION	0.043+0.5	96.2	37.8	9.1	4.0	2.3	1.2	25.1	
4 ADMIRE+BAYTHROID	0.043+0.035	122.0	53.8	8.7	6.3	3.6	1.0	32.6	
5 MUSTANG+CAPTURE+ORTHENE	0.0375+0.02+0.5	87.5	61.6	9.2	5.3	1.3	1.0	27.7	
6 MUSTANG+ORTHENE	0.0375+0.5	95.6	17.5	6.1	4.5	1.1	1.6	21.1	
7 MUSTANG+ORTHENE+FMCS293	0.0375+0.5+0.3	93.2	23.6	3.8	6.2	0.4	1.0	21.4	
8 MUSTANG+LORSBAN	0.0375+0.5	127.2	52.8	6.0	9.8	7.4	1.2	34.1	
9 DANITOL+ORTHENE	0.2+0.5	56.5	6.8	3.4	2.2	1.9	1.2	12.0	
10 DANITOL+ORTHENE	0.1+0.25	57.3	12.5	6.1	2.7	2.2	0.8	13.6	
11 V-10009	0.7	42.8	11.6	4.5	1.3	0.8	0.6	10.3	
12 V-10009	0.375	57.6	18.7	5.0	2.9	1.0	1.5	14.5	
13 S-71639	30grms(1 APPLICATION)	181.3	186.0	52.3	29.1	5.6	7.3	76.9	
14 S-71639	30grms(2 APPLICATIONS)	280.7	271.8	120.6	35.8	12.2	11.0	122.0	
15 S-71639	30grms(4 APPLICATIONS)	352.7	227.3	128.8	71.8	13.4	11.3	134.2	
16 CHECK	UNTREATED	312.8	265.2	154.9	52.8	8.5	16.2	135.1	

Note: Numbers of eggs are the mean of four replications.

Table E-3

Summary of SPWF immatures per 1" cotton leaf circle
in field "A", test 7-F, Yuma Arizona

Mean No.SPWF Immatures / 1"leaf disc.

MATERIAL	RATE(A.I./ACRE)	SEASON							MEAN
		8/23	08/30	09/07	09/13	09/20	09/27		
1 ADMIRE	0.043	10.3	28.9	3.0	2.8	3.4	1.6	8.3	
2 ADMIRE+MONITOR	0.043+0.5	5.9	21.0	2.9	3.5	2.7	1.7	6.3	
3 ADMIRE+GUTHION	0.043+0.5	12.2	12.7	2.6	2.9	2.3	1.9	5.8	
4 ADMIRE+BAYTHROID	0.043+0.035	9.0	24.7	3.7	5.9	3.4	1.2	8.0	
5 MUSTANG+CAPTURE+ORTHENE	0.0375+0.02+0.5	11.2	17.7	2.2	2.9	2.4	1.0	6.2	
6 MUSTANG+ORTHENE	0.0375+0.5	6.0	3.4	2.8	5.3	1.4	0.6	3.3	
7 MUSTANG+ORTHENE+FMCS293	0.0375+0.5+0.3	40.9	17.2	1.9	1.6	3.3	0.9	11.0	
8 MUSTANG+LORSBAN	0.0375+0.5	13.2	25.5	4.5	5.2	4.1	2.2	9.1	
9 DANITOL+ORTHENE	0.2+0.5	8.9	3.4	1.4	1.0	1.3	0.0	2.7	
10 DANITOL+ORTHENE	0.1+0.25	3.6	1.0	1.6	0.5	0.5	0.4	1.3	
11 V-10009	0.7	5.4	3.3	2.6	0.1	0.9	0.1	2.1	
12 V-10009	0.375	5.1	2.9	2.4	2.1	1.7	0.5	2.5	
13 S-71639	30grms(1 APPLICATION)	9.9	3.4	2.4	17.8	6.2	3.7	7.2	
14 S-71639	30grms(2 APPLICATIONS)	10.3	1.0	1.1	2.0	2.3	3.8	3.4	
15 S-71639	30grms(4 APPLICATIONS)	32.8	0.0	0.0	0.2	0.3	0.9	5.7	
16 CHECK	UNTREATED	17.5	73.6	11.1	20.2	5.8	6.0	22.4	

Note: Numbers of immatures are the mean of four replications.

Table E-4

Summary of SPWF adults per 50 square cm. oily pan sample
in field "A", test 7-F, Yuma Arizona

Mean number of Whitefly adults/50 square cm:

MATERIAL	RATE(A.I./ACRE)	SEASON							MEAN
		8/23	08/30	09/07	09/13	09/20	09/27		
1 ADMIRE	0.043	45.0	3.4	1.7	1.4	1.4	1.6	9.1	
2 ADMIRE+MONITOR	0.043+0.5	17.1	5.4	1.1	0.8	1.0	1.2	4.4	
3 ADMIRE+GUTHION	0.043+0.5	27.9	3.4	1.7	1.5	0.6	0.6	6.0	
4 ADMIRE+BAYTHROID	0.043+0.035	30.1	4.0	0.4	2.7	1.1	0.4	6.5	
5 MUSTANG+CAPTURE+ORTHENE	0.0375+0.02+0.5	15.4	3.9	0.4	0.4	0.6	0.5	3.5	
6 MUSTANG+ORTHENE	0.0375+0.5	8.0	6.0	0.6	1.0	0.1	0.5	2.7	
7 MUSTANG+ORTHENE+FMC5293	0.0375+0.5+0.3	10.0	3.5	0.9	2.0	0.6	0.6	2.9	
8 MUSTANG+LORSBAN	0.0375+0.5	58.4	4.7	1.4	5.4	1.0	1.2	12.0	
9 DANITOL+ORTHENE	0.2+0.5	3.2	1.7	0.1	0.2	0.0	0.4	0.9	
10 DANITOL+ORTHENE	0.1+0.25	5.8	6.1	0.5	0.0	0.1	0.4	2.2	
11 V-10009	0.7	8.7	3.2	0.7	0.0	0.4	0.4	2.2	
12 V-10009	0.375	15.7	3.5	1.9	0.6	0.2	0.0	3.7	
13 S-71639	30grms(1 APPLICATION)	24.5	12.6	2.5	2.4	3.0	2.4	7.9	
14 S-71639	30grms(2 APPLICATIONS)	63.4	11.2	3.4	2.5	1.6	3.0	14.2	
15 S-71639	30grms(4 APPLICATIONS)	100.5	12.5	4.6	3.7	4.2	5.6	21.9	
16 CHECK	UNTREATED	108.6	13.1	4.5	4.1	4.1	12.0	24.4	

Note: Adult numbers are the mean of four replications.

Table F-1

Yuma Valley Agricultural Center
The University of Arizona
1993 Chemical Efficacy Trials

Whitefly Test 9-F

TREATMENT NUMBER	CHEMICAL	RATE (a.i./acre)
1	Karate + Penncap-M	0.03+0.5
2	Karate + Penncap-M	0.03+0.25
3	Karate + Orthene	0.03+0.5
4	Karate + Orthene	0.03+0.25
5	Karate + Lorsban	0.03+0.75
6	Karate	0.03
7	Danitol + Orthene	0.2+0.25
8	CHECK	UNTREATED

Application dates: 8/18, 8/26, 9/1, 9/8, 9/15, 9,22.

Table F-2

Summary of SPWF eggs per 1" cotton leaf circle
in field "A", test 9-F, Yuma Arizona.

		Mean No.SPWF Eggs / 1"leaf disc.							SEASON
TREATMENT	RATE(A.I./A)	8/23	08/30	09/07	09/13	09/20	09/27	MEAN	
1 KARATE+PENNCAP-M	0.03+0.5	96.6	48.0	18.1	6.5	13.0	4.9	31.2	
2 KARATE+PENNCAP-M	0.03+0.25	142.7	95.5	15.7	22.4	17.2	8.3	50.3	
3 KARATE+ORTHENE	0.03+0.5	69.3	40.5	7.8	6.8	4.6	2.0	21.8	
4 KARATE+ORTHENE	0.03+0.25	53.9	24.1	10.3	12.6	5.4	2.0	18.1	
5 KARATE+LORSBAN	0.03+0.75	96.3	80.7	11.4	13.6	8.6	5.0	35.9	
6 KARATE	0.03	96.4	50.8	17.5	9.5	13.8	10.6	33.1	
7 DANITOL+ORTHENE	0.2+0.25	34.9	18.0	5.5	4.6	5.1	1.1	11.5	
8 CHECK	UNTREATED	392.2	341.1	86.6	69.4	281.3	116.9	214.6	

Note: Numbers of eggs are the mean of four replications.

Table F-3

Summary of SPWF immatures per 1" cotton leaf circle
in field "A", test 9-F, Yuma Arizona.

		Mean No.SPWF Immatures / 1"leaf disc.							SEASON
TREATMENT	RATE(A.I./A)	8/23	08/30	09/07	09/13	09/20	09/27	MEAN	
1 KARATE+PENNCAP-M	0.03+0.5	7.8	6.7	11.2	8.6	6.8	2.7	7.3	
2 KARATE+PENNCAP-M	0.03+0.25	8.1	33.6	13.0	12.9	7.9	5.7	13.5	
3 KARATE+ORTHENE	0.03+0.5	4.2	23.2	1.7	1.1	1.6	0.6	5.4	
4 KARATE+ORTHENE	0.03+0.25	4.6	10.9	8.3	2.1	2.6	0.5	4.8	
5 KARATE+LORSBAN	0.03+0.75	7.5	19.5	10.6	9.0	5.8	2.3	9.1	
6 KARATE	0.03	6.9	14.9	13.3	13.2	9.5	3.8	10.3	
7 DANITOL+ORTHENE	0.2+0.25	4.4	3.7	2.8	2.2	3.1	0.4	2.8	
8 CHECK	UNTREATED	18.0	163.3	38.0	35.0	28.6	27.6	51.8	

Note: Numbers of immatures are the mean of four replications.

Table F-4

Summary of SPWF adults per 50 square cm. oily pan sample
in field "A", test 9-F, Yuma Arizona.

		Mean number of Whitefly adults/50 square cm:							SEASON
TREATMENT	RATE(A.I./A)	8/23	08/30	09/07	09/13	09/20	09/27	MEAN	
1 KARATE+PENNCAP-M	0.03+0.5	29.9	3.6	1.6	4.5	4.4	1.4	7.6	
2 KARATE+PENNCAP-M	0.03+0.25	56.8	2.4	4.1	2.1	7.1	0.6	12.2	
3 KARATE+ORTHENE	0.03+0.5	9.3	2.6	1.3	1.0	0.4	0.4	2.5	
4 KARATE+ORTHENE	0.03+0.25	12.5	2.9	1.1	0.9	1.0	0.5	3.2	
5 KARATE+LORSBAN	0.03+0.75	39.8	3.9	3.0	9.8	1.6	0.8	9.8	
6 KARATE	0.03	40.8	4.8	4.4	15.6	5.5	4.6	12.6	
7 DANITOL+ORTHENE	0.2+0.25	7.5	2.1	0.6	1.3	0.1	0.4	2.0	
8 CHECK	UNTREATED	91.1	29.6	6.1	28.8	32.9	15.4	34.0	

Note: Adult numbers are the mean of four replications.