

Applied Research Report

Insecticidal Control of *Creontiades signatus* in Cotton

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Summary

A trial was conducted with the purpose of comparing control of *Creontiades signatus* with insecticides. *Creontiades signatus* control was achieved by 3 days after application with all but the nicotinoid insecticides (Trimax Pro and Intruder). The nicotinoid insecticides controlled the insects by 7 days after application.

Materials and Methods

A trial was established on 10 June 2008. Plots were four rows wide, 35 feet long. Row spacing was 40 inches. The cotton variety was and crop maturity was early bloom.

Applications were made with a CO₂ backpack sprayer with a 4-row boom. The 4-row boom is operated at 38 PSI using tx-4 nozzles on 20-inch nozzle spacing. Treatments were applied at a speed of 3 MPH and a spray volume of 7.12 GPA.

Ten insecticide treatments and an untreated check were evaluated in this trial (Table 1). Pretreatment population was 7.05 bugs per beat sheet sample. All insecticide treatments included Agridex at 0.5% v/v. Treatments were made on two application dates: 10 June and 24 June 2008. The initial rate of Baythroid was determined to be too high so the rate was reduced in the second application.

Sampling was accomplished by using a beat sheet. Sample size was 6 row feet and two samples were taken per plot at each sampling date and averaged for analysis. Data evaluated included nymph, adult and total *Creontiades* at 3, 7 and 10 days after application A (DA-A) and 3 and 7 days after application B (DA-B). Analysis of the data was done using ARM.

Results and Discussion

Several things were learned through this study. First, the order chemicals are added together is important in mixing pesticides. Treatments containing acephate were improperly mixed on the first application date. This was due to combining the dry formulation of acephate and Agridex prior to adding water. The result of this error was the formation of a gel that was not able to be removed from the containers. This gel also resulted in a misapplication, thus, acephate containing treatments were not properly applied during the first treatment date.

Second, the use of a beat sheet was used for sampling instead of the sweep net. No data was taken comparing these sampling methods, but the beat sheet captured nymphs when the sweep net seemed more erratic. The issue of sampling method for *Creontiades* should be examined in future studies.

Statistical differences occurred for numbers of nymphs, adults and total *Creontiades* at the first four of five sampling dates. At three days after the first application (DA-A), control of *Creontiades* was achieved by Vydate, Baythroid, Leverage. The addition of Trimax-Pro, tank mixed with Acephate, Vydate, or Intruder did not change the level of control compared to the insecticides used without Trimax-Pro.

At 3 DA-A, the Trimax-Pro and Intruder did not reduce the numbers of Adult or nymph *Creontiades* (Tables 2, 3 and 4). Previous research conducted by Dr. Scott Armstrong and Randy Coleman indicated that while mortality from these classes of insecticides may not occur by 72 hours, feeding stops almost immediately.

By 7 DA-A, all treatments had fewer nymphs than the untreated and all but the Acephate treatment had fewer adults than the untreated control.

Three days after the second application (DA-B) insect control was achieved (or maintained) by all treatments. By 7 DA-B, no nymphs were found in the treated or untreated plots.

These results indicate that *Creontiades signatus* control can be achieved with the insecticides used in this trial. It is important to note that while insecticides in the nicotinoid class (Trimax Pro and Intruder) control this insect, the effects are not seen as quickly as the carbamate, organophosphate, and pyrethroid insecticides (Acephate, Vydate-CLV and Baythroid). The addition of Trimax Pro to other insecticides did not increase the level of control.

Table 1. Insecticide treatments evaluated for control of *Creontiades signatus* (Calhoun County, Texas, 2008).

		Rate		Timing
1	Untreated			
2	Acephate	0.5	LB/A	A
		0.5	LB/A	B
3	Vydate-CLV	10.7	OZ/A	A
		10.7	OZ/A	B
4	Trimax Pro	1.8	OZ/A	A
		1.8	OZ/A	B
5	Baythroid	5.5	OZ/A	A
		2.6	OZ/A	B
6	Leverage	5	OZ/A	A
		5	OZ/A	B
7	Intruder	0.8	OZ/A	A
		0.8	OZ/A	B
8	Intruder	1.1	OZ/A	A
		1.1	OZ/A	B
9	Trimax Pro	1.8	OZ/A	A
	Acephate	0.5	LB/A	A
	Trimax Pro	1.8	OZ/A	B
	Acephate	0.5	LB/A	B
10	Trimax Pro	1.8	OZ/A	A
	Vydate-CLV	10.7	OZ/A	A
	Trimax Pro	1.8	OZ/A	B
	Vydate-CLV	10.7	OZ/A	B
11	Trimax Pro	1.8	OZ/A	A
	Intruder	0.8	OZ/A	A
	Trimax Pro	1.8	OZ/A	B
	Intruder	0.8	OZ/A	B

Table 2. Number of *Creontiades signatus* nymphs per beat sheet sample (Calhoun County, Texas, 2008).

	Rate		Timing	6/13/2008	6/17/2008	6/20/2008	6/27/2008	7/1/2008
				3 DA-A	7 DA-A	10 DA-A	3 DA-B	7 DA-B
1 Untreated				4.25 a	4.5 a	2.38 a	1.38 a	0 a
2 Acephate	0.5 LB/A	A		3.75 a	2.25 b	1.63 ab	0.38 b	0 a
	0.5 LB/A	B						
3 Vydate-CLV	10.7 OZ/A	A		0.38 bc	0.5 bc	0.38 c	0 b	0 a
	10.7 OZ/A	B						
4 Trimax Pro	1.8 OZ/A	A		3.25 a	2.25 b	0.88 bc	0.25 b	0 a
	1.8 OZ/A	B						
5 Baythroid	5.5 OZ/A	A		0.25 c	0 c	0 c	0 b	0 a
	2.6 OZ/A	B						
6 Leverage	5 OZ/A	A		0.25 c	0 c	0.13 c	0 b	0 a
	5 OZ/A	B						
7 Intruder	0.8 OZ/A	A		2.5 ab	1.5 bc	0.38 c	0.38 b	0 a
	0.8 OZ/A	B						
8 Intruder	1.1 OZ/A	A		3.13 a	1.38 bc	0.13 c	0.13 b	0 a
	1.1 OZ/A	B						
9 Trimax Pro Acephate Trimax Pro Acephate	1.8 OZ/A	A		2.38 abc	0.63 bc	0.25 c	0 b	0 a
	0.5 LB/A	A						
	1.8 OZ/A	B						
	0.5 LB/A	B						
10 Trimax Pro Vydate-CLV Trimax Pro Vydate-CLV	1.8 OZ/A	A		0.63 bc	0.13 c	0 c	0 b	0 a
	10.7 OZ/A	A						
	1.8 OZ/A	B						
	10.7 OZ/A	B						
11 Trimax Pro Intruder Trimax Pro Intruder	1.8 OZ/A	A		2.25 abc	0.5 bc	0 c	0.13 b	0 a
	0.8 OZ/A	A						
	1.8 OZ/A	B						
	0.8 OZ/A	B						
LSD (P=.10)			2.148	1.818	0.921	0.607	0	
CV			85.6	122.32	137.88	211.89	0	
Replicate F			4.904	0.755	0.215	0.674	0	
Replicate Prob(F)			0.0068	0.5282	0.885	0.5747	1	
Treatment F			2.743	3.232	4.08	2.564	0	
Treatment Prob(F)			0.0158	0.0062	0.0013	0.0225	1	

Means followed by same letter do not significantly differ (P=.10, LSD).

Table 3. Number of *Creontiades signatus* adults per beat sheet sample (Calhoun County, Texas, 2008).

			6/13/2008		6/17/2008		6/20/2008		6/27/2008		7/1/2008	
	Rate	Timing	3 DA-A	7 DA-A	10 DA-A	3 DA-B	7 DA-B					
1	Untreated		5.88 a	2.75 b	6.25 a	1.13 a	0.63 ab					
2	Acephate	0.5 LB/A A	5.38 a	4 a	3 bc	0.25 b	1 a					
		0.5 LB/A B										
3	Vydate-CLV	10.7 OZ/A A	0.5 b	0.88 cde	1.25 c-f	0.13 b	0.13 b					
		10.7 OZ/A B										
4	Trimax Pro	1.8 OZ/A A	4.13 a	2 bc	2.38 b-e	0.38 b	0.13 b					
		1.8 OZ/A B										
5	Baythroid	5.5 OZ/A A	0.13 b	0.13 e	0.38 f	0.13 b	0.25 b					
		2.6 OZ/A B										
6	Leverage	5 OZ/A A	0.25 b	0 e	0.75 ef	0 b	0 b					
		5 OZ/A B										
7	Intruder	0.8 OZ/A A	4.25 a	1.5 cd	2.88 bcd	0.25 b	0.13 b					
		0.8 OZ/A B										
8	Intruder	1.1 OZ/A A	5.38 a	1.75 bc	3.13 b	0 b	0.13 b					
		1.1 OZ/A B										
9	Trimax Pro	1.8 OZ/A A	3.63 a	0.5 de	2.13 b-f	0 b	0.13 b					
	Acephate	0.5 LB/A A										
	Trimax Pro	1.8 OZ/A B										
	Acephate	0.5 LB/A B										
10	Trimax Pro	1.8 OZ/A A	0.38 b	1.13 cde	1.13 def	0 b	0 b					
	Vydate-CLV	10.7 OZ/A A										
	Trimax Pro	1.8 OZ/A B										
	Vydate-CLV	10.7 OZ/A B										
11	Trimax Pro	1.8 OZ/A A	3.38 a	1 cde	1.5 b-f	0.13 b	0 b					
	Intruder	0.8 OZ/A A										
	Trimax Pro	1.8 OZ/A B										
	Intruder	0.8 OZ/A B										
LSD (P=.10)			2.837	1.22	1.791	0.527	0.636					
CV			78.21	71.56	66.35	203.37	233.11					
Replicate F			7.565	1.31	1.649	2.859	1.727					
Replicate Prob(F)			0.0007	0.2892	0.1991	0.0535	0.1825					
Treatment F			3.712	5.411	4.729	2.21	1.372					
Treatment Prob(F)			0.0025	0.0001	0.0004	0.0456	0.24					

Means followed by same letter do not significantly differ (P=.10, LSD).

Table 4. Total number of *Creontiades signatus* per beat sheet sample (Calhoun County, Texas, 2008).

			6/13/2008	6/17/2008	6/20/2008	6/27/2008	7/1/2008
	Rate	Timing	3 DA-A	7 DA-A	10 DA-A	3 DA-A2	7 DA-A2
1	Untreated		10.1 a	7.25 a	4.313 a	2.5 a	0.63 ab
2	Acephate	0.5 LB/A A	9.1 a	6.25 ab	2.313 b	0.63 b	1 a
		0.5 LB/A B					
3	Vydate-CLV	10.7 OZ/A A	0.9 bc	1.38 de	0.813 cd	0.13 b	0.13 b
		10.7 OZ/A B					
4	Trimax Pro	1.8 OZ/A A	7.4 a	4.25 bc	1.625 bc	0.63 b	0.13 b
		1.8 OZ/A B					
5	Baythroid	5.5 OZ/A A	0.4 c	0.13 e	0.188 d	0.13 b	0.25 b
		2.6 OZ/A B					
6	Leverage	5 OZ/A A	0.5 c	0 e	0.438 cd	0 b	0 b
		5 OZ/A B					
7	Intruder	0.8 OZ/A A	6.8 a	3 cd	1.625 bc	0.63 b	0.13 b
		0.8 OZ/A B					
8	Intruder	1.1 OZ/A A	8.5 a	3.13 cd	1.625 bc	0.13 b	0.13 b
		1.1 OZ/A B					
9	Trimax Pro	1.8 OZ/A A	6 a	1.13 de	1.188 bcd	0 b	0.13 b
	Acephate	0.5 LB/A A					
	Trimax Pro	1.8 OZ/A B					
	Acephate	0.5 LB/A B					
10	Trimax Pro	1.8 OZ/A A	1 bc	1.25 de	0.563 cd	0 b	0 b
	Vydate-CLV	10.7 OZ/A A					
	Trimax Pro	1.8 OZ/A B					
	Vydate-CLV	10.7 OZ/A B					
11	Trimax Pro	1.8 OZ/A A	5.6 ab	1.5 cde	0.75 cd	0.25 b	0 b
	Intruder	0.8 OZ/A A					
	Trimax Pro	1.8 OZ/A B					
	Intruder	0.8 OZ/A B					
LSD (P=.10)			4.83	2.806	1.1938	1.037	0.636
CV			78.71	87.93	70.89	190.19	233.11
Replicate F			6.684	0.96	1.287	1.764	1.727
Replicate Prob(F)			0.0014	0.4242	0.2967	0.1753	0.1825
Treatment F			3.46	4.219	5.406	2.814	1.372
Treatment Prob(F)			0.004	0.001	0.0001	0.0138	0.24

Table 4. Lint yield for selected insecticide treatments (Calhoun County, Texas, 2008).

				Lint Yield		
				lbs/A		
		Rate	Timing	7/28/2008		
1	Untreated			600.51	a	
2	Vydate-CLV	10.7	OZ/A	A	594.39	a
		10.7	OZ/A	B		
3	Trimax Pro	1.8	OZ/A	A	633.61	a
		1.8	OZ/A	B		
4	Leverage	5	OZ/A	A	650.52	a
		5	OZ/A	B		
5	Intruder	0.8	OZ/A	A	614.18	a
		0.8	OZ/A	B		
LSD (P=.10)				83.247		
CV				10.68		
Replicate F				3.253		
Replicate Prob(F)				0.0598		
Treatment F				0.499		
Treatment Prob(F)				0.7373		

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M University System is implied. Readers should realize that results from one experiment do not represent conclusive evidence that the same response would occur where conditions vary.