

Applied Research Report

***Creontiades signatus* in Grain Sorghum of South Texas**

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Summary

A trial was conducted with the purpose of evaluating the effect of *Creontiades signatus* in grain sorghum. The pyrethroid insecticide, Mustang Max, controlled adult and nymph *Creontiades* but, while Dimethoate provided an initial reduction in numbers, reinfestation occurred by 8 DAT. No yield differences were found by 12 DAT. The numbers of *Creontiades* was found above 100 per head in some treatments.

Materials and Methods

A trial was established on 30 July 2009 as a randomized complete block with four replications. Plots were six, 40-inch rows wide, 50 feet long. Insecticide applications were made using a 2-row CO₂ backpack sprayer calibrated at 9 gallons per acre.

Treatments were as follows:

1. Untreated
2. Mustang Max (4 oz./A)
3. Dimethoate (8 oz./A)

Sorghum heads were tagged in three maturity groups the day before applications: Milk, soft dough and hard dough. Insect counts were made for each maturity group, 1,4 and 8 days after treatment (DAT) by beating three heads per plot into a 2-gallon bucket and counting the adult and nymph *Creontiades* in the bucket.

Fifteen sorghum heads per plot were harvested for each maturity group 12 days after application because the field was being commercially harvested. The sorghum heads were threshed and the grain was weighed to determine yield.

Results and Discussion

Population counts indicate that Mustang Max provided control and the plots were not reinfested within 8 DAT. Dimethoate provided an initial knockdown of the bugs but the plots were reinfested by 8 DAT.

Other interesting observations can be made based on the data obtained in this trial. In the untreated plots, the more mature heads had higher numbers of bugs than the heads at milk stage at 1 DAT (Figure 1). By 8 DAT, the younger heads had more bugs than the older maturity stages. This can be explained by a little logic.

Adult *Creontiades* probably lay eggs on plants after they have bloomed. If so, nymphal populations would increase as the head matured, explaining why older heads had more bugs than younger heads.

Another possible explanation is sampling error caused by the small sample size which would allow for outliers to have a greater impact on the average number of insects per head.

Yield differences did not occur between treatments. This could be due to several factors. 1) This insect does not cause yield reduction, 2) the yield reduction caused by this insect was done prior to insecticide applications, or 3) There was not sufficient time for the untreated insects to cause damage prior to harvest. More research should be conducted to address the pest status of *Creontiades signatus*.

What is alarming is the high numbers of this insect on the sorghum heads. If they do cause yield and/or quality reductions, how many bugs per head would justify the cost of insecticide applications.

Table 1. Population counts of *Creontiades signatus* on milk stage grain sorghum heads 1, 4 and 8 days after insecticide treatment. (Calhoun County, 2009).

Rating Date	7/31/2009	7/31/2009	7/31/2009	8/3/2009	8/3/2009	8/3/2009	8/7/2009	8/7/2009	8/7/2009
Crop Stage Majority	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk
Pest Stage Majority	ADULT	NYMPH	Total	ADULT	NYMPH	Total	ADULT	NYMPH	Total
Trt-Eval Interval	1 DA-A	1 DA-A	1 DA-A	4 DA-A	4 DA-A	4 DA-A	8 DA-A	8 DA-A	8 DA-A
1 Untreated	4 a	5 a	9 a	8 a	20 a	27 a	6 a	55 a	61.3 a
2 Mustang Max 4 OZ/A	0 a	1 b	1 b	0 b	1 a	1 a	1 a	2 b	3.5 b
3 Dimethoate 8 OZ/A	1 a	1 b	1 b	2 b	14 a	16 a	3 a	31 ab	33.8 ab
LSD (P=.10)	3.2	2.6	4.7	3.4	22.4	23.2	3.8	31	34.46
CV	165.13	81.13	90.54	81.08	139.54	114.29	81.04	76.66	76.4
Treatment Prob(F)	0.1231	0.0259	0.0256	0.0127	0.3165	0.1676	0.1013	0.0442	0.0472

Table 2. Population counts of *Creontiades signatus* on soft dough stage grain sorghum heads 1, 4 and 8 days after insecticide treatment. (Calhoun County, 2009).

Rating Date	7/31/2009	7/31/2009	7/31/2009	8/3/2009	8/3/2009	8/3/2009	8/7/2009	8/7/2009	8/7/2009
Crop Stage Majority	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk
Pest Stage Majority	ADULT	NYMPH	Total	ADULT	NYMPH	Total	ADULT	NYMPH	Total
Trt-Eval Interval	1 DA-A	1 DA-A	1 DA-A	4 DA-A	4 DA-A	4 DA-A	8 DA-A	8 DA-A	8 DA-A
1 Untreated	2 a	23 a	26 a	5 a	34 a	39 a	2 a	18 a	19.5 a
2 Mustang Max 4 OZ/A	0 c	6 a	6 a	0 b	2 a	2 a	1 a	0 a	0.5 a
3 Dimethoate 8 OZ/A	1 b	4 a	5 a	1 b	5 a	6 a	0 a	6 a	6 a
LSD (P=.10)	0.9	25.3	24.9	3.1	29.7	31.2	1.4	21.2	22.31
CV	59.58	171.46	152.95	112.11	159.89	146.28	131.47	195.18	187.4
Treatment Prob(F)	0.0077	0.3188	0.2578	0.0564	0.1392	0.1104	0.2441	0.3135	0.3065

Table 3. Population counts of *Creontiades signatus* on hard dough stage grain sorghum heads 1, 4 and 8 days after insecticide treatment. (Calhoun County, 2009).

Rating Date	7/31/2009	7/31/2009	7/31/2009	8/3/2009	8/3/2009	8/3/2009	8/7/2009	8/7/2009	8/7/2009
Crop Stage Majority	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk
Pest Stage Majority	ADULT	NYMPH	Total	ADULT	NYMPH	Total	ADULT	NYMPH	Total
Trt-Eval Interval	1 DA-A	1 DA-A	1 DA-A	4 DA-A	4 DA-A	4 DA-A	8 DA-A	8 DA-A	8 DA-A
1 Untreated	8 a	35 a	43 a	9 a	97 a	106 a	6 a	42 a	47.5 a
2 Mustang Max 4 OZ/A	0 b	1 b	2 b	0 b	1 b	1 b	1 b	3 b	3.5 b
3 Dimethoate 8 OZ/A	1 b	16 ab	17 ab	3 b	22 b	24 b	1 b	31 a	31.3 a
LSD (P=.10)	5.4	23.3	28	4.5	48.7	50.1	3.2	26.4	25.32
CV	128.37	98.47	100.32	88.11	88.75	83.53	104.49	76.48	67.22
Treatment Prob(F)	0.0503	0.0817	0.071	0.0279	0.0193	0.0153	0.0404	0.0684	0.0392

Figure 1. Total *Creontiades signatus* per head of untreated grain sorghum plots. (Calhoun County, 2009).

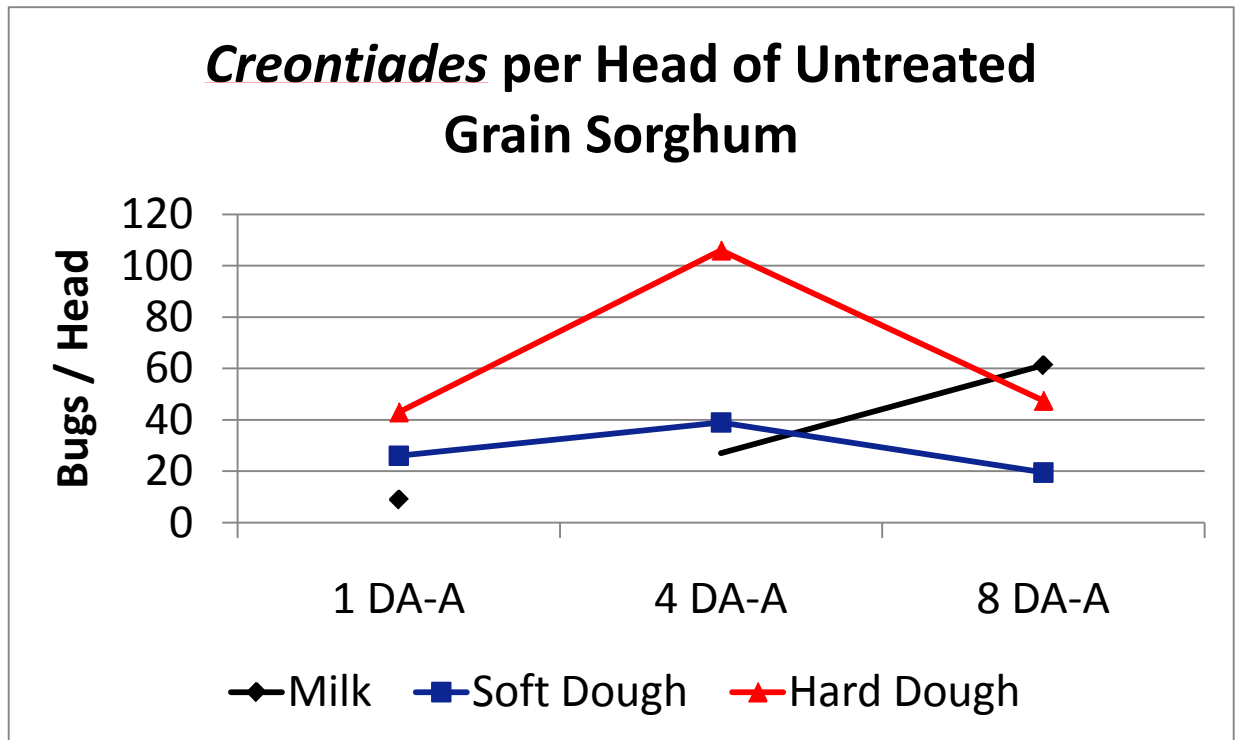


Table 4. Grain sorghum yield of fifteen heads per plot from each of three groups of head maturity at insecticide treatment 12 days after treatment. (Calhoun County, 2009).

Rating Date	8/11/2009	8/11/2009	8/11/2009	8/11/2009
Crop Stage Majority	Milk	Soft Dou	Hard Dou	Total
1 Untreated Check	166 a	933 a	1097 a	2194.5 a
2 Mustang Max 4 OZ/A	159 a	856 a	1118 a	2132.3 a
3 Dimethoate 8 OZ/A	176 a	878 a	1178 a	2232 a
LSD (P=.10)	58	213.4	347.4	395.99
CV	25.34	17.47	22.36	13.18
Treatment Prob(F)	0.8403	0.7827	0.8971	0.8871

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