

Applied Research Report

Effect of Thrips (*Caliothrips phasiolii*) on Soybeans at Bloom

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Summary

A trial was conducted with the purpose of evaluating the effect thrips populations had on drought stressed soybeans. Endigo and Acephate insecticides were applied and thrips population counts, damage ratings, leaf counts and yield data were assessed. The thrips caused significant damage but additional studies should be conducted to further evaluate this effect and determine best management practices.

Materials and Methods

A trial was established on 17 July 2009 for the purpose of determining the effect of thrips on Soybeans. The trial was laid out as a randomized complete block with four replications. Plots were 6 rows wide and 50 feet long.

Treatments were as follows:

- | | |
|---------------------------|--------------|
| 1. Untreated | |
| 2. Endigo (4 oz/A) | 17 July 2009 |
| Endigo (4 oz/A) | 17 July 2009 |
| 3. Acephate (0.5 lb/Acre) | 17 July 2009 |
| Acephate (0.75 lb/Acre) | 17 July 2009 |

The thrips species was determined to be *Caliothrips phasiolii*. Insect counts were made by placing three trifoliate leaves in a jar of soapy water from each plot 3 days after the first application and 8 days after the second application. In the lab, the leaves were rinsed to dislodge thrips into the soapy water solution which was then filtered on coffee filters. Thrips were counted under magnification using a stereoscope.

Leaf counts were made on 12 August, dead plant counts were made on 21

August and harvest was conducted on 17 September.

Results and Discussion

Thrips control was obtained with the Endigo and acephate treatments (Table 1).

Damage ratings indicate that insect control provided a benefit. The untreated plots had significantly higher damage than the insecticide treatments. Although the insect counts were not statistically different, the Acephate treatment had more damage than the Endigo plots.

Plants treated with Endigo had more leaflets per plant than the Acephate treated plots and the untreated plots. This indicates that thrips populations above 10 per leaflet could be responsible for yield reduction.

The drought conditions caused very low yields on this field. While the plots where thrips was controlled had 75 and 148 lbs/A beans more than untreated plots, yield was not statistically different between treatments.

Table 1. Thrips populations at 3 days after application first application and 8 days after second application of insecticides (Calhoun County, 2009).

Rating Date			7/20/2009			8/13/2009
Rating Type			Thrips/leaflet		Thrips/leaflet	
Days After First/Last Application			3 / 3		27 / 8	
1	Untreated Check		66.3	a	93	a
2	Endigo	4 oz/A A	4.6	b	1.8	b
	Endigo	4 oz/A B				
3	Acephate	0.5 lb/A A	11.4	b	12.3	b
	Acephate	0.75 lb/A B				
LSD (P=.10)			35.39		16	
CV			93.88		32.66	
Treatment Prob(F)			0.0279		0.0001	

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

Table 2. Damage ratings at 11 days after application first application and 5 days after second application of insecticides (Calhoun County, 2009).

Rating Date			7/28/2009			8/10/2009
Rating Type			Damage Rating*		Damage Rating	
Rating Unit			1-5		1-5	
Days After First/Last Applic.			11 11		24 5	
Trt-Eval Interval			11 DA-A		24 DA-A	
1	Untreated Check		3.4	a	4.2	a
2	Endigo	4 oz/A A	2.2	b	2.3	c
	Endigo	4 oz/A B				
3	Acephate	0.5 lb/A A	2.9	a	3.1	b
	Acephate	0.75 lb/A B				
LSD (P=.10)			0.54		0.32	
CV			13.81		7.39	
Treatment Prob(F)			0.0147		0.0001	

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

*Damage Rating: 1=good, 5=poor.

Table 3. Leaf counts, percent dead plants and yield for insecticide treatments for thrips control (Calhoun County, 2009).

Rating Date	8/12/2009		8/21/2009		9/17/2009	
Rating Type	Leaflet/plant		% dead plants		Yield	
Rating Unit					lb/A	
Days After First/Last Applic.	26	7	35	16	62	43
1 Untreated Check	22.8	b	45.01	a	130.7	a
2 Endigo 4 oz/A A	32.9	a	19.53	a	278.7	a
Endigo 4 oz/A B						
3 Acephate 0.5 lb/A A	22.7	b	27.92	a	206.4	a
Acephate 0.75 lb/A B						
LSD (P=.10)	8.2		25.049		116.69	
CV	22.85		59.16		41.37	
Treatment Prob(F)	0.0855		0.2123		0.1228	

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

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