

## Applied Research Report

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### Summary of Five Trials Evaluating *Caliothrips phasiolii* in Soybeans 2009

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#### Introduction

Five trials were established in July and August 2009 with the purpose of evaluating the impact of thrips populations on soybean growth and yield. The Methods of these trials can be found in the Applied Research Reports. All were conducted as Randomized Complete Block trials with 2-4 replications. Thrips populations were quantified at various times pre and post insecticide application. Damage ratings, leaf counts and yield were evaluated.

#### Results and Discussion

In each of the trials, 2 insecticides were used to attempt to reduce thrips populations to near zero. While these trials were not an attempt to determine insecticide efficacy, some knowledge can be gained by the levels of control obtained by the insecticides used. It can be determined that dimethoate is not an insecticide that should be recommended for management of this thrips species (*Caliothrips phasiolii*). While Acephate was somewhat effective at control, the combined effects of pyrethroid and a neonicotinoids insecticide in the products Endigo and Leverage provided good control and sufficient residual to prohibit re-infestation for up to 20 days after application.

Across the five trials, damage ratings and leaf counts indicate that injury caused by the thrips by feeding on the leaves with their rasping and sucking mouthparts has the potential to cause significant problems in the plants ability to photosynthesize.

Yield was measured in two of the trials. While this data was not statistically different when analyzed separately, the data shows significant differences when the yield of these two trials is compared together (Table 1).

The next logical step is to attempt to determine the population of the pest that causes economic loss. With only these five trials to use in this determination, it appears that the economic threshold is somewhere between 10 and 25 thrips per leaflet on

soybeans in the reproductive phase of growth. The key may be in one of the trials where the Acephate treatment provided control that left 11.4 thrips per leaflet.

In this trial yield was measured and determined not to be statistically different between treatments. In spite of the lack of significant differences in yield and since we only have these five trials to use as evaluation tools; it appears that the treatment threshold may be around 10 thrips per leaflet in soybeans in the reproductive phase of development.

Since there are only a limited amount of data on this insect additional research is needed to better evaluate economic impact and treatment thresholds of this pest. The use of 10 thrips per leaflet, or any other threshold, to manage this pest is currently just a best guess and should be more fully evaluated.

**Table 1.** Soybean yield from two trials investigating the effects of *Caliothrips phasiolii* on soybean growth and production. (Calhoun County, TX, 2009).

<b>Treatment</b>	<b>Yield (Lbs/A)</b>
Untreated	123.9 b
Endigo (4 oz/A + 4 oz/A)	259.2 a
Acephate (0.5 oz/A + 0.75 oz/A)	217.9 a
LSD (p=0.1)	79.07
Treatment Prob. (F)	0.0304

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