

# Influence of Thimet® 20G on Thrips Management and Cotton Yield

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## Abstract

In 2011, a regional study consisting of replicated, small plot tests was initiated to examine the effects of Thimet® 20G (phorate) on early-season thrips management in cotton. Field trials were conducted by University or Extension scientists located in AL, GA, SC, and VA. Granular soil insecticides were applied in-furrow at planting. Measurements focused on plant stand, adult and immature thrips counts, and cotton yield. Insecticide treatments did not influence plant stand; however, numbers of adult and immature thrips were lowered. In parallel with thrips counts, granular soil insecticide treatments did average greater lint yield compared with untreated cotton. In these field trials, Thimet provided lower thrips counts and increased cotton yields, but did not affect plant stands.

## Introduction

Early season insect control, particularly for thrips, is a key component to establishing an adequate plant stand and initiating healthy cotton plants. Seed treatments and at planting, in-furrow insecticides, such as Thimet® 20G (phorate) and Temik® 15G (aldicarb), have been utilized as the first step in managing thrips in cotton. Historically, granular soil insecticides such as Thimet and Temik have provided favorable systemic activity and control of several early season insect and mite pests while offering a different mode of action than seed treatment insecticides. Further, Thimet is available in a closed handling system (Lock ‘n Load®).

With the loss of Temik and moderate efficacy of seed treatment insecticides, farmers, crop advisors, and Extension entomologists have inquired about the performance of Thimet against early-season thrips. The primary objective of this study was to confirm the efficacy of Thimet 20G and compare efficacy of Thimet 20G and Temik 15G for control of thrips in a regional study. Findings are reported.

## Materials and Methods

**Design.** Each trial was established as a randomized complete block design with four replications. Plots contained four treated rows of cotton (35-50 ft. long) planted on 36-38 inch row spacing. Each site was planted with a locally adapted variety that was tolerant to glyphosate and expressed Bacillus thuringiensis protein. Further, each site had a reasonably uniform soil profile and was planted within a commercially acceptable planting window. Four trials with substantial thrips counts (> 18 immature and adult thrips per 5 plants per sample date) were included in the analysis. Trial locations are summarized in Table 1.

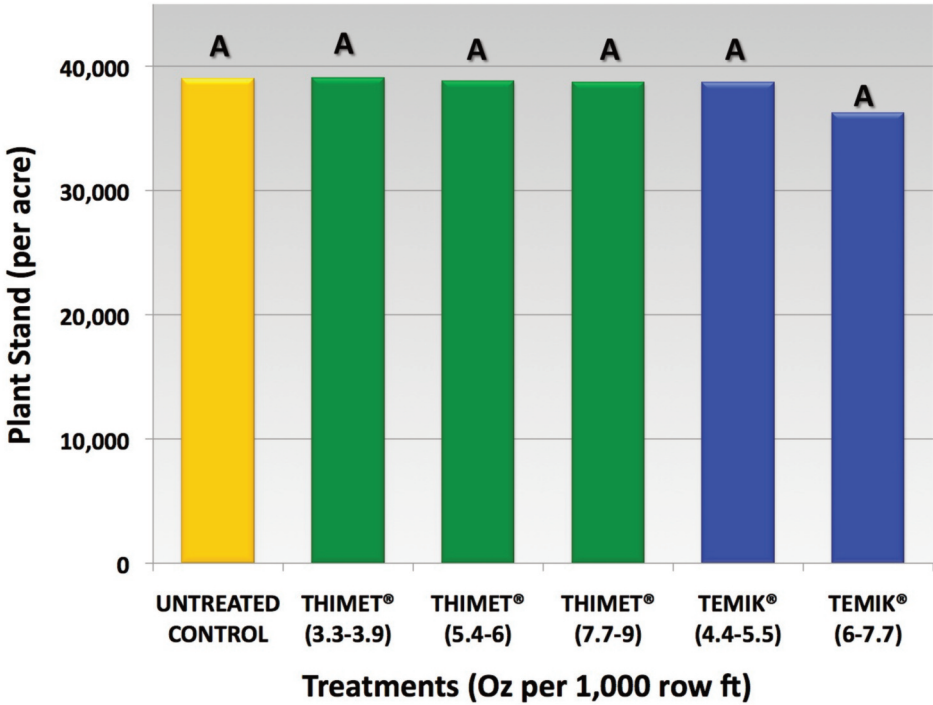
**Application.** At planting, three rates of Thimet 20G (3.3–3.9, 5.4–6, and 7.7–9 oz. formulated product per 1,000 row ft.) and two rates of Temik 15G (4.4–5.5 and 6–7.7 oz. formulated product per 1,000 row ft.) were applied in-furrow. Plant growth, weed, and pest management inputs (including insects after early season thrips evaluations) were administered according to locally accepted practices, and all plots within each trial were treated identically.

**Field Observations.** From the center rows of each plot, plant stand and multiple counts of adult and immature thrips were recorded. Plots were harvested with a cotton picker, and harvested seed cotton from each plot was weighed and converted to a per acre yield estimate.

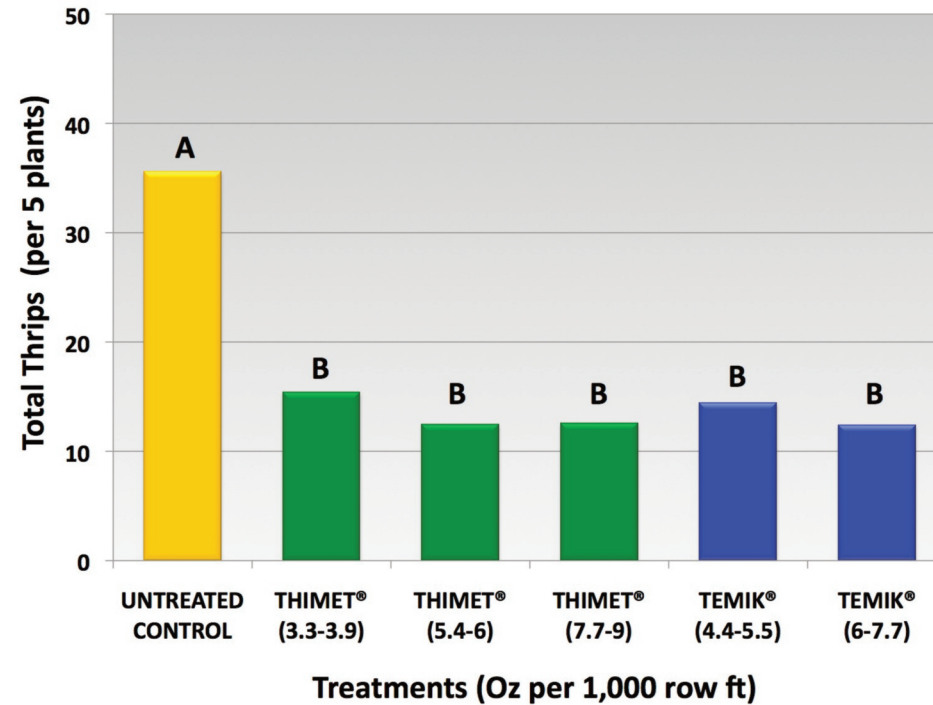
**Data Analysis.** Data were subjected to an analysis of variance (ANOVA) and Student-Newman-Keuls (p=0.05 for thrips and p=0.1 for plant measurements; protected means separation test.) Thrips counts were subjected to square root transformation prior to analysis. Based on analysis using Grubbs’ statistic (extreme studentized deviate or ESD), one yield value was discarded.

**Table 1.** Summary of trial locations investigating Thimet 20G in cotton. 2011.

Organization	Location	City, State
Auburn University	Prattville Agricultural Research Unit	Prattville, Alabama
University of Georgia	Coastal Plain Experiment Station	Tifton, Georgia
Clemson University	Edisto Research and Extension Center	Blackville, South Carolina
Virginia Tech	Tidewater Agricultural Research and Extension Center	Suffolk, Virginia



**Figure 1.** Mean numbers of cotton plants per acre, 2011. Bars with the same letter are not significantly different (protected Student-Newman-Keuls (P<0.1)).

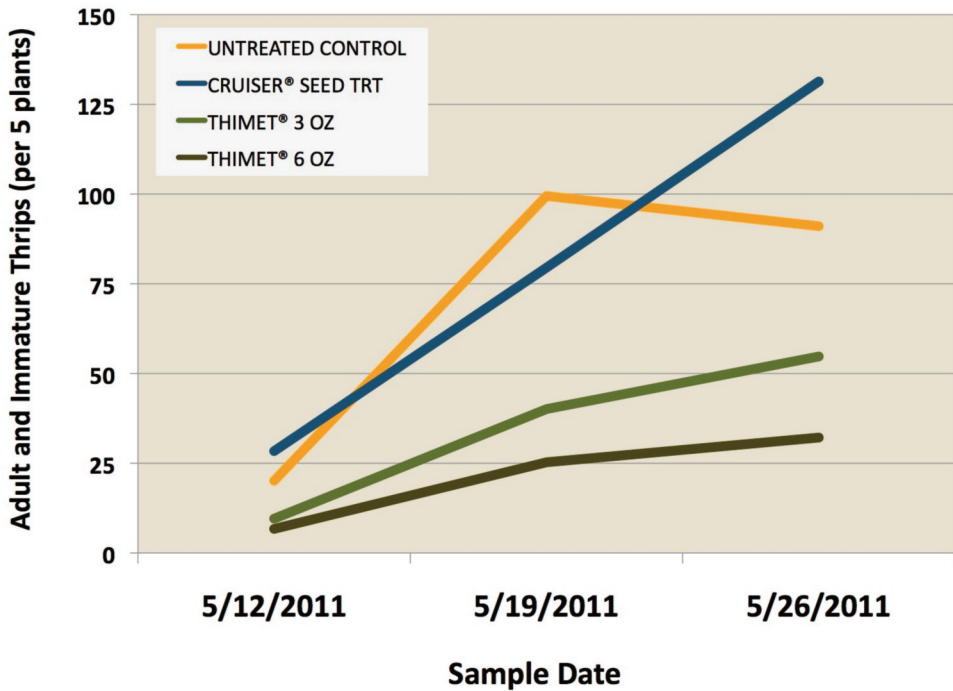


**Figure 2.** Mean numbers of total thrips (immature and adult) in cotton averaged by sample date, 2011. Bars with the same letter above them are not significantly different (protected Student-Newman-Keuls (P<0.05). Data analyzed after square root transformation.

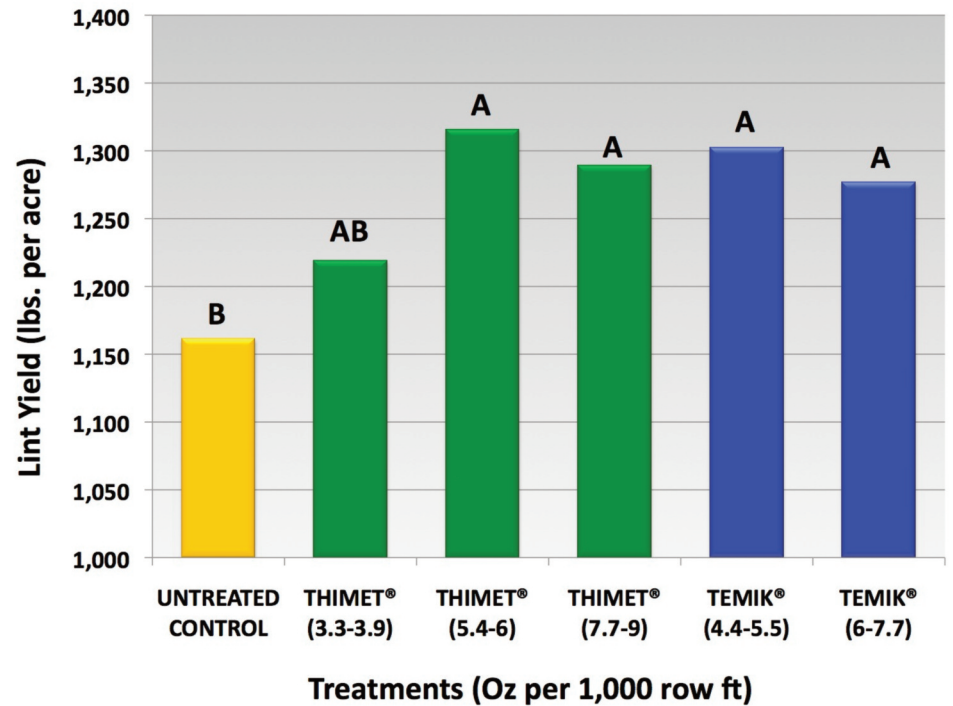
## Results and Discussion

### Key Findings from 2011 Trials:

- No significant differences were observed in plant stand (Figure 1).
- Thimet provided control of thrips similar to Temik, and cotton treated with both granular soil insecticides averaged significantly fewer thrips counts than the untreated control (Figure 2).
- In an example from Georgia, Thimet treated cotton averaged fewer thrips compared with the untreated control or Cruiser® (Figure 3).
- Thimet and Temik significantly increased cotton lint yields by 115 to 154 pounds per acre above the untreated control, except for the lowest rate of Thimet (3.3 to 3.9 oz. per 1,000 row ft.) which was numerically greater (+58 pounds per acre) than the untreated control yield of 1,161 pounds per acre (Figure 4).



**Figure 3.** Example of results with Thimet: total thrips (immature and adult) in cotton by sample date, Coastal Plain Experiment Station, Tifton, Georgia, 2011. Thimet 20G rates are ounces formulated product per 1,000 row feet and Cruiser® Seed Treatment applied by manufacturer.



**Figure 4.** Mean lint cotton yield (lbs. per acre), 2011. Bars with the same letter above them are not significantly different (protected Student-Newman-Keuls (P<0.1)).

## Conclusions

In an evaluation of cotton trials conducted in 2011 that contained sufficient thrips pressure to evaluate treatment effects, plant stands, total thrips counts, and yields were quite similar for Thimet and Temik. Based on a limited set of locations (n=4 trials), Thimet performance compared favorably with Temik.

## Acknowledgment

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