ON FARM EVALUATION OF PLANTING DATES AND TILLAGE PRACTICE ON THRIPS MANAGEMENT PROGRAMS IN GEORGIA COTTON

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Abstract

Thrips can cause significant economic loss to cotton growers during the first 30 days of the crops development. The use of at-plant insecticides have aided in the efforts to reduce this risk, however the addition of a foliar insecticide for thrips control around one leaf cotton has proven to increase yields if thrips pressure is high. Planting date is the primary cultural practice which influences thrips infestations in cotton. During the 2016 growing season, thrips infestations were 2 times higher on cotton planted prior to May 10th compared with later plantings. Orthene applied at first leaf consistently reduced thrips damage. However, early planted cotton had a significantly greater response in terms of plant growth when compared to the later plantings. This study was conducted with the help of UGA Ag Agents in 59 fields across 21 counties.

Introduction

Thrips can cause significant economic loss to cotton growers during the first 30 days of the crops development. The use of at plant insecticides have aided in the efforts to reduce this risk, however the addition of a foliar insecticide for thrips around 14 DAP has proven to increase yields if thrips pressure is high. The purpose of this study is to investigate the effect of planting date and tillage on thrips infestations and plant response to a supplemental foliar insecticide at the 1-leaf stage. This study was conducted in 59 fields across 21 counties with the help of ag agents from across Georgia.

Materials and Methods

For this study, agents were asked to collect a variety of background data about the field as well as make observations on their two visits. On the first visit, timed at one leaf, an agent would record the field name, county, planting date, variety, at-plant insecticide, tillage practice, date of first visit, as well as take visual ratings as to the damage caused by the thrips to seedlings in multiple plots. Four sample containers with ten plants per container were used to

sample for thrips numbers during this first visit. The agent would then setup a four-block replicated field trial using border rows between treatments, comparing the application of Orthene to an untreated check. Fourteen days after the first visit agents would rate the plots for thrips damage and collect samples of plants within the plots to compare growth characteristics such as biomass, height, and nodes.

Results and Discussion

With respect to planting date, the earlier planted fields had significantly higher numbers of thrips when compared to later plantings (Figure 1). Thrips populations were also higher in the conventional tillage fields as compared to reduced tillage fields. These two criteria were then combined to analyze fields based on high risk, conventional tillage planted prior to May 10th, and low risk, reduced tillage planted on any date combined with conventional tillage planted after May 10th.

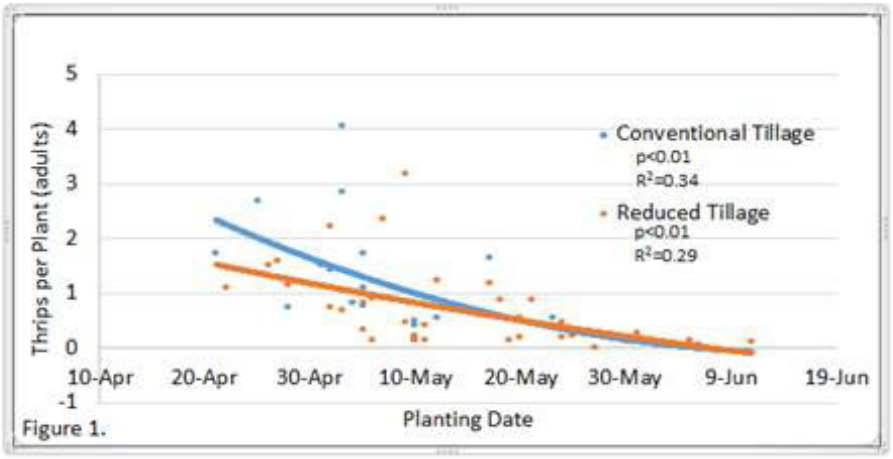

Figure 1. Thrips present per planting date.

The use of Orthene as a one leaf spray as compared across dates, shows that the use of Orthene on earlier plantings had a greater effect on biomass response than that of later plantings (Figure 2). Again we see the response slow around May 10th with the reduced thrips pressure.

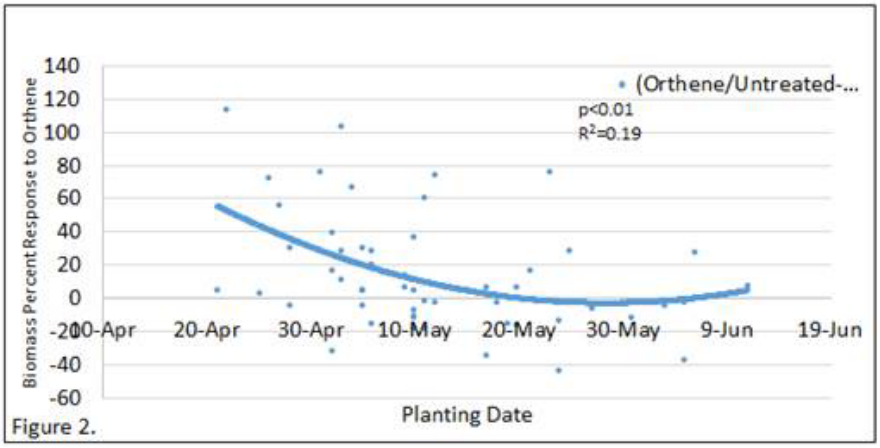

Figure 2. Biomass response to Orthene.

Initial thrips populations were nearly three times greater in a high risk environment, conventional tillage planted prior to May 10th, when compared to initial populations in low risk environments, all other plantings (Figure 3).

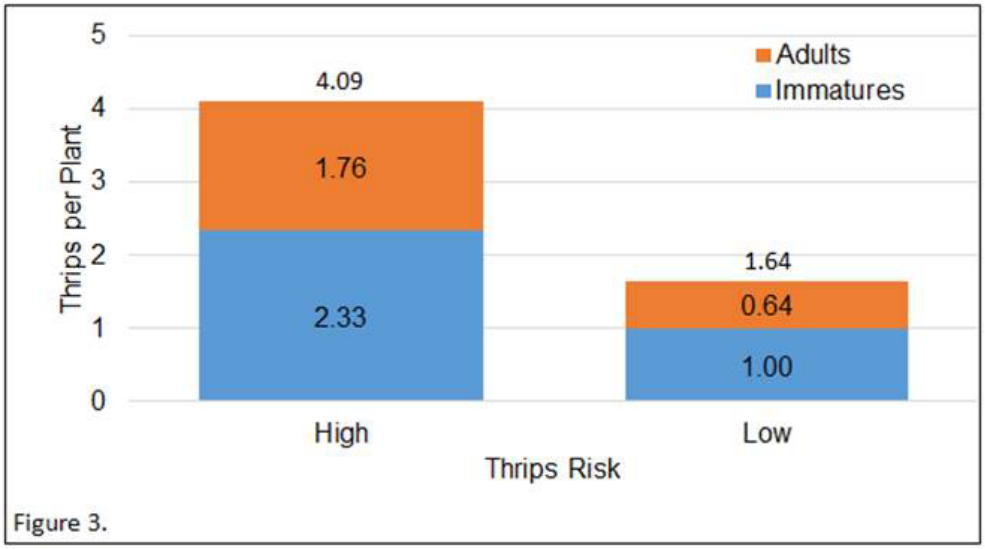

Figure 3. Thrips population comparison by risk level.

The use of Orthene as a foliar application on first leaf cotton significantly reduced the thrips damage rating in both high and low risk fields. Damage ratings in untreated plots in high risk fields tended to be greater than untreated plots in low risk fields (Figure 4).

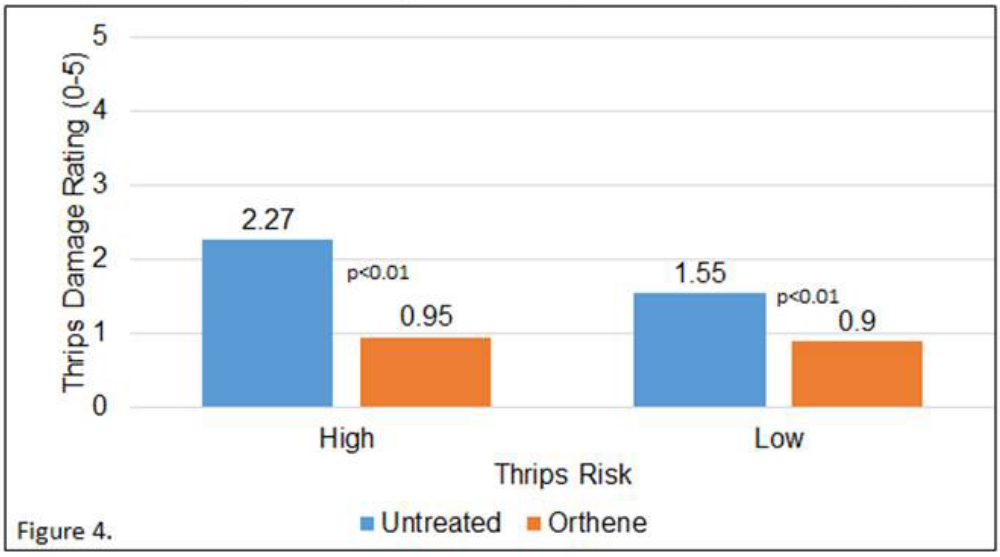

Figure 4. Thrips damage rating comparison by risk level

Summary

Planting date has a significant effect on thrips infestations and injury potential in Southeastern cotton fields. The degree of thrips management required for yield preservation is greater, earlier in the season. Using the historical breaking point of May 10th when dividing dates of high versus low risk in conventional tillage systems worked well in 2016 but environmental conditions more accurately influence the shift of that breaking point. Thrips dispersal varies from year to year based on temperature and rainfall in late winter through early spring. Using the TIPs model will allow us to better predict thrips risk environments and help growers/ag agents improve thrips management programs.

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