<u>Abstract</u>

Thrips are an important early season pest of cotton in the Mid-South. Thrips have been managed in the past almost entirely by applying an insecticide seed treatment containing either imidacloprid or thiamethoxam. Resistance to thiamethoxam has been documented. Therefore, it is important to investigate alternatives, such as varietal resistance/tolerance for thrips management. In 2015, eight commercial varieties were evaluated for possible resistance or tolerance to tobacco thrips. Results show that there were differences in thrips populations among varieties as well as differences in yield loss due to thrips.

Introduction

The tobacco thrips, *Frankliniella fusca* (Hinds), is the predominant species found in Mid-South cotton the majority of the time (Stewart, et al. 2013). Thrips are managed almost entirely by applying insecticide seed treatments containing either imidacloprid or thiamethoxam. Resistance to thiamethoxam was detected in 2013 and has all but eliminated this product as a choice for thrips management in the Mid-South, leaving growers with fewer options. Because imidacloprid and thiamethoxam are both in the neonicotinoid class of chemistry, there are concerns that resistance to imidacloprid is not far behind. Foliar applications are an option, but growers often have difficulty getting applications out on time and also run the risk of flaring secondary pests such as spider mites and aphids. Host plant resistance to thrips has been detected in some varieties in the past (Zhang et. Al. 2013). Therefore, it is important to investigate host plant resistance as a potential management option.

Materials and Methods

A small plot trial examining eight commercially available cotton varieties was conducted at the Northeast Research and Extension Center, Keiser, AR. Plots were 4 rows wide by 13.7 meters long, arranged in a randomized complete block design with 4 replications. Each variety had a no insecticide seed treatment (fungicide only) and an imidacloprid + fungicide treatment. Thrips were collected from each plot weekly for 4 weeks following emergence by clipping 5 plants from each plot and washing thrips from plants using alcohol. All plots were taken to yield by harvesting the 2 rows that were not sampled. All data were analyzed using Agriculture Research Manager (Gylling Data Management) version 2015 software.

Results

The total number of thrips counted across all four sampling dates in untreated plots are reported as the seasonal total and are shown in Figure 1. Yields were taken from the two rows that were not sampled for thrips. Yield from the plots that were not treated with imidacloprid seed treatment were compared to the yields in the imidacloprid treated plots and reported as yield loss due to thrips in Figure 2.



Figure 1. Tobacco thrips per 5 plants in untreated plots, season long total. Bars with the same letter do not significantly differ (P=0.05, LSD).



Figure 2. Yield loss (lbs/acre) due to tobacco thrips

<u>Summary</u>

Differences in tobacco thrips numbers were detected between varieties (Figure 1). DP1522GLBT had significantly fewer thrips throughout the sampling period than other varieties tested. The Stoneville varieties tested also had lower thrips populations through the early season, indicating they are either less attractive or thrips survival may be lower on these varieties. PHY444WRF and DP1518B2XF had significantly higher populations of thrips indicating they are more attractive to tobacco thrips.

Yield loss associated with thrips infestations are reported in Figure 2. Yield loss was determined by measuring the differences in yield between the imidacloprid treated plots and the untreated plots. DP1522GLBT had no measurable yield loss associated with thrips. The Stoneville varieties that had lower thrips populations also had less yield loss as expected. DP1518B2XF also had higher yield loss (as well as higher thrips numbers). However, PHY444WRF which had the highest thrips populations, also had very little yield loss resulting from thrips. This may indicate that PHY444WRF, although obviously attractive to thrips, may have some tolerance to thrips, or may be able to successfully recover from thrips damage with little yield loss.

Literature Cited

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