258

786

Summary

Impact of Tillage on Three Cornered Alfalfa Hopper Infestations in Mississippi Peanuts, 2009.

This study was designed to further evaluate the effects of three cornered alfalfa hoppers on peanuts in Mississippi. Plots were established in Stoneville and Lucedale, Mississippi and were arranged in a split plot design with tillage as the main plot. The three tillage systems evaluated included conventional tillage (turned and disked), minimum tillage (a light disk to remove cattle tracks in the field) and a strip till (a ripper shank was pulled directly in the row before planting). Sub plots included timing of treatment for three cornered alfalfa hoppers. Maximum control was treating weekly after emergence, threshold control based on an infestation of 6 insects per row foot based on visual observations, and no treatment for three cornered alfalfa hoppers. Plots were sampled weekly using visual observation, sweep net, and ground shakes. For visual observation, insects were counted on two- three foot section of row. 25 sweeps were taken from each plot for the sweep net method, and two- three foot sections of row were evaluated in each plot for the ground shake method. Additionally, feeding damage was rated on a 1-10 scale on a three foot section in each plot as well. Data was also taken on foliage feeding caterpillars and beneficials to determine the effects of treatment on other insect pests. Yield data and plant growth data were also collected.

At each location, there were significantly higher levels of three cornered alfalfa hoppers in the strip tilled plots than in the other tillage systems. There were no differences detected in terms of insect populations between the heavy tilled and lightly disked plots. When the timing of the insecticide application was evaluated, there was no statistical difference between the plots treated weekly and the plots treated based on the threshold, however, both treatments had significantly fewer three cornered alfalfa hoppers than the untreated check at each location. There were no differences in terms of yield among any of the tillage treatments.

Final

258
MS-03
786
2009

Impact of tillage on three cornered alfalfa hopper infestations in Mississippi peanuts, 2009.

This study is a continuation of a study initiated in 2008. Due to low insect pressure, this study was conducted in two locations in 2009. One Location was in Stoneville, MS and the Second in Lucedale, MS. Plots were arranged in a split plot design with tillage as the main plot. The three tillage systems evaluated included conventional tillage (turned and disked), minimum tillage (a light disk to remove cattle tracks in the field) and a strip till (a ripper shank was pulled directly in the row before planting). Sub plots included timing of treatment for three cornered alfalfa hoppers. Maximum control was treating weekly after emergence, threshold control based on an infestation of 6 insects per row foot based on visual observations, and no treatment for three cornered alfalfa hoppers. Plots were sampled weekly using visual observation, sweep net, and ground shakes. For visual observation, insects were counted on two- three foot section of row. 25 sweeps were taken from each plot for the sweep net method, and two- three foot sections of row were evaluated in each plot for the ground shake method. Additionally, feeding damage was rated on a 1-10 scale on a three foot section in each plot as well. Data was also taken on foliage feeding caterpillars and beneficials to determine the effects of treatment on other insect pests. Yield data and plant growth data were also collected.

In 2009, there were more insects present in the field during the growing season in both locations. Strip tilled plots had significantly more three cornered alfalfa hoppers than the other treatments in both locations. (Figure 1 and 2). For the timing of application, insecticide applications triggered in the threshold plots 2 times in Lucedale, and 1 time in Stoneville. Both of the treated plots reduced the number of insects when compared to the untreated plots. There were no differences in yield in either location (Figure 5 and 6).

Figure 1

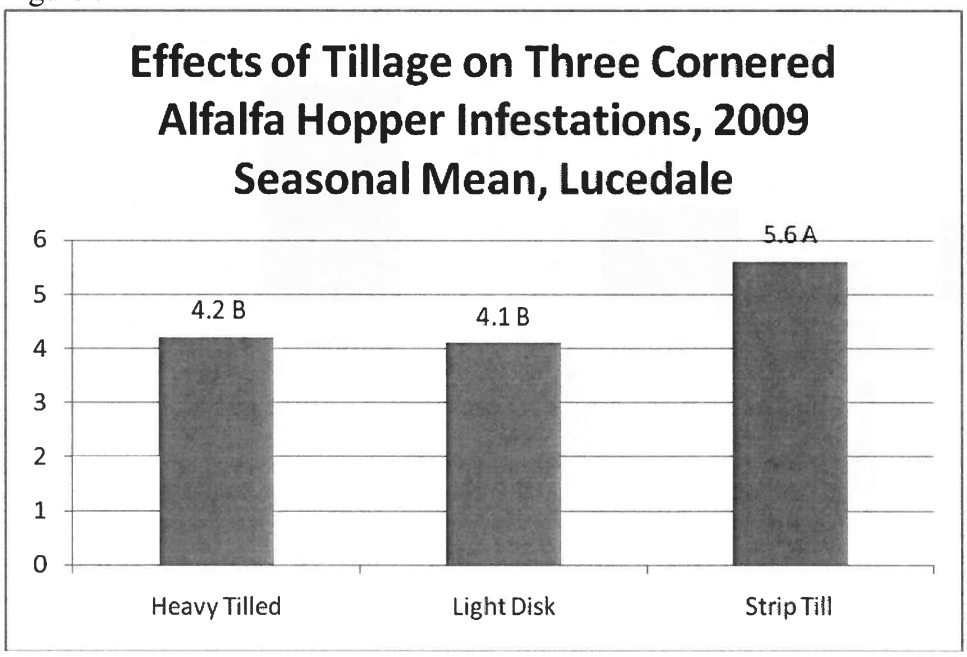


Figure 2

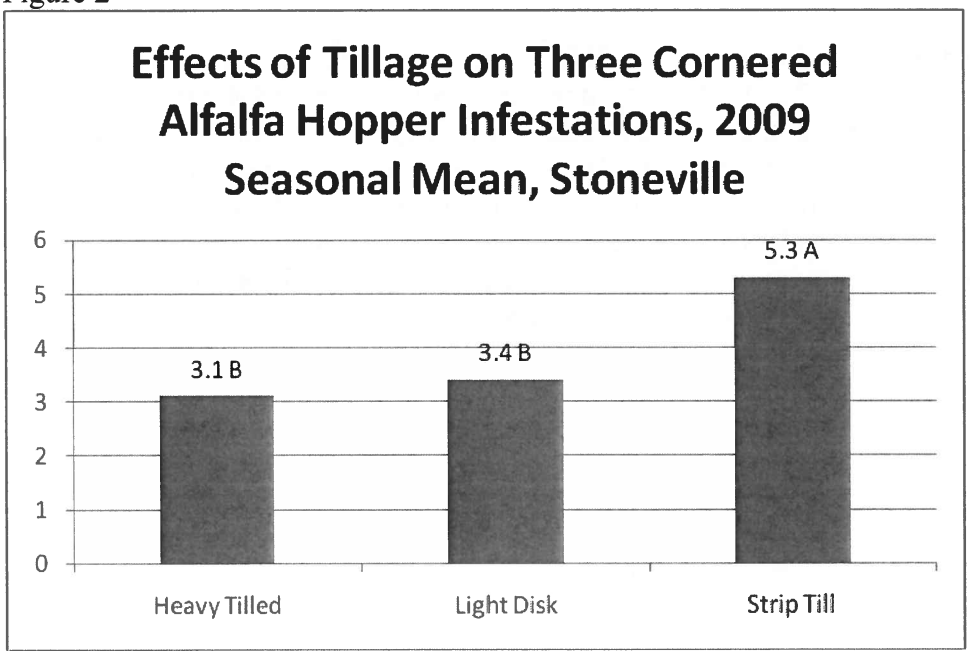


Figure 3

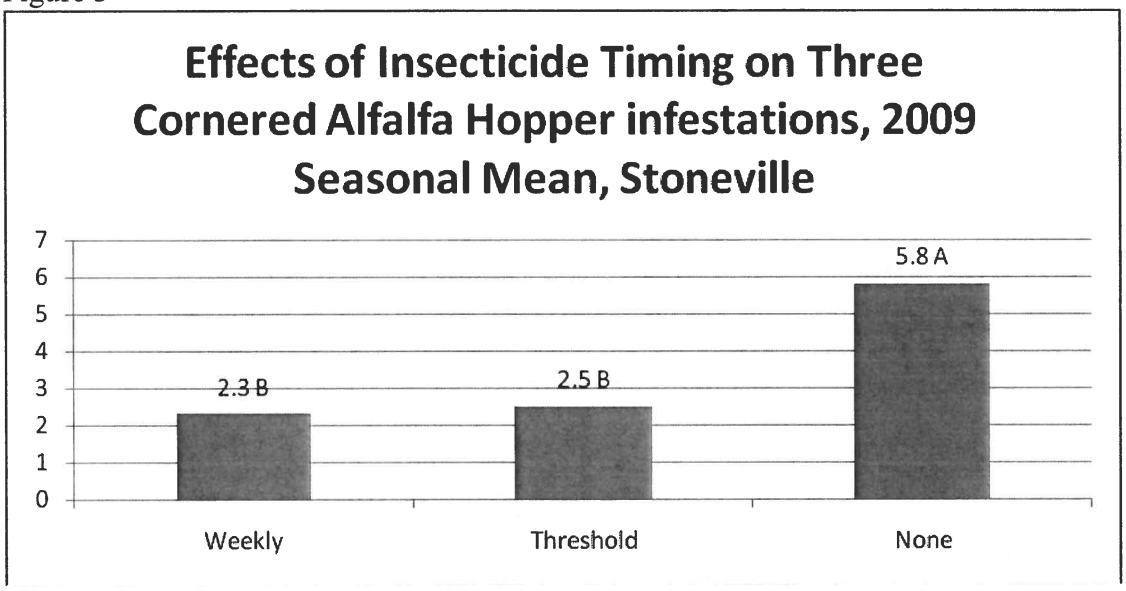


Figure 4

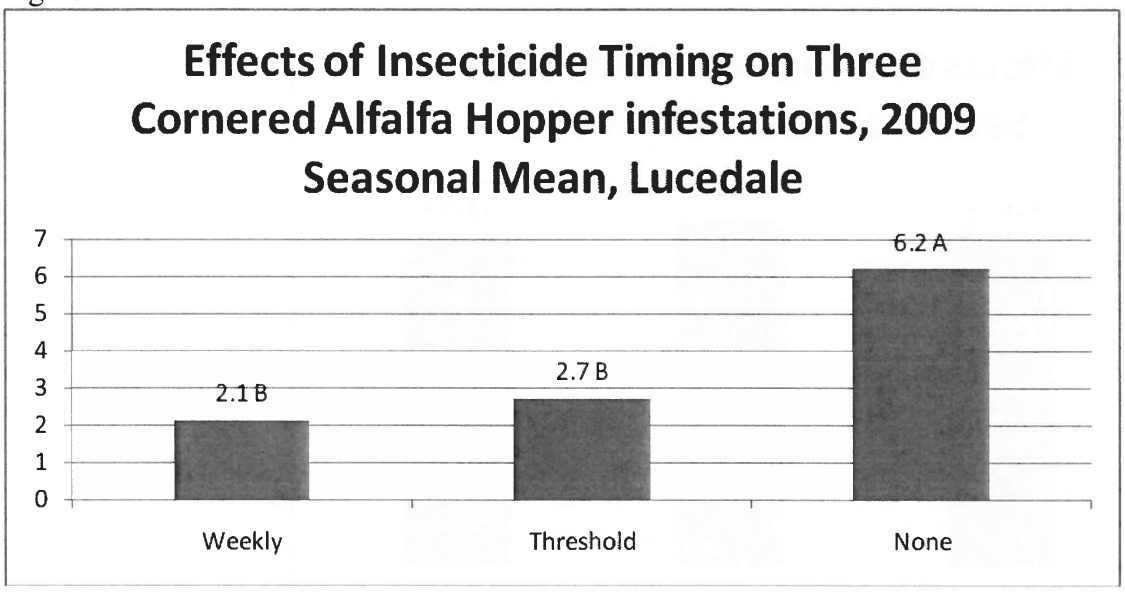


Figure 5

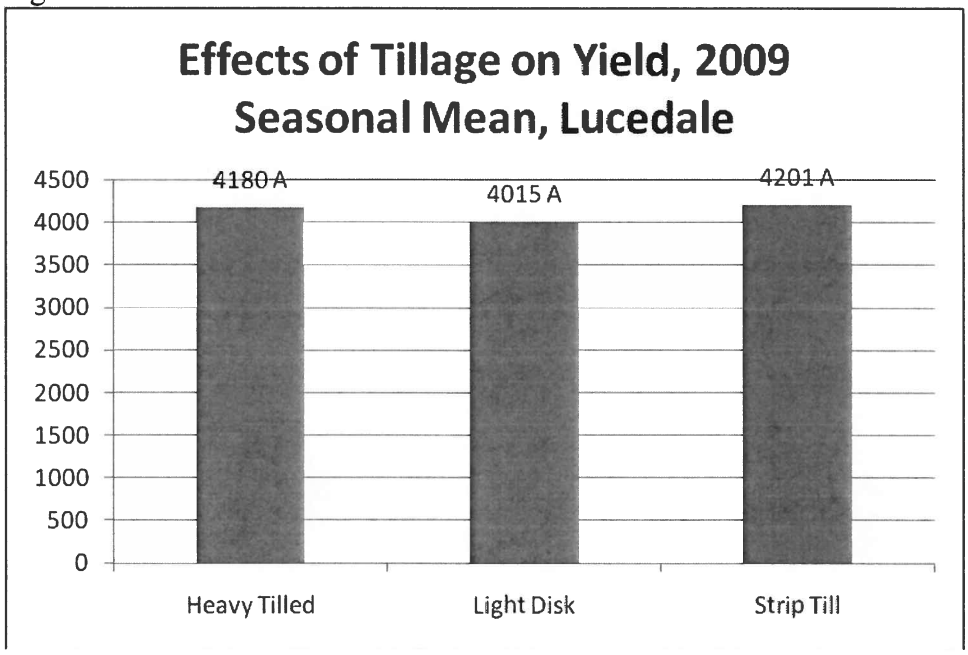
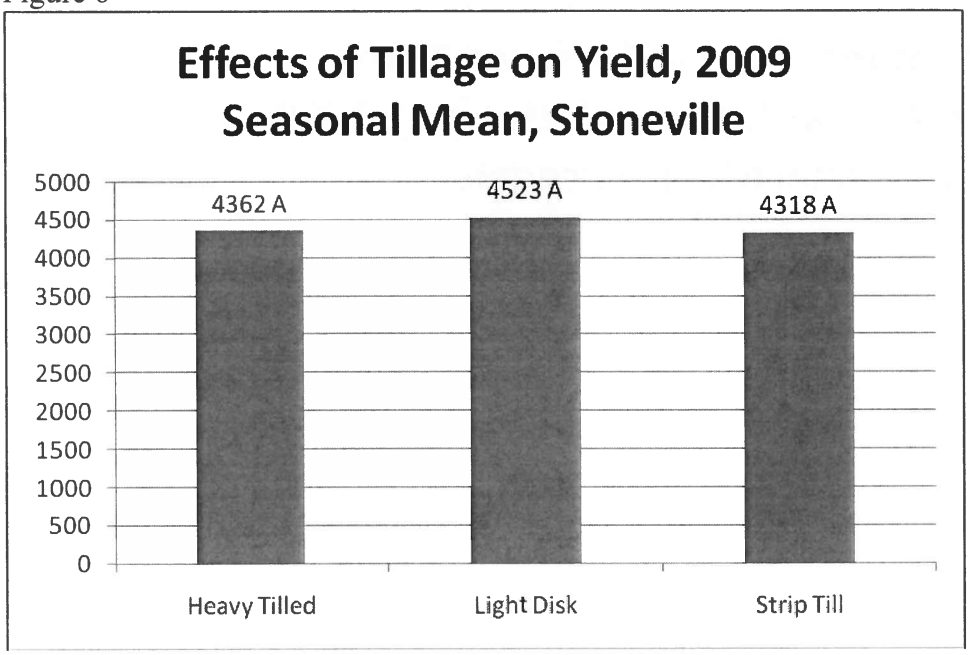


Figure 6


Effects of Tillage on Yield, 2009
Seasonal Mean, Stoneville
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
4362 A
4523 A
4318 A
Heavy Tilled
Light Disk
Strip Till