Summary

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

In 2008, plots were established 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. Plans were to have a d-vac sample from each plot as well, however, due to equipment problems early in the season, and a low number of insects in the selected field, this was evaluated in another test. Ten random fields were selected throughout the state and sampled with each of the 4 methods in four locations in each field. 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 2008, there were very little differences observed. Insect numbers in the selected field were relatively low. The threshold treatment only reached threshold 1 time during the season. There were no differences in Mean Number of Insects averaged across the growing season between the tillage treatments. There were also no differences in timing of insecticide applications. There were also no statistical differences in yield among the tillage systems.

I was able to determine which sampling method was most effective in the second trial. Sweep nets produced the most numbers of three cornered alfalfa hoppers for adults, and ground shakes were most effective for nymphs. This is similar to data from other crops, however the sweep net was less effective than expected. This is probably because of the difficulty in sweeping peanuts. The D-Vac was used to get an accurate measure of the true population, however it is not an effective tool for sampling due to significant time and costs.

Trial

258
MS-03
524
2008

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In 2008, plots were established 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. Plans were to have a d-vac sample from each plot as well, however, due to equipment problems early in the season, and a low number of insects in the selected field, this was evaluated in another test. Ten random fields were selected throughout the state and sampled with each of the 4 methods in four locations in each field. 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 2008, there were very little differences observed. Insect numbers in the selected field were relatively low. The threshold treatment only reached threshold 1 time during the season. As indicated in Figure 1, there were no differences in Mean Number of Insects averaged across the growing season between the tillage treatments. There were also no differences in timing of insecticide applications (Figure 2). There were also no statistical differences in yield among the tillage systems (Figure 3).

I was able to determine which sampling method was most effective in the second trial. Sweep nets produced the most numbers of three cornered alfalfa hoppers for adults, and ground shakes were most effective for nymphs (Figure 4 and 5). This is similar to data from other crops, however the sweep net was less effective than expected. This is probably because of the difficulty in sweeping peanuts. The D-Vac was used to get an accurate measure of the true population, however it is not an effective tool for sampling due to significant time and costs.

Figure 1

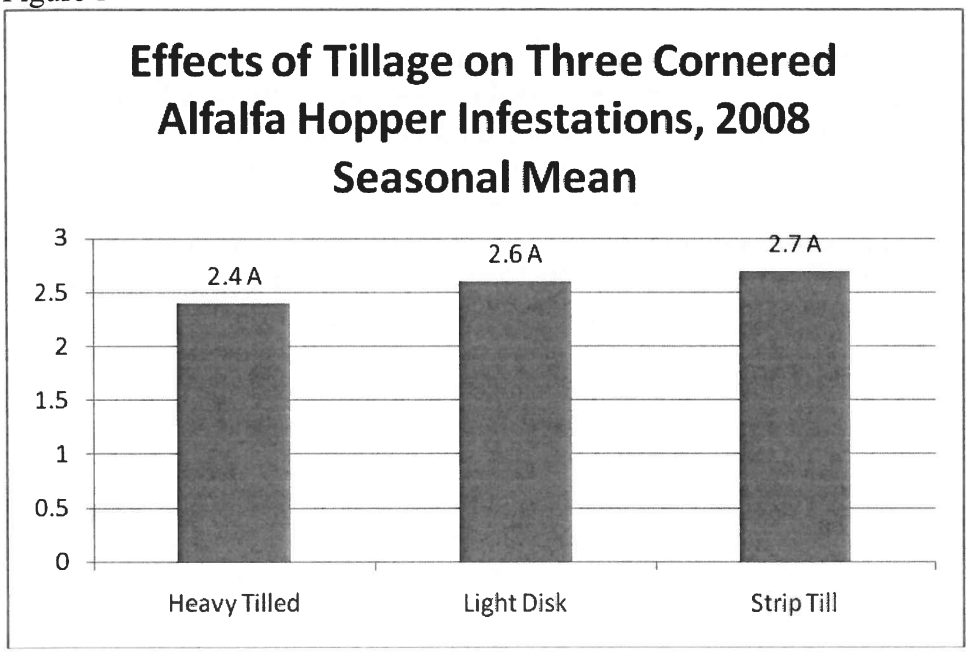


Figure 2

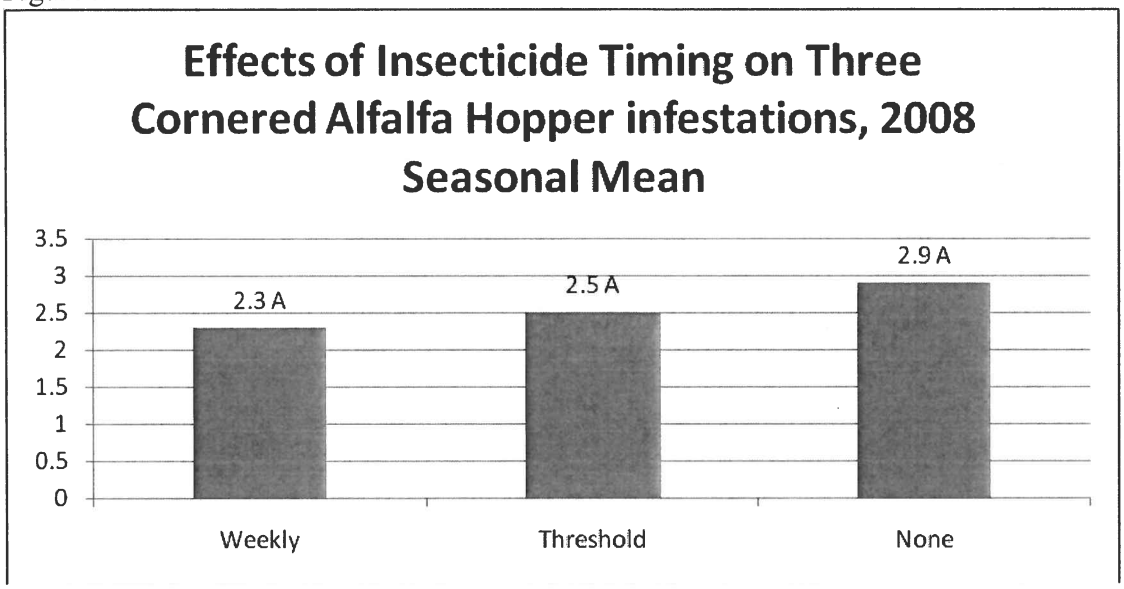


Figure 3

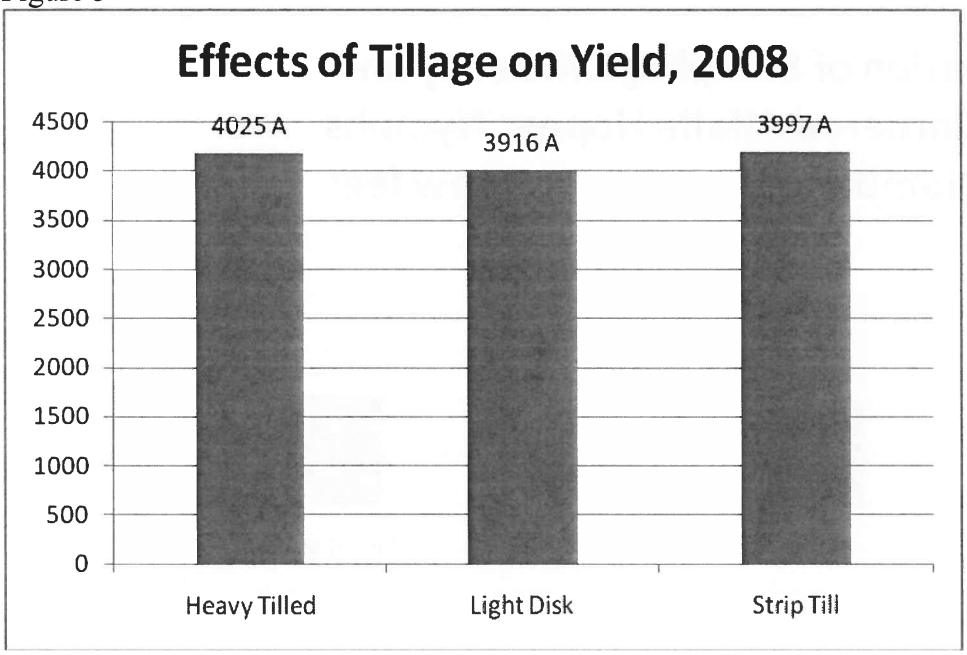


Figure 4

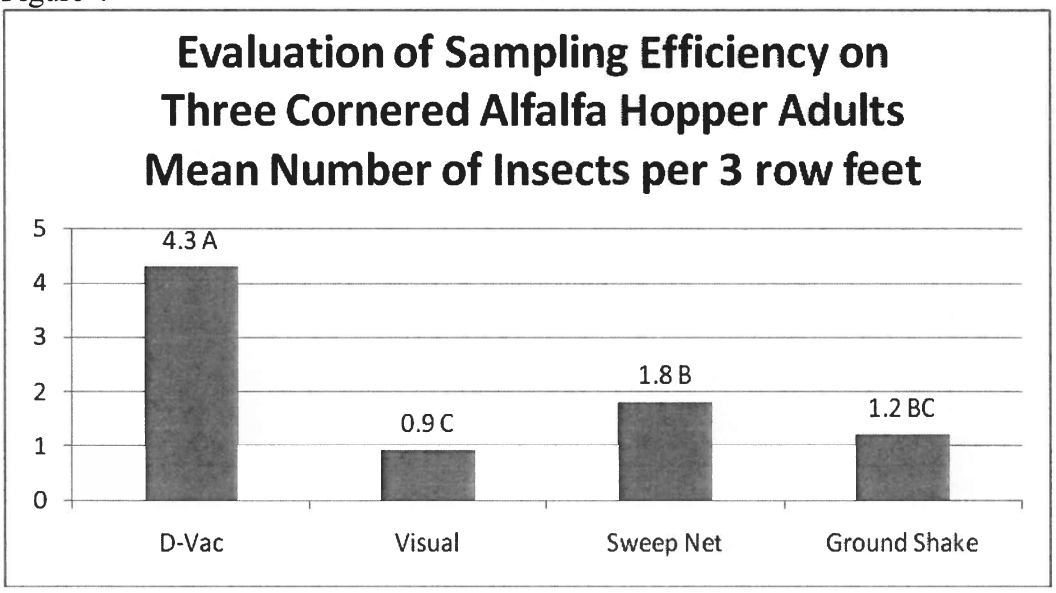
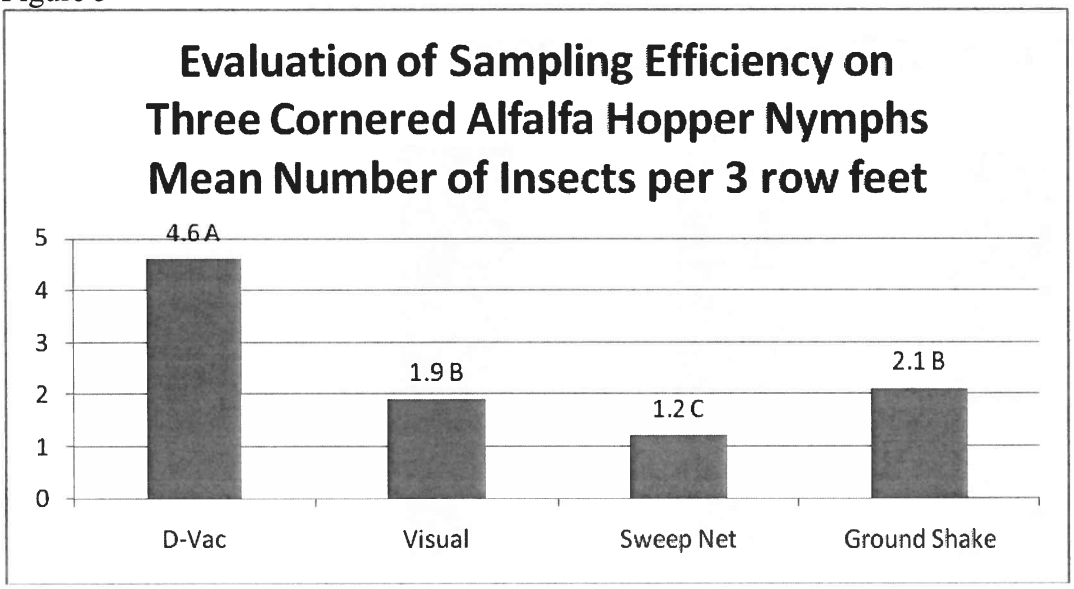


Figure 5


Evaluation of Sampling Efficiency on
Three Cornered Alfalfa Hopper Nymphs
Mean Number of Insects per 3 row feet
5
4
3
2
1
0
4.6 A
1.9 B
1.2 C
2.1 B
D-Vac
Visual
Sweep Net
Ground Shake