AT-PLANTING TREATMENT EFFECTS ON SPIDER MITE POPULATIONS

John F. Smith
Mississippi State University
Starkville, MS
A. L. Catchot
Mississippi State University
Starkville MS
F. R. Musser
Mississippi State University
Starkville, MS

Abstract

Spider mites have traditionally been considered occasional late-season pests of cotton across the mid-south cotton belt. However, the percentage of Mississippi cotton acres requiring treatment for twospotted spider mite, *Tetranychus urticae*, has increased by at least two-fold in recent years. One difference is that a small percentage of seedling cotton is now infested. It is possible that neonicotinoid seed treatments could be a factor in the recent early-season outbreaks of TSSM that have occurred throughout the Mid-South. Multiple reports indicate that increased *Tetranychus* populations are associated with soil and foliar neonicotinoid insecticide applications. Our first objective in this study was to determine the effects of aldicarb, and foliar and seed treatments of thiamethoxam, imidacloprid, and acephate on twospotted spider mite in seedling cotton. A second objective was to determine if increased mite densities in the presence of seed treatments was due to an increase in fecundity. During 2007 and 2008, a total of 8 field trials and one lab experiment were conducted. In field trials, the number of eggs and mites were counted on cotton leaves 6-18 days after infestation. In the lab experiment, fecundity was measured daily for 14 days. Response of spider mites to the different at-planting insecticide treatments varied among field experiments. Additionally, treatment differences were not significant in most field experiments. However, trends indicated that mite densities were marginally higher in neonicotinoid treated cotton than untreated cotton or cotton with furrow applied aldicarb. In most field trials and the lab experiment, aldicarb did suppress mite densities. Neonicotinoid seed treatments did not increase mite fecundity above the untreated check in the lab experiment. In conclusion, these data suggest that aldicarb may to be used to reduce risk of spider mite injury in areas that traditionally develop early-season infestations.