

ELEVATED NUMBERS OF SPIDER MITES ON THIAMETHOXAM SEED-TREATED COTTON IN A GREENHOUSE STUDY**Adrianna Szczepaniec****Micky D. Eubanks****Texas A&M University****College Station, TX****Abstract**

Thiamethoxam is a neonicotinoid seed treatment for cotton, and it is used widely in the cotton industry. While thiamethoxam is highly efficacious against key pests of cotton such as aphids, thrips and whiteflies, there are anecdotal reports of outbreaks of spider mites, a non-susceptible pest, on thiamethoxam seed-treated cotton. These reports prompted our investigation of the impact of the insecticide on abundance of spider mites. Greenhouse experiments were designed to test incidence and severity of spider mite outbreaks on cotton seed-treated with the neonicotinoid. In two separate trials performed in the absence of natural enemies, we found consistently higher numbers of mites on cotton treated with thiamethoxam. Moreover, in separated experiments conducted without the herbivore, we observed greater leaf area of cotton exposed to thiamethoxam. Our results suggest a plant-mediated effect of the insecticide on the mites that could lead to improved plant nutrition or impaired defenses that would benefit spider mites and contribute to their proliferation. Additional experiments examining the arthropod community in seed-treated cotton fields, impact of spider mites on cotton yield and the effects of thiamethoxam on cotton physiology are under way.