

EFFICACY OF SEED TREATMENTS IN RELATION TO EARLY-SEASON THRIPS DYNAMICS AND COTTON GROWING CONDITIONS DURING A 6-WEEK PLANTING WINDOW

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Abstract

Thrips injury to seedling cotton during the 1-4 true-leaf stage can cause stunting, delayed maturity, reduced yield and plant death. Factors known to increase the risk of injury include: weather conditions that delay cotton growth (i.e. increase the time that cotton is in the susceptible stage), environmental variables that influence efficacy of insecticides, and high thrips pressure that occurs when peak dispersal of adult thrips from overwintering hosts when cotton is in the susceptible stage. All of these factors are variable among different geographic locations and across the planting window at any given location. Thiamethoxam and imidacloprid, applied as seed treatments, became the primary chemistry for thrips management due to their systemic activity, ease of use, and reduced-risk status relative to previously used chemistries (i.e. aldicarb). This study was conducted to examine: 1) differences in thrips pressure and cotton injury across a 6-week planting window; and 2) to examine the efficacy of three seed treatments across this same planting window. Small plots were planted weekly from April 11 to May 16, 2016 in Prattville, AL. Measurements recorded from plots each week included plant height, number of true leaves, thrips injury ratings, and dry weights 42 days after plant. Early-season thrips population dynamics were monitored weekly from planting until cotton reached the 4 true-leaf stage using sticky traps to catch dispersing adults, and counting adults, immatures, and eggs on cotton seedlings. Results of this study show variation in thrips pressure and cotton injury across this planting window. The majority of thrips eggs were deposited in the cotyledons during every planting date, and injury was higher when immature thrips were present while cotton was in the 1-true leaf stage. Injury decreased in planting dates where cotton was in the 2-3 true-leaf stage before immature thrips were present. Preliminary analyses examining the efficacy of seed treatments show that when data were pooled across all planting dates, injury ratings on cotton were significantly lower in cotton receiving a seed-treatment. Cotton treated with Aeris® (thiodicarb + imidacloprid) and Avicta® Elite (abamectin + thiamethoxam + imidacloprid) were not significantly different from each other, but were significantly lower than cotton treated with Avicta® Duo (abamectin + thiamethoxam). However, when data were analyzed by planting date, injury ratings were numerically lower in cotton plots receiving an insecticide seed treatment, but were not statistically significant from the non-treated plots. Future analyses will be performed to better define relationships between thrips pressure, injury ratings, and efficacy of these commercially available seed treatments.

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