MANAGING THRIPS IN SEEDLING COTTON WITH STARTER FERTILIZER AND A SINGLE FOLIAR APPLICATION

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Abstract

Cotton growers in the southeastern United States, who grow about 25% of the domestic crop, have traditionally relied on in-furrow insecticides such as aldicarb for managing early season thrips infestations. The recent loss of aldicarb from the marketplace is driving the need for alternative management practices for managing thrips, the most consistent insect pests of southeastern cotton production. The objective of this project was to evaluate alternative insecticides, foliar application timing, and possible use of starter fertilizer to mitigate thrips damage to seedling cotton. Identical replicated tests were conducted in Alabama, Georgia, South Carolina, North Carolina, and Virginia on conventionally tilled soils with a late April planting date. The primary response variable was dry plant biomass at 42 days after planting. In a test of foliar insecticides applied at both at 1 and 2 leaf cotton, plots treated with Benevia (20.6 oz), Lannate (12 oz), Orthene 97 (3 oz), Radiant (6 oz) or Vydate (17 oz) consistently produced statistically more biomass than untreated plots or those treated with a pyrethroid (1.28 oz). There were no statistical differences in plant biomass among different rates of Benevia from 13.5 to 20.6 oz or among rates of Radiant from 1.5 to 6 oz. The final test included a three way factorial treatment structure consisting of starter fertilizer or not at planting (10 gal of 10-34-0 placed in a 2 by 2), fungicide only or fungicide plus Cruiser treated seed, and a single foliar Orthene 97 application at 1st true leaf or 2nd true leaf. On irrigated sandy loam soils, there were statistically significant increases in dry plant biomass attributed to each of the experimental factors. The maximum biomass (37 g per five plants) was observed in plots treated with starter fertilizer, cruiser seed treatment, and Orthene 97 at first true leaf. Conversely, the poorest scoring treatment (16 g per five plants) was observed in plots receiving no starter fertilizer, fungicide only treated seed, and no foliar insecticide applications. Similar tests were conducted under dryland conditions or on a sandy clay loam soil. Under either of these conditions, there was no observed benefit to use of starter fertilizer, but the benefits of Cruiser seed treatment and foliar insecticide application at 1st true leaf remained. These experiments show that there are multiple foliar insecticides, including new insecticide classes, which will provide good thrips suppression in the southeastern US. Furthermore, growers should always utilize an insecticide seed treatment and should target foliar applications at 1st true leaf cotton. The use of starter fertilizer to maximize early plant growth appears most appropriate for use under irrigation on sandy loam soils. This research was supported by Cotton Incorporated.