NOVEL INSECTICIDE TYPES AND METHODS OF APPLICATION FOR THRIPS MANAGEMENT IN THE SOUTHEAST

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Abstract

Thrips are the most serious economic pests of southeastern US cotton production. They are managed on nearly all cotton in the southeast using a neonicotinoid-class insecticide seed treatment and a foliar overspray. The most commonly found species *Frankliniella fusca*, is resistant to neonicotinoid-class insecticides; hence, alternative insecticidal management products should be evaluated. The objectives of these studies were to evaluate the efficacy of liquid in-furrow insecticide treatments alone and in combination with insecticide seed treatments and to evaluate the efficacy of insecticide seed treatments alone and in combination with foliar applied insecticides for managing thrips on seedling cotton. Trials were conducted during 2013 and 2014 in Suffolk, VA, Rocky Mount, NC, Blackville, SC, Tifton, GA, and Prattville and Headlands, AL. The following in-furrow insecticides (rates per acre) and commercially-applied seed treatments were included in the in-furrow trials: acephate at 16 oz, Admire Pro at 9.2 oz, Velum Total at 14 oz, Avicta Complete, Avicta Complete and acephate at 8 oz, Avicta Complete and Admire Pro at 9.2 oz, Aeris, Aeris and acephate at 8 oz, Aeris and Admire Pro at 9.2 oz, Aeris and Poncho/VOTiVO, and Temik at 5 lb. Thimet at 5 lb. was only included in 2014 and a 3 oz acephate application was made to all treatments at the 1st or 2nd true leaf. The following foliar insecticides (rates per acre) and commercially-applied seed treatments were included in the foliar trials: untreated, Avicta Complete, Avicta Complete and acephate at 3 oz, Avicta Complete and acephate at 6 oz, Avicta Complete and Radiant at 1.5 oz, and Avicta Complete and Radiant at 3 oz. Radiant was applied with Dyne-Amic surfactant (0.625% v/v). All trials were planted in April or May with PHY367WRF. Thrips density, injury, plant height, and number of leaves were quantified two to five weeks after planting. Dry plant weight and stands were assessed at six weeks after planting. Yield was taken from the middle two rows. In all locations the effect of seed treatments diminished by three weeks after planting. Avicta Complete and Aeris were comparable in 2013; in contrast, Avicta Complete was not effective in 2014, while Aeris was still effective. In some locations acephate in-furrow was effective during 2013, but not in 2014. In Virginia, Admire Pro in-furrow was effective through the four-leaf stage. In some locations, a foliar spray of acephate provided better initial thrips management compared to Radiant. Overall, 3 oz of Radiant was superior to all other foliar sprays, followed by 1.5 oz of Randiant, 6 oz of acephate, and 3 oz of acephate. In North Carolina during 2013, yields were increased by any insecticidal seed treatment or foliar spray compared to untreated seed. Overall, insecticidal seed treatments, especially Aeris can provide some initial thrips protection, but will benefit from a foliar spray. No single insecticidal combination seemed to provide consistent management across years or locations.