Abstract

The reniform nematode, Rotylenchulus reniformis, is one of three major nematode pests of cotton in the Mississippi Delta. The reniform nematode can be a severe yield reducer in situations where the soilborne populations are greater than the economic threshold. Economic thresholds are used as general guidelines to determine when a nematode population may achieve numbers great enough to reduce vield and overall profitability. In Mississippi, the general population consider to be at or above the economic threshold for the reniform nematode to result in yield losses ranges from 1,000 reniform nematodes in the spring to 5,000 in harvest samples. A survey of the distribution of the reniform nematode in the Mississippi Delta was conducted more than 10 years ago and suggested that the reniform nematode was the number one nematode pest of cotton (Allen et al., unpublished data). At the time of the survey, 2,542 fields were sampled and the reniform nematode was observed in 44% of the fields sampled. However, taken as a whole, 15% of the fields surveyed contained reniform nematode populations either at or above the economic threshold. In 2015 and 2016, seed treatment trials were conducted in Stoneville, MS to determine the benefits of seed-applied products as well as in-furrow nematicide products on two cotton cultivars with differing responses to the reniform nematode having been observed in the recent past. In 2015, a total of 12 treatments (five nematicide treatments, a base fungicide with no nematicide, and 2 varieties) were considered at each of two locations. In 2016, a total of 18 treatments (eight nematicide treatments, a base fungicide with no nematicide, and 2 varieties) were considered at a single location. Nematode samples were collected pre-plant, mid-season (2015) and post-harvest from all plots. Although reniform population numbers varied by sample timing, in general nematode numbers increased throughout the season except at one of the locations considered during 2015. In fact, reniform nematode numbers increased by 46% between pre-plant and harvest sample timings in 2015 and by 64% over the same time period in 2016. Even though treatments did not significantly increase yield (seed cotton/acre), mathematical increases may relate to economic benefit and therefore be important for cotton farmers to consider when managing the reniform nematode in areas where the nematode is above threshold in the Mississippi Delta When attempting to manage the reniform nematode, an integrated approach that considers treatment combinations (e.g., seed treatment, granular or in-furrow nematicide application) may help reduce the yield losses associated with the reniform nematode.