IMPACT OF WEED MANAGEMENT PRACTICES OVER A THREE-YEAR PERIOD ON PALMER AMARANTH POPULATION IN COTTON

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Abstract

Palmer amaranth is one of the most problematic weeds in cropping systems throughout the United States. Slow-canopying crops such as cotton provide an ideal environment for escapes of Palmer amaranth to develop and establish. In 2018, a trial was initiated at the Lon Mann Cotton Research and Extension Center near Marianna, Arkansas, to evaluate the effects of integrated weed management strategies on Palmer amaranth emergence. This trial consists of 16 treatments with 4 replications. The treatments combined strategies such as tillage, cover crop (cereal rye), the use of herbicides, and zero-tolerance. In 2018, a one-time tillage event occurred that reduced weed emergence in years 1 and 2 of the study, but in year 3, the benefit of the tillage had diminished and was not significant. In year 3, the use of zero-tolerance plus the use of dicamba and non-dicamba herbicide systems showed comparative results, with both reducing Palmer amaranth emergence by 63%. The adoption of a cover crop resulted in an 83% reduction in Palmer amaranth emergence. Therefore, the results show that the dicamba and non-dicamba systems with zero-tolerance and cereal rye reduce the emergence of Palmer amaranth in cotton.