

IMPACT OF COVER CROP, SEEDING RATE, AND PLANTING METHOD ON WEED CONTROL IN COTTON**M.G. Palhano****J.K. Norsworthy****Department of Crop, Soil and Environmental Science, University of Arkansas****Fayetteville, AR****L.T. Barber****Lonoke Extension Center****Lonoke, AR****Abstract**

Control of herbicide-resistant weeds in reduced tillage systems has been reported as a challenge in cotton production. Cost related to herbicide usage has increased greatly due to development of herbicide-resistant weeds. The use of cover crops in conservation tillage offers many advantages such as weed suppression through physical and chemical allelopathic effects. Federal conservation payments are available for growers that want to include cover crops as a means to reduce tillage and increase weed suppression. A field study were conducted in 2014 and 2015 at the Arkansas Agricultural Research and Extension Center in Fayetteville to determine the impact of cereal rye seeding rate and planting method on weed control and cotton yield. Experimental design was a randomized complete block with a split-plot with the main plot being cereal rye seeding rates at 50, 100 and 150 lb/A in absence or presence of a herbicide program. Subplots consisted of drilled and broadcast planting methods. Cereal rye biomass was collected at cotton planting and weed control was visually assessed at 2, 4, 6, and 8 weeks after planting. Seedcotton yield was also collected. No significant differences were observed between planting methods in any parameter evaluated. In both years, cereal rye biomass production increased as seeding rate increased. Cereal rye by itself was more effective on Palmer amaranth suppression than broadleaf signalgrass. When herbicides were not applied, cereal rye at 50 lb/A provided the least weed control. Cereal rye at 100 and 150 lb/A provided comparable levels of weed control. All plots treated with a standard herbicide program had weed control greater than 98% for all species, regardless of the seeding rate. Yields from plots with the standard herbicide program were significantly higher than from plots without herbicide, independent of seeding rates. Yield improvement was observed due to use of cereal cover crop in the system compared to no cover crop in 2014 whereas no differences were observed in 2015.