

RESIDUAL EFFECT OF PRIMARY TILLAGE ON WEED CONTROL AND COTTON YIELD**C. D. Monks****M. G. Patterson****Ala. Coop. Ext. System, Auburn University****Auburn, AL****A. Price****USDA-ARS****Auburn, AL****Abstract**

A field trial was initiated (2006) to evaluate the effect of at-plant soil preparation, PRE, and POST programs on weed control and cotton yield; and to determine residual effect in subsequent years. Cotton was planted in a completely randomized experimental design with a 4 X 3 X 2 factorial arrangement of treatments, with at-plant PREP (main plots), PRE herbicide systems (sub-plots), and POST herbicide treatments (sub-sub plots). At-plant PREP treatments included: inversion fb disking with pendimethalin PPI; two diskings with pendimethalin PPI; no-tillage with pendimethalin PRE, and no-tillage alone. PRE treatments included: fluometuron PRE, prometryn PRE, and no PRE. POST treatments included: glyphosate POST and no POST. Following initiation in 2006, the trial was planted no-till in 2007 and 2008 using pendimethalin PRE. After three years, glyphosate-susceptible redroot pigweed populations were significantly reduced when glyphosate was applied POST regardless of the PRE program. Susceptible pigweed populations were lowest for the no-till/pendimethalin PRE/glyphosate POST program and yield was comparable to the inversion, disk/pendimethalin PPI/glyphosate program. When no POST glyphosate treatment was applied, population was highest and yield lowest in the no-till plots. Given the reproductive potential of pigweed, surviving glyphosate-resistant plants in producer's fields would likely continue to infest affected fields. Further research is required to determine the utility of tillage for herbicide resistance management.