PURPLE NUTSEDGE CONTROL IN REDUCED TILLAGE COTTON C. T. Bryson Botanist USDA-ARS, Southern Weed Science Laboratory Stoneville, MS

Abstract

Field experiments were conducted from 1985-1995 at Stoneville, MS to determine the effects of various herbicide inputs and tillage production systems in cotton (Gossypium hirsutum L.) on purple nutsedge (Cyperus rotundus L.). Cotton production systems included: (a) no-tillage; (b) conventional tillage consisting of fall subsoil, spring chisel plowing, double-disk incorporation of preplant herbicides, bedding, knocking down beds, and three cultivations; (c) reduced-tillage which lacked double disking only (level 1); and (d) reduced-tillage which lacked spring chisel plowing and double disking but included a fall bedding (level 2). Glyphosate at 2.0 lb/A was applied to the no-till and reduced-tillage plots as a preplant foliar burn-down 2 to 4 weeks prior to planting from 1985-1989 and 1 day prior to planting from 1990-1995. Norflurazon at 0.5 and 1.0 lb/A was applied preemergence in the no-tillage and reducedtillage and as a split preplant incorporated and preemergence in the conventional tillage cotton production systems. Purple nutsedge control was 0-95, 95-100, 80-95, and 65-95% for tillage levels a, b, c, and d, respectively over the 10 year period. Actual purple nutsedge populations ranged from 0-16, 560-8100, 0-120, and 0-840 plants/A for tillage levels a. b. c. and d. respectively. Cotton growth and yield were not significantly affected by b, c, and d; however, in tillage level a, cotton growth was stunted 5 of 10 years (1986-1990). Likewise, seed cotton yields were significantly less than those in tillage levels b, c, and d from 1986-1990. Based on these data, purple nutsedge control was inadequate in no-tillage cotton production when preplant burn-down applications of glyphosate were made 2 to 4 weeks prior to planting. Application of glyphosate at nearer the planting date increased purple nutsedge control. Both rates of norflurazon provided adequate purple nutsedge control in reduced- and conventional tillage production systems without appreciable losses in cotton yield.