WEED CONTROL IN ULTRA-NARROW ROUNDUP READY COTTON

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Abstract

Field experiments were conducted in 1998 and 1999 at the Southern Weed Science research farm to evaluate weed management systems utilizing Roundup Ready (glyphosate-tolerant) cotton (Paymaster 1220 BG/RR) under ultra narrow row (UNR) conditions. UNR seed beds were formed with a hipper on forty inch rows and then the beds were harrowed to a height of four inches with a Do-All cultivator. The final bed height was two inches after settling over winter. These reduced beds allowed for irrigation as well as drainage. Plots were overseeded with morningglory (*Ipomoea hederacea var. integriuscula* Gray), prickly sida (*Sida spinosa* L.), hemp sesbania (*Sesbania exaltata* (Raf.) Rybd. ex A. W. Hill) and barnyardgrass (*Echinochloa crus-galli* (L.) Beauv.) and had natural populations of upright spotted spurge (*Euphorbia maculata* L.). Herbicide combinations that contained metolachlor or pendimethalin for grass control, and either fluometuron, prometryn or pyrithiobac for broadleaf weed control, were compared to treatments that contained single or split postemergence applications of glyphosate in combination with the aforementioned herbicides. In the absence of glyphosate, herbicide combinations generally reduced the end-of-season weed biomass 70 to 80%. In the presence of glyphosate, weed biomass was reduced 98 to 100%. The results show that inclusion of glyphosate improved the level of weed control. The highest yields were obtained with treatments containing fluometuron and a single application of glyphosate. The level of weed control obtained when glyphosate was included was probably the result of the combined effects of the herbicides with the shading provided by UNR cotton canopy. UNR may provide added competition against weed for light water and nutrients. The morphology of prickly sida and spurge was altered by competition with UNR, manifested by reduced branching and lower seed production. Thus, UNR cotton in conjunction with glyphosate treatments may reduce weed populations such that herbicide applications can be minimized.

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