Weed Management in Glyphosate-Tolerant Cotton

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An experiment conducted at three locations in North Carolina during 1996 and 1997 compared weed control and cotton (*Gossypium hirsutum* L.) yield, fiber quality, and net returns from glyphosate [*N*-(phosphonomethyl)glycine]-tolerant cotton treated with various glyphosate and traditional herbicide systems. The standard system of trifluralin [2,6-dinitro-*N,N*-dipropyl-4-(trifluoromethyl)benzenamine] preplant incorporated and fluometuron {*N,N*-dimethyl-*N*'-[3-(trifluoromethyl)phenyl]urea} preemergence followed by fluometuron plus MSMA (monosodium methanearsonate) postemergence directed 3 to 4 weeks after planting and cyanazine {2-[[4-chloro-6-(ethylamino)-1,3,5-triazin-2-yl] amino]-2- methylpropanenitrile} plus MSMA postemergence directed 6 to 7 weeks after planting controlled large crabgrass [*Digitaria sanguinalis* (L.) Scop.], common cocklebur (*Xanthium strumarium* L.), common lambsquarters (*Chenopodium album* L.), common ragweed (*Ambrosia artemisiifolia* L.), *Amaranthus* species, *Ipomoea* species, prickly sida (*Sida spinosa* L.), and sicklepod [*Senna obtusifolia* (L.) Irwin and Barneby] at least 98% at late season. Weed control, cotton yield, and net returns were similar when pyrithiobac {2-chloro-6-[(4,6-dimethoxy-2- pyrimidinyl)thio] benzoic acid, sodium salt} applied postemergence over-the-top was substituted for fluometuron plus MSMA postemergence directed. Glyphosate applied once did not adequately control most species, and cotton yield and net returns were less than with the standard system. However, weed control, cotton yield, and net returns in systems with glyphosate applied postemergence over-the-top 3 to 4 weeks after planting followed by glyphosate or cyanazine plus MSMA postemergence directed 6 to 7 weeks after planting were similar to those with the standard system. Three applications of glyphosate were no more effective than two. Trifluralin and fluometuron were of no benefit in systems with glyphosate applied twice or glyphosate followed by cyanazine plus MSMA. No treatment affected fiber quality.

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