WEED MANAGEMENT IN CONSERVATION-TILLAGE COTTON - BROADCAST VS. BANDED HERBICIDE APPLICATION: CULTIVATIONS VS. HOODED SPRAYER

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Abstract

With emphasis on conservation-tillage crop production increasing it is necessary to develop an effective weed management program in cotton. Banded and broadcast preemergence (PRE) applications of Prowl + Cotoran followed by Staple (Early-POST) were evaluated in combination with Roundup/shielded sprayer applications and conservation-tillage cultivations made 3, 5, and 7 weeks after planting. Generally, broadcast herbicide applications were necessary for adequate weed control and maximum lint yields. No differences in weed biomass and lint yields were evident between Roundup/shielded sprayer applications and conservation-tillage cultivations. Two Roundup/shielded sprayer applications or cultivations provided greater weed control, and lower weed biomass compared the a single application. However, weed control, weed biomass, and lint yields were similar with two or three Roundup/shielded sprayer applications or cultivations.

Introduction

Cotton producers have been slow to adopt conservation-tillage production systems for several reasons. Poorer weed control, lower yields and quality associated with conservation-tillage cotton compared to conventional cotton production, loss of incorporated treatments for annual grass control and few postemergence over-the-top broadleaf herbicides have delayed the adoption of conservation tillage cotton production.

Materials and Methods

Research was conducted in 1994-95 at the Pee Dee Research and Education Center in Florence, South Carolina on a Norfolk loamy sand with naturally occurring Palmer Amaranth (*Amaranthus palmeri*), sicklepod (*Senna obtusifolia*) and goosegrass (*Eleusine indica*) populations. Plots were 4 rows, 30 ft long and were arranged in a randomized complete block design with four replications. The row spacing was 30 inches. The cotton was seeded with a no-till Maxi-merge planter. Roundup was applied to the entire test area at 1 qt/ac immediately prior to planting. Treatments included banded (15 inch) and broadcast PRE applications of Prowl @ 0.75 lb ai/ac + Cotoran @ 2.0 lb ai/ac followed by Staple (early-POST) @ 0.0625 lb ai/ac and Roundup/shielded sprayer (0.75 lb e/ac) applications and cultivations at 3, 5, and 7 WAP.

Results and Discussion

Broadcast herbicide applications were necessary to provide adequate weed control. Weed control (92 vs. 91% 8 WAP), weed biomass (201 vs. 278 lb/ac 8 WAP), and lint yields (606 vs. 609 lb/ac, respectively) were similar with Roundup/shielded sprayer applications and cultivations. With banded herbicide applications, weed control (92 vs. 79% 8 WAP) was generally greater and weed biomass levels (99 vs. 86% reduction 8 WAP) were generally lower with two or three Roundup/shielded sprayer applications or cultivations compared to a single treatment. However, lint yields were similar (665 vs. 537 lb/ac). With broadcast herbicide applications weed control, weed biomass levels, and lint yields were similar with one, two, or three Roundup applications or cultivations.

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