EFFECTIVENESS OF RESIDUAL AND NON-RESIDUAL HERBICIDES IN COTTON LAYBY APPLICATIONS

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Abstract

Three field studies were conducted in 2001 at the University of Arkansas Southeast Research Station located at Rohwer, Arkansas to evaluate late season weed control with and without various residual herbicides in cotton (Gossypium hirsutum) layby programs. DP 436 RR cotton variety was planted June 4, 2001 in conventional 38 in rows on Hebert silt loam soil. The experimental design was a randomized complete block with four replications. Herbicides were applied using a tractor-mounted hooded sprayer calibrated to deliver 12 GPA using 8002 flat fan spray tips. Cotton was grown under normal cultural practices and sprinkler irrigated as needed. A blanket application of pendimethalin at 2.4 pt/A preplant incorporated followed by Cotoran (fluometuron) in trial 1 and 3 and Caparol (prometryn) at 26 oz/A in trial 2, preplant was applied to all studies. Control of prickly sida (*Sida spinosa*), redroot pigweed (*Amaranthus retroflexus*), and annual morningglory (*Ipomea hederacea*) was evaluated throughout the growing season.

Trial 1: Roundup Ultra Max (glyphosate) at 1.2 pt/A alone, Valor (flumoxazin) at 2 oz wt/A, Reflex (fomesafen) at 1 pt/A, Goal (oxyfluorfen) at 1.25 pt/A, Direx (diuron) at 2 pt/A, Caparol at 2 pt/A, Cotoran at 2pt/A, Harvade (dimethipin) 8 oz/A, and Aim (carfentrazone-ethyl) at 1 oz wt/A were applied in a tankmix with MSMA at 2.67 pt/A and with Roundup Ultra Max at 1.2 pt/A and compared to the Bladex (cyanazine) + MSMA standard. Reflex at 1 pt/a + MSMA at 2.67 pt/a (85%), Harvade at 8 oz/a + MSMA at 2.67 pt/A (81.3%), Aim at 1 oz wt/A + MSMA at 2.67 pt/A (80%), Roundup Ultra Max at 1.2 pt/A (85%), and Aim at 1 oz wt/A + Roundup Ultra Max at 1.2 pt/A (83%) provided less control of prickly sida when compared to Bladex at 1.5 pt/A + MSMA at 2.67 pt/A (93%) standard. Aim at 1 oz wt/A + MSMA at 2.67 pt/A (86%) provided less control of redroot pigweed than the Bladex + MSMA (93%) standard. All treatments, which provided less control of redroot pigweed or prickly sida, consisted of herbicides that are not considered to have long soil residual properties.

Trial 2: Valor at 1.5 and 2 oz wt/A, Valor at 2 oz wt/A + MSMA at 4 pt/A, Valor at 2 oz wt/A + Roundup Ultra at 2 pt/A, Roundup Ultra at 2 pt/A and Goal at 1.5 pt/A were compared to the Bladex + MSMA and the new Direx + MSMA standard. Valor at 2 oz wt/A + MSMA at 4 pt/A provided less control of morningglory (87%) compared to the Bladex and Direx standards (97% and 91% respectively). Roundup Ultra at 2 pt/A provided less control of prickly sida, redroot pigweed and morningglory, with control, 86%, 91% and 81% respectively. All other treatments provided similar control of all weed species when compared to the Bladex + MSMA standard and equal or greater control of all weed species when compared to the Direx + MSMA standard.

Trial 3: Aim at 0.64 and 0.96 oz wt/A was compared to Command (clomazone) + Roundup Ultra Max, Command + Aim, and Command + Aim + Roundup Ultra Max, where Command was applied at the rate of 2 pt/A, Aim at 0.64 oz wt/A and Roundup Ultra Max 1.2 pt/A. Aim at 0.64 oz wt/A was also tankmixed with Cotoran at 1.5 pt/A, Roundup Ultra Max at 1.2 pt/A, Staple (pyrithiobac sodium) at 1.18 oz wt/A, MSMA at 2.67 pt/A, Direx at 1 qt/A and Caparol at 0.75 pt/A. Aim at 0.64 and 0.96 oz wt/a alone, provided less control of redroot pigweed than all other treatments. Control of redroot pigweed ranged from 68%-71%. Control of prickly sida was similar with all treatments.