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EVALUATION OF POST-DIRECTED ALTERNATIVES IN ROUNDUP READY COTTON

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Abstract

Past weed control programs in cotton involved the use of one or more preemergence residual herbicides followed by several post-directed applications and cultivation to control emerged weeds. With the introduction of Roundup Ready cotton more weed control options are available as topical applications. Roundup can be applied topically until cotton reaches the fourth node stage. For this reason, post-directed treatments have decreased due to the efficiency of earlier topical treatments. Another change in weed control strategy is the application of layby herbicides. Bladex plus MSMA was the standard layby treatment for late season weed control. However, Bladex was taken off of the market and a comparable replacement is yet to be found. The purpose of this study was to evaluate different compounds for post-directed and layby applications in Roundup Ready Cotton to determine the best weed control program and to ascertain if Roundup offers equivalent control when applied alone.

Research was conducted in 2002 at the Blackbelt Research Station near Brooksville, MS on a silty clay loam. Stoneville 4892 BR was planted in plots that were 12.6 by 40 feet. Plots were arranged in a randomized complete block design and all treatments were applied at 15 gallons per acre (GPA). Weeds evaluated were broadleaf signalgrass, pitted morningglory, sicklepod and common cocklebur. A blanket application of Roundup Ultramax was applied at 2- to 3 - leaf cotton at 0.75 lbs ae/A. Subsequent treatments included applications of Aim, Valor, Diuron and Caparol applied alone and in tank-mixtures with Roundup Ultramax at post-directed and layby timings. Visual ratings for weed control and cotton injury were taken 10 days after post-directed treatments, 14 days after layby treatments and 21 days after layby treatments. Data were subjected to analysis of variance and means were separated by least significant difference at the 0.05 level of significance ($LSD_{0.05}$). Cotton yield data were collected on the center two rows of each plot.

No cotton injury was observed with any treatment applied at early post, post-directed or layby timings. Three applications of Roundup at early post, post directed and layby produced season long control (95%) of broadleaf signalgrass, and was equivalent to control provided by any other treatment. The highest morningglory control was maintained with treatments of Valor or Aim applied post-direct alone (95%), or with Roundup (98%). Roundup applied at three timings provided only 80% morningglory control. Valor and Aim applied alone, post-direct, and combinations of post-direct and layby treatments with Roundup Ultramax provided the highest control of sicklepod (93 to 95%) and common cocklebur (93to 97%). Roundup applied alone at each timing provided 88% control of sicklepod and 86% control of common cocklebur. The results from this study indicate the need for alternative herbicides such as Aim or Valor to increase control of problematic weeds such as morninglories, sicklepod and common cocklebur later in the season unless producers are willing to apply Roundup on an as needed basis as subsequent weed flushes occur.