

**ROUNDUP READY WEED CONTROL
PROGRAMS IN VARIOUS TILLAGE SYSTEMS**

**K. M. Bloodworth, D. B. Reynolds,
D. R. Shaw, W. C. Elkins and B. E. Serviss
Mississippi State University, Mississippi State
C. E. Snipes
Delta Research and Extension Center
Stoneville, MS**

Abstract

In conventional cotton weed control programs the soil is tilled, a preplant incorporated (PPI) and/or preemergence (PRE) herbicide is applied, and from as many as three to four post-direct (PD) applications may be made. Each application increases the cost of production, often without achieving the desired level of broadleaf weed control. With the introduction of Roundup Ready cotton production systems, costs may be reduced by allowing less tillage and better control of some troublesome species not adequately controlled by conventional herbicides. Additional savings in production may be obtained by lowering machinery inputs and by allowing less expensive equipment to be used along with the possibility of reducing the number and amounts of herbicides applied to a field per year.

In 1996 field studies were conducted at the Delta Branch Experiment Station, Stoneville, MS, on a cooperators field near Stoneville, the BlackBelt Branch Experiment Station, Brooksville, MS, and the Northeast Branch Experiment Station, Verona, MS to evaluate Roundup Ready cotton in conventional tillage versus reduced tillage systems utilizing conventional and Roundup Ultra herbicide programs. The experimental units were arranged as a two by three factorial in a randomized complete block design with four replications. Each experimental unit was forty feet in length by four to six rows wide. Factor A consisted of tillage levels of no-till or stale seedbed and conventional tillage. Factor B was comprised of a conventional herbicide program, Roundup Ultra as needed, and Roundup Ultra as needed with a layby application of Bladex. The conventional herbicide program consisted of Cotoran PRE, Cotoran + MSMA PD, Caparol + MSMA PD, and Bladex + MSMA layby.

In the conventional tillage versus the stale seedbed production system, weed control did not differ between tillage systems for each respective herbicide treatment. At 46 to 59 days after planting (DAP) spotted spurge control was better in the Roundup Ultra treatments (94-96%) than in the conventional treatment (84-86%). Broadleaf signalgrass control with Roundup Ultra treatments ranged from 95-97% and was better than with the conventional treatment (84-86%) at the 46 to 59 DAP interval. Pitted

morningglory control (87-95%) did not differ among herbicide treatments or between tillage systems.

In the no-till system johnsongrass control with treatments containing Roundup Ultra (87-95%) was superior to the same treatments in conventional tillage (70-75%). Pitted morningglory control did not differ between tillage systems or among herbicide treatments. By 54 DAP spotted spurge control was better in the Roundup Ultra treatments (93-94%) than in the conventional treatment (85%). The addition of Bladex to the Roundup Ultra weed control programs did not increase control on any species regardless of tillage system. Seed cotton yields did not differ among herbicides, treatments, or between tillage systems (1338-1588 lbs/A).