

**ECONOMIC ANALYSIS OF ROUNDUP
READY COTTON IN CONSERVATION
TILLAGE SYSTEMS**

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Abstract

With conventional cotton production systems the soil is tilled, a preplant incorporated (PPI) and/or preemergence (PRE) herbicide is applied, and from as many as three to four post-directed (PD) applications may be made. Production costs increase with each additional tillage or chemical input. These increased inputs reduce the net return from the crop and often do not control the target weeds. The introduction of Roundup Ready cotton may help to overcome some of these problems by reducing the number of tillage operations, herbicide applications, and types of herbicides needed, thus reducing production costs and increasing net return.

In 1996 and 1997 field experiments were conducted to compare no-till or stale seedbed production systems with conventional tillage systems utilizing Roundup (glyphosate) alone, Roundup + Bladex (cyanazine) layby, and a conventional herbicide program. In 1996 and 1997 no-till experiments were conducted near Leland, MS and the Northeast Mississippi Experiment Station (NMES) near Verona, MS. Stale seedbed experiments were conducted in 1996 and 1997 at the Delta Research and Extension Center (DREC) at Stoneville, MS and the Black Belt Branch Experiment Station (BES) near Brooksville, MS. Treatments were arranged as a split-plot in a randomized complete block design with four replications. Main blocks were tillage treatments consisting of stale seedbed or no-till versus conventional tillage with sub-block herbicide treatments of Roundup alone, Roundup + Bladex layby, or a conventional herbicide program. Roundup was applied at 1.12 kg ai/ha once over the top and then PD two times in the Roundup alone program. In the Roundup + Bladex layby, Roundup was applied at 1.12 kg/ha once topically, once PD, and was followed by Bladex + MSMA at 1.12 + 2.24 kg ai/ha applied as a layby treatment. In the conventional herbicide program a preemergence of Prowl (pendimethalin) + Cotoran (fluometuron) 1.12 + 1.67 kg ai/ha was applied, followed by Cotoran + MSMA 0.9 + 2.2 kg/ha PD, followed by Caparol (prometryn) + MSMA 0.6 + 2.2 kg/ha

PD, followed by a layby application of 1.12 kg/ha of Bladex.

In the conventional tillage versus stale seedbed production system, all treatment combinations controlled pitted morningglory at least 70%. The greatest yield and return came from the conventional tillage system regardless of which herbicide program was used at all but one location. Yield and net return with Roundup alone was equal to or greater than with conventional herbicides and greater than with Roundup + Bladex at all locations

In the no-till system pitted morningglory and broadleaf signalgrass control did not greatly differ across herbicide treatment, tillage system, or environment. Yields varied among environments but were generally higher under conventional than no-till systems. Roundup alone provided a net return equivalent to conventional herbicides and greater than Roundup + Bladex.