

**PRECISION APPLICATION IN A ROUNDUP
READY COTTON SYSTEM -- NO-TILL**

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Abstract

Weed control systems for Roundup Ready cotton were evaluated in a large field trial at the Milan Experiment Station, Milan, Tennessee in 1996. Roundup Ready, Paymaster 1220 cotton was planted in early May, no-till in previous years' cotton stubble. Weeds included cocklebur (*Xanthium strumarium*), morning-glory (*Ipomoea* spp.), sicklepod (*Senna obtusifolia*), yellow nutsedge (*Cyperus esculentus*) and johnsongrass (*Sorghum halepense*) as well as crabgrass (*Digitaria sanguinalis*). Systems varied from traditional pre-emergence soil based residual herbicide programs to total postemergence programs using Roundup Ultra (glyphosate) only as well as mixtures there of. Treatments were applied to eight row wide strips the length of the field with commercial field applications equipment and replicated across the 40 acre field three times. All treatments were conducted in a strictly no-till situation.

Herbicides were applied in 10 gallons of spray solutions using tractor mounded equipment. Post-directed treatments were applied with a C.A.P.—Redball hooded sprayer. Data obtained included visual crop injury and weed control on a scale of 0 to 100 where 0 equals no injury or control and 100 equals death or total control, and lint cotton yields.

Weed control of all species were excellent for all treatments receiving two or more Roundup Ultra applications and equal to or better than traditional systems. There was no significant difference in yields for traditional applied herbicide systems compared to the total postemergence Roundup herbicide system. Although highest yields were obtained with the Roundup systems and the lowest yield received from the heaviest pre-emergence residual systems. There were significant economic difference in cost of weed control programs.

Five post-emergence layby treatments were made with the Patchen electronic weed sensing device. The Patchen system did reduce the spray volume by 56% resulting in a \$4.73 reduction in cost per acre.

Overall weed control cost for the Roundup Ready only treatments reduced herbicide cost by 54% over traditional no-tillage treatments with equal weed control and yield.

Yields and Cost				
Roundup Ready Cotton, No-Till Systems				
	Treatment	Description	Lint/Ac	Cost/Ac
1.	Burndown Pre	Roundup Ultra 1.5 pt/ac Prowl 2.4 pt/ac + Cotoran 3.2 pt/ac	1182	46.67
	Over-the-Top Hooded Spray	Roundup Ultra 1.5 pt/ac Roundup Ultra 1.5 pt/ac		
2.	Burndown Pre	Roundup Ultra 1.5 pt/ac Prowl 2.4 pt/ac	1135	32.95
	Over-the-Top Hooded Spray	Roundup Ultra 1.5 pt/ac Roundup Ultra 1.5 pt/ac		
3.	Burndown Pre	Roundup Ultra 1.5 pt/ac Cotoran 3.2 pt/ac	1164	39.34
	Over-the-Top Hooded Spray	Roundup Ultra 1.5 pt/ac Roundup Ultra 1.5 pt/ac		
4.	Burndown Pre	Roundup Ultra 1.5 pt/ac	1245	25.61
	Over-the-Top Hooded Spray	Roundup Ultra 1.5 pt/ac Roundup Ultra 1.5 pt/ac		
5.	Burndown Pre	Roundup Ultra 1.5 pt/ac	1161	38.47
	Over-the-Top Hooded Spray	Roundup Ultra 1.5 pt/ac Roundup Ultra 1.5 pt/ac		
	Post-Direct	Bladex 1 qt/ac + MSMA 42 oz/ac		
6.	Burndown Pre	Roundup Ultra 1.5 pt/ac Prowl 2.4 pt/ac + Cotoran 3.2 pt/ac	1088	56.84
	Post-Direct	Cotoran 2 pt/ac + MSMA 42 oz/ac		
	Post-Direct	Bladex 1 qt/ac + MSMA 42 oz/ac		