Response of Cotton to Directed, Postemergence Herbicides

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A test was conducted in 1980 at the Cotton Research Center, Phoenix, Arizona to evaluate the response of cotton to directed, postemergence herbicides. This type of herbicide application may fit into a program designed to control weeds which emerge after the first and second postemergence irrigations.

The field was preirrigated March 31 and planted with Deltapine 70 seed on April 17. Herbicide treatments were applied as a 10-inch band of spray directed to the base of cotton plants on both sides of the row. Herbicides were applied with a hand-held, compressed air sprayer in 40 GPA water. The first application was made May 21 when the cotton was 4 inches high. The spray contacted the first two true leaves and lower stem. The second application was made June 25 when the cotton was 20 inches high. The spray contacted the bottom 3 to 4 inches of cotton plants. There were no weeds present in the test at either application date. The field was cultivated three times and irrigated seven times. Treated plots were four 40-inch beds, 42 feet long and treatments were replicated four times. The plots were harvested by machine in October. The soil was a clay loam.

Caparol, Karmex, and Bladex caused chlorosis (yellowing) on cotton leaves contacted by the spray. Bladex produced the most chlorosis and Karmex gave the least chlorosis. The chlorosis on sprayed leaves was reduced, and necrosis (browning, dead tissue) increased, when MSMA was combined with the above herbicides. Goal applied in May caused purple-colored speckling on all leaves of the cotton plants. Goal applied in June, however, caused necrosis and abscission of leaves contacted by the spray. Leaf distortion and necrosis was observed on some cotton foliage which was not contacted by the spray.

In mid-July cotton in all plots was growing vigorously and only slight symptoms on lower leaves could be observed. The yield of seed cotton was not reduced by any herbicide treatment.

Yield of Cotton after application of directed, postemergence herbicides on two dates.

Treatment in May and June						Yield of Seed Cotton 1/
Herbicide	lb/A	Herbicide	lb/A	Surfactant	%	lb/A
Caparol	0.5			X-77	0.5	4250 a
Caparol	0.5	MSMA	2.0	X-77	0.25	4190 a
Karmex	0.5			X-77	0.5	4130 a
Karmex	0.5	MSMA	2.0	X-77	0.25	4130 a
Bladex	1.0			X-77	0.5	4110 a
Bladex	1.0	MSMA	2.0	X-77	0.25	4210 a
Goal	0.5			X-77	0.25	4090 a
Untreated						4280 a

1/ Values followed by the same letter are not significantly different.