Morningglory Control in Cotton

C. H. Doty, Stanley Heathman, Extension Weed Specialists
and K. C. Hamilton, Agronomist

An experiment was conducted near Scottsdale, Arizona in 1980 to evaluate herbicides for control of woolly morningglory. The field was selected because it was heavily infested with woolly morningglory in 1979. Treatments consisted of two, three, or four separate applications of selected herbicides in a 'program' approach to morningglory control.

The field was preirrigated April 24. Treflan and Caparol were applied in a band over the bed with a field sprayer and incorporated with a power mulcher on May 6. Deltapine 61 seed was planted in moist soil May 12. Preemergence herbicides were applied in a 20-inch band over-the-bed immediately after caps were removed on May 15. Postemergence herbicides were applied as directed sprays to the base of cotton plants on June 23, 7 days following the first postemergence irrigation. Cotton was 6 to 12 inches high and morningglory was in the cotyledon to first true leaf stage. A few morningglory plants that were not controlled earlier were starting to produce vines. Layby herbicides were applied to the furrow and base of cotton plants on July 29. Most of the cotton was 18 to 24 inches high, but some was only 8 inches high. Morningglory was in the cotyledon stage, except for several plants in the cotton row that were producing vines in some plots. On August 8, 0.8 lb/A of Bladex was applied at layby to the entire test with a field sprayer. The test was cultivated five times, and vining morningglory was removed by hand on July 8. The test was irrigated seven times. All herbicide treatments, except preplant and the Bladex layby application, were applied with a hand-held, compressed air sprayer. Herbicides were applied in 20 GPA water, except the preemergence and directed postemergence sprays which were applied in 40 GPA water. Plots were four 38-inch beds, 40 feet long and treatments were replicated four times. The soil was a clay loam.

Goal produced marginal necrosis, necrotic speckling and distorted leaf growth of cotton when applied as a directed postemergence spray. Symptoms were more severe on plants that were less than 8 inches high. Goal applied at layby produced symptoms that were similar to earlier postemergence sprays, but were much less severe. Caparol and Karmex applied with MSMA as directed postemergence sprays caused chlorosis in a few lower leaves. All other herbicide applications produced little or no visible symptoms on cotton.

Programs composed of preplant (mulched over-the-bed) and layby herbicides, with or without preemergence herbicides, gave inadequate control of the dense stand of morningglory encountered in this field. In several plots where woolly morningglory was not controlled, a large mass of vines prevented travel by foot or by machine. The most effective programs for season-long control of annual morningglory were those which included early, directed postemergence herbicides. Most of these herbicides, when combined with preplant and layby herbicides, prevented the growth of morningglory vines within and above cotton for the entire season. The effectiveness of these early postemergence applications is probably due to 1) control of some morningglory plants that escaped preplant herbicides and early cultivation, 2) control of morningglory which emerged following the first postemergence irrigation June 16.

Control of woolly morningglory in cotton by herbicides applied two, three or four times during the growing season.

Treatment									Est'd. Morningglory Control 1=none, 10=complete	
Preplant		Preemergence		Postemergence 1/		Layby 2/				
Herbicide	lb/A	Herbicide	lb/A	Herbicide	lb/A	Herbicide	lb/A		Aug. 6	Sept. 25
Treflan + Caparol	0.75 1.6	Bladex	1.6			Caparol	1.6		9.8	6.5
Treflan + Caparol	0.75 1.6	Cotoran	2.4			Caparol	1.6		7.0	6.1
Treflan + Caparol	0.75 1.6	Cotoran	2.4	Goal	0.5	Caparol	1.6		10.0	10.0
Treflan + Caparol	0.75 1.6			Goal	0.5	Caparol	1.6		10.0	10.0
Treflan + Caparol	0.75 1.6			Caparol + MSMA	0.5 2.0	Caparol	1.6		9.6	9.0
Treflan + Caparol	0.75 1.6			Karmex + MSMA	0.5 2.0	Caparol	1.6		9.9	10.0
Treflan + Caparol	0.75 1.6			Cotoran + MSMA	2.4 2.0	Caparol	1.6		10.0	10.0
Treflan + Caparol	0.75 1.6					Caparol	1.6		7.4	3.5
Treflan + Caparol	0.75 1.6					Karmex	1.6		7.4	5.9
Treflan + Caparol	0.75 1.6					Bladex	1.6		8.1	4.8
Treflan + Caparol	0.75 1.6					Goal	1.0		5.6	2.0
Treflan + Caparol	0.75 1.6					Cotoran	2.4		5.6	6.6

1/ Treatments which included MSMA were applied with 0.5% X-77 surfactant.

2/ All layby treatments applied with 0.5% X-77 surfactant.

Johnsongrass Control in Cotton with Postemergence Herbicides 1980 - Chandler

C. H. Doty and Stanley Heathman, Extension Weed Specialists

Deltapine 61 seed was planted April 1 in dry soil and irrigated-up April 9. All herbicides, except CGA-82725, were applied May 1 when Johnsongrass was 6 to 15 inches high and cotton was in the cotyledon to first true leaf stage. CGA-82725 was applied May 19 when Johnsongrass was 8 to 24 inches high and cotton was 4 inches high. A second application of KK-80, Bas-90520H, and RO-138895 at 0.5 lb/A was made June 16 when Johnsongrass was up to 3 feet high and cotton was 8 to 14 inches high. A second application of CGA-82725 at 0.5 lb/A was made July 14 when Johnsongrass was up to 3 feet high and cotton was 20 to 24 inches high. All herbicides were applied broadcast with a compressed air sprayer in 40 GPA water. The test area was cultivated four times. A commercial rope-wick applicator was used to apply Roundup to Johnsongrass foliage above the top of cotton on three dates beginning July 15. Plots were four 38-inch beds, 40 feet long and treatments were replicated four times.