

# Johnsongrass Control in Cotton with BAS 620

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## ***Abstract***

*Johnsongrass control with BAS 620 was 60% and 67% for the 0.124 and 0.248 lb ai/A rates respectively, 14 d after initial application. Control was comparable to Select at the corresponding rates. Control 28 d after the second application of graminicides ranged from 60% to 88%. Both rates of BAS 620 and Select as well as Fusilade DX provided the most effective control. Seed cotton yields ranged from 1347 to 3134 lbs/A and all herbicide treatments yielded significantly greater than the nontreated check.*

## **Introduction**

Johnsongrass is a perennial weed that reproduces by seed and underground vegetative structures (rhizomes). In surveys of Arizona cotton fields in 1995 and 1996, Johnsongrass was reported in 24% and 22% of fields respectively with approximately one plant per square meter (McCloskey et al., 1998). A number of herbicides are available for control of grasses in broadleaf crops in Arizona. The objective of this study was to evaluate the experimental herbicide BAS 620 in comparison with commercially available herbicides for Johnsongrass control.

## **Materials and Methods**

One experiment was conducted at the Maricopa Agricultural Center near Maricopa, AZ in 1999 to evaluate various grass specific herbicides for the control of rhizome Johnsongrass. The experimental design was a randomized complete block with three replications and plots were four rows (40" spacings) wide by 40 feet in length. The cotton variety Delta Pine 5690 RR was dry planted on April 13 and irrigated to establish stand.

Herbicide treatments included in the experiment were BAS 620 (1.67 EC) at 0.124 and 0.248 lbs ai/A, Select (2 EC) at 0.125 and 0.25 lbs ai/A, Poast (1.53 EC) and Poast Plus (1.0 EC) at 0.281 lbs ai/A, Fusilade DX (2.0 EC) at 0.25 lbs ai/A, and a nontreated check for comparison purposes. Crop oil concentrate was added to all herbicide treatments at a rate of 1.25% v/v. Initial application of herbicides were made to 12" to 20" johnsongrass on May 26, 1999 followed by an additional application on July 1, 1999. Herbicide treatments were applied using a CO<sub>2</sub> pressurized backpack sprayer calibrated to deliver a 15 gallon per acre spray volume at 31 pounds per square inch. The spray boom was equipped with four TeeJet flat fan 11002 nozzles (2 per crop row). The crop was managed using standard cotton production and insect control guidelines throughout the growing season.

Johnsongrass control and crop phytotoxicity evaluations were made at 7, 14, and 28 days after the initial application and 28 days after the second application. The two center rows of the four row plots were harvested on December 3, 1999. All data were subjected to analysis of variance and means were separated using Duncan's Multiple Range Test.

## Results and Discussion

Johnsongrass control with BAS 620 was 60% and 67% for the 0.124 and 0.248 lb ai/A rates respectively, 14 d after initial application (Table 1). Control was comparable to Select at the corresponding rates. At 28 d after initial application regrowth was observed at the lower rate of BAS 620 (55% control) compared with Select (65% control). The higher rate of BAS 620 (0.248 lb ai/A), Select at both rates, and Fusilade DX at 0.25 lb ai/A provided control ranging from 65% to 78%. Control 28 d after the second application of graminicides ranged from 60% to 88%. Both rates of BAS 620 and Select as well as Fusilade DX provided the most effective control. No crop injury was observed for any of the herbicide applications. Seed cotton yield did not necessarily reflect weed control, however all herbicide treatments were significantly greater than the nontreated check.

## References

McCloskey, W. B., P. B. Baker, and W. Sherman. 1998. Survey of Cotton Weeds and Weed Control Practices in Arizona Upland Cotton Fields. Cotton: A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-112. pp. 241-254.

Table 1: Johnsongrass control 7 and 14 and 28 d after initial application, 28 d after second application, and seed cotton yield at the Maricopa Ag Center, 1999.

Treatment	Formulation	Rate	Johnsongrass control				Yield
			7 DAT 1	14 DAT 1	28 DAT 1	28 DAT 2	
		lbs ai/A	%				
BAS 620 <sup>a</sup>	1.67 EC	0.124	35 b	60 bc	55 c	72 bc	3134 ab
BAS 620	1.67 EC	0.248	47 a	67 a	70 ab	78 ab	2840 ab
Select	2 EC	0.125	47 a	65 ab	65 b	80 ab	2546 b
Select	2 EC	0.25	45 a	68 a	78 a	88 a	2447 b
Poast	1.53 EC	0.281	32 b	48 d	43 d	65 c	2453 b
Poast Plus	1.0 EC	0.281	38 ab	57 c	50 cd	60 c	2861 ab
Fusilade DX	2.0 EC	0.25	38 ab	58 c	68 b	78 ab	3312 a
Nontreated			0 c	0 e	0e	0 d	1347 c
LSD (0.05)			10	7	10	12	723