

Weed control in glyphosate-resistant corn with metolachlor and metolachlor & atrazine. Young, Julie M., Bryan G. Young, Joseph L. Matthews and Ronald F. Krausz. This study was designed to determine the efficacy of metolachlor vs. s-metolachlor and the efficacy of and metolachlor & atrazine vs. s-metolachlor & atrazine in glyphosate-resistant corn. The study was conducted on an Ebbert silt loam with 2.7 % organic matter and pH 6.2 at the Belleville Research Center. Fertilizer applied was 150, 50, and 100 lb/A of N, P₂O₅, and K₂O, respectively, to an area that had been cropped to soybean in 2003. Dekalb 'DKC 60-17 RR' corn was planted 1.5 inch deep at 28000 seeds per acre into a reduced-till seedbed on May 11, 2004. Plots consisted of four rows with 30 inch row spacing, 30 ft long arranged in a randomized complete block design with 4 replications. The herbicides were broadcast applied with a CO₂ pressurized sprayer using 8003 flat fan tips at 40 PSI and 20 GPA water. Monthly rainfall in inches was 1.3, 8.7, 2.8, 6.6, and 5.2 in April, May, June, July and August, respectively. Weed populations per 0.25 M² in the nontreated plots, mid-season, were: greater than 50 giant foxtail; 3 common cocklebur; 4 velvetleaf; 1 common ragweed; and 2 morningglory species. Application timings were preemergence (PRE) and postemergence at 2 to 4 inch weed heights (2-4"W). Total rainfall for the 7 days following the PRE application was 2.0 inches. Application information is listed below.

Date	5-12-04	6-3-04
Treatment	PRE	2-4"W
Air temperature (F)	73	64
Relative humidity (%)	88	65

field corn	
stage	V4
height (inch)	10-12

common cocklebur	
leaf no.	6-8
height (inch)	3-5

velvetleaf	
leaf no.	4-6
height (inch)	2-4

common ragweed	
leaf no.	4-6
height (inch)	2-4

morningglory species	
leaf no.	4-8
height (inch)	1-3

No corn injury was observed from any herbicide treatment. Metolachlor(282) and metolachlor & atrazine(283) provided complete control of giant foxtail regardless of herbicide rate. Control of common cocklebur, velvetleaf, common ragweed, and morningglory species from metolachlor & atrazine(283) was at least 90% and similar to that provided by s-metolachlor & atrazine at 14 days after emergence (DAE). By 42 DAE, control of common cocklebur and velvetleaf from metolachlor & atrazine(283) had declined to 74 to 76 and 40 to 68%, respectively. However, control of common ragweed and morningglory species from metolachlor & atrazine(283) was at least 90% at 42 DAE. Following preemergence applications of metolachlor(282), metolachlor & atrazine(283) or s-metolachlor & atrazine with glyphosate resulted in at least 93% control of all weed species evaluated at 42 DAE. (Dept. of Plant, Soil and Agricultural Systems, Southern Illinois University, Carbondale)

Table. Weed control in glyphosate-resistant corn with metolachlor and metolachlor & atrazine. (Young, Young, Matthews and Krausz)

Treatment ^a	Application		Corn injury ^b 14 DAE	Control, days after days after emergence ^c														
				SETFA			XANST			ABUTH			AMBEL			IPOSS		
	Rate (lb/A)	Time	14	28	42	14	28	42	14	28	42	14	28	42	14	28	42	
Nontreated			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S-metolachlor & benoxacor(D2M)	0.955	PRE	0	98	99	99	0	0	0	0	0	0	0	0	0	0	0	
S-metolachlor & beco(D2M)	0.91	PRE	0	99	99	99	0	0	0	0	0	0	0	0	0	0	0	
Metolachlor(282)	0.985	PRE	0	99	99	99	0	0	0	0	0	0	0	0	0	0	0	
Metolachlor(282)	0.97	PRE	0	99	99	99	0	0	0	0	0	0	0	0	0	0	0	
Metolachlor(282)	0.96	PRE	0	99	99	99	0	0	0	0	0	0	0	0	0	0	0	
Metolachlor(282) / glyphosate	0.985 / 0.77	PRE / 2-4"W	0	99	99	99	0	98	97	0	99	96	0	99	99	0	92	
Metolachlor(282) / glyt	1.97 / 0.77	PRE / 2-4"W	0	99	99	99	0	98	98	0	98	96	0	98	98	0	91	
Metolachlor(282) / glyt	2.96 / 0.77	PRE / 2-4"W	0	99	99	99	0	99	98	0	99	97	0	99	99	0	93	
S-metolachlor & beco(D2M) / glyt	0.955 / 0.77	PRE / 2-4"W	0	99	99	99	0	98	97	0	97	96	0	99	99	0	92	
S-metolachlor & beco(D2M) / glyt	1.91 / 0.77	PRE / 2-4"W	0	99	99	99	0	98	98	0	98	95	0	99	99	0	91	
Meto & atra(283)	1.06 & 0.88	PRE	0	99	99	99	92	89	74	95	90	40	98	92	90	98	92	
Meto & atra(283)	1.58 & 1.32	PRE	0	99	99	99	91	90	74	93	83	48	99	97	98	99	96	
Meto & atra(283)	1.95 & 1.63	PRE	0	99	99	99	95	90	76	96	87	68	99	98	97	99	96	
Meto & atra(283) / glyt	1.06 & 0.88 / 0.77	PRE / 2-4"W	0	99	99	99	91	98	98	95	99	96	99	99	99	99	98	
Meto & atra(283) / glyt	1.58 & 1.32 / 0.77	PRE / 2-4"W	0	99	99	99	94	98	97	97	99	96	99	99	99	98	98	
Meto & atra(283) / glyt	1.95 & 1.63 / 0.77	PRE / 2-4"W	0	99	99	99	95	98	99	97	99	96	99	99	99	99	98	
S-meto & atra & beco(B2M) / glyt	0.78 & 1.0 / 0.77	PRE / 2-4"W	0	99	99	99	94	98	98	97	99	97	99	99	99	98	98	
S-meto & atra & beco(B2M) / glyt	1.17 & 1.5 / 0.77	PRE / 2-4"W	0	99	99	99	92	98	98	98	99	98	99	99	99	99	98	
S-meto & atra & beco(B2M) / glyt	1.56 & 2.0 / 0.77	PRE / 2-4"W	0	99	99	99	95	98	98	98	99	97	99	99	99	99	98	
LSD			0	1	0	0	3	3	3	2	4	6	1	3	4	1	2	
P			1.0	0.01	1.0	1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	

^a(D2M) = Dual II Magnum. (282) = MANA282. (283) = MANA283. (B2M) = Bicep II Magnum. All glyphosate was Roundup WeatherMax.

^bCorn was also evaluated at 28, 42, and 56 days after emergence with no observable injury at any time. DAE = Days after emergence.

^cRatings at 14 days after emergence were prior to the 2-4"W application. Weed control was also evaluated at 56 days after emergence with no change from 42 days after emergence.