

Herbicide performance with soil applied dimethenamid-P, s-metolachlor, and flufenacet in soybeans at Lamberton, MN in 2003. Getting, Jodie K. and Bruce D. Potter The objective of this study was to evaluate soil applied dimethenamid-P, s-metolachlor, and flufenacet for annual grass and annual broadleaf weed control in glyphosate-resistant soybeans. This study was conducted on a Normania loam soil containing 4.9% organic matter, pH 5.1 and soil P and K levels of 32 and 272 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to oats in 2002 and was fall chiseled. On May 15, 2003 preplant incorporated treatments were applied and tilled twice with a field cultivator set to till 3 to 4 inches deep and operated at 5 to 6 mph. The same day Croplan '1776' glyphosate-resistant soybeans were planted in 20-inch rows at a seeding rate of 160,000 seeds/A. In August, all plots were treated with esfenvalerate (Asana) for soybean aphid control. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 15	May 16	June 13
Treatment	PPI	PRE	POST
Temperature (F)			
air	64	59	72
soil (4 inch)	68	58	70
Relative humidity (%)	49	72	57
Wind (mph)	S 10	calm	NW 5
Sky	clear	clear	clear
Soil moisture	dry	dry	dry
Soybean			
leaf no.	-	-	V1
height (inch)	-	-	4
Yellow foxtail			
leaf no.	-	-	2 to 4
height (inch)	-	-	3 to 5
no./ft <sup>2</sup>	-	-	32
Common lambsquarters			
leaf no.	-	-	2 to 5
height (inch)	-	-	2 to 3
no./ft <sup>2</sup>	-	-	2
Redroot pigweed			
leaf no.	-	-	2 to 4
height (inch)	-	-	2 to 4
no./ft <sup>2</sup>	-	-	3
Rainfall after application (inch)			
1 week	0.35	0.50	0.01
2 week	0.29	0.14	3.43
3 week	0.17	0.60	0.50

Early season crop development and crop canopy was delayed due to a June 23 hailstorm, which resulted in 43% defoliation of soybean leaves. The precipitation received in July and August was below average with a total of 2.96 inches compared to the historical average of 7.07 inches. At 12 days after POST treatment, dimethenamid-P + glyphosate and s-metolachlor + glyphosate had 10 and 13% injury expressed as leaf burn, respectively. None of the other herbicide treatments had visible crop injury. On June 10, prior to POST treatments, s-metolachlor and dimethenamid-P applied PPI had 93%, 92 to 95%, and 92 to 96% control of yellow foxtail, common lambsquarters, and tall waterhemp, respectively. PRE applied dimethenamid-P, s-metolachlor, [s-metolachlor & CGA-154281], [flufenacet & metribuzin] gave 63 to 76% yellow foxtail control, 60 to 73% common lambsquarters control, and 43 to 60% tall waterhemp control. In August, dimethenamid-P + glyphosate and s-metolachlor + glyphosate applied POST provided 93% yellow foxtail control. PPI and PRE treatments provided 53 to 74% control and PRE/POST treatments provided 90 to 92% control. PPI, PRE, PRE/POST and POST treatments resulted in 63 to 64%, 10 to 30%, 93%, and 88 to 90% common lambsquarters control, respectively. Tall waterhemp control for PPI, PRE, PRE/POST and POST treatments resulted in 73 to 80%, 8 to 30%, 81 to 83%, and 86%, respectively. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance with soil applied dimethenamid-P, s-metolachlor, and flufenacet in soybeans at Lamberton, MN in 2003 (Getting and Potter).

Treatment <sup>a</sup>	Rate	Injury 6/25	SETLU			CHEAL			AMATU			Yield (bu/A) <sup>b</sup>
			6/10	6/25	8/27	6/10	6/25	8/27	6/10	6/25	8/27	
<u>Preplant incorporate</u>	(lb/A or %)		-----(% control)-----									
Dimethenamid-P	0.98	0	93	87	72	95	88	63	96	93	80	9.6
S-metolachlor	1.91	0	93	88	70	92	83	64	92	83	73	11.1
<u>Preemergence</u>												
Dimethenamid-P	0.98	0	76	76	74	71	50	25	53	15	8	7.8
S-metolachlor	1.91	0	75	66	68	65	35	10	60	28	8	10.0
[S-metolachlor&CGA-154281]	1.43	0	72	70	53	60	37	30	47	22	30	7.8
[Flufenacet&metribuzin]	[0.58&0.14]	0	76	79	69	63	45	14	45	18	18	12.2
<u>Preemergence/POST (4-inch weeds)</u>												
[S-metolachlor&CGA-154281]/Glyt	1.43/0.75	0	63	98	92	63	98	93	43	98	81	26.8
[Flufenacet&metribuzin]/Glyt	[0.58&0.14]/0.75	0	71	98	90	73	98	93	51	98	83	26.0
<u>POST (4-inch weeds)</u>												
Dimethenamid-P+glyphosate	0.98+0.75	10	0	98	93	0	98	90	0	98	86	26.8
S-metolachlor+glyphosate	1.91+0.75	13	0	98	93	0	98	88	0	97	86	25.9
<u>Checks</u>												
Weedy Check	-	0	0	0	0	0	0	0	0	0	0	2.9
Weed-free check		0	100	100	100	100	100	100	100	100	100	26.8
	LSD (0.10)	1.0	7.5	5.5	6.1	9.3	9.2	11.3	12.2	10.5	11.2	5.18

<sup>a</sup> Dimethenamid-P = Outlook 6L; [flufenacet & metribuzin] = Axiom 68DF; s-metolachlor = Dual Magnum 7.62E; [s-metolachlor & CGA-154281] = Dual II Magnum 7.64E; glyphosate or Glyt = Roundup Weathermax 4.5L;

<sup>b</sup> Yield adjusted to 13% moisture.