

Weed control with mesotrione in corn at Lamberton, MN in 2002. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate mesotrione applied either preemergence or postemergence for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.2% organic matter, pH 6.5 and soil test P and K levels of 60 and 316 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 2001 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 2, 2002, Mycogen '4150LL' glufosinate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Tefluthrin (Force 3G) was applied at 4 oz/1000 row feet in a T-band for the control of northern corn rootworm larvae. 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 3	May 29	June 5
Treatment	PRE	POST I	POST II
Temperature (F)			
air	48	65	64
soil (4 inch)	42	68	68
Relative humidity (%)	30	90	68
Wind (mph)	SE 10	S 5	NNE 3
Sky	clear	clear	clear
Soil moisture	dry	dry	moist
Corn			
leaf no.	-	1-collar	3-collar
height (inch)	-	2	4
Yellow foxtail			
leaf no.	-	1	1 to 4
height (inch)	-	0.5 to 1.0	1 to 3
no./ft ²	-	31	28
Common lambsquarters			
leaf no.	-	1 to 2	3 to 5
height (inch)	-	0.25 to 0.75	1 to 2
no./ft ²	-	3	4
Redroot pigweed			
leaf no.	-	1 to 2	3 to 5
height (inch)	-	0.25 to 0.75	1 to 2
no./ft ²	-	1	5
Rainfall after application (inch)			
1 week	1.25	1.23	0.57
2 week	0.36	0.57	0.24
3 week	0.00	0.24	1.18

None of the herbicide treatments caused visible crop injury. On June 3, prior to POST II treatments, [s-metolachlor & mesotrione & CGA-154281] and [s-metolachlor & mesotrione & atrazine & CGA-154281] applied PRE provided 93 to 94% and 93 to 95% yellow foxtail control, respectively. [S-metolachlor & CGA-154281] applied either alone or with atrazine gave 91 to 92% and 93% control, respectively. [S-metolachlor & CGA-154281] alone gave 85 to 87% common lambsquarters control. All other treatments provided 92% or greater control. All treatments gave 93% or greater redroot pigweed control. In September, the PRE/POST II herbicide treatments resulted in 90 to 94% yellow foxtail control. [S-metolachlor & mesotrione & CGA-154281] and [s-metolachlor & mesotrione & atrazine & CGA-154281] applied PRE provided 83 to 85% and 84 to 89% yellow foxtail control, respectively. [S-metolachlor & mesotrione & CGA-154281] + nicosulfuron and [s-metolachlor & mesotrione & atrazine & CGA-154281] + nicosulfuron applied POST I provided 90 to 92% and 93 to 95% yellow foxtail control, respectively. Glufosinate applied either alone or with a tank-mix partner resulted in 81 to 90% control. Glufosinate applied alone gave 85% common lambsquarters control and 86% redroot pigweed control. All other treatments resulted in 93% or greater control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Weed control with mesotrione in corn at Lamberton, MN in 2002 (Getting and Potter).

Treatment ^a	Rate	SETLU				CHEAL				AMARE			
		6/3	6/21	7/1	9/10	6/3	6/21	7/1	9/10	6/3	6/21	7/1	9/10
Preemergence	(lb/A or %)	-----(% control)-----											
[S-meto&mesotrione&atrazine&CGA-154281]	[1.66&0.166&0.62]	93	87	83	84	97	98	98	96	98	98	98	97
[S-meto&mesotrione&atrazine&CGA-154281]	[2.0&0.2&0.75]	95	90	91	89	98	98	98	97	98	98	98	97
[S-meto&mesotrione&CGA-154281]	[1.66&0.166]	93	88	87	83	98	98	98	95	98	97	95	93
[S-meto&mesotrione&CGA-154281]	[2.0&0.2]	94	88	88	85	98	98	97	95	98	97	96	95
Preemergence/POST II (4-inch weeds)													
[S-metolachlor&CGA-154281]/ mesotrione+COC+28%N	1.91/ 0.094+1.0%+2.5%	92	92	92	90	87	98	97	95	95	98	98	96
[S-metolachlor&CGA-154281]/ mesotrione+Atra+COC+28%N	1.91/ 0.094+0.25+1.0%+2.5%	91	94	95	94	85	98	99	97	93	98	99	97
[S-metolachlor&CGA-154281]+atrazine/ mesotrione+COC+28%N	1.91+0.75/ 0.094+1.0%+2.5%	93	94	94	92	92	98	98	97	93	98	98	97
POST I (V1 corn)													
[S-meto&mesotrione&atrazine&CGA-154281] +nicosulfuron	[1.66&0.166&0.62] +0.016	94	96	96	93	98	98	98	97	98	98	98	97
[S-meto&mesotrione&atrazine&CGA-154281] +nicosulfuron	[2.0&0.2&0.75] +0.016	95	97	97	95	98	98	98	97	98	98	98	97
[S-meto&mesotrione&CGA-154281] +nicosulfuron	[1.66&0.166] +0.016	90	93	92	90	97	98	98	97	95	98	98	97
[S-meto&mesotrione&CGA-154281] +nicosulfuron	[2.0&0.2&0.75] +0.016	89	91	91	92	97	98	98	97	97	98	97	97
POST II (4-inch weeds)													
Nico+mesotrione+Atra +COC+28%N	0.023+0.094+0.25 +1.0%+2.5%	0	90	89	90	0	97	98	95	0	98	98	96
Glufosinate+AMS	0.37+3.0	0	89	86	83	0	91	86	85	0	91	89	86
Glufosinate+AMS	0.42+3.0	0	89	88	83	0	93	93	93	0	95	93	93
Glufosinate+mesotrione+AMS	0.37+0.031+3.0	0	90	86	81	0	95	95	93	0	95	93	94
Glufosinate+mesotrione+AMS	0.37+0.047+3.0	0	87	86	84	0	95	95	93	0	96	91	94
Glufosinate+mesotrione+AMS	0.37+0.063+3.0	0	90	87	83	0	98	97	95	0	97	96	95
Glufosinate+atrazine+AMS	0.37+0.5+3.0	0	90	88	84	0	98	98	95	0	98	96	97
Glufosinate+atrazine+AMS	0.42+0.5+3.0	0	92	90	86	0	98	98	95	0	98	97	97
Glufosinate+[Dica& San 1269H]+AMS	0.37+[0.064&0.026]+3.0	0	88	86	84	0	95	95	93	0	96	93	93
Glufosinate+mesotrione+AMS	0.37+0.094+3.0	0	92	90	89	0	97	96	94	0	97	97	95
Glufosinate+mesotrione+Atra+AMS	0.37+0.031+0.5+3.0	0	92	89	86	0	98	98	97	0	98	98	95
Glufosinate+mesotrione+Atra+AMS	0.37+0.047+0.5+3.0	0	92	90	90	0	98	98	95	0	98	97	95
Glufosinate+mesotrione+Atra+AMS	0.37+0.063+0.5+3.0	0	91	90	88	0	98	97	97	0	98	98	97
Weedy check		0	0	0	0	0	0	0	0	0	0	0	0
Weed-free		100	100	100	100	100	100	100	100	100	100	100	100
	LSD (0.10)	2.3	2.0	2.9	4.7	1.9	1.8	2.6	2.8	1.9	2.2	3.1	3.0

^a Atra or atrazine = Aatrex 4L; [Dica& San 1269H] or [dicamba & San 1269H] = Distinct 70WG; glufosinate = Liberty 1.67L; mesotrione = Callisto 4SC; Nico or nicosulfuron = Accent 75DF; [S-metolachlor &CGA-154281] = Dual II Magnum 7.64EC; [S-meto&mesotrione&CGA-154281] = Camix 3.7EC; [S-meto&mesotrione&atrazine&CGA-154281] = Lumax 3.9EC; COC = crop oil concentrate; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.