

Weed control with soil applied Define and POST applied Liberty, atrazine, Buctril & Atrazine, Callisto, Option and Distinct in corn at Lamberton, MN in 2005. Getting, Jodie K. The objective of this study was to evaluate soil applied Define and POST applied Liberty, atrazine, Buctril & Atrazine, Callisto, Option and Distinct in corn for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.7% organic matter, pH 6.3 and soil test P and K levels of 34 and 370 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 2004 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 4, 2005, Pioneer '38H69' glufosinate resistant/glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Cyfluthrin + tebupirimphos (Aztec 2.1G) was applied at 6.7 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 5	June 6	June 9	June 21
Treatment	PRE	POST I	POST II	POST III
Temperature (F)				
air	57	64	63	70
soil (4 inch)	50	70	66	70
Relative humidity (%)	55	78	64	87
Wind (mph)	SW 10	calm	calm	NNE 5
Sky	clear	clear	p. cloudy	p. cloudy
Soil moisture	dry	moist	moist	dry
Corn				
leaf no.	-	V3	V4	V7
height (inch)	-	5	6	20
Yellow foxtail				
leaf no.	-	2 to 4	2 to 4	1 to 2
height (inch)	-	2 to 4	3 to 5	1 to 2
no./ft ²	-	19	18	4
Common lambsquarters				
leaf no.	-	2 to 5	3 to 5	-
height (inch)	-	1 to 3	2 to 4	-
no./ft ²	-	4	4	0
Redroot pigweed				
leaf no.	-	2 to 4	2 to 4	-
height (inch)	-	1 to 2	2 to 4	-
no./ft ²	-	21	20	0
Rainfall after application (inch)				
1 week	3.65	1.82	1.25	0.22
2 week	1.83	0.32	0.08	0.81
3 week	0.44	0.27	0.80	1.13

A prolonged period of rain with measurable precipitation occurred on 13 out of the first 15 days after planting. The rainfall amount in this period of time resulted in 5.48 inches of rain. None of the herbicide treatments caused visible crop injury. On June 7, prior to POST II herbicide application, Define applied preemergence at 12 oz/a resulted in 79 and 81%, 40 and 45%, and 44 and 69% yellow foxtail, common lambsquarters, and redroot pigweed control, respectively. Define at 21.7 oz/a provided 86 and 88%, 60 and 63%, and 88 and 89% yellow foxtail, common lambsquarters, and redroot pigweed control, respectively. On August 29, Option + Distinct applied POST II provided 69% yellow foxtail control. Define applied preemergence followed by Buctril & Atrazine + Callisto, Buctril & Atrazine, Option + Distinct, or Liberty + atrazine gave 71, 74, 80, and 85% control, respectively. POST I applied Liberty + Callisto + atrazine, Liberty + atrazine, or Liberty + Define + atrazine gave 81, 84, and 88% control, respectively. Liberty + atrazine followed by Liberty provide 85% control. All herbicide treatments gave 95% or greater common lambsquarters control. Option + Distinct resulted in 87% redroot pigweed control. All other herbicide treatments gave 95% or greater control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Weed control with soil applied Define and POST applied Liberty, atrazine, Buctril & Atrazine, Callisto, Option and Distinct in corn at Lamberton, MN in 2005. (Getting).

Treatment ^a	Rate (oz/A, pt/A, or lb/A)	Yellow foxtail				Common lambsquarters				Redroot pigweed				Yield (bu/A) ^b
		6/7	6/22	7/5	8/29	6/7	6/22	7/5	8/29	6/7	6/22	7/5	8/29	
-----(% control)-----														
<u>Preemergence/POST II (3 to 5-inch weeds)</u>														
Define / Liberty + Atrazine + AMS	12 oz / 32 oz + 1 pt + 3 lb	79	98	94	85	45	98	98	98	69	98	98	97	172
Define / Option + Distinct + MSO + 28%N	12 oz / 1.5 oz + 2 oz + 1.5 pt + 3 pt	81	93	88	80	40	94	97	95	44	95	95	95	169
Define / Buctril & Atrazine	21.7 oz / 2 pt	86	85	81	74	63	98	98	98	89	98	98	97	162
Define / Buctril & Atrazine + Callisto	21.7 oz + 2 pt + 0.75 oz	88	84	78	71	60	97	96	97	88	96	95	95	174
<u>POST I (2 to 4-inch weeds)</u>														
Liberty + Atrazine + AMS	32 oz + 1 pt + 3 lb	-	97	90	84	-	98	98	98	-	98	97	97	186
Liberty + Callisto + Atrazine + AMS	32 oz + 1 oz + 1 pt + 3 lb	-	97	91	81	-	98	98	98	-	98	97	98	164
Liberty + Define + Atrazine + AMS	32 oz + 10 oz + 1 pt + 3 lb	-	98	95	88	-	98	98	98	-	98	98	97	183
<u>POST II (3 to 5-inch weeds)</u>														
Option + Distinct + MSO + 28%N	1.5 oz + 2 oz + 1.5 pt + 3 pt	-	91	83	69	-	94	97	95	-	94	87	87	143
<u>POST I (2 to 4-inch weeds)/POST III (regrowth)</u>														
Liberty + Atrazine + AMS / Liberty + AMS	32 oz + 1 pt + 3 lb / 28 oz + 3 lb	-	97	94	85	-	98	98	98	-	98	98	98	171
Check		0	0	0	0	0	0	0	0	0	0	0	0	22
Weedy	LSD (0.10)	3.8	4.2	8.1	10.9	10.3	2.5	1.8	1.9	11.5	3.3	4.0	4.4	23.4

^a COC = crop oil concentrate; MSO = methylated seed oil; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 15.5% moisture.