Evaluation of soil applied isoxaflutole and mesotrione, and post applied flufenacet, glufosinate, and atrazine performance in corn at Rochester, MN in 2002. Schaufler, Kristal L., Fritz R.Breitenbach, and Lisa M. Behnken. The objective of this trial was to evaluate weed control performance of soil applied isoxaflutole and mesotrione and post applied flufenacet, glufosinate, and atrazine in corn in southeastern Minnesota. The research site was a Lawler loam soil containing 2.4% organic matter with a pH of 6.2 and soil test P and K levels of 35 and 132 ppm, respectively. The previous crop was soybean. The area was fertilized in the fall of 2001 with 200 lb/A Pel-lime, 200 lb/A potash and 8 tons/A turkey manure. The soil was disked twice and chisel plowed once. Spring tillage consisted of two passes with a field cultivator. The corn hybrid, NK 32-L9, was planted on May 1, 2002, at a 2-inch depth in 30-inch rows at a population of 31,000 seeds/A. A randomized complete block design with four replications was used. Preemergence (PRE) and postemergence (POST) treatments were applied with a tractor-mounted sprayer, delivering 20 gpa at 32 psi using TurboTee 11002 nozzles. Evaluations of the plot were taken on May 20 and June 5, 14, and 25. Application dates, environmental conditions, crop and weed stages are listed below.

Date	*May 1*	*June 6*
Treatment	PRE	POST
Temperature (F)		
air	49	70
soil	51	---
Relative humidity (%)	64	59
Wind (mph)	8	16
Soil moisture	adequate	adequate
Corn		
Stage	---	4 collar
height (inch)	---	8
Giant ragweed		
weed density/ft^2	---	9
height (inch)	---	10
Common lambsquarters		
weed density/ft^2	---	5.6
height (inch)	---	3.9
Common waterhemp		
weed density/ft^2	---	14.5
height (inch)	---	2.5
Giant foxtail		
weed density/ft^2	---	22.1
height (inch)	---	4
Rainfall after application (inch)		
week 1	0.51	1.24
week 2	0.56	0.64
week 3	0.00	2.68

Post applied glufosinate + atrazine and glufosinate + atrazine + flufenacet, and soil applied mesotrione at 0.187 lb/A + *s*-metolachlor & CGA-154281 resulted in the best giant ragweed control. Soil applied isoxaflutole (with or without flufenacet and atrazine), and mesotrione alone and at 0.094 lb/A with *s*-metolachlor & CGH-154281 + atrazine resulted in slightly lower giant ragweed control. Soil applied isoxaflutole alone and isoxaflutole + flufenacet (with and without atrazine), and mesotrione at 0.094 lb/A alone and with *s*-metolachlor & CGH-154281 + atrazine gave slightly lower giant ragweed control. All treatments provided consistently good common lambsquaters and common waterhemp control. Postemergence applications of glufosinate + atrazine, and glufosinate + atrazine + flufenacet, along with soil applied isoxaflutole, isoxaflutole + fluenacet (with and without atrazine) and mesotrione + *s*-metolachlor & CGA-154281 (with and without atrazine) resulted in good giant foxtail control. Mesotrione soil applied alone resulted in no control of giant foxtail. The highest yields were achieved with soil applied isoxaflutole at 0.07 lb/A + flufenacet and mesotrione at 0.187 lb/A + *s*-metolachlor & CGA-154281 and all postemergnce treatments. (Southeast District, University of Minnesota Extension Service, Rochester).

Table. Performance of soil applied isoxaflutole and mesotrione and post applied flufenacet, glufosinate, and atrazine in corn on June 14 at Rochester, MN in 2002 (Schaufler, Breitenbach, and Behnken).

Treatment	*Rate*	*AMBTA control*	*CHEAL control*	*AMATA control*	*SETFA control*	*Corn yield*
	(lb/A)	(%)	(%)	(%)	(%)	(bu/A)
Preemergence						
Isoxaflutole	0.047	71	99	97	88	28
Mesotrione	0.094	70	99	99	0	41
Isoxaflutole	0.07	71	95	95	88	51
Mesotrione	0.14	83	99	99	0	89
Isoxaflutole	0.094	78	99	98	94	111
Mesotrione	0.187	83	99	99	0	122
Isoxaflutole + flufenacet	0.07+0.45	78	99	97	94	139
Mesotrione + s-metolachlor & CGA-154281	0.187+1.26	89	99	99	92	147
Isoxaflutole + flufenacet + atrazine	0.047+0.525+1.0	80	98	99	92	111
Mesotrione + s-metolachlor & CGA-154281 + atrazine	0.094+1.26+1.0	80	99	99	91	100
Postemergence						
Glufosinate + atrazine + AMS	0.313+0.5+3.0	88	98	90	91	148
Glufosinate + atrazine + flufenacet + AMS	0.313+0.5+0.225+3.0	89	99	92	93	154
Glufosinate + atrazine + flufenacet + AMS	0.313+0.5+0.337+3.0	89	99	92	92	152
Glufosinate + atrazine + flufenacet + AMS	0.313+0.5+0.45+3.0	90	99	93	93	144
Glufosinate + atrazine + AMS	0.365+0.5+3.0	90	98	93	91	139
Untreated		0	0	0	0	3
	LSD (0.10)	9	2	3	4	29