Evaluation of topramezone[1], a new pigment inhibitor herbicide for weed control in field corn at Rochester, MN in 2005. Breitenbach, Fritz R., Lisa M. Behnken, Krista M. Sheehan, and Matthew M. White. The objective of this trial was to evaluate topramezone[1], a new pigment inhibitor herbicide for weed control in field corn in southeastern Minnesota. The research site was a Lawler loam series containing 2.4% organic matter with a pH test of 7.4 and soil test P and K levels of 52 ppm and 168 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 130 lb/A nitrogen, 23 lb/A phosphorus, 90 lb/A potash, and 19 lb/A sulfur. The field was top dressed with 40 lb/A of nitrogen on June 7, 2005. The field was disked and field cultivated prior to planting. The corn hybrid, DeKalb DKC 51-45RR, was planted on April 29, 2005 at a depth of 1.5 inches in 30-inch rows at 32,000 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 Turbo Tee 11002 nozzles. Evaluations of the plots were taken on May 30, June 15, June 24, and July 18. Application dates, environmental conditions, and crop and weed stages are listed below.

Date	April 28	May 30
Treatment	PRE	POST
Temperature (F)		
air	49	64
Relative humidity (%)	33	52
Wind (mph)	6	3
Soil moisture	dry	adequate
Corn		
stage	seeded	2 collar
height (inch)	--	3.5
Giant ragweed		
weed density (ft^2)	--	8.8
height (inch)	--	2.8
Common lambsquarters		
weed density (ft^2)	--	0.1
height (inch)	--	0.9
Common waterhemp		
weed density (ft^2)	--	92.3
height (inch)	--	0.8
Giant foxtail		
weed density (ft^2)	--	0.1
height (inch)	--	0.8
Rainfall after application (inch)		
week 1	0.12	0.11
week 2	1.26	2.06
week 3	1.65	0.19

No crop response was observed following any postemergence treatments. Significant differences were observed for giant ragweed control, with treatments containing mesotrione providing superior control compared to those with topramezone[1] or flumetsulam & clopyralid, June 15, June 24, and July 18 ratings. Treatments with topramezone[1] provided significantly greater giant ragweed control compared to the flumetsulam & clopyralid treatment, June 15, June 24, and July 18 ratings.

Herbicide treatments with topramezone[1] and mesotrione provided similar control of common lambsquarters and common waterhemp on all rating dates. Topramezone[1] and mesotrione treatments provided significantly greater control of common lambsquarters and common waterhemp compared to the flumetsulam & clopyralid treatment, June 15, June 24, and July 18 ratings.

Giant foxtail control was greatest, 95 to 97%, with topramezone[1] and mesotrione treatments that included nicosulfuron. Topramezone[1] and mesotrione treatments without nicosulfuron provided appreciably higher control of giant foxtail than the flumetsulam & clopyralid treatment, 88 to 90% compared to 81% control,

respectively, July 18 rating. (University of Minnesota Extension Service, Regional Center, Rochester, MN.)

Table. Performance of topramezone[1], a new pigment inhibitor herbicide for weed control in corn on May 30, June 15, June 24, and July 18 at Rochester, MN in 2005. (Breitenbach, Behnken, Sheehan, and White).

Treatment[a]	Rate	AMBTR control				CHEAL control				AMATA control				SETFA control				Corn yield[b]
		5/30	6/15	6/24	7/18	5/30	6/15	6/24	7/18	5/30	6/15	6/24	7/18	5/30	6/15	6/24	7/18	
	(lb/A)	(%)				(%)				(%)				(%)				(bu/A)
PRE/POST																		
S-metolachlor & benoxacor / topramezone[1] + atrazine + MSO + 28% UAN	1.28 / 0.01 + 0.5 + 1% + 2.5%	0	95	93	91	71	99	99	99	99	97	97	98	90	98	98	90	164
S-metolachlor & benoxacor / topramezone[1] + nicosulfuron + atrazine + MSO + 28% UAN	1.28 / 0.01 + 0.031 + 0.5 + 1% + 2.5%	0	95	92	91	74	99	99	98	99	97	97	97	90	99	99	95	148
S-metolachlor & benoxacor / topramezone[1] + atrazine + MSO + 28% UAN	1.28 / 0.016 + 0.5 + 1% + 2.5%	0	94	94	91	71	99	99	99	99	98	96	98	90	98	97	88	157
S-metolachlor & benoxacor / topramezone[1] + nicosulfuron + atrazine + MSO + 28% UAN	1.28 / 0.016 + 0.031 + 0.5 + 1% + 2.5%	0	94	95	91	73	99	99	99	99	98	98	98	90	99	99	97	166
S-metolachlor & benoxacor / mesotrione + atrazine + COC + 28% UAN	1.28 / 0.09 + 0.5 + 1% + 2.5%	0	98	99	98	71	99	99	99	99	98	99	98	90	97	97	89	167
S-metolachlor & benoxacor / mesotrione + nicosulfuron + atrazine + COC + 28% UAN	1.28 / 0.09 + 0.031 + 0.5 + 1% + 2.5%	0	98	99	98	71	99	99	99	99	99	99	99	90	99	98	95	167
S-metolachlor & benoxacor / flumetsulam& clopyralid + COC + 28% UAN	1.28 / 0.04 & 0.11 + 1% + 2.5%	0	72	84	81	73	97	93	84	99	95	93	90	90	97	97	81	165
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (P = 0.05)		0	2	4	3	4	1	3	3	0	2	4	4	0	1	2	5	29

a. Topramezone[1] = proposed common name, MSO = DyneAmic methylated seed oil, Helena; 28% UAN = an aqueous solution of urea and ammonium nitrate; COC = crop oil concentrate, Helena.

b. Yield adjusted to 15.5% moisture. Corn yield variability due to extreme drought conditions in June and early July.