

Comparison of glufosinate programs in field corn at Rochester, MN in 2004. Behnken, Lisa, M. Fritz, R. Breitenbach, Kristal L. Schaufler, and Angela L. White. The objective of this trial was to compare the performance glufosinate programs for weed control in field corn in southeastern Minnesota. The research site was a Lawler loam series containing 2.9% organic matter with a pH of 6.0 and soil test P and K levels of 74 ppm and 268 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 122 lb/A nitrogen, 23 lb/A phosphorus, 120 lb/A potash, 23 lb/A sulfur, and 3 T/A of lime. The area was topdressed with 40 lbs/A of nitrogen on June 15. The field was disked and field cultivated once prior to planting. The corn hybrid, NK N45-A6, was planted on April 29, 2004 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 I and II) 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 18, June 2, June 15, and October 20. Application dates, environmental conditions, and crop and weed stages are listed below.

Date	April 29	June 2	June 7
Treatment	PRE	POST I	POST II
Temperature (F)			
air	61	70	91
Relative humidity (%)	57	46	43
Wind (mph)	7	10	29
Soil moisture	--	--	--
Corn			
stage	seeded	3 collar	4 collar
height (inches)	--	4.7	11.0
Giant ragweed			
weed density	--	heavy	heavy
height (inch)	--	4.1	10.0
Common lambsquarters			
weed density	--	light	light
height (inch)	--	1.4	2.1
Common waterhemp			
weed density	--	moderate	moderate
height (inch)	--	0.5	1.25
Giant foxtail			
weed density	--	moderate	moderate
height (inch)	--	2.2	3.6
Rainfall after application (inch)			
week 1	0.01	4.27	5.65
week 2	1.44	3.24	1.85
week 3	1.02	0.11	0.63

A preemergence application of s-metolachlor & atrazine & mesotrione & benoxacor provided significantly better giant ragweed, common lambsquarters, and common waterhemp control than preemergence applications of flufenacet (June 2 rating). Two treatments resulted in significantly lower giant ragweed and common waterhemp control than all other treatments, flufenacet / foramsulfuron & iodosulfuron and glufosinate + mesotrione (October 20 rating). Late season giant foxtail control was also significantly lower with the glufosinate + mesotrione treatment compared to all other treatments (October 20 rating). (University of Minnesota Extension Service, Regional Center, Rochester, MN)

Table. Performance of glufosinate programs in corn on June 2, June 15, and October 20 at Rochester, MN in 2004 (Behnken, Breitenbach, Schaufler, and White).

Treatment	Rate	AMBTR control			CHEAL control			AMATA control			SETFA control			INJURY	
		6/2	6/15	10/20	6/2	6/15	10/20	6/2	6/15	10/20	6/2	6/15	10/20	6/7	6/15
	(lb/A)	6/2 6/15 10/20 (%)			6/2 6/15 10/20 (%)			6/2 6/15 10/20 (%)			6/2 6/15 10/20 (%)			6/7 6/15 (%)	
Preemergence / Postemergence I															
Flufenacet / foramsulfuron & iodosulfuron + MSO + 28% UAN	0.375 / 0.028&0.002 + 0.94% + 1.88%	0	89	88	43	100	99	89	99	88	97	100	99	5	1
Preemergence / Postemergence II															
Flufenacet / glufosinate + atrazine + AMS	0.375 / 0.417 + 0.5 + 3.0	0	97	95	37	100	99	91	99	97	95	100	99	0	3
Flufenacet / foramsulfuron + dicamba & diflufenzopyr + MSO + 28% UAN	0.375 / 0.033 + 0.125&0.05 + 0.94% + 1.88%	0	92	98	41	100	99	89	100	97	95	100	99	2	6
Flufenacet / bromoxynil & atrazine + mesotrione	0.68 / 0.25&0.50 + 0.031	0	98	97	58	100	100	92	100	97	97	96	97	2	6
S-metolachlor & atrazine & mesotrione & benoxacor / glufosinate + AMS	1.336&0.5& 0.134 / 0.417 + 3.0	94	100	99	99	100	100	99	100	99	98	100	100	0	0
Postemergence I															
Glufosinate + mesotrione + AMS	0.417 + 0.047 + 3.0	0	97	84	0	100	99	0	99	85	0	97	81	6	0
Glufosinate + s-metolachlor & atrazine & mesotrione & benoxacor + AMS	0.417 + 1.003&0.376& 0.1 + 3.0	0	100	99	0	100	99	0	100	99	0	98	94	4	0
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		3	2	4	9	1	0.4	6	2	5	3	4	6	3	5

MSO = methylated sunflower oil; Loveland; 28% UAN = an aqueous solution of urea and ammonium nitrate, Helena; AMS = spray grade ammonium sulfate, Helena.