

Performance of s-metolachlor & atrazine & mesotrione & CGA-154281 and s-metolachlor & mesotrione & CGA-154281 compared to other preemergence herbicide programs in corn at Rochester, MN in 2003. Breitenbach, Fritz R., Lisa M. Behnken, Kevin R. Griffin and Andrew R. Sheehan. The objective of the trial was to evaluate the performance of s-metolachlor & atrazine & mesotrione & CGA-154281 and s-metolachlor & mesotrione & CGA-154281 compared to preemergence herbicides programs used for annual weed control in corn in southeastern Minnesota. The research site was a Lawler loam soil, containing 2.8% organic matter, pH of 5.9 and soil test P and K levels of 57 ppm and 186 ppm, respectively. The previous crop was soybean. In the spring, the area was fertilized with 625 lb/A of Pel-lime and 134, 23, 120 and 24 lb/A of nitrogen, phosphorus, potassium, and sulfur, respectively. Spring tillage consisted of two passes with a field cultivator. The corn hybrid, DKC 47-10, was planted on April 28, 2003, at a depth of 2 inches in 30-inch rows at a population of 32,000 seeds/A. A randomized complete block design with four replications was used. Preemergence (PRE) treatments were applied with a tractor-mounted sprayer, delivering 20 gallons per acre at 32 psi using TurboTee 11002 nozzles. Evaluations of the plots were taken on May 20 and 29, and June 26, 2003. Application dates, environmental conditions, weed and crop stages are listed below.

Date	April 29
Treatment	PRE
Temperature (F)	
Air	53
Soil	---
Relative humidity (%)	49
Wind (mph)	10
Soil moisture	adequate
Corn	
stage	---
height (inches)	---
Giant ragweed	
Weed density/ ft <sup>2</sup>	---
height (inches)	27
Common waterhemp	
Weed density/ ft <sup>2</sup>	17
height (inches)	---
Common lambsquarters	
Weed density/ft <sup>2</sup>	3
height (inches)	---
Giant foxtail	
Weed density/ft <sup>2</sup>	3
height (inches)	---
Rainfall after application (inches)	
Week 1	1.89
Week 2	2.58
Week 3	0.26

Dry conditions at this research site, only 0.7 inches of rain from July 12 to September 15, resulted in reduced yields, and premature death of the corn. All treatments resulted in very good to excellent control of common lambsquarters (99%), common waterhemp (94 to 99%) and giant foxtail (97 to 99%). Good control (79 to 86%) of giant ragweed was achieved with treatments that included mesotrione or isoxaflutole compared to only 30 to 45% for the treatments without these herbicides. The best yields were also from the treatments that included mesotrione or isoxaflutole, 60 to 71 bu/A, except for the acetachlor & atrazine + isoxaflutole treatment. The yield was only 48 bu/A for this treatment, even though giant ragweed control was similar. (Southeast District, University of Minnesota Extension Service, Rochester).

Table. Performance of s-metolachlor & atrazine & mesotrione & CGA-154281 and s-metolachlor & mesotrione & CGA-154281 for weed control in corn on May 20, 29, and June 26 in Rochester, MN 2003 (Breitenbach, Behnken, Griffin and Sheehan).

Treatment	Rate	---- AMBTR --- control			---- CHEAL --- control			---- AMATA --- control			---- SETFA --- control			Corn yield
		5/20	5/29	/26	5/20	5/29	6/26	5/20	5/29	6/26	5/20	5/29	5/26	
	(lb/A)	(%)			(%)			(%)			(%)			(bu/A)
<u>Preemergence</u>														
S-metolachlor & atrazine&mesotrione & CGA-154281	1.675& 0.627& 0.167	86	86	86	99	99	99	99	99	99	99	99	98	71
S-metolachlor & atra & CGA-154281	1.249& 1.001	78	68	35	99	99	99	99	98	98	99	99	99	2
Acetochlor&atrazine & MON 4660	1.548& 1.222	81	66	33	99	99	99	99	99	99	99	99	99	2
Flufenacet & isoxaflutole	0.360& 0.075	75	78	79	99	99	99	99	99	94	99	99	99	60
Acetachlor&atrazine	1.999& 0.751	84	70	30	99	99	99	99	99	98	99	99	99	3
Acet& atra + flumetsulam& clopyralid	0.996& 0.374 + 0.035& 0.093	86	76	45	99	99	99	99	99	99	99	99	99	14
Acet& atrazine + isoxaflutole	0.996& 0.374 + 0.07	85	82	81	99	99	99	99	99	98	99	99	99	48
Flct& metribuzin + flms & clopyralid	0.68&0.17 + 0.035 & 0.093	80	68	36	99	99	99	99	99	96	99	99	99	5
Dimethenamid-P & atrazine	0.846& 1.034	81	76	33	99	99	99	99	99	99	99	99	99	1
S-meto& mesotrione & CGA-154281	1.658& 0.167	78	85	81	99	99	99	99	99	98	99	99	97	65
S-metolachlor & mesotrione & CGA-154281 + simazine	1.658& 0.167 + 1.0	87	88	86	99	99	99	99	99	99	99	99	99	69
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.10)		6	5	7	0	0	0	0	1	1	0	1	1	10