

Performance of nicosulfuron & rimsulfuron plus NIS and s-metolachlor & atrazine & mesotrione & CGA-154281 plus NIS applied with and without AMS for weed control in corn at Rochester, MN 2003.

Breitenbach, Fritz R., Lisa M. Behnken, Courtney L. Soderholm and Angela L. Plank. The objective of this trial was to evaluate the performance of nicosulfuron & rimsulfuron plus NIS and s-metolachlor & atrazine & mesotrione & CGA-154281 plus NIS with and without AMS for weed control in corn in southeastern Minnesota. The research site was a Lawler loam soil containing 2.6% organic matter with a pH of 5.5 and soil test P and K levels of 54 ppm and 285 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 625 lb/A Pel-lime and 134, 23, 120, and 24 lb/A of nitrogen, phosphorus, potassium, and sulfur, respectively. Spring tillage consisted of one pass with a field cultivator. The corn hybrid, Pioneer P37H27, was planted on April 29, 2003, at a 1.5-inch depth in 30-inch rows at a population of 32,000 seeds/A. A randomized complete block design with four replications was used. The postemergence (POST) 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 June 12, 16, and 26, 2003. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 28
Treatment	POST
Temperature (F)	
Air	73
Soil	---
Relative humidity (%)	38
Wind (mph)	24
Soil moisture	adequate
Corn	
stage	2-3 collar
height (inch)	3
Giant ragweed	
weed density/ ft ²	42
height (inch)	3.5
Common waterhemp	
weed density/ ft ²	69
height (inch)	0.25
Common lambsquarters	
weed density/ft ²	154
height (inch)	0.5
Woolly cupgrass	
weed density/ft ²	14
height (inch)	1.0
Rainfall after application (inch)	
week 1	0.08
week 2	2.46
week 3	0.0

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. Nicosulfuron & rimsulfuron + NIS + AMS applied alone did not provide adequate season long weed control, and resulted in a substantial yield reduction. All of the treatments, except for nicosulfuron & rimsulfuron + NIS + AMS, gave excellent control of common lambsquarters. Control of common waterhemp was greater (86% and 95%) in treatments that included s-metolachlor & atrazine & mesotrione at a rate of 1.003&0.376&0.1 lb/A, then the treatments with the same components applied at a rate of 0.502&0.188&0.05 lb/A, (61% and 55%). Woolly cupgrass control was enhanced, from 51% to 66%, with the addition of AMS to the treatments with the lower rate (0.502&0.188&0.05 lb/A) of s-metolachlor & atrazine & mesotrione & CGA-154281. (Southeast District, University of Minnesota Extension Service, Rochester).

Table. Performance of nicosulfuron & rimsulfuron and s-metolachlor & atrazine & mesotrione & CGA-154281 for weed control in corn on June 12,16, and 26 at Rochester, MN in 2003. (Breitenbach, Behnken, Soderholm and Plank)

Treatment	Rate	---- AMBTR ---- control			---- CHEAL ---- control			---- AMATA ---- control			---- ERBVI ---- control			Corn yield
		6/12	6/16	6/26	6/12	6/16	6/26	6/12	6/16	6/26	6/12	6/16	6/26	
<u>Postemergence</u>	(lb/A)	(%)			(%)			(%)			(%)			(bu/a)
Nicosulfuron& rimsulfuron+ NIS+AMS	0.0233&0.0117+ 0.25% +2.0	48	49	18	85	76	16	85	72	13	91	87	50	4
Nicosulfuron&rimsulfuron + s-metolachlor& atrazine &mesotrione & CGA- 154281 + NIS	0.0233&0.0117+ 0.502&0.188& 0.05 + 0.25%	88	91	88	99	98	98	85	88	61	96	83	51	58
Nico&rims + s-meto&atra &meso&CGA-154281 + NIS	0.0233&0.0117+ 1.003&0.376& 0.1+ 0.25%	92	96	99	99	99	99	85	97	86	95	90	60	64
Nico&rims +s-meto&atra& meso&CGA-154281+ NIS+ AMS	0.0233&0.0117 + 0.502&0.188& 0.05+0.25%+ 2.0	91	93	89	99	98	98	85	94	55	99	94	66	64
Nico&rims + s-meto&atra &meso&CGA-154281 + NIS+ AMS	0.0233&0.0117 + 1.003&0.376& 0.1+ 0.25%+ 2.0	94	98	99	99	99	99	85	95	95	97	92	61	62
Nico&rims + meso + atra + COC + AMS	0.0233&0.0117+ 0.047+ 0.675 + 1%+2.0	95	99	99	99	97	99	85	94	58	98	93	56	67
Nico&rims + s- meto&atra& CGA-154281 + meso + NIS+ AMS	0.0233&0.0117+ 0.838&1.082+ 0.047+0.25%+ 2.0	96	99	99	99	99	99	86	93	65	99	91	68	59
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	1
LSD (0.10)		4	3	10	1	4	5	1	6	10	2	4	7	13

AMS = spray grade ammonium sulfate, Helena; NIS = AGRI-DEX nonionic surfactant, Helena, COC = crop oil concentrate.