

New combinations of mesotrione and standard comparisons. Waltz, Aaron L., Alex R. Martin, and Jess J. Spotanski. A field study was conducted to evaluate pre and postemergent weed control in conventionally-tilled field corn comparing new combinations of mesotrione with standard comparisons. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Kennebec silt loam with 2.4% organic matter and a pH of 6.9. Seedbed preparation consisted of disking one week prior to planting and one field cultivation the day of planting. Individual plots consisted of six 30-inch rows, each 30 feet long. 'Asgrow RX730YG' corn was planted May 15 at a population of 20,300 seeds/acre. Treatments were applied with a tractor-mounted sprayer traveling 2.5 mph. Application, crop, weed, and environmental data are presented below:

Date	May 15	May 29	June 13
Treatment	PRE	EPOST	POST
Sprayer			
gpa	20	20	20
psi	40	40	40
Temperature (°F)			
Air	69	87	65
Soil (4 inch)	64	75	75
Soil Moisture	Adequate	Adequate	Dry
Wind (mph)	17	8	5
Sky (% cloudy)	70	40	50
Relative Humidity (%)	52	45	63
Precip. after appl.			
Week 1 (inch)	0.24	0.0	0.0
Week 2 (inch)	2.36	0.08	0.0
Corn			
Leaf no.	--	spike	5
Height (inch)	--	2	12
Common sunflower			
Leaf no.	--	1	5
Height (inch)	--	0.5	5-6
Infestation (m ²)	--	10	3
Velvetleaf			
Leaf no.	--	1	4-7
Height (inch)	--	0.5	3-8
Infestation (m ²)	--	15	30
Annual grasses			
Leaf no.	--	1	3-5
Height (inch)	--	0.5	3-7
Infestation (m ²)	--	15	2
Pigweed species			
Leaf no.	--	2	many
Height (inch)	--	0.5	3-9
Infestation (m ²)	--	10	10

Summary comments: Precipitation was good until early June, then conditions were very dry. Grass species include green and giant foxtail with some fall panicum and large crabgrass. Pigweed species include mostly Palmer amaranth, with some redroot pigweed and common waterhemp. The two and three-way mixtures with mesotrione gave good PRE weed control, despite the dry conditions. The EPOST treatments with mesotrione mixtures and the standard comparisons were not as good with respect to weed control. Results of the study are summarized in the following table (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln).

Table. New combinations of mesotrione and standard comparisons (Waltz, Martin, and Spotanski).

Treatment	Application		----HELAN----			----ABUTH----			----GGGAN ^a ----			----AMASS ^b ----		
	Rate	Timing	6/10	6/26	7/11	6/10	6/26	7/11	6/10	6/26	7/11	6/10	6/26	7/11
	(lb/A)		-----% weed control-----											
S-metolachlor&CGA-154281&atrazine&mesotrione	1.68 0.625 0.168	PRE	97	95	95	95	90	77	93	93	80	100	97	93
S-metolachlor&CGA-154281&atrazine&mesotrione	2.01 0.75 0.2	PRE	98	92	92	96	91	87	96	94	88	100	100	100
S-metolachlor&CGA-154281&mesotrione	1.68 0.168	PRE	97	92	87	95	87	77	93	92	83	95	93	93
S-metolachlor&CGA-154281&mesotrione	2.02 0.2	PRE	95	93	90	96	90	87	95	90	87	100	100	98
S-metolachlor&CGA-154281&atrazine	1.26 1.63	PRE	83	72	53	75	47	33	96	96	94	100	100	100
Isoxaflutole+atrazine	0.09 1.0	PRE	95	88	87	92	80	70	93	88	82	100	97	97
Acetochlor&MON 4660&atrazine	2.15 0.85	PRE	50	45	23	23	13	10	95	95	95	100	100	98
Acetochlor&dichlormid+flumetsulam&clopyralid+	2.0 0.035 0.113	PRE	95	90	80	90	67	63	95	95	93	100	100	100
Dimethenamid-P/dicamba&atrazine+COCC ^c	0.84 0.41 0.79 1.0%	PRE/ POST	0	100	100	0	70	70	97	97	97	95	97	97
S-metolachlor&CGA-154281&atrazine&mesotrione+nicosulfuron	1.68 0.63 0.17 0.015	EPOST	90	85	83	95	95	93	88	80	72	93	88	87
S-metolachlor&CGA-154281&atrazine&mesotrione+nicosulfuron	2.01 0.75 0.2 0.015	EPOST	90	87	82	98	95	95	85	77	70	93	87	82
S-metolachlor&CGA-154281&mesotrione+nicosulfuron	1.68 0.168 0.015	EPOST	87	85	77	95	93	85	87	75	57	90	83	77
S-metolachlor&CGA-154281&mesotrione+nicosulfuron	2.02 0.2 0.015	EPOST	88	85	73	98	95	95	87	77	63	93	83	83
Check			0	0	0	0	0	0	0	0	0	0	0	0
LSD (P=.05)			6	24	19	8	8	11	5	9	15	6	6	7

^aGGGAN = green and giant foxtail, with some fall panicum and large crabgrass^bAMASS = mostly Palmer amaranth, with little common waterhemp and redroot pigweed^cCOCC = 'Prime Oil' by Agrilience