

Evaluation of the performance of Halex GT compared to other glyphosate and conventional herbicide programs in field corn at Rochester, MN, in 2007.

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The objective of this trial was to evaluate the performance of Halex GT compared to other glyphosate and conventional herbicide programs in field corn in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.8 and soil test P and K levels of 56 ppm and 161 ppm, respectively. Spring fertilizer was broadcast ahead of planting on April 13, at a rate of 99-23-60-24 (N-P-K-S). The area was side dressed with an additional 30 lb/A of N on June 7. The field was spring disked twice and field cultivated once prior to planting. The corn hybrid, NK N38B4, was planted on May 3, 2007, at a depth of 1.5 inches in 30 inch rows at 32,000 seeds per acre. A randomized complete block design was used with four replications. Preemergence (PRE) and postemergence (POST I, POST II, POST III, POST IV) 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 4, June 11, June 21, June 28, and August 7. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were machine harvested on September 26, 2007.

Date	May 3	May 19	May 28	May 31	June 12
Treatment	PRE	POST I	POST II	POST III	POST IV
Temperature (F)					
Air	70	77	73	72	84
soil	65.5	69.8	63.3	76.3	79.5
Relative Humidity (%)	43	35	59	47	36
Wind (mph)	20	24	17	0	12
Soil moisture	adequate	inadequate	adequate	excessive	dry
Corn					
stage	--	2 collar	4 collar	4 collar	7 collar
height (inch)	--	3.0	6.5	11.0	23.0
Giant Ragweed					
weed density (ft ²)	--	14.3	14.3	14.3	14.3
height (inch)	--	1.8	3.1	3.4	3.0
Common Lambsquarters					
weed density (ft ²)	--	8.5	8.5	8.5	8.5
height (inch)	--	0.8	1.5	4.4	2.3
Common Waterhemp					
weed density (ft ²)	--	43.3	43.3	43.3	43.3
height (inch)	--	0.2	1.4	1.8	2.3
Giant Foxtail					
weed density (ft ²)	--	2.8	2.8	2.8	2.8
height (inch)	--	1.0	2.8	1.9	2.3
Rainfall after each application (inch)					
week 1	0.52	2.41	1.31	0.49	1.40
week 2	0.34	1.25	0.38	0.08	2.03
week 3	1.35	0.44	1.15	1.48	0.06

CONCLUSIONS

No crop response was observed at any time for any of the treatments in this trial.

Pre-emergent weed control was likely impacted by low precipitation amounts following application. Rainfall amounts were 0.52 inches in week 1, 0.34 inches in week 2 and 1.35 inches in week 3.

Giant ragweed control was significantly higher with pre-emergent applications of Lumax at the 3 pt/a rate when compared to the other setup treatments (5/30 rating). Harness Xtra and SureStart also provide some pre-emergent giant ragweed control, 64 and 40 percent respectively (5/30 rating). Pre-emergent applications of Define, Dual II Magnum, and Outlook provide minimal to no control of giant ragweed (5/30 rating).

The highest final control ratings for giant ragweed were achieved by the POST I application of Halex GT + Aatrex, PRE/POST II applications of Lumax followed by Touchdown Total, Lumax followed by Halex GT, Dual II Magnum followed by Callisto + Touchdown

Total, Dual II Magnum followed by Callisto + Aatrex, Define followed by Laudis + Aatrex, Outlook followed by Impact + Aatrex, and by sequential post emergence treatments of Roundup Original Max followed by Laudis (POST I/POST IV), and Roundup Original Max followed by Roundup Original Max POST II/POST IV).

The lowest giant ragweed control was observed in the POST II Roundup Original Max treatment.

Common lambsquarters control was significantly higher with pre-emergent applications of Lumax at the 3 pt/A rate when compared to the other setup treatments (5/30 rating). Harness Xtra and SureStart also provide some pre-emergent common lambsquarters control, 65 and 43 percent respectively (5/30 rating). Pre-emergent applications of Define, Dual II Magnum, and Outlook provided control levels close to 30 percent for common lambsquarters (5/30 rating).

The highest final control ratings for common lambsquarters were achieved by the POST I applications of Halex GT and Halex GT + Aatrex; the PRE/POST II applications of Lumax followed by Touchdown Total, Harness Xtra followed by Roundup Original Max, Lumax followed by Halex GT, Dual II Magnum followed by Callisto + Touchdown Total, SureStart followed by Roundup Original Max, Dual II Magnum followed by Callisto + Aatrex, Define followed by Laudis + Aatrex, Outlook followed by Impact + Aatrex, and by sequential post emergence treatments of Roundup Original Max followed by Roundup Original Max (POST II/POST IV).

The lowest common lambsquarters control was observed in the POST II Roundup Original Max treatment.

Common waterhemp control was significantly higher with pre-emergent applications of Harness Xtra when compared to the other setup treatments (5/30 rating). Lumax and SureStart also provide some pre-emergent common lambsquarters control, 86 and 71 percent respectively (5/30 rating). Pre-emergent applications of Define, Dual II Magnum, and Outlook provided control levels close to 40 percent for common waterhemp (5/30 rating).

The highest final control rating for common waterhemp were achieved by the POST I application of Halex GT, Halex GT + Aatrex, PRE/POST II applications of Lumax followed by Touchdown Total, Harness Xtra followed by Roundup Original Max, Lumax followed by Halex GT, Dual II Magnum followed by Callisto + Touchdown Total, SureStart followed by Roundup Original Max, Dual II Magnum followed by Callisto + Aatrex, Define followed by Luadis + Aatrex, Outlook followed by Impact + Aatrex, and by sequential post emergence treatments of Roundup Original Max followed by Roundup Original Max (POST II/POST IV).

The lowest common waterhemp control was observed in the POST II Roundup Original Max treatment.

Giant foxtail control was significantly higher with pre-emergent applications of Lumax, Harness Xtra, and SureStart when compared to the other setup treatments (5/30 rating). Pre-emergent (PRE) applications of Define, Dual II Magnum, and Outlook provided control levels between 66-69 percent for giant foxtail (5/30 rating).

The highest final control rating for foxtail were achieved by the POST I application of Halex GT, Halex GT + Aatrex, PRE/POST II applications of Lumax followed by Touchdown Total, Harness Xtra followed by Roundup Original Max, Lumax followed by Halex GT, Dual II Magnum followed by Touchdown Total, Dual II Magnum followed by Callisto + Touchdown Total, SureStart followed by Roundup Original Max, Outlook followed by Status + Roundup Original Max, Define followed by Laudis + Aatrex, Outlook followed by Impact + Aatrex, and by sequential post emergence treatments of Roundup Original Max followed by Roundup Original Max (POST II/POST IV).

The lowest giant foxtail control was observed in the POST II Roundup Original Max treatment.

Halex GT applied alone, tank mixed with Aatrex, or applied sequentially following Lumax consistently provided superior weed control throughout the duration of this trial. Based on this trial, Halex GT appears to provide growers with an excellent option for controlling a number of difficult to control weeds in SE Minnesota. (University of Minnesota Extension, Regional Center, Rochester, MN).

Table 1. Performance of herbicide systems for giant ragweed control in field corn on May 30, June 4, June 11, June 21, June 28, and August 7 at Rochester, MN, in 2007.

Treatment	Rate	Giant Ragweed Control						Yield	
		5/30	6/4	6/11	6/21	6/28	8/7		
	(rate/A)	(%)						(bu/A)	
Untreated Check		0	0	0	0	0	0	3	
POST I									
Halex GT + NIS + AMS	4 pt + 0.25% v/v + 1% w/v	85	86	91	94	93	94	71	
Halex GT + Aatrex + NIS + AMS	4 pt + 1 pt + 0.25% v/v + 1% w/v	88	88	94	98	97	99	66	
POST II									
Roundup Original Max + AMS	22 fl oz + 1% w/v	60	88	81	73	73	83	65	
PRE / POST III									
Lumax / Touchdown Total + AMS	3 pt / 24 fl oz + 1% w/v	79	90	94	97	97	98	76	
Harness Xtra / Roundup Original Max + AMS	1.2 qt + 22 fl oz + 1% w/v	64	83	91	93	92	94	53	
Lumax / Halex GT + NIS + AMS	3 pt / 3.6 pt + 0.25% v/v + 1% w/v	73	93	97	98	99	100	72	
Dual II Magnum / Touchdown Total + AMS	1 pt / 24 fl oz + 1% w/v	0	79	90	93	90	91	74	
Dual II Magnum / Callisto + Touchdown Total + AMS	1 pt / 3 fl oz + 24 fl oz + 1% w/v	0	83	97	97	98	100	65	
SureStart / Roundup Original Max + AMS	1.75 pt / 22 fl oz + 1% w/v	40	84	93	94	91	94	79	
Outlook / Status + Roundup Original Max + AMS	12 fl oz / 2.5 oz + 22 fl oz + 1% w/v	9	83	94	96	95	96	88	
Dual II Magnum / Callisto + Aatrex + COC + AMS	1.34 pt / 3 fl oz + 1 pt + 1% v/v + 1% w/v	0	60	95	98	98	99	87	
Define / Laudis + Aatrex + COC + AMS	15 fl oz / 3 fl oz + 1 pt + 1% v/v + 1% w/v	0	60	97	97	98	100	68	
Outlook / Impact + Aatrex + COC + AMS	14 fl oz / 0.5 fl oz + 1 pt + 1% v/v + 1% w/v	10	56	94	97	97	97	83	
POST I / POST IV									
Roundup Original Max + AMS / Laudis + MSO	22 fl oz + 1% w/v / 3 fl oz + 1% v/v	81	83	74	84	94	99	90	
POST II / POST IV									
Roundup Original Max + AMS / Roundup Original Max + AMS	22 fl oz + 1% w/v / 22 fl oz + 1% w/v	60	87	81	93	97	100	71	
		LSD (P=0.10)	6	4	2	3	2	3	38

Table 2. Performance of herbicide systems for common lambsquarters control in field corn on May 30, June 4, June 11, June 21, June 28, and August 7 at Rochester, MN, in 2007.

Treatment	Rate (rate/A)	Common Lambsquarters Control						Yield (bu/A)
		5/30	6/4	6/11	6/21	6/28	8/7	
Untreated Check		0	0	0	0	0	0	3
POST I								
Halex GT + NIS + AMS	4 pt + 0.25% v/v + 1% w/v	99	99	99	98	99	100	71
Halex GT + Aatrex + NIS + AMS	4 pt + 1 pt + 0.25% v/v + 1% w/v	99	99	99	99	99	100	66
POST II								
Roundup Original Max + AMS	22 fl oz + 1% w/v	60	99	88	79	84	86	65
PRE / POST II								
Lumax / Touchdown Total + AMS	3 pt / 24 fl oz + 1% w/v	86	99	99	98	99	100	76
Harness Xtra / Roundup Original Max + AMS	1.2 qt + 22 fl oz + 1% w/v	65	95	99	98	97	98	53
Lumax / Halex GT + NIS + AMS	3 pt / 3.6 pt + 0.25% v/v + 1% w/v	76	99	99	99	99	100	72
Dual II Magnum / Touchdown Total + AMS	1 pt / 24 fl oz + 1% w/v	30	81	98	92	93	93	74
Dual II Magnum / Callisto + Touchdown Total + AMS	1 pt / 3 fl oz + 24 fl oz + 1% w/v	30	86	99	99	99	100	65
SureStart / Roundup Original Max + AMS	1.75 pt / 22 fl oz + 1% w/v	43	88	99	98	98	99	79
Outlook / Status + Roundup Original Max + AMS	12 fl oz / 2.5 oz + 22 fl oz + 1% w/v	30	87	98	97	97	97	88
Dual II Magnum / Callisto + Aatrex + COC + AMS	1.34 pt / 3 fl oz + 1 pt + 1% v/v + 1% w/v	31	73	99	99	99	100	87
Define / Laudis + Aatrex + COC + AMS	15 fl oz / 3 fl oz + 1 pt + 1% v/v + 1% w/v	31	72	99	99	99	100	68
Outlook / Impact + Aatrex + COC + AMS	14 fl oz / 0.5 fl oz + 1 pt + 1% v/v + 1% w/v	30	68	99	97	98	98	83
POST I / POST IV								
Roundup Original Max + AMS / Laudis + MSO	22 fl oz + 1% w/v / 3 fl oz + 1% v/v	98	99	68	66	68	97	90
POST II / POST IV								
Roundup Original Max + AMS / Roundup Original Max + AMS	22 fl oz + 1% w/v / 22 fl oz + 1% w/v	60	99	87	95	98	100	71
		LSD (P=0.10)						38

Table 3. Performance of herbicide systems for common waterhemp control in field corn on May 30, June 4, June 11, June 21, June 28, and August 7 at Rochester, MN, in 2007.

Treatment	Rate (rate/A)	Common Waterhemp Control						Yield (bu/A)
		5/30	6/4	6/11	6/21	6/28	8/7	
Untreated Check		0	0	0	0	0	0	3
POST I								
Halex GT + NIS + AMS	4 pt + 0.25% v/v + 1% w/v	99	99	99	99	99	100	71
Halex GT + Aatrex + NIS + AMS	4 pt + 1 pt + 0.25% v/v + 1% w/v	99	99	99	99	99	100	66
POST II								
Roundup Original Max + AMS	22 fl oz + 1% w/v	60	94	88	86	66	86	65
PRE / POST II								
Lumax / Touchdown Total + AMS	3 pt / 24 fl oz + 1% w/v	86	99	99	99	98	100	76
Harness Xtra / Roundup Original Max + AMS	1.2 qt + 22 fl oz + 1% w/v	96	99	99	99	98	98	53
Lumax / Halex GT + NIS + AMS	3 pt / 3.6 pt + 0.25% v/v + 1% w/v	86	99	99	99	99	100	72
Dual II Magnum / Touchdown Total + AMS	1 pt / 24 fl oz + 1% w/v	40	99	97	98	96	93	74
Dual II Magnum / Callisto + Touchdown Total + AMS	1 pt / 3 fl oz + 24 fl oz + 1% w/v	40	99	99	99	99	100	65
SureStart / Roundup Original Max + AMS	1.75 pt / 22 fl oz + 1% w/v	71	99	98	98	97	99	79
Outlook / Status + Roundup Original Max + AMS	12 fl oz / 2.5 oz + 22 fl oz + 1% w/v	40	99	99	98	98	97	88
Dual II Magnum / Callisto + Aatrex + COC + AMS	1.34 pt / 3 fl oz + 1 pt + 1% v/v + 1% w/v	40	85	99	99	99	100	87
Define / Laudis + Aatrex + COC + AMS	15 fl oz / 3 fl oz + 1 pt + 1% v/v + 1% w/v	38	83	99	99	99	100	68
Outlook / Impact + Aatrex + COC + AMS	14 fl oz / 0.5 fl oz + 1 pt + 1% v/v + 1% w/v	40	80	97	95	96	98	83
POST I / POST IV								
Roundup Original Max + AMS / Laudis + MSO	22 fl oz + 1% w/v / 3 fl oz + 1% v/v	68	76	68	77	66	97	90
POST II / POST IV								
Roundup Original Max + AMS / Roundup Original Max + AMS	22 fl oz + 1% w/v / 22 fl oz + 1% w/v	60	97	85	99	98	100	71
LSD (P=0.10)		7	3	2	3	2	2	38

Table 4. Performance of herbicide systems for giant foxtail control in field corn on May 30, June 4, June 11, June 21, June 28, and August 7 at Rochester, MN, in 2007.

Treatment	Rate (rate/A)	Giant Foxtail Control						Yield (bu/A)
		5/30	6/4	6/11	6/21	6/28	8/7	
Untreated Check		0	0	0	0	0	0	3
POST I								
Halex GT + NIS + AMS	4 pt + 0.25% v/v + 1% w/v	99	99	99	99	99	99	71
Halex GT + Aatrex + NIS + AMS	4 pt + 1 pt + 0.25% v/v + 1% w/v	99	99	99	99	99	100	66
POST II								
Roundup Original Max + AMS	22 fl oz + 1% w/v	60	93	84	86	86	90	65
PRE / POST II								
Lumax / Touchdown Total + AMS	3 pt / 24 fl oz + 1% w/v	78	95	99	99	99	99	76
Harness Xtra / Roundup Original Max + AMS	1.2 qt + 22 fl oz + 1% w/v	79	93	99	99	99	100	53
Lumax / Halex GT + NIS + AMS	3 pt / 3.6 pt + 0.25% v/v + 1% w/v	74	98	99	99	99	100	72
Dual II Magnum / Touchdown Total + AMS	1 pt / 24 fl oz + 1% w/v	68	87	99	99	99	99	74
Dual II Magnum / Callisto + Touchdown Total + AMS	1 pt / 3 fl oz + 24 fl oz + 1% w/v	66	87	98	99	99	100	65
SureStart / Roundup Original Max + AMS	1.75 pt / 22 fl oz + 1% w/v	75	87	99	99	98	98	79
Outlook / Status + Roundup Original Max + AMS	12 fl oz / 2.5 oz + 22 fl oz + 1% w/v	68	86	99	99	99	100	88
Dual II Magnum / Callisto + Aatrex + COC + AMS	1.34 pt / 3 fl oz + 1 pt + 1% v/v + 1% w/v	69	80	90	95	96	94	87
Define / Laudis + Aatrex + COC + AMS	15 fl oz / 3 fl oz + 1 pt + 1% v/v + 1% w/v	66	80	98	98	98	99	68
Outlook / Impact + Aatrex + COC + AMS	14 fl oz / 0.5 fl oz + 1 pt + 1% v/v + 1% w/v	69	83	95	99	99	98	83
POST I / POST IV								
Roundup Original Max + AMS / Laudis + MSO	22 fl oz + 1% w/v / 3 fl oz + 1% v/v	86	89	68	86	89	97	90
POST II / POST IV								
Roundup Original Max + AMS / Roundup Original Max + AMS	22 fl oz + 1% w/v / 22 fl oz + 1% w/vq	60	92	79	99	99	100	71
LSD (P=0.10)		5	5	4	2	2	2	38