

## Evaluation of weed management systems in field corn at Rochester, MN in 2005.

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The objective of this trial was to evaluate weed management systems for weed control in field corn in southeastern Minnesota. The research site was a Lawler loam series containing 2.8% organic matter with a pH of 7.2 and soil test P and K levels of 61 ppm and 196 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 130 lb/A nitrogen, 23 lb/A phosphorus, 90 lb/A potash, and 19 lb/A sulfur. The area was topdressed with 40 lb/A of nitrogen on June 7, 2005. The field was disked and field cultivated once prior to planting. The corn hybrid, Pioneer 38H69, was planted on May 3, 2005 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 26, June 10, June 15 and June 24. Application dates, environmental conditions, and crop and weed stages are listed below.

Date	May 3	May 30	June 6
Treatment	PRE	POST I	POST II
Temperature (F)			
air	64	67	84
soil	40	48	83
Relative humidity (%)	14	47	48
Wind (mph)	10	6	9
Soil moisture	dry	adequate	adequate/dry
Corn			
stage	seeded	2 collar	3 collar
height (inch)	--	3.0	6.5
Giant ragweed			
weed density (ft <sup>2</sup> )	--	9.4	9.4
height (inch)	--	1.6	5.4
Common waterhemp			
weed density (ft <sup>2</sup> )	--	98.2	98.2
height (inch)	--	0.5	1.0
Common lambsquarters			
weed density (ft <sup>2</sup> )	--	1.0	1.0
height (inch)	--	0.8	2.4
Woolly cupgrass			
weed density (ft <sup>2</sup> )	--	3.0	3.0
height (inch)	--	0.6	1.0
Rainfall after application (inch)			
week 1	0.36	0.11	2.06
week 2	1.07	2.06	0.19
week 3	1.75	0.19	1.29

### CONCLUSIONS

Preemergence only treatments of Keystone LA + Hornet WDG and Lumax provided consistently good giant ragweed control on all rating dates, resulting in similar levels of control. Both treatments also provided excellent common waterhemp, common lambsquarters, and giant foxtail control, resulting in similar levels of control.

PRE / POST II applications afforded good giant ragweed control with the exception of the Define SC / Option + Distinct + MSO + 28% N treatment, and treatments containing Aim or ET. PRE / POST II applications with a reduced rate soil applied treatment provided significantly lower common waterhemp control when compared to treatments with full rates of soil applied herbicides. The Basis / AAtrex + Roundup Original Max also resulted in significantly reduced common waterhemp control. All PRE / POST II treatments achieved excellent common lambsquarters and giant foxtail control.

POST I and II only applications resulted in good giant ragweed control with the exception of the Option + Callisto + MSO + 28% UAN treatment. Treatments containing Lumax provided consistently better common waterhemp control. Good common lambsquarters control was achieved by all POST I and II treatments. Excellent giant foxtail control was realized with the treatments containing Roundup WeatherMax, Glyphomax XRT, Roundup Original Max, or Touchdown Total. Slightly reduced control was observed in the Steadfast + Callisto + AAtrex + COC + N-PAK AMS, and Basis + Lumax+ NIS treatments. (University of Minnesota Extension Service, Regional Center, Rochester, MN).

**Table. Performance of weed management systems for weed control in corn on May 26, June 15, and June 24 at Rochester, MN in 2005.**

Treatment <sup>a</sup>	Rate	Giant ragweed control			Common lambsquarters control			Common waterhemp Control			Giant foxtail control			Corn Yield <sup>b</sup>
		5/26	6/15	6/24	5/26	6/15	6/24	5/26	6/15	6/24	5/26	6/15	6/24	
	(rate/A)	(%)			(%)			(%)			(%)			(bu/A)
<b>PRE</b>														
Keystone LA + Hornet WDG	2.2 qt + 4 oz	90	89	93	99	99	99	99	99	99	99	99	98	137
Lumax	6 pt	84	95	97	99	99	99	99	99	99	99	99	99	144
<b>PRE / POST III</b>														
Surpass / Hornet WDG + Callisto + atrazine + COC + N-PAK AMS	2.75 pt / 3 oz + 0.75 oz + 8 oz + 1% + 3 qt	60	98	98	99	99	99	99	99	99	99	99	99	160
KIH-485 / Hornet WDG + Callisto + atrazine + COC + N-PAK AMS	8 oz / 3 oz + 0.75 oz + 8 oz + 1% + 3 qt	56	97	99	99	99	99	99	99	99	99	99	99	156
Outlook / Distinct + atrazine + NIS + N-PAK AMS	21 oz / 4 oz + 16 oz + 0.25% + 3 qt	39	92	98	98	99	99	99	99	99	96	99	99	166
Outlook / Clarity + ET + atrazine + NIS + N-PAK AMS	21 oz / 3 oz + 0.5 oz + 16 oz + 0.25% + 3 qt	44	78	85	99	99	99	99	99	99	95	99	99	154
Define SC / Liberty + atrazine + N-PAK AMS	12 oz / 32 oz + 16 oz + 3.5 qt	4	96	97	76	99	99	83	99	80	80	99	99	143
Define SC / Option + Distinct + MSO + 28% N	12 oz / 1.5 oz + 2 oz + 1.5 pt + 1.5 qt	3	70	78	76	99	99	92	99	76	77	99	99	155
Cinch / Steadfast + Callisto + atrazine + COC + N-PAK AMS	1 pt / 0.75 oz + 2 oz + 16 oz + 1% + 2.35 qt	5	93	98	78	99	99	99	99	98	73	99	99	157
Dual II Magnum / Callisto + atrazine + COC + 28% N	2 pt / 3 oz + 16 oz + 1% + 2.5%	10	95	99	89	99	99	99	99	99	90	99	98	168
Outlook / Aim + atrazine + Clarity + NIS	21 oz / 0.5 oz + 16 oz + 3 oz + 0.25%	31	77	83	99	99	99	99	99	91	99	99	99	152
Harness / Roundup WeatherMax + N-PAK AMS	1.25 pt / 22 oz + 3 qt	25	96	91	99	99	99	99	99	79	98	99	98	150
Keystone LA / Glyphomax XRT + N-PAK AMS	1.1 qt / 24 oz + 3 qt	65	96	94	99	99	99	99	99	85	97	99	99	161
Outlook / Roundup WeatherMax + Distinct + NIS + N-PAK AMS	12 oz / 11 oz + 3 oz + 0.25% + 3 qt	15	94	95	85	99	99	99	99	83	88	99	99	175

Treatment <sup>a</sup>	Rate	Giant ragweed control			Common lambsquarters control			Common waterhemp Control			Giant foxtail control			Corn Yield <sup>b</sup> (bu/A)
		5/26	6/15	6/24	5/26	6/15	6/24	5/26	6/15	6/24	5/26	6/15	6/24	
	(rate/A)	(%)			(%)			(%)			(%)			
Outlook / Roundup WeatherMax + Clarity + ET + NIS + N-PAK AMS	12 oz / 11 oz + 3 oz + 0.5 oz + 0.25% + 3 qt	13	78	87	81	99	99	99	99	79	87	99	99	174
Outlook / Roundup WeatherMax + ET + NIS + N-PAK AMS	12 oz / 11 oz + 0.5 oz + 0.25% + 3 qt	14	74	81	82	99	98	99	99	77	82	99	99	154
Outlook / Roundup WeatherMax + Clarity + NIS + N-PAK AMS	12 oz / 11 oz + 3 oz + 0.25% + 3 qt	15	87	93	80	90	98	99	96	77	83	99	98	172
Basis / atrazine + Roundup Original Max	0.4 oz / 12 oz + 22 oz	34	93	94	99	99	99	43	83	69	63	99	99	158
<b>POST I</b>														
Basis + Lumax + NIS	0.33 oz + 3.5 pt + 0.25%	0	98	99	0	99	99	0	97	98	0	89	87	160
Lumax + Touchdown Total + N-PAK AMS	3 pt + 24 oz + 2 qt	0	99	99	0	99	99	0	99	99	0	93	91	156
Lumax + Liberty + N-PAK AMS	3 pt + 20 oz + 2 qt	0	98	98	0	99	99	0	99	99	0	94	92	162
Steadfast + Lumax + NIS	0.75 oz + 2 pt + 0.25%	0	96	95	0	99	99	0	98	95	0	96	95	157
<b>POST II</b>														
Option + Callisto + MSO + 28% UAN	1.5 oz + 1.5 oz + 1.5 pt + 1.5 qt	0	60	66	0	99	99	0	85	79	0	99	93	125
Steadfast + Callisto + atrazine + COC + N-PAK AMS	0.75 oz + 2 oz + 16 oz + 1% + 2.35 qt	0	90	97	0	99	99	0	95	86	0	89	89	167
E9636 + Roundup Original Max + N-PAK AMS	1 oz + 22 oz + 2.35 qt	0	96	95	0	98	97	0	86	95	0	99	99	169
E9636 + atrazine + Roundup Original Max + N-PAK AMS	1 oz + 16 oz + 22 oz + 2.35 qt	0	76	96	0	99	99	0	91	76	0	99	99	173
Weedy		0	0	0	0	0	0	0	0	0	0	0	0	1
Weed Free		100	100	100	100	100	100	100	100	100	100	100	100	142
LSD (P = 0.10)		9	4	3	6	0	1	5	4	5	5	3	3	39

a. COC = Agri-dex crop oil concentrate, N-PAK AMS = ammonium sulfate solution, Agrilience LLC, NIS = nonionic surfactant, MSO = methylated seed oil , 28% UAN = an aqueous solution of urea and ammonium nitrate.

b. Yield adjusted to 15.5% moisture. Corn yield variability due to extreme drought conditions in June and early July.