

2011 Evaluation of Weed Management Systems in Field Corn

Breitenbach, Fritz R., Lisa M. Behnken, Ryan P. Miller, Thomas R. Hoverstad, and Jeffrey L. Gunsolus

The objective of this trial was to evaluate the performance of herbicide programs for weed control in field corn in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.7, O.M. of 2.5%, and soil test P and K levels of 69 ppm and 180 ppm, respectively. Fall fertilizer was broadcast applied on November 11, 2010 at a rate of 6-26-150 (N-P-K). Spring fertilizer was broadcast ahead of planting on April 5, 2011 at a rate of 120-0-24 (N-P-K-S). The area was side dressed with an additional 33 lb/A of N on June 13. The field was spring chisel plowed, disked and field cultivated once prior to planting. The corn hybrid, Pioneer P9910AM1, was planted on May 2, 2011 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) 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 23, 31, June 8, 16, 24, and September 6, 2011. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were machine harvested on October 13, 2011. (University of Minnesota Extension Regional Office, Rochester)

SUMMARY

Giant ragweed control drives corn grain yield at the Rochester field trials. The majority of the time sequential weed control programs are necessary to adequately control giant ragweed and maximize yield. This was clearly the case during the 2011 growing season. All of the single pass total post treatments were statistically lower than the sequential PRE/POST systems, and sequential POST systems. The average grain yield for the single pass POST treatments sprayed at POST II averaged just 162 bu/a (average of 7 treatments). The average grain yield for the PRE/POST systems averaged 207 bu/a (average of 17 treatments). Sequential POST treatments also yielded well with an average grain yield of 210 bu/a (average of 2 treatments). In the PRE/POST systems where the soil applied herbicide does not sufficiently address broadleaf weed control (Anthem,

BreakFree, Dual, and Harness); broadleaf weed control was enhanced when a herbicide with broadleaf activity was tank mixed with either glyphosate or glufosinate in the POST treatment. Where the soil applied herbicide provided significant broadleaf control (SureStart, SYN-A17227A, and Verdict) POST applications of glyphosate alone provided adequate broadleaf weed control. The Dual II Magnum/Halex GT treatment is an exception to the above statement in regard to giant ragweed control (90% control 9/6 rating date). A possible explanation for this is the early POST II timing of the Halex GT with limited 2 week rainfall following application. A couple of areas to note; sequential application of only Roundup WeatherMax did not maximize final weed control, with the exception of giant ragweed. Season long common waterhemp control proved to be challenging for a number of treatments especially where lower PRE setup rates and sulfonylurea chemistry were employed. (University of Minnesota Extension Regional Office, Rochester)

Date	5/3	5/24	5/26	6/1	6/6	6/13
Treatment	PRE	POST I	POST II	POST III	POST IV	POST V
Temperature (F)						
Air	54	66	61	66	89	59
Soil	49.1	62.8	62.8	64	83.8	59.5
Relative Humidity (%)	36	57	45	38	53	72
Wind (mph)	10	10	15	17	3	8
Soil Moisture	Adequate	Adequate	Adequate	Adequate	Dry	Dry
Corn						
Stage		V2	V2	V3	V4	V6
Height (inch)		3.0	4.0	6.0	10.8	16.3
Giant Ragweed						
Weed density (ft ²)		20.1				
Height (inch)		1.9	1.5	6.0	4.0	3.8
Common Lambsquarters						
Weed density (ft ²)		2.4				
Height (inch)		0.6	0.5	2.0	1.5	
Common Waterhemp						
Weed density (ft ²)		41.5				
Height (inch)		0.3	0.5	1.25	1.0	
Giant Foxtail						
Weed density (ft ²)		4.5				
Height (inch)		0.7	0.5	3.0	1.0	6.0
Rainfall after each application (inch)						
Week 1	0.97	0.66	0.14	0.04	0.48	3.41
Week 2	0.51	0.04	0.48	2.26	3.41	1.29
Week 3	1.78	1.92	1.82	2.83	1.29	0.31

Table 1. Performance of herbicide systems for giant ragweed control in field corn on May 23, 31, June 8, 16, 24, and September 6, at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Giant Ragweed Control					Yield (bu/A)	
		5/23	5/31	6/8	6/16	6/24		
Untreated Check		0	0	0	0	0	0	
Weed Free		100	100	100	100	100	212	
PRE/POST II (2-4 inch weeds- 5/26)								
Dual II Magnum / Halex GT + NIS + N-Pak AMS	1 pt/a / 3.6 pt/a + 0.25% v/v + 3 qt/a	14	86	87	88	85	90	
PRE/POST III (V3-V4 corn - 6/1)								
Harness / Laudis + Destiny HC + N-Pak AMS	1.75 pt/a / 3 oz/a + 0.5% v/v + 2 qt/a	20	34	86	94	93	94	
Capreno / Laudis + Roundup PowerMax + Destiny HC + N-Pak AMS	3 oz/a / 3 oz/a + 22 oz/a + 0.5% v/v + 2 qt/a	53	58	96	96	94	95	
Harness / Ignite + Atrazine + N-Pak AMS	1.75 pt/a / 22 oz/a + 16 oz/a + 3 qt/a	21	31	97	95	92	94	
BreakFree / Realm Q + Abundit S + N-Pak AMS	2 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	20	30	96	92	90	95	
BreakFree / Realm Q + Atrazine + COC + N-Pak AMS	2 pt/a / 4 oz/a + 16 oz/a + 1% v/v + 3 qt/a	21	37	95	94	94	96	
BreakFree ATZ Lite / Realm Q + Abundit S + N-Pak AMS	4 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	53	60	95	92	90	95	
Harness / Roundup WeatherMax + N-Pak AMS	1.25 pt/a / 22 oz/a + 3 qt/a	19	29	88	89	87	87	
Anthem / Roundup WeatherMax + N-Pak AMS	10 oz/a / 22 oz/a + 3 qt/a	20	21	93	93	93	91	
Harness / Impact + Atrazine + MSO + N-Pak AMS	1.75 pt/a / 0.75 oz/a + 16 oz/a + 1% v/v + 3 qt/a	25	31	97	94	91	92	
BreakFree / Abundit S + N-Pak AMS	1 pt/a / 32 oz/a + 3 qt/a	18	24	89	88	88	89	
PRE/POST IV (4 in regrowth – 6/6)								
SYN-A17227A / Touchdown Total + N-Pak AMS	3 pt/a / 24 oz/a + 3 qt/a	73	76	83	97	95	97	
Surestart / Durango + N-Pak AMS	1.75 pt/a / 24 oz/a + 3 qt/a	74	75	75	97	94	96	
Surestart/ Durango + N-Pak AMS	2.5 pt/a / 24 oz/a + 3 qt/a	79	79	84	96	95	96	
Surestart + Atrazine / Durango + N-Pak AMS	1.75 pt/a + 1.5 pt/a / 24 oz/a + 3 qt/a	78	79	85	97	96	96	
PRE/POST V (4 inch regrowth – 6/13)								
Verdict / Roundup PowerMax + NIS + N-Pak AMS	18 oz/a / 22 oz/a + 0.25% v/v + 3 qt/a	90	87	92	99	97	97	
Verdict / Roundup PowerMax + Status + NIS + N-Pak AMS	16 oz/a / 22 oz/a + 2.5 oz/a + 0.25% v/v + 3 qt/a	93	94	95	99	98	98	
POST I (1 inch weeds) / POST V (4 inch weed regrowth)								
Roundup WeatherMax + N-Pak AMS / Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a / 22 oz/a + 3 qt/a	0	88	77	90	97	96	
POST II (2-4 inch weeds) / POST V (4 inch weed regrowth)								
Capreno + Roundup PowerMax + N-Pak AMS / Laudis + Destiny HC + N-Pak AMS	3 oz/a + 18 oz/a + 2 qt/a / 3 oz/a + 0.55 v/v + 2 qt/a	0	86	76	85	93	97	
POST II (2-4 inch weeds – 5/26)								
Anthem + Roundup PowerMax + NIS + N-Pak AMS	8 oz/a + 22 oz/a + 0.25% v/v + 3 qt/a	0	91	76	78	75	75	
Halex GT + Atrazine + NIS + N-Pak AMS	3.6 pt/a + 16 oz/a + 0.25% v/v + 3 qt/a	0	88	88	85	85	85	
SureStart + Durango + N-Pak AMS	1.75 pt/a + 24 oz/a + 3 qt/a	0	91	79	82	81	85	
Realm Q + Abundit S + N-Pak AMS	4 oz/a + 32 oz/a + 3 pt/a	0	87	81	83	82	83	
Realm Q + Ignite + N-Pak AMS	4 oz/a + 22 oz/a + 3 qt/a	0	92	80	79	79	78	
BreakFree + Realm Q + Abundit S + N-Pak AMS	1 pt/a + 4 oz/a + 32 oz/a + 3 qt/a	0	89	84	87	86	87	
Realm Q + Abundit S + Atrazine + N-Pak AMS	4 oz/a + 32 oz/a + 16 oz/a + 3 qt/a	0	86	83	83	84	85	
LSD (P=0.10)		6	4	7	3	4	4	20

Table 2. Performance of herbicide systems for common lambsquarters control in field corn on May 23, 31, June 8, 16, 24, and September 6, at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Common Lambsquarters Control					Yield (bu/A)	
		5/23	5/31	6/8	6/16	6/24		
		(%)						
Untreated Check		0	0	0	0	0	0	
Weed Free		100	100	100	100	100	212	
PRE/POST II (2-4 inch weeds- 5/26)								
Dual II Magnum / Halex GT + NIS + N-Pak AMS	1 pt/a / 3.6 pt/a + 0.25% v/v + 3 qt/a	78	99	99	99	99	190	
PRE/POST III (V3-V4 corn - 6/1)								
Harness / Laudis + Destiny HC + N-Pak AMS	1.75 pt/a / 3 oz/a + 0.5% v/v + 2 qt/a	99	99	99	99	99	206	
Capreno / Laudis + Roundup PowerMax + Destiny HC + N-Pak AMS	3 oz/a / 3 oz/a + 22 oz/a + 0.5% v/v + 2 qt/a	93	98	99	99	99	205	
Harness / Ignite + Atrazine + N-Pak AMS	1.75 pt/a / 22 oz/a + 16 oz/a + 3 qt/a	99	99	99	99	99	202	
BreakFree / Realm Q + Abundit S + N-Pak AMS	2 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	94	95	99	99	99	208	
BreakFree / Realm Q + Atrazine + COC + N-Pak AMS	2 pt/a / 4 oz/a + 16 oz/a + 1% v/v + 3 qt/a	99	97	99	99	99	210	
BreakFree ATZ Lite / Realm Q + Abundit S + N-Pak AMS	4 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	99	99	99	99	99	211	
Harness / Roundup WeatherMax + N-Pak AMS	1.25 pt/a / 22 oz/a + 3 qt/a	96	96	99	99	99	200	
Anthem / Roundup WeatherMax + N-Pak AMS	10 oz/a / 22 oz/a + 3 qt/a	98	98	99	99	99	202	
Harness / Impact + Atrazine + MSO + N-Pak AMS	1.75 pt/a / 0.75 oz/a + 16 oz/a + 1% v/v + 3 qt/a	99	99	99	99	99	203	
BreakFree / Abundit S + N-Pak AMS	1 pt/a / 32 oz/a + 3 qt/a	98	97	99	99	99	206	
PRE/POST IV (4 in regrowth – 6/6)								
SYN-A17227A / Touchdown Total + N-Pak AMS	3 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	219	
Surestart / Durango + N-Pak AMS	1.75 pt/a / 24 oz/a + 3 qt/a	99	99	98	99	99	202	
Surestart/ Durango + N-Pak AMS	2.5 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	220	
Surestart + Atrazine / Durango + N-Pak AMS	1.75 pt/a + 1.5 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	216	
PRE/POST V (4 inch regrowth – 6/13)								
Verdict / Roundup PowerMax + NIS + N-Pak AMS	18 oz/a / 22 oz/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	211	
Verdict / Roundup PowerMax + Status + NIS + N-Pak AMS	16 oz/a / 22 oz/a + 2.5 oz/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	215	
POST I (1 inch weeds) / POST V (4 inch weed regrowth)								
Roundup WeatherMax + N-Pak AMS / Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a / 22 oz/a + 3 qt/a	0	99	90	90	99	95	
POST II (2-4 inch weeds) / POST V (4 inch weed regrowth)								
Capreno + Roundup PowerMax + N-Pak AMS / Laudis + Destiny HC + N-Pak AMS	3 oz/a + 18 oz/a + 2 qt/a / 3 oz/a + 0.55 v/v + 2 qt/a	0	99	99	99	99	99	
POST II (2-4 inch weeds – 5/26)								
Anthem + Roundup PowerMax + NIS + N-Pak AMS	8 oz/a + 22 oz/a + 0.25% v/v + 3 qt/a	0	99	99	98	98	98	
Halex GT + Atrazine + NIS + N-Pak AMS	3.6 pt/a + 16 oz/a + 0.25% v/v + 3 qt/a	0	99	99	99	99	99	
SureStart + Durango + N-Pak AMS	1.75 pt/a + 24 oz/a + 3 qt/a	0	99	99	99	99	99	
Realm Q + Abundit S + N-Pak AMS	4 oz/a + 32 oz/a + 3 pt/a	0	99	99	99	99	99	
Realm Q + Ignite + N-Pak AMS	4 oz/a + 22 oz/a + 3 qt/a	0	99	99	99	99	99	
BreakFree + Realm Q + Abundit S + N-Pak AMS	1 pt/a + 4 oz/a + 32 oz/a + 3 qt/a	0	99	99	99	99	99	
Realm Q + Abundit S + Atrazine + N-Pak AMS	4 oz/a + 32 oz/a + 16 oz/a + 3 qt/a	0	99	99	99	99	99	
LSD (P=0.10)		3	1	2	1	1	1	20

Table 3. Performance of herbicide systems for common waterhemp control in field corn on May 23, 31, June 8, 16, 24, and September 6, at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Common Waterhemp Control					Yield (bu/A)	
		5/23	5/31	6/8	6/16	6/24		
		(%)						
Untreated Check		0	0	0	0	0	0	
Weed Free		100	100	100	100	100	212	
PRE/POST II (2-4 inch weeds- 5/26)								
Dual II Magnum / Halex GT + NIS + N-Pak AMS	1 pt/a / 3.6 pt/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	190	
PRE/POST III (V3-V4 corn - 6/1)								
Harness / Laudis + Destiny HC + N-Pak AMS	1.75 pt/a / 3 oz/a + 0.5% v/v + 2 qt/a	99	99	99	99	99	206	
Capreno / Laudis + Roundup PowerMax + Destiny HC + N-Pak AMS	3 oz/a / 3 oz/a + 22 oz/a + 0.5% v/v + 2 qt/a	92	87	99	98	95	205	
Harness / Ignite + Atrazine + N-Pak AMS	1.75 pt/a / 22 oz/a + 16 oz/a + 3 qt/a	99	99	99	99	99	202	
BreakFree / Realm Q + Abundit S + N-Pak AMS	2 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	99	99	99	99	99	208	
BreakFree / Realm Q + Atrazine + COC + N-Pak AMS	2 pt/a / 4 oz/a + 16 oz/a + 1% v/v + 3 qt/a	99	99	99	99	99	210	
BreakFree ATZ Lite / Realm Q + Abundit S + N-Pak AMS	4 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	99	99	99	99	99	211	
Harness / Roundup WeatherMax + N-Pak AMS	1.25 pt/a / 22 oz/a + 3 qt/a	99	98	99	99	98	200	
Anthem / Roundup WeatherMax + N-Pak AMS	10 oz/a / 22 oz/a + 3 qt/a	99	99	99	99	99	202	
Harness / Impact + Atrazine + MSO + N-Pak AMS	1.75 pt/a / 0.75 oz/a + 16 oz/a + 1% v/v + 3 qt/a	99	99	99	99	99	203	
BreakFree / Abundit S + N-Pak AMS	1 pt/a / 32 oz/a + 3 qt/a	99	99	99	98	95	206	
PRE/POST IV (4 in regrowth – 6/6)								
SYN-A17227A / Touchdown Total + N-Pak AMS	3 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	219	
Surestart / Durango + N-Pak AMS	1.75 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	202	
Surestart/ Durango + N-Pak AMS	2.5 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	220	
Surestart + Atrazine / Durango + N-Pak AMS	1.75 pt/a + 1.5 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	216	
PRE/POST V (4 inch regrowth – 6/13)								
Verdict / Roundup PowerMax + NIS + N-Pak AMS	18 oz/a / 22 oz/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	211	
Verdict / Roundup PowerMax + Status + NIS + N-Pak AMS	16 oz/a / 22 oz/a + 2.5 oz/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	215	
POST I (1 inch weeds) / POST V (4 inch weed regrowth)								
Roundup WeatherMax + N-Pak AMS / Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a / 22 oz/a + 3 qt/a	0	98	79	90	98	85	
POST II (2-4 inch weeds) / POST V (4 inch weed regrowth)								
Capreno + Roundup PowerMax + N-Pak AMS / Laudis + Destiny HC + N-Pak AMS	3 oz/a + 18 oz/a + 2 qt/a / 3 oz/a + 0.55 v/v + 2 qt/a	0	98	95	90	99	97	
POST II (2-4 inch weeds – 5/26)								
Anthem + Roundup PowerMax + NIS + N-Pak AMS	8 oz/a + 22 oz/a + 0.25% v/v + 3 qt/a	0	99	92	94	97	97	
Halex GT + Atrazine + NIS + N-Pak AMS	3.6 pt/a + 16 oz/a + 0.25% v/v + 3 qt/a	0	99	99	99	98	98	
SureStart + Durango + N-Pak AMS	1.75 pt/a + 24 oz/a + 3 qt/a	0	99	99	94	98	96	
Realm Q + Abundit S + N-Pak AMS	4 oz/a + 32 oz/a + 3 pt/a	0	99	98	87	91	91	
Realm Q + Ignite + N-Pak AMS	4 oz/a + 22 oz/a + 3 qt/a	0	99	98	92	92	93	
BreakFree + Realm Q + Abundit S + N-Pak AMS	1 pt/a + 4 oz/a + 32 oz/a + 3 qt/a	0	99	99	99	99	99	
Realm Q + Abundit S + Atrazine + N-Pak AMS	4 oz/a + 32 oz/a + 16 oz/a + 3 qt/a	0	99	99	91	91	92	
LSD (P=0.10)		2	3	2	2	2	3	20

Table 4. Performance of herbicide systems for giant foxtail control in field corn on May 23, 31, June 8, 16, 24, and September 6, at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Giant Foxtail Control						Yield (bu/A)
		5/23	5/31	6/8	6/16	6/24	(%)	
Untreated Check		0	0	0	0	0	0	0
Weed Free		100	100	100	100	100	100	212
PRE/POST II (2-4 inch weeds- 5/26)								
Dual II Magnum / Halex GT + NIS + N-Pak AMS	1 pt/a / 3.6 pt/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	99	190
PRE/POST III (V3-V4 corn - 6/1)								
Harness / Laudis + Destiny HC + N-Pak AMS	1.75 pt/a / 3 oz/a + 0.5% v/v + 2 qt/a	99	99	99	98	99	94	206
Capreno / Laudis + Roundup PowerMax + Destiny HC + N-Pak AMS	3 oz/a / 3 oz/a + 22 oz/a + 0.5% v/v + 2 qt/a	76	81	99	98	90	85	205
Harness / Ignite + Atrazine + N-Pak AMS	1.75 pt/a / 22 oz/a + 16 oz/a + 3 qt/a	99	99	99	99	99	98	202
BreakFree / Realm Q + Abundit S + N-Pak AMS	2 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	99	99	99	99	99	97	208
BreakFree / Realm Q + Atrazine + COC + N-Pak AMS	2 pt/a / 4 oz/a + 16 oz/a + 1% v/v + 3 qt/a	99	99	99	99	99	98	210
BreakFree ATZ Lite / Realm Q + Abundit S + N-Pak AMS	4 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	99	99	99	99	99	98	211
Harness / Roundup WeatherMax + N-Pak AMS	1.25 pt/a / 22 oz/a + 3 qt/a	99	99	99	99	99	95	200
Anthem / Roundup WeatherMax + N-Pak AMS	10 oz/a / 22 oz/a + 3 qt/a	99	99	99	99	99	98	202
Harness / Impact + Atrazine + MSO + N-Pak AMS	1.75 pt/a / 0.75 oz/a + 16 oz/a + 1% v/v + 3 qt/a	99	99	99	99	99	98	203
BreakFree / Abundit S + N-Pak AMS	1 pt/a / 32 oz/a + 3 qt/a	99	99	99	98	95	96	206
PRE/POST IV (4 in regrowth – 6/6)								
SYN-A17227A / Touchdown Total + N-Pak AMS	3 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	96	219
Surestart / Durango + N-Pak AMS	1.75 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	96	202
Surestart/ Durango + N-Pak AMS	2.5 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	97	220
Surestart + Atrazine / Durango + N-Pak AMS	1.75 pt/a + 1.5 pt/a / 24 oz/a + 3 qt/a	99	99	99	99	99	97	216
PRE/POST V (4 inch regrowth – 6/13)								
Verdict / Roundup PowerMax + NIS + N-Pak AMS	18 oz/a / 22 oz/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	97	211
Verdict / Roundup PowerMax + Status + NIS + N-Pak AMS	16 oz/a / 22 oz/a + 2.5 oz/a + 0.25% v/v + 3 qt/a	99	99	99	99	99	98	215
POST I (1 inch weeds) / POST V (4 inch weed regrowth)								
Roundup WeatherMax + N-Pak AMS / Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a / 22 oz/a + 3 qt/a	0	97	78	90	94	87	214
POST II (2-4 inch weeds) / POST V (4 inch weed regrowth)								
Capreno + Roundup PowerMax + N-Pak AMS / Laudis + Destiny HC + N-Pak AMS	3 oz/a + 18 oz/a + 2 qt/a / 3 oz/a + 0.55 v/v + 2 qt/a	0	98	96	89	98	93	206
POST II (2-4 inch weeds – 5/26)								
Anthem + Roundup PowerMax + NIS + N-Pak AMS	8 oz/a + 22 oz/a + 0.25% v/v + 3 qt/a	0	99	94	94	99	99	109
Halex GT + Atrazine + NIS + N-Pak AMS	3.6 pt/a + 16 oz/a + 0.25% v/v + 3 qt/a	0	99	99	97	98	98	194
SureStart + Durango + N-Pak AMS	1.75 pt/a + 24 oz/a + 3 qt/a	0	99	98	97	96	94	172
Realm Q + Abundit S + N-Pak AMS	4 oz/a + 32 oz/a + 3 pt/a	0	99	94	89	92	91	176
Realm Q + Ignite + N-Pak AMS	4 oz/a + 22 oz/a + 3 qt/a	0	99	98	96	95	95	145
BreakFree + Realm Q + Abundit S + N-Pak AMS	1 pt/a + 4 oz/a + 32 oz/a + 3 qt/a	0	98	98	97	98	97	169
Realm Q + Abundit S + Atrazine + N-Pak AMS	4 oz/a + 32 oz/a + 16 oz/a + 3 qt/a	0	97	97	92	93	96	170
LSD (P=0.10)		1	1	2	2	3	4	20

Table 5. Crop response to herbicide systems in field corn on May 23, 31, June 8, 16, and 24 at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Crop Injury					Yield (bu/A)
		5/23	5/31	6/8	6/16	6/24	
		%					
Untreated Check		0	0	0	0	0	0
Weed Free		100	100	100	100	100	212
PRE/POST II (2-4 inch weeds- 5/26)							
Dual II Magnum / Halex GT + NIS + N-Pak AMS	1 pt/a / 3.6 pt/a + 0.25% v/v + 3 qt/a	0	5	0	0	0	190
PRE/POST III (V3-V4 corn - 6/1)							
Harness / Laudis + Destiny HC + N-Pak AMS	1.75 pt/a / 3 oz/a + 0.5% v/v + 2 qt/a	0	0	0	0	0	206
Capreno / Laudis + Roundup PowerMax + Destiny HC + N-Pak AMS	3 oz/a / 3 oz/a + 22 oz/a + 0.5% v/v + 2 qt/a	0	0	0	0	0	205
Harness / Ignite + Atrazine + N-Pak AMS	1.75 pt/a / 22 oz/a + 16 oz/a + 3 qt/a	0	0	1	0	0	202
BreakFree / Realm Q + Abundit S + N-Pak AMS	2 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	0	0	0	0	0	208
BreakFree / Realm Q + Atrazine + COC + N-Pak AMS	2 pt/a / 4 oz/a + 16 oz/a + 1% v/v + 3 qt/a	0	0	0	0	0	210
BreakFree ATZ Lite / Realm Q + Abundit S + N-Pak AMS	4 pt/a / 4 oz/a + 32 oz/a + 3 qt/a	0	0	0	0	0	211
Harness / Roundup WeatherMax + N-Pak AMS	1.25 pt/a / 22 oz/a + 3 qt/a	0	0	0	0	0	200
Anthem / Roundup WeatherMax + N-Pak AMS	10 oz/a / 22 oz/a + 3 qt/a	0	0	0	0	0	202
Harness / Impact + Atrazine + MSO + N-Pak AMS	1.75 pt/a / 0.75 oz/a + 16 oz/a + 1% v/v + 3 qt/a	0	0	3	0	0	203
BreakFree / Abundit S + N-Pak AMS	1 pt/a / 32 oz/a + 3 qt/a	0	0	1	0	0	206
PRE/POST IV (4 in regrowth – 6/6)							
SYN-A17227A / Touchdown Total + N-Pak AMS	3 pt/a / 24 oz/a + 3 qt/a	0	0	0	0	0	219
Surestart / Durango + N-Pak AMS	1.75 pt/a / 24 oz/a + 3 qt/a	0	0	0	0	0	202
Surestart/ Durango + N-Pak AMS	2.5 pt/a / 24 oz/a + 3 qt/a	0	0	0	0	0	220
Surestart + Atrazine / Durango + N-Pak AMS	1.75 pt/a + 1.5 pt/a / 24 oz/a + 3 qt/a	0	0	0	0	0	216
PRE/POST V (4 inch regrowth – 6/13)							
Verdict / Roundup PowerMax + NIS + N-Pak AMS	18 oz/a / 22 oz/a + 0.25% v/v + 3 qt/a	0	0	0	0	0	211
Verdict / Roundup PowerMax + Status + NIS + N-Pak AMS	16 oz/a / 22 oz/a + 2.5 oz/a + 0.25% v/v + 3 qt/a	0	0	0	9	0	215
POST I (1 inch weeds) / POST V (4 inch weed regrowth)							
Roundup WeatherMax + N-Pak AMS / Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a / 22 oz/a + 3 qt/a	0	1	0	0	0	214
POST II (2-4 inch weeds) / POST V (4 inch weed regrowth)							
Capreno + Roundup PowerMax + N-Pak AMS / Laudis + Destiny HC + N-Pak AMS	3 oz/a + 18 oz/a + 2 qt/a / 3 oz/a + 0.55 v/v + 2 qt/a	0	10	0	0	0	206
POST II (2-4 inch weeds – 5/26)							
Anthem + Roundup PowerMax + NIS + N-Pak AMS	8 oz/a + 22 oz/a + 0.25% v/v + 3 qt/a	0	20	2	0	0	109
Halex GT + Atrazine + NIS + N-Pak AMS	3.6 pt/a + 16 oz/a + 0.25% v/v + 3 qt/a	0	7	0	0	0	194
SureStart + Durango + N-Pak AMS	1.75 pt/a + 24 oz/a + 3 qt/a	0	7	3	0	0	172
Realm Q + Abundit S + N-Pak AMS	4 oz/a + 32 oz/a + 3 pt/a	0	5	0	0	0	176
Realm Q + Ignite + N-Pak AMS	4 oz/a + 22 oz/a + 3 qt/a	0	15	1	0	0	145
BreakFree + Realm Q + Abundit S + N-Pak AMS	1 pt/a + 4 oz/a + 32 oz/a + 3 qt/a	0	6	0	0	0	169
Realm Q + Abundit S + Atrazine + N-Pak AMS	4 oz/a + 32 oz/a + 16 oz/a + 3 qt/a	0	4	5	0	0	170
LSD (P=0.10)		0	2	3	1	0	20