

2010 Evaluation of Herbicide Systems in Soybean at Rochester, MN

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The objective of this trial was to evaluate the performance of herbicide systems for weed control in soybeans in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.6, O.M. of 2.8%, and soil test P and K levels of 46 ppm and 150 ppm, respectively. The field was spring chisel plowed, disked and field cultivated once prior to planting. The soybean hybrid, Pioneer 91Y92, was planted on May 15, 2009 at a depth of 1.5 inches in 30 inch rows at 150,000 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 plot were taken on June 7, 15, 23, 29, July 13, and September 17, 2010. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were machine harvested on October 1, 2010.

SUMMARY: Dry weather following planting resulted in poorer than expected crop emergence. The reduction in stand was reflected in frequent stand skips of 12 inches or more. Final plant stands of less than 100,000 plants per acre were evident throughout the trial.

Overall weed control was very good to excellent for all treatments. Two soil applied herbicides provided better than 90 percent control of giant ragweed, Authority First (6.4 oz rate) and Gangster (2.0 and 2.4 oz rate). Two treatments provided reduced control of giant ragweed, Warrant + Roundup OriginalMax (POST I) and the conventional herbicide program of Gangster followed by Raptor + Select.

The soil applied Prefix treatment provided reduced control of common lambsquarters when compared to the other soil applied treatments. The Warrant + Roundup OriginalMax (POST I) treatment and the Roundup WeatherMax (POST II) treatment also had reduced common lambsquarters control when compared to the rest of the treatments.

Common waterhemp control was generally lower with the PRE / POST II programs compared to the other programs, except for the POST II only Roundup WeatherMax treatment which achieved only 93% control.

Herbicide injury was observed with post emergence application of PPO and ALS chemistries. No statistical yield decreases were observed, however, injury from the ALS chemistry appears to have had a potentially detrimental effect. (University of Minnesota Extension Regional Office, Rochester)

Date	5/15	6/7	6/16	6/24	7/6
Treatment	PRE	POST I	POST II	POST III	POST IV
Temperature (F)					
Air	68	71	78	72	76
Soil	59	72	71	69	75
Relative Humidity (%)	38	58	53	68	76
Wind (mph)	3	0	6	6	7
Soil Moisture	Adequate	Adequate	Excessive	Excessive	Excessive
Corn					
Stage		V2	V3	V6-R1	R2
Height (inch)		4.0	5.5	7.4	16
Giant Ragweed					
Weed density (ft ²)		2.5			
Height (inch)		3.1	6.2	7.6	9.7
Common Lambsquarters					
Weed density (ft ²)		2.8			
Height (inch)		1.9	3.2	4.4	2.5
Common Waterhemp					
Weed density (ft ²)		8.0			
Height (inch)		1.9	3.4	4.1	4
Giant Foxtail					
Weed density (ft ²)		34.5			
Height (inch)		2.5	5.1	6.0	4.8
Rainfall after each application (inch)					
Week 1	0.04	1.54	3.31	1.49	1.49
Week 2	0.00	1.58	1.49	0.27	1.44
Week 3	1.39	3.22	0.27	1.49	2.55

Table 1. Performance of herbicide systems for giant ragweed control in soybean and grain yield at 13% at Rochester, MN, in 2010.

Treatment	Rate (rate/A)	Giant Ragweed Control (% Control)						Yield (bu/A)
		6/7	6/15	6/23	6/29	7/13	9/17	
Untreated		0	0	0	0	0	0	11.0
Weed Free		100	100	100	100	100	100	45.8
PRE/POST II (4-6 inch weeds)								
Boundary / Flexstar + Fusion + Harmony SG + MSO + 28% N	1.5 pt/a / 16 oz/a + 8 oz/a + 0.125 oz/a + 1% v/v + 2.5% v/v	65	36	99	98	98	97	44.5
Authority First / Roundup OriginalMax + N-Pak AMS	3.2 oz/a / 22 oz/a + 3 qt/a	88	82	98	98	98	97	47.4
Authority Assist / Roundup OriginalMax + N-Pak AMS	5 oz/a / 22 oz/a + 3 qt/a	63	18	95	97	97	96	48.5
Boundary / Touchdown Total + N-Pak AMS	1.5 pt/a / 24 oz/a + 3 qt/a	65	35	96	98	98	96	50.0
Valor SX / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	65	69	95	98	98	98	54.5
Optill / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	83	75	99	99	98	98	50.7
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 3 qt/a	75	77	96	98	98	99	48.8
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + Harmony SG + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 0.125 oz/a + 3 pt/a	81	72	97	99	98	96	46.3
PRE/POST III (4-6 inch weeds)								
Authority First / Flexstar + Select + COC + 28% N	6.4 oz/a / 16 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	94	97	95	98	98	98	48.0
Gangster V + Gangster FR / Raptor + Select + COC + 28% N	2.5 oz/a + 0.5 oz/a / 4 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	91	96	91	89	93	88	40.9
Gangster V + Gangster FR / Roundup OriginalMax + N-Pak AMS	2 oz/a + 0.4 oz/a / 22 oz/a + 3 qt/a	90	96	93	98	99	99	44.3
Prefix / Touchdown Total + N-Pak AMS	1 qt/a / 24 oz/a + 3 qt/a	83	80	76	97	98	99	49.5
Fierce / Roundup OriginalMax + N-Pak AMS	3 oz/a / 22 oz/a + 3 qt/a	85	88	78	96	96	98	49.7
Sonic / Durango DMA + N-Pak AMS	3 oz/a / 24 oz/a + 3 qt/a	87	92	85	97	98	98	49.0
POST I (2-4 inch weeds)								
Warrant + Roundup OriginalMax + N-Pak AMS	3 pt/a + 22 oz/a + 3 qt/a		99	97	87	90	83	46.3
POST I (2-4 inch weeds)/POST IV (2-4 inch regrowth)								
Roundup WeatherMax + N-Pak AMS /	22 oz/a + 3 qt/a /		98	97	91	99	99	48.7
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a							
Durango DMA + FirstRate + N-Pak AMS /	24 oz/a + 0.3 oz/a + 3 qt/a /		99	99	99	99	99	50.2
Durango DMA + N-Pak AMS	24 oz/a + 3 qt/a							
Flexstar GT + N-Pak AMS / Touchdown Total + N-Pak AMS	3 pt/a + 3 qt/a / 24 oz/a + 3 qt/a		97	99	99	99	99	47.6
Synchrony XP (Chlorimuron + Thifensulfuron) + Abundit Extra + N-Pak AMS / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.05 oz/a + 32 oz/a + 3 qt/a / 32 oz/a + 3 qt/a		98	99	93	99	99	48.7
Roundup OriginalMax + Resource + NIS + N-Pak AMS /	22 oz/a + 2 oz/a + 0.25% v/v + 3 qt/a /		97	94	87	99	99	46.2
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
Roundup OriginalMax + Cadet + NIS + N-Pak AMS /	22 oz/a + 0.5 oz/a + 0.25% v/v + 3 qt/a /		90	93	82	99	99	48.3
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
POST II (6 inch weeds)								
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a			96	97	97	95	49.0
LSD (P=0.10)		9	11	3	3	2	3	5.2

Table 2. Performance of herbicide systems for common lambsquarters control in soybean and grain yield at 13% at Rochester, MN, in 2010.

Treatment	Rate (rate/A)	Common Lambsquarters Control (% Control)						Yield (bu/A)
		6/7	6/15	6/23	6/29	7/13	9/17	
Untreated		0	0	0	0	0	0	11.0
Weed Free		100	100	100	100	100	100	45.8
PRE/POST II (4-6 inch weeds)								
Boundary / Flexstar + Fusion + Harmony SG + MSO + 28% N	1.5 pt/a / 16 oz/a + 8 oz/a + 0.125 oz/a + 1% v/v + 2.5% v/v	95	99	99	99	98	98	44.5
Authority First / Roundup OriginalMax + N-Pak AMS	3.2 oz/a / 22 oz/a + 3 qt/a	98	99	99	99	99	99	47.4
Authority Assist / Roundup OriginalMax + N-Pak AMS	5 oz/a / 22 oz/a + 3 qt/a	98	99	99	99	99	99	48.5
Boundary / Touchdown Total + N-Pak AMS	1.5 pt/a / 24 oz/a + 3 qt/a	97	97	99	99	96	95	50.0
Valor SX / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	99	99	99	99	98	97	54.5
Optill / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	97	98	99	99	99	99	50.7
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 3 qt/a	99	99	99	98	99	99	48.8
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + Harmony SG + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 0.125 oz/a + 3 pt/a	99	99	99	99	99	99	46.3
PRE/POST III (4-6 inch weeds)								
Authority First / Flexstar + Select + COC + 28% N	6.4 oz/a / 16 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	97	99	99	99	99	99	48.0
Gangster V + Gangster FR / Raptor + Select + COC + 28% N	2.5 oz/a + 0.5 oz/a / 4 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	99	99	99	99	99	99	40.9
Gangster V + Gangster FR / Roundup OriginalMax + N-Pak AMS	2 oz/a + 0.4 oz/a / 22 oz/a + 3 qt/a	98	99	99	99	99	99	44.3
Prefix / Touchdown Total + N-Pak AMS	1 qt/a / 24 oz/a + 3 qt/a	87	91	89	99	99	99	49.5
Fierce / Roundup OriginalMax + N-Pak AMS	3 oz/a / 22 oz/a + 3 qt/a	99	99	99	99	98	97	49.7
Sonic / Durango DMA + N-Pak AMS	3 oz/a / 24 oz/a + 3 qt/a	93	97	95	99	99	99	49.0
POST I (2-4 inch weeds)								
Warrant + Roundup OriginalMax + N-Pak AMS	3 pt/a + 22 oz/a + 3 qt/a		99	99	96	94	91	46.3
POST I (2-4 inch weeds)/POST IV (2-4 inch regrowth)								
Roundup WeatherMax + N-Pak AMS /	22 oz/a + 3 qt/a /		99	99	95	99	99	48.7
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a							
Durango DMA + FirstRate + N-Pak AMS /	24 oz/a + 0.3 oz/a + 3 qt/a /		99	99	99	99	99	50.2
Durango DMA + N-Pak AMS	24 oz/a + 3 qt/a							
Flexstar GT + N-Pak AMS / Touchdown Total + N-Pak AMS	3 pt/a + 3 qt/a / 24 oz/a + 3 qt/a		99	99	98	99	99	47.6
Synchrony XP (Chlorimuron + Thifensulfuron) + Abundit Extra + N-Pak AMS / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.05 oz/a + 32 oz/a + 3 qt/a / 32 oz/a + 3 qt/a		99	99	99	99	99	48.7
Roundup OriginalMax + Resource + NIS + N-Pak AMS /	22 oz/a + 2 oz/a + 0.25% v/v + 3 qt/a /		99	99	99	99	98	46.2
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
Roundup OriginalMax + Cadet + NIS + N-Pak AMS /	22 oz/a + 0.5 oz/a + 0.25% v/v + 3 qt/a /		99	99	96	99	99	48.3
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
POST II (6 inch weeds)								
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a			99	97	94	93	49.0
LSD (P=0.10)		3	3	1	1	2	1	5.2

Table 3. Performance of herbicide systems for common waterhemp control in soybean and grain yield at 13% at Rochester, MN, in 2010.

Treatment	Rate (rate/A)	Common Waterhemp Control (% Control)						Yield (bu/A)
		6/7	6/15	6/23	6/29	7/13	9/17	
Untreated		0	0	0	0	0	0	11.0
Weed Free		100	100	100	100	100	100	45.8
PRE/POST II (4-6 inch weeds)								
Boundary / Flexstar + Fusion + Harmony SG + MSO + 28% N	1.5 pt/a / 16 oz/a + 8 oz/a + 0.125 oz/a + 1% v/v + 2.5% v/v	95	99	99	99	99	99	44.5
Authority First / Roundup OriginalMax + N-Pak AMS	3.2 oz/a / 22 oz/a + 3 qt/a	92	92	99	99	98	96	47.4
Authority Assist / Roundup OriginalMax + N-Pak AMS	5 oz/a / 22 oz/a + 3 qt/a	94	94	99	99	98	96	48.5
Boundary / Touchdown Total + N-Pak AMS	1.5 pt/a / 24 oz/a + 3 qt/a	94	96	99	98	96	95	50.0
Valor SX / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	99	98	99	98	98	97	54.5
Optill / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	84	91	99	97	94	93	50.7
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 3 qt/a	99	99	99	99	99	99	48.8
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + Harmony SG + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 0.125 oz/a + 3 pt/a	99	99	99	99	99	99	46.3
PRE/POST III (4-6 inch weeds)								
Authority First / Flexstar + Select + COC + 28% N	6.4 oz/a / 16 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	97	99	98	99	99	99	48.0
Gangster V + Gangster FR / Raptor + Select + COC + 28% N	2.5 oz/a + 0.5 oz/a / 4 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	99	99	99	99	99	99	40.9
Gangster V + Gangster FR / Roundup OriginalMax + N-Pak AMS	2 oz/a + 0.4 oz/a / 22 oz/a + 3 qt/a	99	99	99	99	99	99	44.3
Prefix / Touchdown Total + N-Pak AMS	1 qt/a / 24 oz/a + 3 qt/a	98	98	99	99	99	99	49.5
Fierce / Roundup OriginalMax + N-Pak AMS	3 oz/a / 22 oz/a + 3 qt/a	99	99	99	99	99	98	49.7
Sonic / Durango DMA + N-Pak AMS	3 oz/a / 24 oz/a + 3 qt/a	94	93	93	99	99	99	49.0
POST I (2-4 inch weeds)								
Warrant + Roundup OriginalMax + N-Pak AMS	3 pt/a + 22 oz/a + 3 qt/a		99	99	98	99	98	46.3
POST I (2-4 inch weeds)/POST IV (2-4 inch regrowth)								
Roundup WeatherMax + N-Pak AMS /	22 oz/a + 3 qt/a /		99	99	92	99	99	48.7
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a							
Durango DMA + FirstRate + N-Pak AMS /	24 oz/a + 0.3 oz/a + 3 qt/a /		99	99	96	99	99	50.2
Durango DMA + N-Pak AMS	24 oz/a + 3 qt/a							
Flexstar GT + N-Pak AMS / Touchdown Total + N-Pak AMS	3 pt/a + 3 qt/a / 24 oz/a + 3 qt/a		99	99	99	99	99	47.6
Synchrony XP (Chlorimuron + Thifensulfuron) + Abundit Extra + N-Pak AMS / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.05 oz/a + 32 oz/a + 3 qt/a / 32 oz/a + 3 qt/a		99	99	95	99	97	48.7
Roundup OriginalMax + Resource + NIS + N-Pak AMS /	22 oz/a + 2 oz/a + 0.25% v/v + 3 qt/a /		99	99	88	99	99	46.2
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
Roundup OriginalMax + Cadet + NIS + N-Pak AMS /	22 oz/a + 0.5 oz/a + 0.25% v/v + 3 qt/a /		99	99	89	99	99	48.3
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
POST II (6 inch weeds)								
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a			99	96	94	93	49.0
LSD (P=0.10)		4	3	2	3	1	2	5.2

Table 4. Performance of herbicide systems for giant foxtail control in soybean and grain yield at 13% at Rochester, MN, in 2010.

Treatment	Rate	Giant Foxtail Control						Yield
		6/7	6/15	6/23	6/29	7/13	9/17	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	11.0
Weed Free		100	100	100	100	100	100	45.8
PRE/POST II (4-6 inch weeds)								
Boundary / Flexstar + Fusion + Harmony SG + MSO + 28% N	1.5 pt/a / 16 oz/a + 8 oz/a + 0.125 oz/a + 1% v/v + 2.5% v/v	92	96	99	98	96	91	44.5
Authority First / Roundup OriginalMax + N-Pak AMS	3.2 oz/a / 22 oz/a + 3 qt/a	72	69	99	97	97	94	47.4
Authority Assist / Roundup OriginalMax + N-Pak AMS	5 oz/a / 22 oz/a + 3 qt/a	74	78	99	98	97	94	48.5
Boundary / Touchdown Total + N-Pak AMS	1.5 pt/a / 24 oz/a + 3 qt/a	91	94	99	99	97	94	50.0
Valor SX / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	81	91	98	96	96	94	54.5
Optill / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	81	82	99	96	96	94	50.7
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 3 qt/a	86	91	99	95	95	94	48.8
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + Harmony SG + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 0.125 oz/a + 3 pt/a	85	89	99	97	92	90	46.3
PRE/POST III (4-6 inch weeds)								
Authority First / Flexstar + Select + COC + 28% N	6.4 oz/a / 16 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	83	91	79	97	98	98	48.0
Gangster V + Gangster FR / Raptor + Select + COC + 28% N	2.5 oz/a + 0.5 oz/a / 4 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	89	95	83	96	97	97	40.9
Gangster V + Gangster FR / Roundup OriginalMax + N-Pak AMS	2 oz/a + 0.4 oz/a / 22 oz/a + 3 qt/a	84	89	83	99	95	92	44.3
Prefix / Touchdown Total + N-Pak AMS	1 qt/a / 24 oz/a + 3 qt/a	93	96	90	99	99	98	49.5
Fierce / Roundup OriginalMax + N-Pak AMS	3 oz/a / 22 oz/a + 3 qt/a	96	97	92	99	97	94	49.7
Sonic / Durango DMA + N-Pak AMS	3 oz/a / 24 oz/a + 3 qt/a	77	79	74	99	98	96	49.0
POST I (2-4 inch weeds)								
Warrant + Roundup OriginalMax + N-Pak AMS	3 pt/a + 22 oz/a + 3 qt/a		99	98	94	96	95	46.3
POST I (2-4 inch weeds)/POST IV (2-4 inch regrowth)								
Roundup WeatherMax + N-Pak AMS /	22 oz/a + 3 qt/a /		99	94	82	99	98	48.7
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a							
Durango DMA + FirstRate + N-Pak AMS /	24 oz/a + 0.3 oz/a + 3 qt/a /		98	99	94	99	98	50.2
Durango DMA + N-Pak AMS	24 oz/a + 3 qt/a							
Flexstar GT + N-Pak AMS / Touchdown Total + N-Pak AMS	3 pt/a + 3 qt/a / 24 oz/a + 3 qt/a		99	99	98	99	99	47.6
Synchrony XP (Chlorimuron + Thifensulfuron) + Abundit Extra + N-Pak AMS / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.05 oz/a + 32 oz/a + 3 qt/a / 32 oz/a + 3 qt/a		98	97	89	99	97	48.7
Roundup OriginalMax + Resource + NIS + N-Pak AMS /	22 oz/a + 2 oz/a + 0.25% v/v + 3 qt/a /		99	93	84	99	95	46.2
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
Roundup OriginalMax + Cadet + NIS + N-Pak AMS /	22 oz/a + 0.5 oz/a + 0.25% v/v + 3 qt/a /		99	91	83	99	96	48.3
Roundup OriginalMax + N-Pak AMS	22 oz/a + 3 qt/a							
POST II (6 inch weeds)								
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a			99	93	91	90	49.0
LSD (P=0.10)		5	10	3	3	1	4	5.2

Table 5. Soybean response to herbicide systems and grain yield at 13% at Rochester, MN, in 2010.

Treatment	Rate (rate/A)	6/23	Injury 6/29	7/13	Yield
			(%)		(bu/A)
Untreated		0	0		11.0
Weed Free		0	0		45.8
PRE/POST II (4-6 inch weeds)					
Boundary / Flexstar + Fusion + Harmony SG + MSO + 28% N	1.5 pt/a / 16 oz/a + 8 oz/a + 0.125 oz/a + 1% v/v + 2.5% v/v	29	33	15	44.5
Authority First / Roundup OriginalMax + N-Pak AMS	3.2 oz/a / 22 oz/a + 3 qt/a	0	0	0	47.4
Authority Assist / Roundup OriginalMax + N-Pak AMS	5 oz/a / 22 oz/a + 3 qt/a	0	0	0	48.5
Boundary / Touchdown Total + N-Pak AMS	1.5 pt/a / 24 oz/a + 3 qt/a	0	0	0	50.0
Valor SX / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	0	0	0	54.5
Optill / Roundup OriginalMax + N-Pak AMS	2 oz/a / 22 oz/a + 3 qt/a	0	0	0	50.7
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 3 qt/a	0	0	0	48.8
Enlite (Chlorimuron + Thifensulfuron + Flumioxazin) / Abundit Extra + Harmony SG + N-Pak AMS	0.33 oz/a + 0.5 oz/a + 2 oz/a / 32 oz/a + 0.125 oz/a + 3 pt/a	0	0	0	46.3
PRE/POST III (4- 6 inch weeds)					
Authority First / Flexstar + Select + COC + 28% N	6.4 oz/a / 16 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	0	33	8	48.0
Gangster V + Gangster FR / Raptor + Select + COC + 28% N	2.5 oz/a + 0.5 oz/a / 4 oz/a + 6 oz/a + 1% v/v + 2.5% v/v	0	23	9	40.9
Gangster V + Gangster FR / Roundup OriginalMax + N-Pak AMS	2 oz/a + 0.4 oz/a / 22 oz/a + 3 qt/a	0	0	0	44.3
Prefix / Touchdown Total + N-Pak AMS	1 qt/a / 24 oz/a + 3 qt/a	0	3	0	49.5
Fierce / Roundup OriginalMax + N-Pak AMS	3 oz/a / 22 oz/a + 3 qt/a	0	0	0	49.7
Sonic / Durango DMA + N-Pak AMS	3 oz/a / 24 oz/a + 3 qt/a	0	0	0	49.0
POST I (2-4 inch weeds)					
Warrant + Roundup OriginalMax + N-Pak AMS	3 pt/a + 22 oz/a + 3 qt/a	0	0	0	46.3
POST I (2-4 inch weeds)/POST IV (2-4 inch regrowth)					
Roundup WeatherMax + N-Pak AMS / Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a / 22 oz/a + 3 qt/a	0	0	10	48.7
Durango DMA + FirstRate + N-Pak AMS / Durango DMA + N-Pak AMS	24 oz/a + 0.3 oz/a + 3 qt/a / 24 oz/a + 3 qt/a	0	0	10	50.2
Flexstar GT + N-Pak AMS / Touchdown Total + N-Pak AMS	3 pt/a + 3 qt/a / 24 oz/a + 3 qt/a	8	9	10	47.6
Chlorimuron + Thifensulfuron + Abundit Extra + N-Pak AMS / Abundit Extra + N-Pak AMS	0.33 oz/a + 0.05 oz/a + 32 oz/a + 3 qt/a / 32 oz/a + 3 qt/a	0	1	9	48.7
Roundup OriginalMax + Resource + NIS + N-Pak AMS / Roundup OriginalMax + N-Pak AMS	22 oz/a + 2 oz/a + 0.25% v/v + 3 qt/a / 22 oz/a + 3 qt/a	5	9	10	46.2
Roundup OriginalMax + Cadet + NIS + N-Pak AMS / Roundup OriginalMax + N-Pak AMS	22 oz/a + 0.5 oz/a + 0.25% v/v + 3 qt/a / 22 oz/a + 3 qt/a	10	10	9	48.3
POST II (6 inch weeds)					
Roundup WeatherMax + N-Pak AMS	22 oz/a + 3 qt/a	0	0	0	49.0
LSD (P=0.10)		1	2	1	5.2