

Comparison of PRE/POST and POST only Weed Control Systems in Liberty Link Soybeans at Rochester, MN, in 2011.

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The objective of this trial was to evaluate the performance of PRE/POST and POST only herbicide programs for weed control in Liberty Link soybeans in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.8, O.M of 2.5%, and soil test P and K levels of 95 ppm and 225 ppm, respectively. The field was fall moldboard plowed, and disked and field cultivated once prior to planting. The soybean variety, Stine 25LA20 LL, was planted on May 16, 2011, 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 plots were taken on June 8, 13, 29, July 8, 20, and September 21, 2011. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were machine harvested on October 10, 2011.

SUMMARY

Extremely limited rainfall in August and September coupled with an early September frost severely impacted soybean grain yields at the Rochester location. Overall weed control with the Liberty Link system was consistently very good to excellent depending on the treatment.

Giant ragweed control was excellent in all of the PRE/POST treatments with final weed control for all plots above 97 percent (9/21 rating date). POST only systems were not as consistent. The Ignite + Prefix, and the split Ignite treatments provided excellent control of giant ragweed, above 97 percent control (9/21 rating date). However, the Ignite + Dual II, and the Ignite + Anthem treatments provided somewhat diminished giant ragweed control; 87 and 88 percent control respectively, 9/21 rating date.

Common lambsquarters control was excellent in all PRE/POST treatments (all 99 percent control 9/21 rating date). Total POST treatments were not as consistent as the PRE/POST treatments. The Ignite + Prefix, and the split Ignite treatments provided excellent control of common lambsquarters control, 96 and 99 percent control respectively (9/21 rating date). However, the Ignite + Dual II, and the Ignite + Anthem treatments provided somewhat diminished common lambsquarters control; 87 and 92 percent control respectively, 9/21 rating date.

Common waterhemp control was excellent in all PRE/POST treatments, 99 percent control on 9/21 rating date. POST only treatments were not as consistent as the PRE/POST treatments. The Ignite + Prefix, and the split Ignite treatments provided excellent control of common waterhemp control, 97 and 99 percent control respectively (9/21 rating date). However, the Ignite + Dual II, and the Ignite + Anthem treatments provided somewhat reduced common waterhemp control; 83 and 90 percent control respectively, 9/21 rating date.

Giant foxtail was effectively control with all PRE/POST and total POST treatments, 99 percent control (9/21 rating date).

There were some issues with crop response to both the PRE/POST and total POST treatments. The Prefix, and the Boundary + Sharpen treatments exhibited minor crop injury in response to the soil applied component. In the total POST programs, Ignite tank mixed with any of the herbicides increased injury. The Ignite + Prefix, and the Ignite + Anthem treatments exhibited the most injury at 31 and 24 percent respectively (6/29 rating date). Ignite when applied alone resulted in about 15 injury (7/8 rating date). (University of Minnesota Extension Regional Office, Rochester).

Date	5/17	6/13	7/5
Treatment	PRE	POST I	POST II
Temperature			
Air	64	67	79
Soil	62.4	61.9	74.7
Relative Humidity (%)	28	48	64
Wind (mph)	7	12	14
Soil Moisture	Adequate	Dry	Adequate
Soybean			
Stage		V2	R1
Height (inches)		5.5	12.0
Giant Ragweed			
Weed density (ft ²)		3.9	
Height (inches)		4.6	11.8
Common Lambsquarters			
Weed density (ft ²)		4.4	
Height (inches)		2.3	2.8
Common Waterhemp			
Weed density (ft ²)		6.3	
Height (inches)		2.0	2.8
Giant foxtail			
Weed density (ft ²)		0.5	
Height (inches)		2.5	2.0
Rainfall after each application			
Week 1	1.78	3.41	0.45
Week 2	0.66	1.29	2.79
Week 3	0.04	0.31	0.17

Table 1. Evaluation of PRE/POST and POST only herbicide systems for giant ragweed control in Liberty Link soybeans on June 8, 13, 29, July 8, 20 and September 21 at Rochester, MN, in 2011.

Treatment	Rate	Giant Ragweed Control						Yield
		6/8	6/13	6/29	7/8	7/20	9/21	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	7.2
PRE/POST II (R1 soybean)								
Prefix / Ignite 280 + AMS	2.5 pt/a / 29 fl oz/a + 8.5 lb/ 100 gal	94	97	91	98	98	97	20.9
Authority First / Ignite 280 + AMS	6 oz/a / 29 fl oz/a + 8.5 lb/100 gal	92	93	89	97	98	98	23.5
Boundary + Sharpen / Ignite 280 + AMS	2.1 pt/a + 1 fl oz/a / 29 fl oz/a + 8.5 lb/ 100 gal	92	95	88	97	96	98	22.0
POST I (2-4 inch weeds)								
Ignite 280 + Prefix + AMS	29 fl oz/a + 2.5 pt/a + 8.5 lb/ 100 gal	0	0	98	99	99	98	24.3
Ignite 280 + Dual II Magnum + AMS	29 fl oz/a + 1.33 pt/a + 8.5 lb/ 100 gal	0	0	95	96	94	87	26.4
Ignite 280 + Anthem + AMS	29 fl oz/a + 8 fl oz/a + 8.5 lb/ 100 gal	0	0	96	96	95	88	24.1
POST I (2-4 inch weeds) / POST II (R1 soybean)								
Ignite 280 + AMS / Ignite 280 + AMS	29 fl oz/a + 8.5 lb/ 100 gal / 29 fl oz/a + 8.5 lb/ 100 gal	0	0	92	97	99	99	26.5
	LSD (P=0.10)	3	2	3	1	2	4	4.5

Table 2. Evaluation of PRE/POST and POST only herbicide systems for common lambsquarters control in Liberty Link soybeans on June 8, 13, 29, July 8, 20, and September 21 at Rochester, MN, in 2011.

Treatment	Rate	Common Lambsquarters Control						Yield
		6/8	6/13	6/29	7/8	7/20	9/21	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	7.2
PRE/POST II (R1 soybean)								
Prefix / Ignite 280 + AMS	2.5 pt/a / 29 fl oz/a + 8.5 lb/ 100 gal	99	99	99	99	99	99	20.9
Authority First / Ignite 280 + AMS	6 oz/a / 29 fl oz/a + 8.5 lb/100 gal	99	99	99	99	99	99	23.5
Boundary + Sharpen / Ignite 280 + AMS	2.1 pt/a + 1 fl oz/a / 29 fl oz/a + 8.5 lb/ 100 gal	99	99	99	99	99	99	22.0
POST I (2-4 inch weeds)								
Ignite 280 + Prefix + AMS	29 fl oz/a + 2.5 pt/a + 8.5 lb/ 100 gal	0	0	98	96	96	96	24.3
Ignite 280 + Dual II Magnum + AMS	29 fl oz/a + 1.33 pt/a + 8.5 lb/ 100 gal	0	0	93	91	93	87	26.4
Ignite 280 + Anthem + AMS	29 fl oz/a + 8 fl oz/a + 8.5 lb/ 100 gal	0	0	96	95	95	92	24.1
POST I (2-4 inch weeds) / POST II (R1 soybean)								
Ignite 280 + AMS / Ignite 280 + AMS	29 fl oz/a + 8.5 lb/ 100 gal / 29 fl oz/a + 8.5 lb/ 100 gal	0	0	95	97	99	99	26.5
	LSD (P=0.10)	1	0	3	3	2	3	4.5

Table 3. Evaluation of PRE/POST and POST only herbicide systems for common waterhemp control in Liberty Link soybeans on June 8, 13, 29, July 8, 20, and September 21 at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Common Waterhemp Control						Yield (bu/A)
		6/8	6/13	6/29	7/8	7/20	9/21	
Untreated		0	0	0	0	0	0	7.2
PRE/POST II (R1 soybean)								
Prefix / Ignite 280 + AMS	2.5 pt/a / 29 fl oz/a + 8.5 lb/ 100 gal	99	99	99	99	99	99	20.9
Authority First / Ignite 280 + AMS	6 oz/a / 29 fl oz/a + 8.5 lb/100 gal	99	99	99	99	99	99	23.5
Boundary + Sharpen / Ignite 280 + AMS	2.1 pt/a + 1 fl oz/a / 29 fl oz/a + 8.5 lb/ 100 gal	99	99	99	99	99	99	22.0
POST I (2-4 inch weeds)								
Ignite 280 + Prefix + AMS	29 fl oz/a + 2.5 pt/a + 8.5 lb/ 100 gal	0	0	98	98	99	97	24.3
Ignite 280 + Dual II Magnum + AMS	29 fl oz/a + 1.33 pt/a + 8.5 lb/ 100 gal	0	0	92	91	91	83	26.4
Ignite 280 + Anthem + AMS	29 fl oz/a + 8 fl oz/a + 8.5 lb/ 100 gal	0	0	95	95	95	90	24.1
POST I (2-4 inch weeds) / POST II (R1 soybean)								
Ignite 280 + AMS / Ignite 280 + AMS	29 fl oz/a + 8.5 lb/ 100 gal / 29 fl oz/a + 8.5 lb/ 100 gal	0	0	85	97	99	99	26.5
LSD (P=0.10)		0	0	3	2	1	3	4.5

4.5

Table 4. Evaluation of PRE/POST and POST only herbicide systems for giant foxtail control in Liberty Link soybeans on June 8, 13, 29, July 8, 20, and September 21 at Rochester, MN, in 2011.

Treatment	Rate (rate/A)	Giant Foxtail Control						Yield (bu/A)
		6/8	6/13	6/29	7/8	7/20	9/21	
Untreated		0	0	0	0	0	0	7.2
PRE/POST II (R1 soybean)								
Prefix / Ignite 280 + AMS	2.5 pt/a / 29 fl oz/a + 8.5 lb/ 100 gal	99	99	99	99	99	99	20.9
Authority First / Ignite 280 + AMS	6 oz/a / 29 fl oz/a + 8.5 lb/100 gal	98	98	92	99	99	99	23.5
Boundary + Sharpen / Ignite 280 + AMS	2.1 pt/a + 1 fl oz/a / 29 fl oz/a + 8.5 lb/ 100 gal	99	99	99	99	99	99	22.0
POST I (2-4 inch weeds)								
Ignite 280 + Prefix + AMS	29 fl oz/a + 2.5 pt/a + 8.5 lb/ 100 gal	0	0	98	99	97	99	24.3
Ignite 280 + Dual II Magnum + AMS	29 fl oz/a + 1.33 pt/a + 8.5 lb/ 100 gal	0	0	99	99	98	99	26.4
Ignite 280 + Anthem + AMS	29 fl oz/a + 8 fl oz/a + 8.5 lb/ 100 gal	0	0	99	99	98	99	24.1
POST I (2-4 inch weeds) / POST II (R1 soybean)								
Ignite 280 + AMS / Ignite 280 + AMS	29 fl oz/a + 8.5 lb/ 100 gal / 29 fl oz/a + 8.5 lb/ 100 gal	0	0	98	97	99	99	26.5
LSD (P=0.10)		1	1	3	1	1	1	4.5

4.5

Table 5. Crop response to herbicide systems in Liberty Link soybeans on June 8, 13, 29, and July 8 at Rochester, MN, in 2011.

Treatment	Rate	Injury				Yield
		6/8	6/13	6/29	7/8	
	(rate/A)	(%)				(bu/A)
Untreated		0	0	0	0	7.2
PRE/POST II (R1 soybean)						
Prefix / Ignite 280 + AMS	2.5 pt/a / 29 fl oz/a + 8.5 lb/ 100 gal	0	4	0	14	20.9
Authority First / Ignite 280 + AMS	6 oz/a / 29 fl oz/a + 8.5 lb/100 gal	0	0	0	15	23.5
Boundary + Sharpen / Ignite 280 + AMS	2.1 pt/a + 1 fl oz/a / 29 fl oz/a + 8.5 lb/ 100 gal	1	5	4	15	22.0
POST I (2-4 inch weeds)						
Ignite 280 + Prefix + AMS	29 fl oz/a + 2.5 pt/a + 8.5 lb/ 100 gal	0	0	31	6	24.3
Ignite 280 + Dual II Magnum + AMS	29 fl oz/a + 1.33 pt/a + 8.5 lb/ 100 gal	0	0	20	7	26.4
Ignite 280 + Anthem + AMS	29 fl oz/a + 8 fl oz/a + 8.5 lb/ 100 gal	0	0	24	9	24.1
POST I (2-4 inch weeds) / POST II (R1 soybean)						
Ignite 280 + AMS / Ignite 280 + AMS	29 fl oz/a + 8.5 lb/ 100 gal / 29 fl oz/a + 8.5 lb/ 100 gal	0	0	6	15	26.5
	LSD (P=0.10)	1	4	2	2	4.5