

Evaluation of glufosinate (Liberty Link) weed control programs in soybean at Rochester, MN, in 2007.

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The objective of this trial was to evaluate glufosinate (Liberty Link) systems for weed control in soybean in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.7 and soil test P and K levels of 84 ppm and 170 ppm, respectively. The field was spring disked and field cultivated prior to planting. The soybean variety, experimental glufosinate, was planted on May 29, 2007, 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 I, and POST 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 June 14, June 20, June 28, July 12, and July 18. Application dates, environmental conditions, and weed stages are listed below.

Date	May 29	June 20	July 6
Treatment	PRE	POST I	POST II
Temperature (F)			
Air	76	82	81
soil	69.3	76.3	--
Relative Humidity (%)	59	40	45
Wind (mph)	23	18	7
Soil moisture	adequate	adequate	inadequate
Bean			
stage	--	V2	--
height (inch)	--	4.2	21.0
Velvetleaf			
weed density (ft ²)	--	--	--
height (inch)	--	2.0	13.1
Common Lambsquarters			
weed density (ft ²)	--	2.3	2.3
height (inch)	--	2.4	6.2
Common Waterhemp			
weed density (ft ²)	--	2.9	2.9
height (inch)	--	3.5	19.8
Giant Foxtail			
weed density (ft ²)	--	1.1	1.1
height (inch)	--	2.	12.3
Rainfall after each application (inch)			
week 1	1.31	2.09	0.66
week 2	0.38	0.21	0.50
week 3	1.40	0.66	0.45

CONCLUSIONS

Sequential applications of Liberty 200 applied at POST I and POST II or following preemergence applications of soil applied herbicides resulted in excellent weed control for all weed species evaluated. Postemergence only treatments of Liberty 200 applied at POST I resulted in lower weed control for all weed species evaluated. Common lambsquarters and waterhemp were both challenging weeds for the single pass Liberty 200 system.

Table 1. Performance of herbicide systems for common lambsquarters control in soybean on June 14, June 20, June 28, July 12, and July 18 at Rochester, MN, in 2007.

Treatment	Rate	Common Lambsquarters Control				
		6/14	6/20	6/28	7/12	7/18
	(rate/A)	(%)				
Untreated Check		0	0	0	0	0
PRE / POST II						
Prefix / Liberty 200 SL + AMS	1.75 pt / 32 fl oz + 1.7 lb	95	97	96	97	97
Gangster-FR + Gangster-V / Liberty 200 SL + AMS	0.3 oz + 1.5 oz / 32 fl oz + 1.7 lb	99	99	99	99	99
Boundary / Liberty 200 SL + AMS	1.5 pt / 32 fl oz + 1.7 lb	99	99	99	99	99
Domain / Liberty 200 SL + AMS	14 oz / 32 oz + 1.7lb	99	99	99	99	99
Valor / Liberty 200 SL + AMS	2 oz / 32 oz + 1.7 lb	98	98	98	99	99
Sonic / Liberty 200 SL + AMS	3 oz / 32 oz + 1.7 lb	99	99	99	99	99
Sencor / Liberty 200 SL + AMS	8 oz / 32 oz + 1.7 lb	99	99	99	99	99
POST I						
Liberty 200 SL + AMS	32 oz + 1.7 lb	0	0	96	66	66
POST I and POST II						
Liberty 200 SL + AMS / Liberty 200 SL + AMS	32 oz + 1.7 lb / 32 oz + 1.7 lb	0	0	96	96	96
LSD (P=0.10)		2	1	2	3	2

Table 2. Performance of herbicide systems for common waterhemp control in soybean on June 14, June 20, June 28, July 12, and July 18 at Rochester, MN, in 2007.

Treatment	Rate	Common Waterhemp Control				
		6/14	6/20	6/28	7/12	7/18
	(rate/A)	(%)				
Untreated Check		0	0	0	0	0
PRE / POST II						
Prefix / Liberty 200 SL + AMS	1.75 pt / 32 fl oz + 1.7 lb	97	99	99	99	99
Gangster-FR + Gangster-V / Liberty 200 SL + AMS	0.3 oz + 1.5 oz / 32 fl oz + 1.7 lb	98	98	98	99	99
Boundary / Liberty 200 SL + AMS	1.5 pt / 32 fl oz + 1.7 lb	96	99	98	99	99
Domain / Liberty 200 SL + AMS	14 oz / 32 oz + 1.7 lb	93	94	98	97	98
Valor / Liberty 200 SL + AMS	2 oz / 32 oz + 1.7 lb	95	98	98	99	99
Sonic / Liberty 200 SL + AMS	3 oz / 32 oz + 1.7 lb	98	99	98	98	99
Sencor / Liberty 200 SL + AMS	8 oz / 32 oz + 1.7 lb	93	97	99	99	99
POST I						
Liberty 200 SL + AMS	32 oz +1.7 lb	0	0	98	66	65
POST I and POST II						
Liberty 200 SL + AMS / Liberty 200 SL + AMS	32 oz + 1.7 lb/ 32 oz + 1.7 lb	0	0	96	96	94
LSD (P=0.10)		4	2	1	3	2

Table 3. Performance of herbicide systems for giant foxtail control in soybean on June 14, June 20, June 28, July 12, and July 18 at Rochester, MN, in 2007.

Treatment	Rate	Giant Foxtail Control					
		6/14	6/20	6/28	7/12	7/18	
	(rate/A)	(%)					
Untreated Check		0	0	0	0	0	
PRE / POST II							
Prefix / Liberty 200 SL + AMS	1.75 pt / 32 fl oz + 1.7 lb	96	99	98	99	99	
Gangster-FR + Gangster-V / Liberty 200 SL + AMS	0.3 oz + 1.5 oz / 32 fl oz + 1.7 lb	75	95	95	98	99	
Boundary / Liberty 200 SL + AMS	1.5 pt / 32 fl oz + 1.7 lb	98	99	99	99	99	
Domain / Liberty 200 SL + AMS	14 oz / 32 oz + 1.7 lb	78	98	97	99	99	
Valor / Liberty 200 SL + AMS	2 oz / 32 oz + 1.7 lb	70	95	93	98	99	
Sonic / Liberty 200 SL + AMS	3 oz / 32 oz + 1.7 lb	74	95	93	98	98	
Sencor / Liberty 200 SL + AMS	8 oz / 32 oz + 1.7 lb	76	97	97	98	99	
POST I							
Liberty 200 SL + AMS	32 oz + 1.7 lb	0	0	99	88	83	
POST I and POST II							
Liberty 200 SL + AMS / Liberty 200 SL + AMS	32 oz + 1.7 lb / 32 oz + 1.7 lb	0	0	99	99	99	
		LSD (P=0.10)	4	2	1	1	1

Table 4. Performance of herbicide systems for velvetleaf control in soybean on June 14, June 20, June 28, July 12, and July 18 at Rochester, MN, in 2007.

Treatment	Rate	Velvetleaf Control					
		6/14	6/20	6/28	7/12	7/18	
	(rate/A)	(%)					
Untreated Check		0	0	0	0	0	
PRE / POST II							
Prefix / Liberty 200 SL + AMS	1.75 pt / 32 fl oz + 1.7 lb	95	96	98	99	99	
Gangster-FR + Gangster-V / Liberty 200 SL + AMS	0.3 oz + 1.5 oz / 32 fl oz + 1.7 lb	98	99	99	99	99	
Boundary / Liberty 200 SL + AMS	1.5 pt / 32 fl oz + 1.7 lb	99	99	99	99	99	
Domain / Liberty 200 SL + AMS	14 oz / 32 oz + 1.7 lb	99	99	99	99	99	
Valor / Liberty 200 SL + AMS	2 oz / 32 oz + 1.7 lb	98	99	99	99	99	
Sonic / Liberty 200 SL + AMS	3 oz / 32 oz + 1.7 lb	99	99	99	99	99	
Sencor / Liberty 200 SL + AMS	8 oz / 32 oz + 1.7 lb	97	98	99	99	99	
POST I							
Liberty 200 SL + AMS	32 oz + 1.7 lb	0	0	99	90	95	
POST I and POST II							
Liberty 200 SL + AMS / Liberty 200 SL + AMS	32 oz + 1.7 lb / 32 oz + 1.7 lb	0	0	98	99	99	
		LSD (P=0.10)	2	1	1	3	1