

Performance of Ignite 280 Herbicide Systems for Weed Control in Soybean at Rochester, MN, in 2010.

Breitenbach, Fritz R., Lisa M. Behnken, Ryan P. Miller, Jeffrey L. Gunsolus, Liz A. Stahl

The objective of this trial was to evaluate the performance of Ignite 280 herbicide programs 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 2.3%, and soil test P and K levels of 41 ppm and 126 ppm, respectively. The field was spring chisel plowed, disked and field cultivated once prior to planting. The soybean variety, Stine 23LA08-Var S080137, was planted on May 4, 2010, at a depth of 1.5 inches in 30 inch rows at 129,000 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 2, 15, 23, July 12, and September 21, 2010. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were machine harvested on October 11, 2010.

SUMMARY: Giant ragweed and common waterhemp control, (or lack of) influenced post emergent weed control timings. In the case of Optill and Sharpen, it was the lack of common waterhemp control which dictated an earlier POST II herbicide application. In most cases unless noted, discussion will focus on the late weed control ratings of September 21st.

Sequential applications, either PRE/POST, or sequential POST applications provided excellent giant ragweed control. POST I treatments that provided statistically lower giant ragweed were: Ignite + Pursuit (88%), Ignite + Harmony (88%), Ignite + Outlook (91%) and Ignite + Cobra (94%).

Common waterhemp proved to be the most difficult weed to control in the trial. All PRE / POST III treatments gave the maximum level of control. Sharpen PRE / Ignite POST II, and Optill PRE / Ignite POST II provided lower common waterhemp control than the other PRE/POST II programs

(86% and 91% control respectively). Only two POST II treatments gave maximum control, Ignite + Flexstar and Ignite + Prefix. The remainder of the POST II programs resulted in 78% to 86% control of waterhemp, except Ignite + Pursuit which gave only 66% control. Sequential POST applications of Ignite provided very good to excellent control, with the maximum achieved with POST I followed by either POST IV or POST V treatments. Statistically lower common waterhemp control was achieved with the POST I / POST III treatment, 92%.

Excellent giant foxtail control was achieved by all PRE / POST III treatments. In the PRE / Ignite POST II treatments, only Sharpen PRE / Ignite provided statistically lower control, 90%. Only two total POST programs maximized control, Ignite + Outlook (96%) and Ignite + Flexstar (98%). Sequential POST applications of Ignite, POST I followed by either POST IV or V provided the maximum control of giant foxtail. Statistically lower giant foxtail control was achieved with the POST I / POST III treatment 93%.

Crop injury from herbicides was evident from all POST treatments either in the form of leaf burn, or stunting. Initial injury from just Ignite applications ranged from 25% to 33%. This injury was primarily cosmetic and rapidly diminished. As expected, the highest injury levels were detected in the POST tank mix programs. The maximum level of injury was observed with Ignite + Harmony, 65% (6/15 rating date). High injury levels were also detected with the Ignite + Flexstar, 54% (6/15), Ignite + Prefix, 53% (6/10), and Ignite + Cobra, 53% (6/15). It is possible that late season weed control and yield were compromised as a result of high levels of crop injury. (University of Minnesota Extension Regional Office, Rochester).

Date	5/4	6/7	6/16	6/24	6/29	7/6
Treatment	PRE	POST I	POST II	POST III	POST IV	POST V
Temperature						
Air	82	71	75	72	66	76
Soil	58.3	64.8	70.9	69.1	69	75
Relative Humidity (%)	22	58	59	68	54	76
Wind (mph)	30	0	3	6	10	7
Soil Moisture	Adequate	Adequate	Excessive	Adequate	Excessive	Excessive
Soybean						
Stage		V2	V3-V4	V6-R1	V7-R1	R2
Height (inches)		5.0	8.0	8.5	13	18
Giant Ragweed						
Weed density (ft ²)		0.8				
Height (inches)		5.6	8.6	4.8	4.5	9.7
Common Lambsquarters						
Weed density (ft ²)		3.5				
Height (inches)		2.6	2.8	3.8	4.6	6.7
Common Waterhemp						
Weed density (ft ²)		6.5				
Height (inches)		3.3	3.9	2.5	3.0	8.3
Giant foxtail						
Weed density (ft ²)		25.3				
Height (inches)		5.5	5.8	5.8	3.9	3.8
Rainfall after each application						
Week 1	1.07	1.54	3.31	1.49	0.27	0.50
Week 2	0.66	1.58	1.49	0.27	0.50	1.44
Week 3	0.04	3.22	0.27	1.49	1.44	2.55

Table 1. Performance of Ignite 280 herbicide systems for giant ragweed control in soybeans at Rochester, MN, in 2010.

Treatment	Rate	Giant Ragweed Control						Yield
		6/2	6/15	6/23	6/29	7/12	9/21	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	8.5
PRE/POST II (5 inch weeds)								
Valor / Ignite 280 + AMS	2.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	29	20	96	94	91	95	39.1
Optill / Ignite 280 + AMS	2 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	95	88	98	99	99	99	40.6
Enlite / Ignite 280 + AMS	2.8 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	77	60	99	98	95	96	36.3
Sharpen / Ignite 280 + AMS	1.0 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	88	76	99	99	98	98	43.0
Fierce / Ignite 280 + AMS	3 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	43	28	97	97	96	95	35.0
PRE/POST III (5 inch weeds)								
Prefix / Ignite 280 + AMS	2 pt/a / 22 fl oz/a + 8.5 lb/100 gal	98	96	94	98	99	99	39.7
Gangster V + Gangster FR / Ignite 280 + AMS	2.5 oz wt/a + 0.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	98	94	92	99	98	98	40.8
Authority Assist / Ignite 280 + AMS	12 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	92	81	76	97	95	97	39.1
Sonic / Ignite 280 + AMS	4.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	97	93	94	99	98	98	41.1
POST I (5 inch weeds)								
Ignite 280 + Firstrate + AMS	22 fl oz/a + 0.3 oz wt/a + 8.5 lb/100 gal	--	97	99	98	95	97	43.3
Ignite 280 + Pursuit + AMS	22 fl oz/a + 4 fl oz/a + 8.5 lb/100 gal	--	96	97	96	95	88	39.2
Ignite 280 + Outlook + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	98	98	96	87	91	41.4
Ignite 280 + Flexstar + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	99	99	99	99	98	41.3
Ignite 280 + Prefix + AMS	22 fl oz/a + 2 pt/a + 8.5 lb/100 gal	--	99	99	99	98	98	43.1
Ignite 280 + Cobra + AMS	22 fl oz/a + 8 fl oz/a + 8.5 lb/100 gal	--	99	98	96	95	94	38.5
Ignite 280 + Harmony + AMS	22 fl oz/a + 0.125 oz wt/a + 8.5 lb/100 gal	--	97	96	90	87	88	38.2
POST I (5 in weeds)/ POST III (14 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	94	97	99	99	99	42.7
POST I (5 in weeds)/ POST IV (21 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	97	96	96	99	99	43.4
POST I (5 in weeds)/POST V (Pre-Canopy)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	98	95	94	98	99	39.3
LSD (P=0.10)		3	4	3	2	4	3	5.2

Table 2. Performance of Ignite 280 herbicide systems for common lambsquarters control in soybeans at Rochester, MN, in 2010.

Treatment	Rate	Common Lambsquarters Control						Yield
		6/2	6/15	6/23	6/29	7/12	9/21	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	8.5
PRE/POST II (5 inch weeds)								
Valor / Ignite 280 + AMS	2.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	98	97	99	99	99	99	39.1
Optill / Ignite 280 + AMS	2 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	98	99	99	98	99	40.6
Enlite / Ignite 280 + AMS	2.8 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	99	99	99	36.3
Sharpen / Ignite 280 + AMS	1.0 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	89	70	99	99	97	99	43.0
Fierce / Ignite 280 + AMS	3 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	99	98	99	35.0
PRE/POST III (5 inch weeds)								
Prefix / Ignite 280 + AMS	2 pt/a / 22 fl oz/a + 8.5 lb/100 gal	99	97	94	99	98	99	39.7
Gangster V + Gangster FR / Ignite 280 + AMS	2.5 oz wt/a + 0.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	99	99	99	40.8
Authority Assist / Ignite 280 + AMS	12 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	99	99	99	39.1
Sonic / Ignite 280 + AMS	4.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	99	99	99	41.1
POST I (5 inch weeds)								
Ignite 280 + Firstrate + AMS	22 fl oz/a + 0.3 oz wt/a + 8.5 lb/100 gal	--	96	96	93	93	98	43.3
Ignite 280 + Pursuit + AMS	22 fl oz/a + 4 fl oz/a + 8.5 lb/100 gal	--	95	97	94	94	99	39.2
Ignite 280 + Outlook + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	94	97	97	94	94	41.4
Ignite 280 + Flexstar + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	98	99	99	95	98	41.3
Ignite 280 + Prefix + AMS	22 fl oz/a + 2 pt/a + 8.5 lb/100 gal	--	99	98	95	93	97	43.1
Ignite 280 + Cobra + AMS	22 fl oz/a + 8 fl oz/a + 8.5 lb/100 gal	--	99	97	96	93	98	38.5
Ignite 280 + Harmony + AMS	22 fl oz/a + 0.125 oz wt/a + 8.5 lb/100 gal	--	96	97	94	84	98	38.2
POST I (5 in weeds)/ POST III (14 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	94	97	99	96	97	42.7
POST I (5 in weeds)/ POST IV (21 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	92	94	97	97	99	43.4
POST I (5 in weeds)/ POST V (Pre-Canopy)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	91	92	92	99	99	39.3
LSD (P=0.10)		2	2	2	2	4	2	5.2

Table 3. Performance of Ignite 280 herbicide systems for common waterhemp control in soybeans at Rochester, MN, in 2010.

Treatment	Rate	Common Waterhemp Control						Yield
		6/2	6/15	6/23	6/29	7/12	9/21	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	8.5
PRE/POST II (5 inch weeds)								
Valor / Ignite 280 + AMS	2.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	98	94	99	97	98	97	39.1
Optill / Ignite 280 + AMS	2 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	66	66	99	94	86	91	40.6
Enlite / Ignite 280 + AMS	2.8 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	93	95	99	98	98	99	36.3
Sharpen / Ignite 280 + AMS	1.0 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	33	54	99	92	78	86	43.0
Fierce / Ignite 280 + AMS	3 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	98	98	98	35.0
PRE/POST III (5 inch weeds)								
Prefix / Ignite 280 + AMS	2 pt/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	98	99	99	99	39.7
Gangster V + Gangster FR / Ignite 280 + AMS	2.5 oz wt/a + 0.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	99	94	94	99	98	99	40.8
Authority Assist / Ignite 280 + AMS	12 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	99	99	99	98	99	99	39.1
Sonic / Ignite 280 + AMS	4.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	98	99	97	99	99	99	41.1
POST I (5 inch weeds)								
Ignite 280 + Firstrate + AMS	22 fl oz/a + 0.3 oz wt/a + 8.5 lb/100 gal	--	94	90	90	79	78	43.3
Ignite 280 + Pursuit + AMS	22 fl oz/a + 4 fl oz/a + 8.5 lb/100 gal	--	91	86	81	64	66	39.2
Ignite 280 + Outlook + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	91	88	88	79	82	41.4
Ignite 280 + Flexstar + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	99	99	98	99	99	41.3
Ignite 280 + Prefix + AMS	22 fl oz/a + 2 pt/a + 8.5 lb/100 gal	--	99	98	97	96	98	43.1
Ignite 280 + Cobra + AMS	22 fl oz/a + 8 fl oz/a + 8.5 lb/100 gal	--	99	99	92	85	86	38.5
Ignite 280 + Harmony + AMS	22 fl oz/a + 0.125 oz wt/a + 8.5 lb/100 gal	--	94	91	85	74	84	38.2
POST I (5 in weeds)/ POST III (14 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	87	84	99	92	92	42.7
POST I (5 in weeds)/ POST IV (21 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	89	83	92	97	98	43.4
POST I (5 in weeds)/ POST V (Pre-Canopy)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	87	83	85	99	99	39.3
LSD (P=0.10)		3	4	4	4	5	4	5.2

Table 4. Performance of Ignite 280 herbicide systems for giant foxtail control in soybeans at Rochester, MN, in 2010.

Treatment	Rate	Giant Foxtail Control						Yield
		6/2	6/15	6/23	6/29	7/12	9/21	
	(rate/A)	(% Control)						(bu/A)
Untreated		0	0	0	0	0	0	8.5
PRE/POST II (5 inch weeds)								
Valor / Ignite 280 + AMS	2.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	72	74	97	96	95	98	39.1
Optill / Ignite 280 + AMS	2 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	61	66	95	94	90	96	40.6
Enlite / Ignite 280 + AMS	2.8 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	71	74	98	96	94	95	36.3
Sharpen / Ignite 280 + AMS	1.0 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	96	93	88	90	43.0
Fierce / Ignite 280 + AMS	3 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	92	91	99	98	97	98	35.0
PRE/POST III (5 inch weeds)								
Prefix / Ignite 280 + AMS	2 pt/a / 22 fl oz/a + 8.5 lb/100 gal	94	95	93	98	98	99	39.7
Gangster V + Gangster FR / Ignite 280 + AMS	2.5 oz wt/a + 0.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	74	84	80	96	97	99	40.8
Authority Assist / Ignite 280 + AMS	12 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	91	93	87	97	99	99	39.1
Sonic / Ignite 280 + AMS	4.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	75	87	82	96	98	99	41.1
POST I (5 inch weeds)								
Ignite 280 + Firstrate + AMS	22 fl oz/a + 0.3 oz wt/a + 8.5 lb/100 gal	--	98	92	91	84	86	43.3
Ignite 280 + Pursuit + AMS	22 fl oz/a + 4 fl oz/a + 8.5 lb/100 gal	--	98	93	90	87	94	39.2
Ignite 280 + Outlook + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	97	95	91	86	96	41.4
Ignite 280 + Flexstar + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	--	98	95	91	89	98	41.3
Ignite 280 + Prefix + AMS	22 fl oz/a + 2 pt/a + 8.5 lb/100 gal	--	98	95	92	87	93	43.1
Ignite 280 + Cobra + AMS	22 fl oz/a + 8 fl oz/a + 8.5 lb/100 gal	--	97	93	90	80	73	38.5
Ignite 280 + Harmony + AMS	22 fl oz/a + 0.125 oz wt/a + 8.5 lb/100 gal	--	97	91	83	73	76	38.2
POST I (5 in weeds)/ POST III (14 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	98	86	97	95	93	42.7
POST I (5 in weeds)/ POST IV (21 days after POST I)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	98	82	88	96	97	43.4
POST I (5 in weeds)/ POST V (Pre-Canopy)								
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	--	98	84	83	96	99	39.3
LSD (P=0.10)		6	5	3	3	4	4	5.2

Table 5. Percent crop injury from Ignite 280 herbicide systems in soybeans at Rochester, MN, in 2010.

Treatment	Rate	Injury					Yield
		6/10	6/15	6/23	6/29	7/12	
	(rate/A)	Injury (%)					(bu/A)
Untreated		0	0	0	0	0	8.5
PRE/POST II (5 inch weeds)							
Valor / Ignite 280 + AMS	2.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	28	21	0	39.1
Optill / Ignite 280 + AMS	2 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	33	16	0	40.6
Enlite / Ignite 280 + AMS	2.8 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	25	19	0	36.3
Sharpen / Ignite 280 + AMS	1.0 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	29	21	0	43.0
Fierce / Ignite 280 + AMS	3 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	28	16	0	35.0
PRE/POST III (5 inch weeds)							
Prefix / Ignite 280 + AMS	2 pt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	0	25	0	39.7
Gangster V + Gangster FR / Ignite 280 + AMS	2.5 oz wt/a + 0.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	0	25	0	40.8
Authority Assist / Ignite 280 + AMS	12 fl oz/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	0	25	0	39.1
Sonic / Ignite 280 + AMS	4.5 oz wt/a / 22 fl oz/a + 8.5 lb/100 gal	0	0	0	26	0	41.1
POST I (5 inch weeds)							
Ignite 280 + Firstrate + AMS	22 fl oz/a + 0.3 oz wt/a + 8.5 lb/100 gal	33	38	18	5	0	43.3
Ignite 280 + Pursuit + AMS	22 fl oz/a + 4 fl oz/a + 8.5 lb/100 gal	36	48	28	15	9	39.2
Ignite 280 + Outlook + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	39	38	26	15	0	41.4
Ignite 280 + Flexstar + AMS	22 fl oz/a + 16 fl oz/a + 8.5 lb/100 gal	53	54	40	23	9	41.3
Ignite 280 + Prefix + AMS	22 fl oz/a + 2 pt/a + 8.5 lb/100 gal	53	51	46	28	8	43.1
Ignite 280 + Cobra + AMS	22 fl oz/a + 8 fl oz/a + 8.5 lb/100 gal	64	65	53	33	10	38.5
Ignite 280 + Harmony + AMS	22 fl oz/a + 0.125 oz wt/a + 8.5 lb/100 gal	53	53	40	13	10	38.2
POST I (5 in weeds)/ POST III (14 days after POST I)							
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	33	30	15	23	0	42.7
POST I (5 in weeds)/ POST IV (21 dasy after POST I)							
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	33	30	15	21	0	43.4
POST I (5 in weeds)/ POST V (Pre-Canopy)							
Ignite 280 + AMS / Ignite 280 + AMS	22 fl oz/a + 8.5 lb/100 gal / 22 fl oz/a + 8.5 lb/100 gal	30	30	18	0	31	39.3
LSD (P=0.10)		4	5	5	4	1	5.2