

Performance of Integrity and Sharpen Herbicide Programs for Weed Control in Field Corn in SE Minnesota

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The objective of this trial was to evaluate the performance of Integrity and Sharpen herbicide programs for weed control in corn in Southeastern Minnesota. The research site was a Lawler loam series with a pH of 7.0 and soil test P and K levels of 73 ppm and 191 ppm, respectively. Spring fertilizer was broadcast ahead of planting on April 17, at a rate of 126-35-120-24 (N-P-K-S). This area was side dressed with an additional 30 lb/a of N on June 15. The field was spring disked and field cultivated once prior to planting. The corn hybrid, Pioneer 35F44, was planted on May 8, 2009, at a depth of 1.5 inches in 30 inch rows at 35,000 seeds per acre. A randomized complete block design was used with four replications. Pre-plant incorporated (PPI), 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 1, 9, 15, and 24, and July 20. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were machine harvested on November 13, 2009.

Date	5/8	5/11	6/5
Treatment	PPI	PRE	POST I
Temperature (F)			
Air	66	59	75
Soil	64	57	
Relative Humidity (%)	37	36	33
Wind (mph)	9	0	18
Soil Moisture	Inadequate	Adequate	Inadequate
Corn			
Stage			V4
Height (inch)			6.0
Giant Ragweed			
Weed density (ft ²)			8.5
Height (inch)			4.0
Common Lambsquarters			
Weed density (ft ²)			4.3
Height (inch)			2.3
Common Waterhemp			
Weed density (ft ²)			43
Height (inch)			1.8
Giant foxtail			
Weed density (ft ²)			5
Height (inch)			2.5
Rainfall after each application (inch)			
Week 1	0.61	0.61	1.97
Week 2	0	0.19	1.03
Week 3	1.95	1.76	0.17

Table 1. Performance of Integrity and Sharpen herbicide for giant ragweed control in field corn at Rochester, MN, in 2009.

Treatment	Rate	Giant Ragweed Control					Yield
		6/1	6/9	6/15	6/24	7/20	
	(rate/A)	(% Control)					(bu/A)
Untreated Check		0	0	0	0	0	7 c
PPI							
Integrity	20 fl oz/a	96	96	94	92	92	167 b
PRE							
Integrity	20 fl oz/a	85	91	88	87	85	169 b
Camix	2.0 qt/a	74	86	83	84	87	169 b
PRE / POST I							
Integrity / Roundup PowerMax + Status + NIS + AMS	13 fl oz/a / 22 fl oz/a + 2.5 oz wt/a + 0.25% v/v + 17 lb/100 gal	78	86	97	95	96	189 a
Sharpen + Harness / Roundup PowerMax + NIS + AMS	3 fl oz/a + 1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	84	90	97	97	96	176 ab
SureStart / Rounup PowerMax + NIS + AMS	1.75 pt/a / 22 fl oz/a + 0.35% v/v + 17 lb/100 gal	72	78	95	95	93	183 ab
Harness / Roundup PowerMax + NIS + AMS	1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	68	62	95	92	88	176 ab
	LSD (P=0.10)	4	5	2	3	3	19

Table 2. Performance of Integrity and Sharpen herbicide for common lambsquarters control in field corn at Rochester, MN, in 2009.

Treatment	Rate	Common Lambsquarters Control					Yield
		6/1	6/9	6/15	6/24	7/20	
	(rate/A)	(% Control)					(bu/A)
Untreated Check		0	0	0	0	0	7 c
PPI							
Integrity	20 fl oz/a	99	96	98	96	84	167 b
PRE							
Integrity	20 fl oz/a	98	96	98	94	89	169 b
Camix	2.0 qt/a	99	96	99	99	94	169 b
PRE / POST I							
Integrity / Roundup PowerMax + Status + NIS + AMS	13 fl oz/a / 22 fl oz/a + 2.5 oz wt/a + 0.25% v/v + 17 lb/100 gal	95	96	99	99	92	189 a
Sharpen + Harness / Roundup PowerMax + NIS + AMS	3 fl oz/a + 1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	95	97	99	99	92	176 ab
SureStart / Rounup PowerMax + NIS + AMS	1.75 pt/a / 22 fl oz/a + 0.35% v/v + 17 lb/100 gal	91	93	96	96	88	183 ab
Harness / Roundup PowerMax + NIS + AMS	1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	92	93	98	97	91	176 ab
	LSD (P=0.10)	4	3	2	5	4	19

Table 3. Performance of Integrity and Sharpen herbicide for common waterhemp control in field corn at Rochester, MN, in 2009.

Treatment	Rate (rate/A)	Common Waterhemp Control (% Control)					Yield (bu/A)
		6/1	6/9	6/15	6/24	7/20	
Untreated Check		0	0	0	0	0	7 c
PPI							
Integrity	20 fl oz/a	99	97	96	95	85	167 b
PRE							
Integrity	20 fl oz/a	95	92	93	95	88	169 b
Camix	2.0 qt/a	94	92	91	91	88	169 b
PRE / POST I							
Integrity / Roundup PowerMax + Status + NIS + AMS	13 fl oz/a / 22 fl oz/a + 2.5 oz wt/a + 0.25% v/v + 17 lb/100 gal	91	97	99	99	95	189 a
Sharpen + Harness / Roundup PowerMax + NIS + AMS	3 fl oz/a + 1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	96	98	99	99	95	176 ab
SureStart / Roundup PowerMax + NIS + AMS	1.75 pt/a / 22 fl oz/a + 0.35% v/v + 17 lb/100 gal	94	96	99	98	91	183 ab
Harness / Roundup PowerMax + NIS + AMS	1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	97	97	99	99	95	176 ab
	LSD (P=0.10)	4	4	4	5	6	19

Table 4. Performance of Integrity and Sharpen herbicide for giant foxtail control in field corn at Rochester, MN, in 2009.

Treatment	Rate (rate/A)	Giant Foxtail Control (% Control)					Yield (bu/A)
		6/1	6/9	6/15	6/24	7/20	
Untreated Check		0	0	0	0	0	7 c
PPI							
Integrity	20 fl oz/a	94	97	96	96	86	167 b
PRE							
Integrity	20 fl oz/a	87	92	96	93	83	169 b
Camix	2.0 qt/a	81	86	93	82	78	169 b
PRE / POST I							
Integrity / Roundup PowerMax + Status + NIS + AMS	13 fl oz/a / 22 fl oz/a + 2.5 oz wt/a + 0.25% v/v + 17 lb/100 gal	81	90	99	98	96	189 a
Sharpen + Harness / Roundup PowerMax + NIS + AMS	3 fl oz/a + 1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	84	92	99	99	96	176 ab
SureStart / Roundup PowerMax + NIS + AMS	1.75 pt/a / 22 fl oz/a + 0.35% v/v + 17 lb/100 gal	93	94	99	99	96	183 ab
Harness / Roundup PowerMax + NIS + AMS	1.25 pt/a / 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	96	98	99	99	97	176 ab
	LSD (P=0.10)	7	5	3	3	7	19