

2015 Evaluation of the Weed Spectrum and Duration of Control Achieved with Preemergence Applications of Acuron and Acuron Flexi in Field Corn at Rochester, MN.

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The objective of this trial was to evaluate the duration and spectrum of weed control achieved with preemergence applications of Acuron and Acuron Flexi compared to other standard preemergence programs in field corn in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.1, O.M. of 2.5%, and soil test P and K levels of 38 ppm and 203 ppm, respectively. Spring fertilizer was broadcast on April 13, 2015 ahead of planting at a rate of 120–23–90–24 (N-P-K-S). In the spring the field was disked and field cultivated once prior to planting. The previous crop was soybean. The corn hybrid, NK Brand NK45P-3011A, was planted on May 1, 2015 at a depth of 1.5 inches in 30 inch rows at a rate of 32,000 seeds per acre. A randomized complete block design was used with four replications. Preemergence (PRE) treatments were applied with a tractor-mounted sprayer delivering 15 gpa at 40 psi using TTI 11015 spray tips. Evaluations of the plot were taken on May 15, May 27, June 3, June 18, and August 12. The center two rows of each plot were machine harvested on October 30th, 2015. Application dates, environmental conditions, and weed stages can be found in Table 1. Performance ratings for giant ragweed, common lambsquarter, common waterhemp, and grass control can be found in Tables 2 through 5, respectively. No crop injury was observed.

SUMMARY

Acuron and Acuron Flexi performed very well in these trials. Over 90% control of giant ragweed, common lambsquarters, common waterhemp and grass was achieved through mid-August (last rating) with both herbicides. This is consistent with weed control evaluations of these herbicides in 2013 and 2014. University of Minnesota Extension Regional Office, Rochester.

Table 1. Application timing, plant stage, environmental conditions

Date	5/1	5/28
Treatment	PRE (A)	POST I (B)
Temperature (F)		
Air	61	71
Soil	54.5	63.1
Relative Humidity (%)	35	68
Wind (mph)	16	12
Soil Moisture	Normal	Wet
Corn		
Stage		V2
Height (inch)		5.0
Giant Ragweed		
Weed density (ft ²)		13
Height (inch)		2.9
Common Lambsquarter		
Weed density (ft ²)		20
Height (inch)		0.9
Common Waterhemp		
Weed density (ft ²)		22
Height (inch)		0.5
Grass		
Weed density (ft ²)		23
Height (inch)		0.5
Rainfall after each application (inch)		
Week 1	1.17	1.32
Week 2	0.83	1.41
Week 3	1.07	1.69

Table 2. Giant ragweed control with preemergence only herbicide applications in field corn in Rochester, MN, 2015

Pest Code Pest Name Rating Date				AMBTR					YIELD				
				Giant ragweed									
				May-15	May-27	June-3	June-18	Aug-12					
Trt	Treatment	Rate	Appl	Percent (%) control					Bu/A				
PRE 5/1/15													
1	UNTREATED CHECK			0	f	0	d	0	e	0	e		
2	SOA 15,27 ACURON FLEXI	2.25 qt/a	A	70	c	79	b	87	b	94	a	144 a	
3	SOA 5,15, 27 ACURON	3 qt/a	A	74	b	87	a	91	a	95	a	157 a	
4	SOA 2,4,15 SURESTART II	2 pt/a	A	76	b	68	c	74	d	64	d	32 d	
5	SOA 2,27 CORVUS	5.6 fl oz/a	A	63	d	77	b	83	c	85	b	138 a	
6	SOA 2,27 INSTIGATE	6 oz/a	A	24	e	70	c	75	d	75	c	65 c	
7	SOA 14,15 VERDICT	14 fl oz/a	A	90	a	91	a	82	c	75	c	39 cd	
POST 5/28/15													
8	SOA 9 GLYPHOSATE CHECK ROUNDUP POWERMAX	32 fl oz/a	B	0	f	0	d	89	ab	77	c	97 b	
LSD P=.10 for weed ratings, LSD P = .20 for yields				3.5		3.6		4.0		4.5		5.7	27

Means followed by same letter do not significantly differ.

Table 3. Common lambsquarters control with preemergence only herbicide applications in field corn in Rochester, MN, 2015

Pest Code Pest Name Rating Date				CHEAL				YIELD				
				Common lambsquarters								
				May-27	June-3	June-18	Aug-12					
Trt	Treatment	Rate	Appl	Percent (%) control				Bu/A				
PRE 5/1/15												
1	UNTREATED CHECK			0	b	0	c	0	d	0	d	0 e
2	SOA 15,27 ACURON FLEXI	2.25 qt/a	A	99	a	99	a	99	a	99	a	144 a
3	SOA 5,15, 27 ACURON	3 qt/a	A	99	a	99	a	99	a	99	a	157 a
4	SOA 2,4,15 SURESTART II	2 pt/a	A	99	a	99	a	99	a	99	a	32 d
5	SOA 2,27 CORVUS	5.6 fl oz/a	A	99	a	99	a	99	a	98	ab	138 a
6	SOA 2,27 INSTIGATE	6 oz/a	A	99	a	99	a	98	b	99	a	65 c
7	SOA 14,15 VERDICT	14 fl oz/a	A	99	a	99	a	99	ab	97	b	39 cd
POST 5/28/15												
8	SOA 9 GLYPHOSATE CHECK ROUNDUP POWERMAX	32 fl oz/a	B	0	b	91	b	80	c	78	c	97 b
LSD P=.10 for weed ratings, LSD P = .20 for yields						2.0		0.7		1.4		27

Means followed by same letter do not significantly differ.

Table 4. Common waterhemp control with preemergence only herbicide applications in field corn in Rochester, MN, 2015

Pest Code	Pest Name	Rating Date	AMATA							YIELD		
			Common waterhemp									
			May-27		June-3		Jun-18		Aug-12			
Trt	Treatment	Rate	Appl	Percent (%) control							Bu/A	
PRE 5/1/15												
1	UNTREATED CHECK			0	b	0	c	0	d	0	e	0 e
2	SOA 15,27 ACURON FLEXI	2.25 qt/a	A	99	a	99	a	99	a	97	a	144 a
3	SOA 5,15, 27 ACURON	3 qt/a	A	99	a	99	a	99	a	98	a	157 a
4	SOA 2,4,15 SURESTART II	2 pt/a	A	99	a	99	a	99	a	99	a	32 d
5	SOA 2,27 CORVUS	5.6 fl oz/a	A	99	a	99	a	79	b	77	c	138 a
6	SOA 2,27 INSTIGATE	6 oz/a	A	99	a	99	a	98	a	95	b	65 c
7	SOA 14,15 VERDICT	14 fl oz/a	A	99	a	99	a	99	a	98	a	39 cd
POST 5/28/15												
8	SOA 9 GLYPHOSATE CHECK ROUNDUP POWERMAX	32 fl oz/a	B	0	b	95	b	60	c	59	d	97 b
LSD P=.10 for weed ratings, LSD P = .20 for yields				.		0.2		1.6		1.7		27

Means followed by same letter do not significantly differ.

Table 5. Grass control with preemergence only herbicide applications in field corn in Rochester, MN, 2015

Pest Code	Pest Name	Rating Date	GRASS							YIELD		
			<i>Grangea sp.</i>									
			May-27		June-3		June-18		Aug-12			
Trt	Treatment	Rate	Appl	Percent (%) control							Bu/A	
PRE 5/1/15												
1	UNTREATED CHECK			0	b	0	c	0	d	0	d	0 e
2	SOA 15,27 ACURON FLEXI	2.25 qt/a	A	99	a	99	a	99	a	98	a	144 a
3	SOA 5,15, 27 ACURON	3 qt/a	A	99	a	99	a	99	a	99	a	157 a
4	SOA 2,4,15 SURESTART II	2 pt/a	A	99	a	99	a	99	a	98	a	32 d
5	SOA 2,27 CORVUS	5.6 fl oz/a	A	99	a	99	a	98	ab	96	ab	138 a
6	SOA 2,27 INSTIGATE	6 oz/a	A	99	a	99	a	97	b	95	b	65 c
7	SOA 14,15 VERDICT	14 fl oz/a	A	99	a	99	a	99	a	99	a	39 cd
POST 5/28/15												
8	SOA 9 GLYPHOSATE CHECK ROUNDUP POWERMAX	32 fl oz/a	B	0	b	98	b	91	c	89	c	97 b
LSD P=.10 for weed ratings, LSD P = .20 for yields				.		0.4		3.8		3.0		27

Means followed by same letter do not significantly differ.