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.

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 applicati	on (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,	
<mark>2015</mark>		

							AMBT	R					
						Gia	nt rag	wee	d				YIELD
			May-	15	May-	27	June	? -3	June) -18	Aug	-12	
	Rate	Appl			Pe	erce	nt (%)	con	trol				Bu/A
			0	f	0	d	0	е	0		0	е	0 e
			70	С	79	b	87	b	94	а	93	а	144 a
2.25	qt/a	Α											
	•		74	b	87	а	91	а	95	а	95	а	157 a
3	qt/a	Α											
	•		76	b	68	С	74	d	64	d	57	d	32 d
2	pt/a	Α											
	•		63	d	77	b	83	С	85	b	80	b	138 a
5.6	fl oz/a	Α											
			24	е	70	С	75	d	75	С	71	С	65 c
6	oz/a	Α											
			90	а	91	а	82	С	75	С	66	С	39 cd
14	fl oz/a	Α											
			0	f	0	d	89	ab	77	С	72	С	97 b
32	fl oz/a	В											
P = .20 fe	or yields	•	3.5		3.6	;	4.0)	4.	5	5.	7	27
	3 2 5.6 6 14 32	2.25 qt/a 3 qt/a 2 pt/a 5.6 fl oz/a 6 oz/a 14 fl oz/a	2.25 qt/a A 3 qt/a A 2 pt/a A 5.6 fl oz/a A 6 oz/a A 14 fl oz/a A 32 fl oz/a B	Rate Appl I 0 2.25 qt/a A 3 qt/a A 2 qt/a A 3 qt/a A 2 pt/a A 3 qt/a A 4 74 A 5 fl oz/a A 6 oz/a A 6 oz/a A 6 oz/a A 6 oz/a A 90 14 fl oz/a A 32 fl oz/a B	Image: Normal system Image: Normal system Image: Normal system Image: Normal system 2.25 qt/a A 70 c 3 qt/a A 74 b 3 qt/a A 76 b 2 pt/a A 63 d 5.6 fl oz/a A 24 e 6 oz/a A 90 a 14 fl oz/a A 0 fl 32 fl oz/a B	Rate Appl \rightarrow Image: Problem strain strai	Gia Rate Appl May-15 May-27 Rate Appl Perce 0 f 0 d 2.25 qt/a A 70 c 79 b 3 qt/a A 74 b 877 a 3 qt/a A 74 b 887 a 3 qt/a A 76 b 688 c 2 pt/a A - <	Giant Giant Giant Giant Tag Rate Appl Percent (%) Rate Appl O Percent (%) Q Q G Q	May-15 May-27 June-3 Rate Appl Percent (%) con 0 f 0 d 0 e 2.25 qt/a A 70 c 79 b 87 b 2.25 qt/a A 71 b 87 a 91 a 3 qt/a A 74 b 87 a 91 a 2.25 qt/a A 74 b 87 a 91 a 3 qt/a A 76 b 688 c 74 d 2 pt/a A 76 b 688 c 74 d 2 pt/a A 76 b 688 c 74 d 2 pt/a A 76 b 688 c 75 d 5.6 fl oz/a A 24 e 70 <	Gissister in the second state	Gisen interview inte		

Means followed by same letter do not significantly differ.

Table 3. Common lambsquarters control with preen	nergence only herbicide applications in field corr	<mark>n in</mark>
Rochester, MN, 2015		
Pest Code	CHEAL	

Pest Code							CHEA	۱L				
Pest Name				YIELD								
Rating Date				May-	27	Jur	1e-3	Ju	ne-18	Au	ig-12	
Trt Treatment		Rate	Appl		I	Percei	nt (%)	cont	rol			Bu/A
PRE 5/1/15												
1 UNTREATED CHECK				0	b	0	С	0	d	0	d	0 e
2 SOA 15,27				99	а	99	а	99	а	99	а	144 a
ACURON FLEXI	2.25	qt/a	Α									
3 SOA 5,15, 27				99	а	99	а	99	а	99	а	157 a
ACURON	3	qt/a	Α									
4 SOA 2,4,15		•		99	а	99	а	99	а	99	а	32 d
SURESTART II	2	pt/a	Α									
5 SOA 2,27				99	а	99	а	99	а	98	ab	138 a
CORVUS	5.6	fl oz/a	Α									
6 SOA 2,27				99	а	99	а	98	b	99	а	65 c
INSTIGATE	6	oz/a	Α									
7 SOA 14,15				99	а	99	а	99	ab	97	b	39 cd
VERDICT	14	fl oz/a	А									
POST 5/28/15												
8 SOA 9				0	b	91	b	80	С	78	С	97 b
GLYPHOSATE CHECK												
ROUNDUP POWERMAX	32	fl oz/a	В									
LSD P=.10 for weed ratings, LSD P =	= .20 fo					2	.0		0.7		1.4	27

Means followed by same letter do not significantly differ.

Table 4. Common waterhem	p control with preen	nerg	gence only herbicide applications in field corn in R	Rochester,	
<mark>MN, 2015</mark>					
Pest Code			ΑΜΑΤΑ		
Pest Name			Common waterhemp	YIELD	
Rating Date			May-27 June-3 Jun-18 Aug-12		
Trt Treatment	Rate A	lqc	Percent (%) control	Bu/A	

				in a	,						9	
Trt Treatment		Rate	Appl		Percent (%) control							Bu/A
PRE 5/1/15												
1 UNTREATED CHECK				0	b	0	С	0	d	0	e	0 e
2 SOA 15,27				99	а	99	а	99	а	97	а	144 a
ACURON FLEXI	2.25	qt/a	Α									
3 SOA 5,15, 27				99	а	99	а	99	а	98	а	157 a
ACURON	3	qt/a	Α									
4 SOA 2,4,15				99	а	99	а	99	а	99	а	32 d
SURESTART II	2	pt/a	Α									
5 SOA 2,27		•		99	а	99	а	79	b	77	С	138 a
CORVUS	5.6	fl oz/a	Α									
6 SOA 2,27				99	а	99	а	98	а	95	b	65 c
INSTIGATE	6	oz/a	Α									
7 SOA 14,15				99	а	99	а	99	а	98	а	39 cd
VERDICT	14	fl oz/a	Α									
POST 5/28/15												
8 SOA 9				0	b	95	b	60	С	59	d	97 b
GLYPHOSATE CHECK												
ROUNDUP POWERMAX	32	fl oz/a	В									
LSD P=.10 for weed ratings, LSD P =	.20 for				-		0.2		1.6		1.7	27

Means followed by same letter do not significantly differ.

Pest	Code							GRAS	SS				
Pest	Name						Gr	ange	a sp.				YIELD
Rati	ng Date				May-	27	Jun	e-3	Jun	e-18	Aug	j-12	Oct-30
Trt	Treatment		Rate	Appl			Perce	nt (%)) cont	rol			Bu/A
PRE	5/1/15												
1	UNTREATED CHECK				0	b	0	С	0	d	0	d	0 e
2	SOA 15,27				99	а	99	а	99	а	98	а	144 a
	ACURON FLEXI	2.25	qt/a	Α									
3	SOA 5,15, 27				99	а	99	а	99	а	99	а	157 a
	ACURON	3	qt/a	Α									
4	SOA 2,4,15				99	а	99	а	99	а	98	а	32 d
	SURESTART II	2	pt/a	Α									
5	SOA 2,27				99	а	99	а	98	ab	96	ab	138 a
	CORVUS	5.6	fl oz/a	Α									
6	SOA 2,27				99	а	99	а	97	b	95	b	65 c
	INSTIGATE	6	oz/a	Α									
7	SOA 14,15				99	а	99	а	99	а	99	а	39 cd
	VERDICT	14	fl oz/a	Α									
POS	ST 5/28/15												
8	SOA 9				0	b	98	b	91	С	89	С	97 b
	GLYPHOSATE CHECK												
	ROUNDUP POWERMAX	32	fl oz/a	В									
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.