

2016 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 6.4, O.M. of 2.4%, and soil test P and K levels of 35 ppm and 165 ppm, respectively. Fertilizer was applied in the fall on November 5, 2015, at a rate of 0-46-180-0 lbs/A. In the spring, fertilizer was broadcast on April 16, 2016 ahead of planting at a rate of 115-0-0-24 (N-P-K-S) lbs/A. Additional nitrogen was applied on May (25 lbs/A) and on June (36 lbs/A). In the spring the field was disked and field cultivated once prior to planting. The previous crop was soybean. The corn hybrid, DEKALB DKC49-72RIB, was planted on April 25, 2016 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 T-JET TTI 110015 spray tips. Evaluations of the plot were taken on May 19, 24, 31, June 6, 13, and September 13. The center two rows of each plot were machine harvested on October 19, 2016. Application dates, environmental conditions, and weed stages are in Table 1. Performance ratings for giant ragweed, common lambsquarter, common waterhemp, and grass control can be found in Tables 2 through 5, respectively. Crop injury was not 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-September (last rating) with both herbicides. This is consistent with weed control evaluations of these herbicides in 2013, 2014 and 2015. University of Minnesota Extension Regional Office, Rochester.

Table 1. Application timing, plant stage, environmental conditions

Date	4/26
Treatment	PRE (A)
Temperature (F)	
Air	48.0
Soil	58.1
Relative Humidity (%)	82
Wind (mph)	East@16
Soil Moisture	Normal
Giant Ragweed	
Weed density (ft ²)	14.0
Common Lambsquarter	
Weed density (ft ²)	11.5
Common Waterhemp	
Weed density (ft ²)	28.5
Grass	
Weed density (ft ²)	13.0
Rainfall after each application (inch)	
Week 1	0.77
Week 2	0.87
Week 3	0.58

Table 2. Giant ragweed control with preemergence herbicides in field corn in Rochester, MN, 2016.

Pest Code				AMBTR						YIELD
Pest Name				Giant ragweed						
Rating Date				May-19	May-24	May-31	Jun-6	Jun-13	Sep-13	@15%
Trt	Treatment	Rate	Appl	(% Control)						(Bu/A)
1	UNTREATED CHECK			0 g	0 f	0 d	0 e	0	0 d	2 d
PRE 4/26/16										
2	SOA 15, 27 ACURON FLEXI	2.25 qt/a	A	85 de	93 bc	95 a	95 a	94 a	95 a	178 a
3	SOA 5,15, 27 ACURON	2.5 qt/a	A	92 bc	95 ab	96 a	97 a	96 a	97 a	178 a
4	SOA 4, 15, 27 RESICORE	2.5 qt/a	A	96 ab	97 a	96 a	96 a	95 a	94 a	167 ab
5	SOA 2, 27 CORVUS	5.6 fl oz/a	A	81 ef	90 cd	95 a	91 b	89 b	87 b	121 abc
6	SOA 2, 4, 15 SURESTART II	2.5 pt/a	A	89 cd	89 d	90 b	82 cd	78 cd	75 c	79 c
7	SOA 2, 27 INSTIGATE	5.25 oz wt/a	A	77 f	83 e	83 c	79 d	75 d	77 c	88 c
8	SOA 14, 15 VERDICT	14 fl oz/a	A	97 a	93 bcd	90 b	84 c	81 c	81 bc	111 bc
LSD P=.10				5	3	3	4	5	7	58.2

Table 3. Common lambsquarters control with preemergence herbicide in field corn in Rochester, MN, 2016.

Pest Code				CHEAL						YIELD
Pest Name				Common lambsquarters						
Rating Date				May 19	May 24	May 31	June 6	June 13	Sep-13	@15%
Trt	Treatment	Rate	Appl	(% Control)						(Bu/A)
1	UNTREATED CHECK			0 b	0 c	0 b	0 c	0 c	0 c	2 d
PRE 4/26/16										
2	SOA 15,27 ACURON FLEXI	2.25 qt/a	A	99 a	99 a	99 a	99 a	99 a	99 a	178 a
3	SOA 5,15, 27 ACURON	2.5 qt/a	A	99 a	99 a	99 a	99 a	99 a	99 a	178 a
4	SOA 4,15,27 REICORE	2.5 qt/a	A	99 a	99 a	99 a	99 a	99 a	99 a	167 ab
5	SOA 2,27 CORVUS	5.6 fl oz/a	A	99 a	99 a	99 a	99 a	99 a	99 a	121 abc
6	SOA 2, 4,15 SURESTART II	2.5 pt/a	A	99 a	99 a	99 a	99 b	98 ab	98 ab	79 c
7	SOA 2,27 INSTIGATE	5.25 oz wt/a	A	99 a	99 a	99 a	99 a	99 a	99 a	88 c
8	SOA 14,15 VERDICT	14 fl oz/a	A	99 a	99 b	99 a	99 a	97 b	97 b	111 bc
LSD P=.10 for weed ratings					0.3		0.3	1	1	58.2

Table 4. Common waterhemp control with preemergence herbicides in field corn in Rochester, MN, 2016.

Pest Code Pest Name Rating Date				AMATA						YIELD @15%	
				Common waterhemp							
Trt Treatment Rate Appl				May 24	May 31	June 6	June 13	Sep-13	BU/A		
				(% Control)							
1	UNTREATED CHECK			0 b	0 c	0 b	0 b	0 c	2 d		
PRE 4/26/16											
2	SOA 15,27 ACURON FLEXI 2.25 qt/a		A	99 a	99 a	99 a	99 a	99 a	178 a		
3	SOA 5,15, 27 ACURON 2.5 qt/a		A	99 a	99 a	99 a	99 a	99 a	178 a		
4	SOA 4,15,27 REICORE 2.5 qt/a		A	99 a	99 a	99 a	99 a	98 ab	167 ab		
5	SOA 2,27 CORVUS 5.6 fl oz/a		A	99 a	99 a	99 a	99 a	97b b	121 abc		
6	SOA 2, 4,15 SURESTART II 2.5 pt/a		A	99 a	99 a	99 a	99 a	99 a	79 c		
7	SOA 2,27 INSTIGATE 5.25 oz wt/a		A	99 a	99 a	99 a	98 a	99 ab	88 c		
8	SOA 14,15 VERDICT 14 fl oz/a		A	99 a	99 b	99 a	98 a	98 ab	111 bc		
LSD P=.10 for weed ratings				0.3		1.0		1.7		58.2	

Table 5. Grass control with preemergence herbicides in field corn in Rochester, MN, 2016.

Pest Code Rating Date				GRASS						YIELD @15%	
				May 19	May 24	May 31	June 6	June 13	Sept 13		
Trt Treatment Rate Appl				(% Control)						BU/A	
1	UNTREATED CHECK			0 b	0 b	0 b	0 c	0 c	0 c	2 d	
PRE 4/26/16											
2	SOA 15,27 ACURON FLEXI 2.25 qt/a		A	99 a	99 a	99 a	99 a	99 a	99 a	178 a	
3	SOA 5,15, 27 ACURON 2.5 qt/a		A	99 a	99 a	99 a	99 a	99 a	99 a	178 a	
4	SOA 4,15,27 REICORE 2.5 qt/a		A	99 a	99 a	99 a	99 a	99 a	97 ab	167 ab	
5	SOA 2,27 CORVUS 5.6 fl oz/a		A	99 a	99 a	99 a	99 a	99 a	98 a	121 abc	
6	SOA 2, 4,15 SURESTART II 2.5 pt/a		A	99 a	99 a	99 a	99 a	99 a	99 a	79 c	
7	SOA 2,27 INSTIGATE 5.25 oz wt/a		A	99 a	99 a	99 a	98 b	93 b	95 b	88 c	
8	SOA 14,15 VERDICT 14 fl oz/a		A	99 a	99 a	99 a	99 a	99 a	99 a	111 bc	
LSD P=.10 for weed ratings						1		3		58.2	