

Evaluation of DiFlexx and Laudis Flexx Herbicide Formulations for Weed Control and Crop Response in Field Corn at Rochester, Minnesota in 2015

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The objective of this trial was to evaluate DiFlexx and Laudis Flexx Herbicide Formulations for weed control and crop response in field corn in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.1, O.M. 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 45P-3011A, was planted 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) and postemergence (POST) treatments were applied with a tractor-mounted sprayer delivering 15 gpa at 40 psi using TTI 110015 spray tips. Evaluations of the plots were taken May 15, May 27, June 3, June 18, and August 12. The center two rows of each plot were machine harvested on October 30, 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 significant crop response was observed (data not shown). (University of Minnesota Extension Regional Office, Rochester.)

Table 1. Application timing, plant stage, environmental conditions

Date	5/1	5/28	6/8
Treatment	PRE (A)	POST I (B)	POST II (C)
Temperature (F)			
Air	62	74	77
Soil	54.5	63.9	78.1
Relative Humidity (%)	35	61	51
Wind (mph)	16	12	15
Soil Moisture	Normal	Wet	Normal
Corn			
Stage		V2	V5
Height (inch)	0.0	5	10
Giant Ragweed			
Weed Density (ft ²)		19	25
Height (inch)	0.0	4.9	2
Common Waterhemp			
Weed Density (ft ²)		40	50
Height (inch)	0.0	0.7	0.7
Common Lambsquarter			
Weed Density (ft ²)		9	37
Height (inch)	0.0	1.3	1.0
Grass			
Weed Density (ft ²)		4	28
Height (inch)	0.0	0.7	0.7
Rainfall after each application (inch)			
Week 1	1.17	1.32	1.64
Week 2	0.83	1.41	0.05
Week 3	1.07	1.46	1.95

Table 2. Evaluation of DiFlexx and LaudisFlexx Herbicide Formulations for giant ragweed control in Field Corn in Rochester, MN, 2015.

Pest Name				AMBTR						YIELD					
				Giant ragweed											
Rating Date				May-15	May-27	June-3	June-18	Aug-12	Oct-30						
Trt	Treatment	Rate	Appl	Percent control (%)						Bu/A					
3	UNTREATED CHECK			0	c	0	b	0	e	0	c	0	d	0	c
PRE / POST II 5/1/15 / 6/8/15															
1	SOA 2,5,9,27			59	b	77	a	81	d	95	a	93	ab	171	a
	CORVUS	3.5 fl oz/a	A												
	Atrazine	0.75 qt/a	A												
	ROUNDUP POWERMAX	32 fl oz/a	C												
	AMS	17 lb/100 gal	C												
2	SOA 2,4,5,9,27			63	a	78	a	83	d	97	a	96	a	172	a
	CORVUS	3.5 fl oz/a	A												
	Atrazine	0.75 qt/a	A												
	DIFLEXX	6 fl oz/a	C												
	ROUNDUP POWERMAX	32 fl oz/a	C												
	COC	1 % v/v	C												
	AMS	17 lb/100 gal	C												
POST I 5/28/15															
4	SOA 9,15,27			0	c	0	b	92	c	95	a	93	ab	170	a
	LAUDIS	3 fl oz/a	B												
	OUTLOOK	12 fl oz/a	B												
	ROUNDUP POWERMAX	32 fl oz/a	B												
	COC	1 % v/v	B												
	AMS	17 lb/100 gal	B												
5	SOA 4,9,15,27			0	c	0	b	97	ab	94	a	93	ab	165	a
	LAUDIS	3 fl oz/a	B												
	DIFLEXX	6 fl oz/a	B												
	OUTLOOK	12 fl oz/a	B												
	ROUNDUP POWERMAX	32 fl oz/a	B												
	COC	1 % v/v	B												
	AMS	17 lb/100 gal	B												
6	SOA 4,9,15,27			0	c	0	b	94	bc	95	a	92	b	162	a
	LAUDIS FLEXX	24 fl oz/a	B												
	OUTLOOK	12 fl oz/a	B												
	ROUNDUP POWERMAX	32 fl oz/a	B												
	MSO	1 % v/v	B												
	AMS	17 lb/100 gal	B												
7	SOA 4,9,15,27			0	c	0	b	99	a	96	a	94	ab	163	a
	LAUDIS FLEXX	32 fl oz/a	B												
	OUTLOOK	12 fl oz/a	B												
	ROUNDUP POWERMAX	32 fl oz/a	B												
	MSO	1 % v/v	B												
	AMS	17 lb/100 gal	B												
8	SOA 9,15			0	c	0	b	94	bc	75	b	68	c	127	b
	TREATED CHECK														
	OUTLOOK	12 fl oz/a	B												
	ROUNDUP POWERMAX	32 fl oz/a	B												
	COC	1 % v/v	B												
	AMS	17 lb/100 gal	B												
LSD P=.10 for weed ratings, LSD P = .20 for yields				1.7		1.4		3.8		2.8		4.3		12	

Means followed by same letter do not significantly differ.

Table 3. Evaluation of DiFlexx and LaudisFlexx Herbicide Formulations for common lambsquarters control in Field Corn in Rochester, MN, 2015.

Pest Name				CHEAL				YIELD Oct-30 Bu/A					
				Common lambsquarters									
Rating Date				May-27	June-3	June-18	Aug-12						
Trt	Treatment	Rate	Appl	Percent control (%)									
3	UNTREATED CHECK			0	b	0	c	0	d	0	c		
PRE / POST II 5/1/15 / 6/8/15													
1	SOA 2,5,9,27			99	a	99	a	98	a	98	a	171	a
	CORVUS	3.5 fl oz/a	A										
	Atrazine	0.75 qt/a	A										
	ROUNDUP POWERMAX	32 fl oz/a	C										
	AMS	17 lb/100 gal	C										
2	SOA 2,4,5,9,27			99	a	98	b	99	a	98	a	172	a
	CORVUS	3.5 fl oz/a	A										
	Atrazine	0.75 qt/a	A										
	DIFLEXX	6 fl oz/a	C										
	ROUNDUP POWERMAX	32 fl oz/a	C										
	COC	1 % v/v	C										
	AMS	17 lb/100 gal	C										
POST I 5/28/15													
4	SOA 9,15,27			0	b	99	a	93	b	93	b	170	a
	LAUDIS	3 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX	32 fl oz/a	B										
	COC	1 % v/v	B										
	AMS	17 lb/100 gal	B										
5	SOA 4,9,15,27			0	b	99	a	97	a	97	a	165	a
	LAUDIS	3 fl oz/a	B										
	DIFLEXX	6 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX	32 fl oz/a	B										
	COC	1 % v/v	B										
	AMS	17 lb/100 gal	B										
6	SOA 4,9,15,27			0	b	99	a	98	a	97	a	162	a
	LAUDIS FLEXX	24 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX	32 fl oz/a	B										
	MSO	1 % v/v	B										
	AMS	17 lb/100 gal	B										
7	SOA 4,9,15,27			0	b	99	a	99	a	98	a	163	a
	LAUDIS FLEXX	32 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX	32 fl oz/a	B										
	MSO	1 % v/v	B										
	AMS	17 lb/100 gal	B										
8	SOA 9,15			0	b	99	a	89	c	88	c	127	b
	TREATED CHECK												
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX	32 fl oz/a	B										
	COC	1 % v/v	B										
	AMS	17 lb/100 gal	B										
LSD P=.10 for weed ratings, LSD P = .20 for yields				.		1		3		3		12	

Means followed by same letter do not significantly differ.

Table 4. Evaluation of DiFlexx and LaudisFlexx Herbicide Formulations for common waterhemp control in Field Corn in Rochester, Minnesota, 2015.

Pest Name				AMATA				YIELD Oct 30					
				Common waterhemp									
Rating Date				May 27	June 3	June 18	Aug 12	Bu/A					
Trt	Treatment	Rate	Appl	Percent control (%)									
3	UNTREATED CHECK			0	b	0	c	0	c				
PRE / POST II 5/1/15 / 6/8/15													
1	SOA 2,5,9,27			99	a	99	a	98	ab	90	a	171	a
	CORVUS	3.5 fl oz/a	A										
	Atrazine	0.75 qt/a	A										
	ROUNDUP POWERMAX 32	fl oz/a	C										
	AMS	17 lb/100 gal	C										
2	SOA 2,4,5,9,27			99	a	98	b	98	a	91	a	172	a
	CORVUS	3.5 fl oz/a	A										
	Atrazine	0.75 qt/a	A										
	DIFLEXX	6 fl oz/a	C										
	ROUNDUP POWERMAX 32	fl oz/a	C										
	COC	1 % v/v	C										
	AMS	17 lb/100 gal	C										
POST I 5/28/15													
4	SOA 9,15,27			0	b	99	a	90	d	91	a	170	a
	LAUDIS	3 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX 32	fl oz/a	B										
	COC	1 % v/v	B										
	AMS	17 lb/100 gal	B										
5	SOA 4,9,15,27			0	b	99	a	93	bcd	91	a	165	a
	LAUDIS	3 fl oz/a	B										
	DIFLEXX	6 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX 32	fl oz/a	B										
	COC	1 % v/v	B										
	AMS	17 lb/100 gal	B										
6	SOA 4,9,15,27			0	b	99	a	92	cd	90	a	162	a
	LAUDIS FLEXX	24 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX 32	fl oz/a	B										
	MSO	1 % v/v	B										
	AMS	17 lb/100 gal	B										
7	SOA 4,9,15,27			0	b	99	a	96	abc	95	a	163	a
	LAUDIS FLEXX	32 fl oz/a	B										
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX 32	fl oz/a	B										
	MSO	1 % v/v	B										
	AMS	17 lb/100 gal	B										
8	SOA 9,15			0	b	99	a	77	e	76	b	127	b
	TREATED CHECK												
	OUTLOOK	12 fl oz/a	B										
	ROUNDUP POWERMAX 32	fl oz/a	B										
	COC	1 % v/v	B										
	AMS	17 lb/100 gal	B										
LSD P=.10 for weed ratings, LSD P = .20 for yields				.		0.9		4.9		5.3		12	

Means followed by same letter do not significantly differ.

Table 5. Evaluation of DiFlexx and LaudisFlexx Herbicide Formulations for grass control in Field Corn in Rochester, Minnesota, 2015.

Pest Name				GRASS (<i>Grangea sp.</i>)				YIELD Oct-30
Rating Date				May-27	Jun-3	Jun-18	Aug-12	
Trt	Treatment	Rate	App I					
3	UNTREATED CHECK			0 b	0 c	0 b	0 c	0 c
PRE / POST II 5/1/15 / 6/8/15								
1	SOA 2,5,9,27			99 a	99 a	98 a	92 ab	171 a
	CORVUS	3.5 fl oz/a	A					
	Atrazine	0.75 qt/a	A					
	ROUNDUP POWERMAX	32 fl oz/a	C					
	AMS	17 lb/100 gal	C					
2	SOA 2,4,5,9,27			99 a	98 b	98 a	95 ab	172 a
	CORVUS	3.5 fl oz/a	A					
	Atrazine	0.75 qt/a	A					
	DIFLEXX	6 fl oz/a	C					
	ROUNDUP POWERMAX	32 fl oz/a	C					
	COC	1 % v/v	C					
	AMS	17 lb/100 gal	C					
POST I 5/28/15								
4	SOA 9,15,27			0 b	99 a	96 a	93 ab	170 a
	LAUDIS	3 fl oz/a	B					
	OUTLOOK	12 fl oz/a	B					
	ROUNDUP POWERMAX	32 fl oz/a	B					
	COC	1 % v/v	B					
	AMS	17 lb/100 gal	B					
5	SOA 4,9,15,27			0 b	99 a	97 a	92 ab	165 a
	LAUDIS	3 fl oz/a	B					
	DIFLEXX	6 fl oz/a	B					
	OUTLOOK	12 fl oz/a	B					
	ROUNDUP POWERMAX	32 fl oz/a	B					
	COC	1 % v/v	B					
	AMS	17 lb/100 gal	B					
6	SOA 4,9,15,27			0 b	99 a	97 a	91 b	162 a
	LAUDIS FLEXX	24 fl oz/a	B					
	OUTLOOK	12 fl oz/a	B					
	ROUNDUP POWERMAX	32 fl oz/a	B					
	MSO	1 % v/v	B					
	AMS	17 lb/100 gal	B					
7	SOA 4,9,15,27			0 b	99 a	96 a	94 ab	163 a
	LAUDIS FLEXX	32 fl oz/a	B					
	OUTLOOK	12 fl oz/a	B					
	ROUNDUP POWERMAX	32 fl oz/a	B					
	MSO	1 % v/v	B					
	AMS	17 lb/100 gal	B					
8	SOA 9,15			0 b	99 ab	98 a	97 a	127 b
	TREATED CHECK							
	OUTLOOK	12 fl oz/a	B					
	ROUNDUP POWERMAX	32 fl oz/a	B					
	COC	1 % v/v	B					
	AMS	17 lb/100 gal	B					
LSD P=.10 for weed ratings, LSD P = .20 for yields					0.9	2.9	5.1	12

Means followed by same letter do not significantly differ.