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	f									
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 appl	ication (inc	h)								
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	cand L	.audisFlexx	Herbic	cide Formulations for giant ragweed control in Field Corn in Rochester, M.											
Pest Name				AMBTR Giant ragweed											
Rating Date	Max	<u>-15</u>	May			agweed 1e-3		ne-18	Δ.	ıg-12	Oct-30				
Trt Treatment		Rate	Appl	ivia	May-15 May-27 June-3 June-18 Percent control (%)								ig-12	Bu/A	
3 UNTREATED CHECK		110110	- 4-1	0	С	0	b	0	е	0	С	0	d	0 с	
PRE / POST II 5/1/15 / 6/8/	/15														
1 SOA 2,5,9,27				59	b	77	а	81	d	95	а	93	ab	171 a	
CORVUS	3.5	fl oz/a	Α												
Atrazine	0.75	qt/a	Α												
ROUNDUP POWERMAX	32	fl oz/a	С												
AMS	17	lb/100 gal	С												
2 SOA 2,4,5,9,27				63	а	78	а	83	d	97	а	96	а	172 a	
CORVUS	3.5	fl oz/a	Α												
Atrazine	0.75	qt/a	Α												
DIFLEXX		fl oz/a	С												
ROUNDUP POWERMAX	32	fl oz/a	С												
COC	1	% v/v	С												
AMS	17	lb/100 gal	С												
POST I 5/28/15		<u> </u>													
4 SOA 9,15,27				0	С	0	b	92	С	95	а	93	ab	170 a	
LAUDIS	3	fl oz/a	В												
OUTLOOK	12	fl oz/a	В												
ROUNDUP POWERMAX	32	fl oz/a	В												
COC	1		В												
AMS	17	lb/100 gal	В												
5 SOA 4,9,15,27				0	С	0	b	97	ab	94	а	93	ab	165 a	
LAUDIS	3	fl oz/a	В												
DIFLEXX	6	fl oz/a	В												
OUTLOOK	12	fl oz/a	В												
ROUNDUP POWERMAX	32	fl oz/a	В												
COC	1	% v/v	В												
AMS	17	lb/100 gal	В												
6 SOA 4,9,15,27				0	С	0	b	94	bc	95	а	92	b	162 a	
LAUDIS FLEXX	24	fl oz/a	В												
OUTLOOK		fl oz/a	В												
ROUNDUP POWERMAX	32	fl oz/a	В												
MSO	1	% v/v	В												
AMS	17	lb/100 gal	В												
7 SOA 4,9,15,27		3-11		0	С	0	b	99	а	96	а	94	ab	163 a	
LAUDIS FLEXX	32	fl oz/a	В		-			-	-		~				
OUTLOOK		fl oz/a	В												
ROUNDUP POWERMAX		fl oz/a	В												
MSO		% v/v	В												
AMS		lb/100 gal	В												
8 SOA 9,15		3-11	<u> </u>	0	С	0	b	94	bc	75	b	68	С	127 b	
TREATED CHECK					-			-					-	~	
OUTLOOK	12	fl oz/a	В												
ROUNDUP POWERMAX		fl oz/a	В												
COC	1	% v/v	В												
AMS		lb/100 gal	В												
LSD P=.10 for weed ratings, L				1	.7	1	.4	3	.8	2	.8	4	.3	12	

Means followed by same letter do not significantly differ.

Rochester, MN, 2015.							CHE	AL				\/:=: -	
Pest Name						Commo		bsquarte	ers			YIELD	
Rating Date				May	-27	June		June		Aug-1	2	Oct-30	
Trt Treatment		Rate	Appl		_		ent co	ntrol (%)				Bu/A	
3 UNTREATED CHECK				0	b	0	С	0	d	0	d	0 c	
PRE / POST II 5/1/15 / 6/8/15													
1 SOA 2,5,9,27				99	а	99	а	98	а	98	а	171 a	
CORVUS	3.5	fl oz/a	A										
Atrazine		qt/a	A										
ROUNDUP POWERMAX	32	fl oz/a	С										
AMS	17	lb/100 gal	С									470	
2 SOA 2,4,5,9,27	0.5	(I /-		99	а	98	b	99	а	98	а	172 a	
CORVUS	3.5	fl oz/a	A										
Atrazine	0.75		A										
DIFLEXX	6	fl oz/a	С										
ROUNDUP POWERMAX	32	fl oz/a	С										
COC	1	% v/v	С										
AMS	17	lb/100 gal	С										
POST I 5/28/15				_	l-	00	_	00	l-	00	1-	470 -	
4 SOA 9,15,27	•	(I /-	_	0	b	99	а	93	b	93	b	170 a	
LAUDIS	3	fl oz/a	В										
OUTLOOK	12	fl oz/a	В										
ROUNDUP POWERMAX	32	fl oz/a	В										
COC	1	% v/v	В										
AMS	17	lb/100 gal	В	_								405	
5 SOA 4,9,15,27			_	0	b	99	а	97	а	97	а	165 a	
LAUDIS	3	fl oz/a	В										
DIFLEXX	6	fl oz/a	В										
OUTLOOK	12	fl oz/a	В										
ROUNDUP POWERMAX	32	fl oz/a	В										
COC	1	% v/v	В										
AMS	17	lb/100 gal	В	_								400	
6 SOA 4,9,15,27			_	0	b	99	а	98	а	97	а	162 a	
LAUDIS FLEXX	24	fl oz/a	В										
OUTLOOK	12	fl oz/a	В										
ROUNDUP POWERMAX	32	fl oz/a	В										
MSO	1	% v/v	В										
AMS	17	lb/100 gal	В									465	
7 SOA 4,9,15,27			_	0	b	99	а	99	а	98	а	163 a	
LAUDIS FLEXX	32	fl oz/a	В										
OUTLOOK	12	fl oz/a	В										
ROUNDUP POWERMAX		fl oz/a	В										
MSO	1	% v/v	В										
AMS	17	lb/100 gal	В										
8 SOA 9,15				0	b	99	а	89	С	88	С	127 b	
TREATED CHECK													
OUTLOOK	12	fl oz/a	В										
ROUNDUP POWERMAX	32	fl oz/a	В										
COC	1	% v/v	В										
AMS	17	lb/100 gal	В										
SD P=.10 for weed ratings, I	SD P	- 20 for vio	Ide			1		3		3		12	

	le 4. Evaluation of DiFlex		l LaudisFlex	(Herbic	ide For	mulati	ons for	commo	n water	hemp co	ontrol ii	n Fiel	d Corn in
	t Name						YIELD						
									vaterhe				Oct 30
	ng Date			Appl	May	y 27		ne 3	Jur	Aug	12		
	Trt Treatment Rate					L .			ontrol (_		Bu/A
_	3 UNTREATED CHECK				0	b	0	С	0	е	0	С	0 c
	E/POST II 5/1/15 / 6/8/15)			99		00		98		90		171 a
1	SOA 2,5,9,27 CORVUS	3.5	fl oz/a	Α	99	а	99	а	90	ab	90	а	171 a
	Atrazine	0.75		A									
	ROUNDUP POWERMAX		qua fl oz/a	C									
	AMS	. 32 17	lb/100 gal	C									
2	SOA 2,4,5,9,27	17	ib/ 100 gai		99	а	98	b	98	а	91	а	172 a
	CORVUS	3.5	fl oz/a	Α	33	а	90	D	90	а	91	а	172 a
	Atrazine												
	DIFLEXX	0.75	qva fl oz/a	A C									
		6	fl oz/a	C									
	ROUNDUP POWERMAX												
	COC	1	% v/v	C									
00	AMS	17	lb/100 gal	C									
	ST I 5/28/15				•		00		00	_	04		470 -
4	SOA 9,15,27	•	0/-		0	b	99	а	90	d	91	а	170 a
	LAUDIS	3	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	COC	1	% v/v	В									
_	AMS	17	lb/100 gal	В	•	-	00		00	LI	04		105
5	SOA 4,9,15,27	•	0/-		0	b	99	а	93	bcd	91	а	165 a
	LAUDIS	3	fl oz/a	В									
	DIFLEXX	6	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	COC	1	% v/v	B B									
_	AMS	17	lb/100 gal	В	•		00		00		00		100
6	SOA 4,9,15,27	0.4	0/-		0	b	99	а	92	cd	90	а	162 a
	LAUDIS FLEXX	24	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	MSO	1	% v/v	В									
_	AMS	17	lb/100 gal	В							0.5		100
7	SOA 4,9,15,27	00	6 1 1		0	b	99	а	96	abc	95	а	163 a
	LAUDIS FLEXX	32	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	MSO	1	% v/v	В									
_	AMS	17	lb/100 gal	В			00				70		407 !
8	SOA 9,15				0	b	99	а	77	е	76	b	127 b
	TREATED CHECK	4.0	6 1 1										
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	COC	1	% v/v	В									
	AMS	17 LCD I	lb/100 gal	В			+ .		 		-	<u> </u>	40
LSE	P=.10 for weed ratings,	LSD I	$rac{1}{2} = .20$ for yie	eids			().9	4	l.9	5.3	3	12

Means followed by same letter do not significantly differ.

	le 5. Evaluation of DiFlex nesota, 2015.	x and	LaudisFlex	(Her	bicide Fo	ormulati	ons for	grass (control	in Field	Corn i	n Roch	ester,
Pest	Name						GRA	SS (Gra	angea s	YIELD			
Ratii	ng Date					y-27	Jı	un-3	Ju	ın-18	Au	g-12	Oct-30
Trt	Treatment		Rate	App I									
3	UNTREATED CHECK				0	b	0	С	0	b	0	С	0 с
PRE	/ POST II 5/1/15 / 6/8/15												
1	SOA 2,5,9,27				99	а	99	а	98	а	92	ab	171 a
	CORVUS	3.5	fl oz/a	Α									
	Atrazine	0.75	qt/a	Α									
	ROUNDUP POWERMAX	32	fl oz/a	С									
	AMS	17	lb/100 gal	С									
2	SOA 2,4,5,9,27				99	а	98	b	98	а	95	ab	172 a
	CORVUS	3.5	fl oz/a	Α									
	Atrazine	0.75	qt/a	Α									
	DIFLEXX	6	fl oz/a	С									
	ROUNDUP POWERMAX	32	fl oz/a	С									
	COC	1	% v/v	С									
	AMS	17	lb/100 gal	С									
POS	ST I 5/28/15			1 -									
	SOA 9,15,27				0	b	99	а	96	а	93	ab	170 a
	LAUDIS	3	fl oz/a	В		-		-		-			
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	COC	1	% v/v	В									
	AMS	17	lb/100 gal	В									
5	SOA 4,9,15,27	17	ib/ 100 gai		0	b	99	а	97	а	92	ab	165 a
J	LAUDIS	3	fl oz/a	В	U	D	33	а	31	а	32	ab	105 a
	DIFLEXX	6	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	COC	-	11 02/a % v/v	В									
	AMS	1		В									
_		17	lb/100 gal	В	0		00		07		04	b	400 -
О	SOA 4,9,15,27	0.4	£1/-	_	U	b	99	а	97	а	91	D	162 a
	LAUDIS FLEXX	24	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX	-	fl oz/a	В									
	MSO	1	% v/v	В									
	AMS	17	lb/100 gal	В									4.5.5
7	SOA 4,9,15,27				0	b	99	а	96	а	94	ab	163 a
	LAUDIS FLEXX	32	fl oz/a	В									
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX		fl oz/a	В									
	MSO	1	% v/v	В									
	AMS	17	lb/100 gal	В									
8	SOA 9,15				0	b	99	ab	98	а	97	а	127 b
	TREATED CHECK												
	OUTLOOK	12	fl oz/a	В									
	ROUNDUP POWERMAX	32	fl oz/a	В									
	COC	1	% v/v	В									
L	AMS	17	lb/100 gal	В					<u> </u>				
LSD	P=.10 for weed ratings, I	LSD P	= .20 for yie	elds				0.9		2.9	5	5.1	12

Means followed by same letter do not significantly differ.