

2014 Giant Ragweed Control with Diflexx Herbicide in Field Corn in Rochester, MN.

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The objective of this trial was to evaluate Diflexx herbicide programs for weed control and crop response in field corn in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.7, O.M. of 2.2%, and soil test P and K levels of 38 ppm and 121 ppm, respectively. Spring fertilizer was broadcast on April 28, 2014 ahead of planting at a rate of 119-18-149-24 (N-P-K-S). The field was spring, disked and field cultivated once prior to planting. The previous crop was soybean. The corn hybrid, DeKalb DKC53-56 RIB, was planted on May 8, 2014 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 three replications. Preemergence (PRE) treatments were applied with a tractor-mounted sprayer delivering 15 gpa at 40 psi using TTI 11002 spray tips. 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 on May 30, June 9, July 1, an additional injury rating was also taken on June 5. The center two rows of each plot were machine harvested on October 29, 2014. Application dates, environmental conditions, and weed stages can be found in Table 1. Performance ratings for giant ragweed control, common lambsquarters control, common waterhemp control, grass control, and crop injury can be found in Tables 2 through 6, respectively. (University of Minnesota Extension Regional Office, Rochester)

Table 1. Application timing, plant stage, and environmental conditions.

Date	5/8	5/27	6/3	6/6
Treatment	PRE	POST I	POST II	POST III
Temperature (F)				
Air	76	74	65	84
Soil	63	75.9	73.9	83.5
Relative Humidity (%)	64	66	62	33
Wind (mph)	21	3	8	0
Soil Moisture	Normal	Normal	Normal	Normal
Corn				
Stage		V2	V4	V5
Height (inch)		3.5	6.5	12.0
Giant Ragweed				
Weed density (ft ²)			6.25	
Height (inch)		1.0	3.7	1.88
Common Lambsquarters				
Weed density (ft ²)			5.0	
Height (inch)		0.63	1.95	0.75
Common Waterhemp				
Weed density (ft ²)			21.0	
Height (inch)		0.25	1.38	1.0
Grass				
Weed density (ft ²)			15.0	
Height (inch)		0.375	1.25	0.94
Rainfall after each application (inch)				
Week 1	1.63	1.06	0.04	0.06
Week 2	0.37	0.04	3.86	5.92
Week 3	0.03	3.86	2.48	0.58

Table 2. Performance of Diflexx herbicide systems for giant ragweed control in field corn on May 30, June 9, and July 1, and grain yield at 15% moisture at Rochester, MN, in 2014.

Treatment	Rate (rate/A)	Giant Ragweed Control			Yield (bu/A)
		5/30	6/9	7/1	
		(% Control)			
Untreated Check		0	0	0	28
PRE / POST II(4" weeds)					
Zidua / Roundup PowerMax + AMS	2 oz wt/a / 22 fl oz/a + 17 lb/100 gal	12	90	86	179
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	12	90	94	200
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	12	92	94	188
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	10	92	91	191
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	12	92	96	190
Zidua / Diflexx + Laudis + Roundup PowerMax + Upland MSO + AMS	2 oz wt/a / 8 fl oz/a + 3 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	17	95	96	192
Zidua / Diflexx + Liberty 280 + AMS	2 oz wt/a / 8 fl oz/a + 29 fl oz/a + 17 lb/100 gal	12	93	93	193
Zidua / Status + Roundup PowerMax + COC + AMS	2 oz wt/a / 5 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	13	95	92	182
Surpass NXT / Hornet + Roundup PowerMax + COC + AMS	1.75 pt/a / 2 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	12	95	90	182
Zidua / Laudis + Diflexx + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	12	93	94	184
Zidua / Laudis + Liberty 280 + AMS	2 oz wt/a / 3 fl oz/a + 22 fl oz/a + 17 lb/100 gal	12	93	91	169
Zidua / Capreno + Clarity + COC + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	12	93	95	199
Zidua / Laudis + Clarity + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	12	93	94	194
POST I (1-2" weeds) / POST III (V5 corn)					
Roundup PowerMax + AMS / Diflexx + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	70	70	96	175
Roundup PowerMax + AMS / Clarity + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	70	70	94	182
		4	3	2	23
LSD		(P=0.10)			(P=0.20)

Table 3. Performance of Diflexx herbicide systems for common lambsquarters control in field corn on May 30, June 9, and July 1, and grain yield at 15% moisture at Rochester, MN, in 2014.

Treatment	Rate (rate/A)	Common Lambsquarters Control			Yield (bu/A)
		5/30	6/9	7/1	
Untreated Check		0	0	0	28
PRE / POST II(4" weeds)					
Zidua / Roundup PowerMax + AMS	2 oz wt/a / 22 fl oz/a + 17 lb/100 gal	99	98	99	179
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	99	99	99	200
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	98	99	99	188
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	191
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	190
Zidua / Diflexx + Laudis + Roundup PowerMax + Upland MSO + AMS	2 oz wt/a / 8 fl oz/a + 3 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	192
Zidua / Diflexx + Liberty 280 + AMS	2 oz wt/a / 8 fl oz/a + 29 fl oz/a + 17 lb/100 gal	99	99	99	193
Zidua / Status + Roundup PowerMax + COC + AMS	2 oz wt/a / 5 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	182
Surpass NXT / Hornet + Roundup PowerMax + COC + AMS	1.75 pt/a / 2 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	182
Zidua / Laudis + Diflexx + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	98	99	99	184
Zidua / Laudis + Liberty 280 + AMS	2 oz wt/a / 3 fl oz/a + 22 fl oz/a + 17 lb/100 gal	98	99	99	169
Zidua / Capreno + Clarity + COC + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	199
Zidua / Laudis + Clarity + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	99	194
POST I (1-2" weeds) / POST III (V5 corn)					
Roundup PowerMax + AMS / Diflexx + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	70	99	93	175
Roundup PowerMax + AMS / Clarity + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	70	99	93	182
		1	1	1	23
LSD		(P=0.10)			(P=0.20)

Table 4. Performance of Dflexx herbicide systems for common waterhemp control in field corn on May 30, June 9, July 1 and grain yield at 15% moisture at Rochester, MN, in 2014.

Treatment	Rate (rate/A)	Common Waterhemp Control			Yield (bu/A)
		5/30	6/9	7/1	
		(% Control)			
Untreated Check		0	0	0	28
PRE / POST II(4" weeds)					
Zidua / Roundup PowerMax + AMS	2 oz wt/a / 22 fl oz/a + 17 lb/100 gal	99	98	96	179
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	99	99	97	200
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	99	99	97	188
Zidua / Dflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	96	191
Zidua / Dflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	96	190
Zidua / Dflexx + Laudis + Roundup PowerMax + Upland MSO + AMS	2 oz wt/a / 8 fl oz/a + 3 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	98	192
Zidua / Dflexx + Liberty 280 + AMS	2 oz wt/a / 8 fl oz/a + 29 fl oz/a + 17 lb/100 gal	99	99	96	193
Zidua / Status + Roundup PowerMax + COC + AMS	2 oz wt/a / 5 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	182
Surpass NXT / Hornet + Roundup PowerMax + COC + AMS	1.75 pt/a / 2 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	182
Zidua / Laudis + Dflexx + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	184
Zidua / Laudis + Liberty 280 + AMS	2 oz wt/a / 3 fl oz/a + 22 fl oz/a + 17 lb/100 gal	99	99	98	169
Zidua / Capreno + Clarity + COC + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	199
Zidua / Laudis + Clarity + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	194
POST I (1-2" weeds) / POST III (V5 corn)					
Roundup PowerMax + AMS / Dflexx + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	70	99	94	175
Roundup PowerMax + AMS / Clarity + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	70	99	92	182
		1	1	2	23
LSD		(P=0.10)			(P=0.20)

Table 5. Performance of Diflexx herbicide systems for grass control in field corn on May 30, June 9, July 1 and grain yield at 15% moisture at Rochester, MN, in 2014.

Treatment	Rate (rate/A)	Grass Control			Yield (bu/A)
		5/30	6/9	7/1	
		(% Control)			
Untreated Check		0	0	0	28
PRE / POST II(4" weeds)					
Zidua / Roundup PowerMax + AMS	2 oz wt/a / 22 fl oz/a + 17 lb/100 gal	99	98	96	179
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	99	99	97	200
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	99	99	97	188
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	96	191
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	96	190
Zidua / Diflexx + Laudis + Roundup PowerMax + Upland MSO + AMS	2 oz wt/a / 8 fl oz/a + 3 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	192
Zidua / Diflexx + Liberty 280 + AMS	2 oz wt/a / 8 fl oz/a + 29 fl oz/a + 17 lb/100 gal	99	99	96	193
Zidua / Status + Roundup PowerMax + COC + AMS	2 oz wt/a / 5 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	182
Surpass NXT / Hornet + Roundup PowerMax + COC + AMS	1.75 pt/a / 2 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	96	182
Zidua / Laudis + Diflexx + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	184
Zidua / Laudis + Liberty 280 + AMS	2 oz wt/a / 3 fl oz/a + 22 fl oz/a + 17 lb/100 gal	99	99	98	169
Zidua / Capreno + Clarity + COC + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	199
Zidua / Laudis + Clarity + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	99	99	97	194
POST I (1-2" weeds) / POST III (V5 corn)					
Roundup PowerMax + AMS / Diflexx + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	90	99	73	175
Roundup PowerMax + AMS / Clarity + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	92	99	83	182
		1	1	3	23
LSD		(P=0.10)			(P=0.20)

Table 6. Crop response to herbicide systems in field corn on May 30, June 5 and 9, and July 1 and grain yield at 15% moisture at Rochester, MN, in 2014.

Treatment	Rate (rate/A)	Injury				Yield (bu/A)
		5/30	6/5	6/9	7/1	
Untreated Check		0	0	0	0	28
PRE / POST II(4" weeds)						
Zidua / Roundup PowerMax + AMS	2 oz wt/a / 22 fl oz/a + 17 lb/100 gal	0	3	0	0	179
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	0	80	20	0	200
Zidua / Clarity + Roundup PowerMax + Induce NIS + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 0.25% v/v + 17 lb/100 gal	0	87	32	0	188
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 8 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	0	27	0	0	191
Zidua / Diflexx + Roundup PowerMax + COC + AMS	2 oz wt/a / 16 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	2	77	0	0	190
Zidua / Diflexx + Laudis + Roundup PowerMax + Upland MSO + AMS	2 oz wt/a / 8 fl oz/a + 3 fl oz/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	0	23	0	0	192
Zidua / Diflexx + Liberty 280 + AMS	2 oz wt/a / 8 fl oz/a + 29 fl oz/a + 17 lb/100 gal	0	27	0	0	193
Zidua / Status + Roundup PowerMax + COC + AMS	2 oz wt/a / 5 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	0	40	0	0	182
Surpass NXT / Hornet + Roundup PowerMax + COC + AMS	1.75 pt/a / 2 oz wt/a + 22 fl oz/a + 1% v/v + 17 lb/100 gal	0	6.7	12	0	182
Zidua / Laudis + Diflexx + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	0	27	0	0	184
Zidua / Laudis + Liberty 280 + AMS	2 oz wt/a / 3 fl oz/a + 22 fl oz/a + 17 lb/100 gal	0	13	0	0	169
Zidua / Capreno + Clarity + COC + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	0	13	45	0	199
Zidua / Laudis + Clarity + Upland MSO + AMS	2 oz wt/a / 3 fl oz/a + 8 fl oz/a + 1% v/v + 17 lb/100 gal	0	30	0	0	194
POST I (1-2" weeds) / POST III (V5 corn)						
Roundup PowerMax + AMS / Diflexx + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	5	13	57	30	175
Roundup PowerMax + AMS / Clarity + AMS	22 fl oz/a + 17 lb/100 gal / 16 fl oz/a + 17 lb/100 gal	5	7	77	63	182
		1	14	14	2	23
	LSD		(P=0.10)			(P=0.20)