2026 Resistance Management of Giant Ragweed and Waterhemp Programs in Corn

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Objectives were to achieve 95% control of giant ragweed and waterhemp in corn at crop canopy, showcase giant ragweed and waterhemp control programs from eight industry partners, and provide an unbiased evaluation of entries to allow growers to benchmark competitive performance. Growers should use the data set as a guide to visit with their crop consultants or local suppliers to determine a giant ragweed and waterhemp program that provides the greatest control at an economical cost based on local supplier pricing and availability of products.

MATERIALS AND METHODS

Experiments were conducted on a severe infestation of giant ragweed and a low to moderate infestation of waterhemp near Renville, Minnesota, in 2026. Soil was a fine-textured webster-clay loam soil with 4.9% organic matter and a 6.8 soil pH. Spring tillage was a field cultivator at 3" depth. Becks 4888SXP corn was seeded 2.00 inches deep on 30-inch row spacings at 32,000 seeds per acre.

Giant ragweed control study preemergence treatments were applied to corn on May 5 and early-postemergence treatments to V3 corn on June 1 (Table 1). Waterhemp control study preemergence treatments were applied to corn on May 8 and early-postemergence treatments were applied to V4 corn on June 5 (Table 1). All treatments were applied with a bicycle sprayer in 20 GPA spray solution through AIXR11002 air-induction flay fan nozzles pressurized with CO_2 at 42 psi to the center two rows of four row plots 30 feet in length.

Giant ragweed control was evaluated May 19, June 1, June 15, and June 29 (Table 2). Waterhemp control was evaluated May 21, June 4, June 18, and July 1 (Table 3). Evaluations were a visual estimate of percent fresh wight reduction in the center two treated rows compared to adjacent untreated strips. Experimental design was a randomized complete block with 3 replications.

Data were analyzed with GLM procedure of SAS (Statistical Analysis Software, SAS Academic Studio July 8,2026, SAS Institute, Inc.) at alpha=0.10 and differences are determined with 90% confidence; meaning, if the study was repeated 100 times that 90 times out of 100, we would expect statistically similar treatments (within one LSD value of each other) to remain similar in performance groupings. Data sets were analyzed at greater levels of confidence if statistical power allowed for meaningful separation at alpha=0.05 (95%) or alpha=0.01 (99%).

Table 1. Application information for Renville giant ragweed and waterhemp control trials in 2026.

Weed	Giant Ragweed		Waterhemp	
Application Code	A	B	A	B
Date	May 5	June 1	May 8	June 5
Time of Day	5:00 PM	11:30 AM	10:30 AM	3:00 PM
Air Temperature (F)	51	84	63	85
Relative Humidity (%)	34	58	27	44
Wind Velocity (mph)	8	4	8	3
Wind Direction	NW	SE	NW	W
Soil Temp. (F at 6")	48	68	45	72
Soil Moisture	Good	Good	Good	Good
Cloud Cover (%)	100	20	20	80
Crop Growth Stage (avg)	-	V3	-	V4
Waterhemp Height	-	6"	-	4"

RESULTS AND DISCUSSION

GIANT RAGWEED IN CORN

Giant Ragweed pressure was significant and uniform across the study. PRE application treatments did not perform as well as expected, however this may have been be due to the first activating rainfall occurring 10 days after the PRE application. Early on, treatments that included clopyralid as an active ingredient controlled emerging Giant Ragweed better than the treatments without clopyralid as an active ingredient, once the active was in the soil solution from the activating rainfall. All treatments performed well after the POST application. So, even though treatments may have had poor control early on due to lack of activation, once activated, treatments still held as a program once emerged weeds were knocked down from the postemergence application. Overall, all treatments met the grant goal of 95% giant ragweed control at the A+42 and A+56 evaluation timings.

There are many options to control giant ragweed in corn and it is vital to use the many different options to reduce seedbank in fields. Controlling giant ragweed in corn is more attainable and helpful in crop rotation with crops that have less herbicide options.

Table 2. Giant Ragweed control in corn in 2026.

#	Treatment[a]	Rate	App. Code[b]	Giant Ragweed Control			
				A+14[c]	A+28	A+42	A+56
		oz/A* or fl oz/A		----------%----------			
1	Surtain+Callisto / Status+RU3[d]+NIS+AMS	14+3 / 5*+30+0.25%+1.3lbs	A / B	0	10	98	100
2	Harness Max+DiFlexx / Laudis+AAtrex+RU3+AMS+HSMOC	55+8 / 3+16+30+1.3lbs+0.5%	A / B	0	40	100	100
3	TripleFlex II / Laudis+DiFlexx+RU3+HSMOC+Class Act Ridion	32 / 3+8+30+0.5%+1%	A / B	20	37	98	100
4	Resicore REV / Resicore REV+RU3+Atrazine 4L+ HSMOC+AMS	48 / 48+30+16+1%+2.5%	A / B	7	17	100	100
5	Resicore REV / Kyro+RU3+Atrazine 4L+ HSMOC+AMS	48 / 45+30+16+1%+2.5%	A / B	30	47	100	100
6	FortiTRI+Sinder 3L+Infuse / Rifle+Carbiner 4SC+ Missile+ Mad Dog	21+2+20 / 8+3+0.25%+30	A / B	20	42	99	100
7	FortiTRI+Infuse / Carabiner 4SC+Missile+ Mad Dog+Salvo	21+20 / 4+0.25%+30+6	A / B	0	70	100	100
8	Calibra+AAtrex / Acuron GT+AAtrex+NIS+AMS	48+16 / 60+16+0.25%+2.6lbs	A / B	17	63	100	100
9	Storen / Storen+RU3+AAtrex+NIS	38.4 / 38.4+30+16+0.25%	A / B	7	47	100	100
10	Verdict / AAtrex+Maverick+RU3+AMS+NIS	16 / 16+14+30+3lbs+0.25%	A / B	13	77	100	100
11	Maverick+AAtrex / Status+Laudis+RU3+Amsol+HSMOC	24+16 / 5*+3+30+2.5%+1%	A / B	20	80	100	100
	LSD (0.1)			**14.5**	**24.6**	**1.3**	**NS**
	LSD (0.05)			**17.5**	**29.8**	**1.6**	

[a]PRE treatment applications contained no additional adjuvants.
[b]Application codes refer to the information in Table 1.
[c]A+[#] or B+[#]=Days after "A" or "B" application.
[d]NIS=Preference; RU3=Roundup PowerMax 3; COC=Crop Oil Concentrate, Superb HC; HSMOC=Destiny HC.

WATERHEMP IN CORN

Waterhemp pressure was uniform across the study. Waterhemp germination was later than expected due to lower soil temperature and cooler weather conditions. Preemergence product treatments had consistent rain activation all spring and through July, which allowed the products to consistently prevent new waterhemp germination through crop canopy. There were no statistical differences for any treatments at any evaluation timing. Injury did occurred for treatment 6 at a B+13 evaluation timing. All treatments met the grant goal of 95% waterhemp control at all evaluation timings.

Not included in the table, were two treatments that did not have a POST application timing due to chemistry not being in hand, these treatments' waterhemp control dropped to 50-60% without the second application emphasizing the risk of trying to cut costs by reducing investment into corn herbicide programs. Although, treatment 7 was a PRE only treatment able to provide adequate waterhemp control through corn canopy it must be noted that of the three different modes of action, all were applied at high end rate levels for prolonged residual activity, without activating rainfalls, it is likely this treatment may have struggled with no postemergence application. Investing in a corn herbicide program that provides 100% waterhemp control is critical. The investment limits seed bank development and slows resistant development through managing weeds in the crop rotation.

Table 3. Waterhemp control in corn in 2026.

#	Treatment[a]	Rate	App. Code[b]	Waterhemp Control			
				A+14[c]	A+28	A+42	A+56
		oz/A* or fl oz/A		----------%----------			
1	Surtain / Status+RU3[d]+NIS+AMS	14 / 5*+30+0.25%v/v+1.5lbs	A / B	100	100	100	100
2	TriVolt / Laudis+DiFlexx+RU3+ HSMOC+Class Act Ridion	12 / 3+8+30+0.5%v/v+1%v/v	A / B	100	100	100	100
3	Harness Max / Capreno+AAtrex+RU3+COC+AMS	40 / 3+16+30+0.5%v/v+1.3lbs	A / B	100	100	100	100
4	Surpass NXT / Resicore REV+ RU3+AAtrex+COC+AMS	32 / 48+30+16+1%v/v+2.5%v/v	A / B	100	99	100	100
5	Surpass NXT / Kyro+RU3+Atrazine 4L+ COC+AMS	32 / 45+30+16+1%v/v+2.5%v/v	A / B	100	100	100	100
6	Anthem Maxx+Atrazine 4L+Callisto / RU3+DiFlexx+Anthem Maxx+COC+AMS	4+32+5 / 30+12+2+1%v/v+17lbs/100gal	A / B	100	100	100	100
7	Anthem Maxx+Atrazine 4L+Callisto+AMS	4+32+5+17lbs/100gal	A	100	100	100	100
8	FortiTRI+Sinder 3L+Infuse / Rifle+ Carabiner 4SC+Missile	21+2+20 / 8+3+0.25%v/v	A / B	100	100	100	100
9	FortiTRI+Infuse / Carabiner 4SC+Missile+ Mad Dog	21+20 / 3+0.25%v/v+36	A / B	100	100	100	100
10	Calibra / Acuron GT+AAtrex+NIS+AMS	48 / 60+16+0.25%v/v+2.6lbs	A / B	100	100	100	100
11	Storen / Storen+RU3+AAtrex+NIS	38.4 / 38.4+30+16+0.25%v/v	A / B	100	100	100	100
12	Verdict / AAtrex+Maverick+RU3+AMS+NIS	16 / 16+14+30+3lbs+0.25%v/v	A / B	100	100	100	100
13	Maverick+AAtrex / Status+Laudis+RU3+Amsol+HSMOC	24+16 / 5*+3+30+2.5%v/v+1%v/v	A / B	100	99	100	100
	LSD (0.1)			**NS**	**NS**	**NS**	**NS**

[a]PRE treatment applications contained no additional adjuvants.
[b]Application codes refer to the information in Table 1.
[c]A+[#] or B+[#]=Days after "A" or "B" application.
[d]NIS=Preference; RU3=Roundup PowerMax 3; COC=Crop Oil Concentrate, Superb HC; NIS=Preference; HSMOC=Destiny HC.

CONCLUSION

Overall, there are many different options for controlling giant ragweed and waterhemp in corn. It is essential to use the effective options available to control both giant ragweed and waterhemp in corn. The investment into a grower's corn herbicide program provides the ability to reduce weed seedbanks and slow weed resistance development, making controlling giant ragweed and waterhemp more manageable in a crop rotation with crops that may not have as many options for control.

Although not all suppliers may provide all products listed above, growers can reference product labels for active ingredient names and ratios of pre-packaged, pre-mixed products to find equivalent products. Using the application rate listed in the table above and the "lb ai/gallon" on the product label, total "ai/acre" can be determined using [(product A rate/a in fl oz or dry oz) **/** (128 fl oz or 16 dry oz) ***** (labeled product ratio in "lb ai/gal (for fl oz)" or "% by weight (for dry oz)" **=** lbs of active ingredient applied per acre to be compared with product B label and rate].

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