GIANT RAGWEED CONTROL IN ROUNDUP READY® SUGARBEET, SOUTHWEST OF HUTCHINSON, MINNESOTA SITE #2 - 2010.

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Introduction

Glyphosate-resistant giant ragweed continues to increase in the Southern Minnesota Beet Sugar Cooperative. Control of giant ragweed in sugarbeet needs to be investigated to determine the proper rate, timing, and number of applications of Stinger.

Materials and Methods

'Betaseed 95RR03' sugarbeet was seeded April 23, 2010 in 22 inch rows in a grower's field having glyphosate-resistant giant ragweed southwest of Hutchinson, MN. Sugarbeet seed was treated with Tachigaren at 45 grams dry product per 100,000 seeds. Application information is provided in the table below. All treatments were applied in 17 gpa water at 40 psi through XR8002 nozzles with a bicycle sprayer to the center four rows of six row plots 40 feet in length. Glyphosate and/or clopyralid were applied according to the treatments in the results table below. Ammonium sulfate as AmStik from West Central was included in all treatments at 2.5 qt/A. Giant ragweed was evaluated 21 days after each application. Only selected data is presented in the table below. Visual evaluations are an estimate of percent control in the treated plot area compared to the adjacent untreated strips and based upon a scale of 0 (no control) to 100% (complete control). Sugarbeet was harvested September 8 from one center row of each plot. Experiment designed as a randomized complete block having four replications.

Table 1. Application information.

Application Code	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Date of Application	May 18	June 9	June 29	May 27	June 24	July 8	June 2	June 24	July 13
Time of Day	5:00 pm	5:30 pm	4:00 pm	7:30 pm	7:00 pm	3:30 pm	5:00 pm	7:00 pm	12:00 pm
Air Temperature (^{o}F)	78	70	70	80	77	81	75	77	75
Relative Humidity (%)	13	50	39	24	68	41	36	68	78
Soil Temp. (^{o}F at 6")	73	64	70	72	72	74	63	72	67
Wind Velocity (mph)	5	6	4	4	2	5	3	2	4
Cloud Cover (%)	20	15	0	0	5	20	5	5	100
Sugarbeet (stage - range)	V1-V2	V5-V11	V9-V19.5	V2-V6	V6-V18	V10-V26	V5-V9.3	V6-V18	V9-V25
Giant Ragweed (stage/height –range)	Cot.-2N/ 0.125-1.5"	-	-	Cot.-4.5N/ 0.25-3.5"	-	-	Cot.-5.5N/ 0.5-8.5"	-	-
Giant Ragweed (avg. density)	3.3/ft^2	-	-	3.4/ft^2	-	-	4.7/ft^2	-	-

Summary

Yield data are not presented due to excessive and variable root and leaf diseases. Sugarbeet injury increased with increasing rates of Stinger applied once or multiple times, although plants recovered over time with little injury observed at the last evaluation (data not shown). Glyphosate applied once and multiple times inadequately controlled giant ragweed, although multiple glyphosate applications controlled more giant ragweed compared to a single application. Glyphosate controlled more giant ragweed at 1" in height compared to giant ragweed 3" in height at 21 days after the initial application. The inadequate control is a result of the presence of glyphosate-resistant biotype(s) in the population.

Stinger applied once controlled more giant ragweed as rates were increased, regardless of plant size. Stinger more effectively controlled smaller giant ragweed plants compared to larger plants at 21 days after the initial application. Stinger controlled more giant ragweed when applied multiple times compared to a single application. Giant ragweed control was maximized within each timing when Stinger was applied at 0.94 followed by 0.188 lb ae/A and three times at 0.94 lb/A per application.

Table 2. Giant ragweed control in Roundup Ready® sugarbeet, SW Hutchinson Site #2, MN (Fisher, Luecke, and Stachler)

Treatment*	Rate	Timing	21 DAT 1,4,7 Girw cntl	21 DAT 3,6,9 Girw cntl
	(lb ae/A)		%	%
Untreated	-	-	0	0
Weed-Free Check-1”	-	-	100	100
Glyt-PM + AMS	0.75	1	46	6
Clpy + Glyt-PM + AMS	0.047 + 0.75	1	70	23
Clpy + Glyt-PM + AMS	0.094 + 0.75	1	83	38
Clpy + Glyt-PM + AMS	0.188 + 0.75	1	91	80
Clpy + Glyt-PM + AMS	0.047 + 0.75	1,2	67	89
Clpy + Glyt-PM + AMS	0.094 + 0.75	1,2	82	93
Clpy + Glyt-PM + AMS	0.094 + 0.75	1		
Clpy + Glyt-PM + AMS	0.188 + 0.75	2	84	100
Clpy + Glyt-PM + AMS	0.047 + 0.75	1,2		
Clpy + Glyt-PM + AMS	0.094 + 0.75	3	75	99
Clpy + Glyt-PM + AMS	0.094 + 0.75	1,2,3	80	100
Weed-Free Check-3”	-	-	100	100
Glyt-PM + AMS	0.75	4	38	10
Clpy + Glyt-PM + AMS	0.047 + 0.75	4	63	53
Clpy + Glyt-PM + AMS	0.094 + 0.75	4	75	76
Clpy + Glyt-PM + AMS	0.188 + 0.75	4	90	92
Clpy + Glyt-PM + AMS	0.047 + 0.75	4,5	64	78
Clpy + Glyt-PM + AMS	0.094 + 0.75	4,5	75	97
Clpy + Glyt-PM + AMS	0.094 + 0.75	4		
Clpy + Glyt-PM + AMS	0.188 + 0.75	5	74	96
Clpy + Glyt-PM + AMS	0.047 + 0.75	4,5		
Clpy + Glyt-PM + AMS	0.094 + 0.75	6	65	89
Clpy + Glyt-PM + AMS	0.094 + 0.75	4,5,6	78	100
Glyt-PM + AMS	0.75	4,5	40	30
Glyt-PM + AMS	0.75	4,5,6	40	50
Weed-Free Check-6”	-	-	100	100
Glyt-PM + AMS	0.75	7	48	16
Clpy + Glyt-PM + AMS	0.047 + 0.75	7	63	36
Clpy + Glyt-PM + AMS	0.094 + 0.75	7	70	50
Clpy + Glyt-PM + AMS	0.188 + 0.75	7	78	79
Clpy + Glyt-PM + AMS	0.047 + 0.75	7,8	63	51
Clpy + Glyt-PM + AMS	0.094 + 0.75	7,8	71	90
Clpy + Glyt-PM + AMS	0.094 + 0.75	7		
Clpy + Glyt-PM + AMS	0.188 + 0.75	8	81	99
Clpy + Glyt-PM + AMS	0.047 + 0.75	7,8		
Clpy + Glyt-PM + AMS	0.094 + 0.75	9	65	87
Clpy + Glyt-PM + AMS	0.094 + 0.75	7,8,9	70	100
LSD (0.05)			6.6	8.5

*Glyt-PM = Roundup PowerMAX from Monsanto; Clpy = Stinger from Dow AgroSciences; AMS = Amstik from West Central at 2.5 qt/A.