Targa and micro-nutrients tank-mixes effect on glyphosate tolerant volunteer corn control in Roundup Ready soybean. (S0939)

A field study was initiated near Clay Center, Nebraska to compare quizalofop (Targa) tank mixes of liquid fertilizer with and without chelated manganese in controlling glyphosate tolerant volunteer corn in Roundup Ready soybeans.. The experimental design was a randomized complete block with four replications. Plots were 10 feet wide and 30 feet long and were located on a silt loam soil with an organic matter content of 2.5% and ph of 6.5. Plot area was field cultivated prior to planting. Glyphosate tolerant volunteer corn was spread over plots on May 12 and area was harrowed to mix corn with soil. Soybeans, Pioneer '93M11' RR2 was planted at 144,000 seeds/A on May 9 and emerged on May 21. Herbicides were applied LPOST (18 to 24 inch volunteer corn) on June 22. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 8 gallons of water per acre at 30 PSI using Turbo Teejet 11001 flat spray nozzles. The environmental conditions at the time of herbicide application are given in Table 1. Rainfall received 10 days before and 10 days after herbicide applications is listed in Table 2. Plots received 12.7 inches of rain and 8.25 inches of irrigation water applied by lateral-move overhead sprinklers during growing season.

Volunteer corn average density was 40 plants per 125 square feet.

There was no crop response from the herbicide treatments (data not shown).

By 22 DAT, control of volunteer corn was near 100% for all treatments. There was no antagonism from the fertilizer in this trial.

Some volunteer corn continued to emerge after the application.

Trial was over-sprayed with glyphosate on June 30, 2009 to control waterhemp and lambsquarter populations.

Yields were excellent in treatments 2 through 7, and 9. Treatment 4 did not have glyphosate as part of the tankmix, so had some yield reduction resulting from 8 days longer competition from velvetleaf and lambsquarter than other treatments.

Soybean yield across herbicide treated plots averaged 60.1 bu/A. Soybean yield in the untreated plots averaged 48.3 bu/A. There was no statistical difference in yields between plots that were treated with herbicide except for treatment 4. (Table 3).

Table 1. Environmental conditions at the time of herbicide application.

Appl. Date	Air Temperature (F)	Humidity (%)	Wind Speed & direction (mph)	Time of day	Application Timing	Weed and Soybean heights (inches)					
						SETFA	AMATA	ABUTH	CHEAL	ZEAMX	GLYMX
June 22	90	64	0	6:41 pm	LPOST	15.0	23.0	23.0	22.0	23.0	19.0

SETFA= giant foxtail AMATA= common waterhemp ABUTH= velvetleaf CHEAL= common lambsquarter
ZEAMX= vol. corn GLYMX= soybean

Table 2. Rainfall received 10 days before and after herbicide application.

Appl. Date (June 22)	Amount (in)
June 12	0.30
June 14	0.11
June 15	2.41
June 19	0.14
June 20	0.07
June 12	0.30
June 24	0.23
June 26	0.15

Table 3. Targa and micronutrients tank mixes (S0939)

Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	SETFA CONTRO % 6/29/2009 7 DA-A	ABUTH CONTRO % 6/29/2009 7 DA-A	AMATA CONTRO % 6/29/2009 7 DA-A	CHEAL CONTRO % 6/29/2009 7 DA-A	ZEAMX CONTRO % 6/29/2009 7 DA-A	ZEAMX CONTRO % 7/8/2009 16 DA-A	ZEAMX CONTRO % 7/14/2009 22 DA-A	ZEAMX CONTRO % 7/28/2009 36 DA-A	GLXMA YIELD bu/A 11/12/2009 143 DA-A
1	Untreated Check				0	0	0	0	0	7	0	0	48.3
2	Targa	8	OZ/A	LPOST	91	60	50	50	45	100	100	100	59.5
2	Roundup PowerMax	22	FL OZ/A	LPOST									
2	9-18-9 Fertilizer	2	GAL/A	LPOST									
3	Targa	8	OZ/A	LPOST	90	63	55	53	48	98	100	99	63.3
3	Roundup PowerMax	22	FL OZ/A	LPOST									
3	9-18-9 Fertilizer	2	GAL/A	LPOST									
3	Chelated Manganese	1	PT/A	LPOST									
4	Targa	8	OZ/A	LPOST	20	1	8	2	48	100	100	99	42.3
4	9-18-9 Fertilizer	2	GAL/A	LPOST									
4	Chelated Manganese	1	PT/A	LPOST									
5	Targa	8	OZ/A	LPOST	91	55	48	55	48	100	100	99	64.5
5	Roundup PowerMax	22	FL OZ/A	LPOST									
5	Tecmangam	0.1	LB A/A	LPOST									
6	Targa	8	OZ/A	LPOST	90	54	35	45	45	99	100	100	60.7
6	Roundup PowerMax	22	FL OZ/A	LPOST									
6	Chelated Manganese	1	PT/A	LPOST									
7	Targa	8	OZ/A	LPOST	90	70	53	58	45	99	100	99	61.9
7	Roundup PowerMax	22	FL OZ/A	LPOST									
8	Select Max	9	OZ/A	LPOST	92	69	58	70	40	94	99	100	63.4
8	Roundup PowerMax	22	FL OZ/A	LPOST									
8	AMS	17	LB A/100 GAL	LPOST									
9	Fusilade 2000	8	OZ/A	LPOST	90	73	50	58	40	95	100	98	65.1
9	Roundup PowerMax	22	FL OZ/A	LPOST									
9	AMS	17	LB A/100 GAL	LPOST									
LSD (P=.05)					3.42	17.49	14.9	16.4	7.6	7.4	0.8	5.8	8.29