

Soybean Herbicide Standards Trial (S0933)

A field study was initiated near Clay Center, Nebraska to compare weed control programs. 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. Soybeans, 'Pioneer 93M11' RR2, were planted at 144,000 seeds/A on May 9 and emerged on May 21. Herbicides were applied PRE on May 13, EPOST on June 4, and LPOST on June 8. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 15 gallons of water per acre at 30 PSI. The PRE and EPOST timings were applied with AIXR 110015 flat spray nozzles and the LPOST timing was applied with AIXR 110015 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 13.97 inches of rain and 8.25 inches of irrigation water applied by lateral-move overhead sprinklers during growing season.

There was no crop response observed from preemergence herbicide treatments. There was minor injury from the fomesafen (Flexstar) treatment which quickly disappeared. Crop response data is not shown.

Weed pressure in this trial was extremely heavy. Control below 95% is not commercially acceptable. Major weeds consisted of giant foxtail (SETFA), velvetleaf (ABUTH), common waterhemp (AMATA), and lambsquarters (CHEAL) at average densities of 16, 2, 16, and 6 plants per square foot.

Weather conditions in May were relatively dry, and affected activation of the PRE herbicides.

Weed emergence was variable in plots at the June 4 and June 11 ratings as affected by the dry weather. Trial did not receive rainfall of at least 0.50" until 19 days after the PRE application.

The soybeans in this study became infected with sudden death syndrome. The rating for this is given to help explain potential yield differences that may not otherwise make sense.

The Optill-based treatments allowed late season emergence of waterhemp. Optill + Prowl was less effective than expected on giant foxtail. Touchdown Total (one pass) and Roundup PowerMax provided unacceptable control of giant foxtail, velvetleaf and common waterhemp. Durango + FirstRate (POST) did not adequately control common waterhemp. Flexstar was notably weak on giant foxtail.

Overall soybean average for herbicide treated plots was 53.1 bu/A. Soybean yield in the untreated plots averaged 15.8 bu/A. Treatments (8) Touchdown Total, (9) Flexstar, and (13) Roundup PowerMax had lower yields due to weed control issues.

Weed control and soybean yields are found in Tables 3A and 3B..

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 (in)				
						SETFA	ABUTH	AMATA	CHEAL	SOYBEAN
May 13	66	67	12 NW	12:24 pm	PRE	NA	NA	NA	NA	NA
June 3	69	34	4 W	5:37 pm	EPOST	3.0	2.0	3.5	2.5	2.0
June 8	70	40	6 NNE	3:09 pm	LPOST	4.0	4.0	5.0	4.0	3.0

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

Appl. Date (May 13)	Amount (in)		Appl. Date (June 3)	Amount (in)		Appl. Date (June 8)	Amount (in)
May 3	0.26		May 26	0.17		June 1	0.62
May 8	0.25		June 1	0.62		June 2	0.22
May 10	0.11		June 5	0.16		June 5	0.16
May 13	0.03		June 6	0.52		June 6	0.52
May 15	0.03		June 9	0.16		June 9	0.16
May 23	0.17		June 10	0.06		June 10	0.06
			June 12	0.30		June 12	0.30
						June 14	0.11
						June 15	2.41

Table 3A. Soybean Standards (S0933)

Trt No.	Treatment Name	Rate	Unit	Appl Timing	SETFA	ABUTH	AMATA	CHEAL	SETFA	ABUTH	AMATA	CHEAL
					6/4/2009	6/4/2009	6/4/2009	6/4/2009	6/11/2009	6/11/2009	6/11/2009	6/11/2009
					CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
					%	%	%	%	%	%	%	%
8	Touchdown Total	24	OZ/A	EPOST	0	0	0	0	99	99	100	96
8	AMS	17	LB AI/100 GAL	EPOST								
9	Flexstar	0.75	PT/A	EPOST	0	0	0	0	96	100	100	97
9	COC	1	% V/V	EPOST								
9	UAN-28	2	QT/A	EPOST								
10	Sonic	3	OZ/A	PRE	38	70	80	67	17	70	80	67
10	Durango DMA	24	OZ/A	LPOST								
10	AMS	17	LB AI/100 GAL	LPOST								
11	Sonic	4.5	OZ/A	PRE	76	94	96	96	76	94	96	96
11	Durango DMA	24	OZ/A	LPOST								
11	AMS	17	LB AI/100 GAL	LPOST								
12	Durango DMA	24	OZ/A	EPOST	0	0	0	0	74	99	99	98
12	FirstRate	0.3	OZ/A	EPOST								
12	AMS	17	LB AI/100 GAL	EPOST								
13	Roundup PowerMax	22	OZ/A	EPOST	0	0	0	0	99	98	100	96
13	AMS	17	LB AI/100 GAL	EPOST								
LSD (P=.05)					39.7	40.8	27.7	33.6	41.5	40.9	27.7	33.4

Table 3B. Soybean Standards (S0933)

Trt No.	Treatment Name	Rate		Appl Timing	SETFA	ABUTH	AMATA	CHEAL	GLXMA	GLXMA
		Rate	Unit		7/13/2009	7/13/2009	7/13/2009	7/13/2009	9/9/2009	9/9/2009
					CONTRO %	CONTRO %	CONTRO %	CONTRO %	MORTAL %	YIELD bu/A
1	Untreated				0	0	0	0	0	15.8
2	OPTILL	2	OZ/A	PRE	84	94	83	100	1	52.6
2	Roundup PowerMax	22	OZ/A	LPOST						
2	AMS	17	LB AI/100 GAL	LPOST						
3	OPTILL	2	OZ/A	PRE	78	93	85	98	1	57.2
3	Prowl H2O	32	FL OZ/A	PRE						
3	Roundup PowerMax	22	OZ/A	LPOST						
3	AMS	17	LB AI/100 GAL	LPOST						
4	Valor XLT	4	OZ/A	PRE	91	97	97	99	4	64.6
4	Roundup PowerMax	22	OZ/A	LPOST						
4	AMS	17	LB AI/100 GAL	LPOST						
5	Enlite	2.8	OZ/A	PRE	92	98	98	100	21	56.8
5	Roundup PowerMax	22	OZ/A	LPOST						
5	AMS	17	LB AI/100 GAL	LPOST						
6	Prefix	2	PT/A	PRE	95	71	100	98	48	49.4
6	Touchdown Total	24	OZ/A	LPOST						
6	AMS	17	LB AI/100 GAL	LPOST						
7	Boundary	1.5	PT/A	PRE	96	94	97	99	30	51.5
7	Touchdown Total	24	OZ/A	LPOST						
7	AMS	17	LB AI/100 GAL	LPOST						

Table 3B. Soybean Standards (S0933)

Trt No.	Treatment Name	Rate		Appl Timing	SETFA	ABUTH	AMATA	CHEAL	GLXMA	GLXMA
		Rate	Unit		7/13/2009	7/13/2009	7/13/2009	7/13/2009	9/9/2009	9/9/2009
					CONTRO %	CONTRO %	CONTRO %	CONTRO %	MORTAL %	YIELD bu/A
8	Touchdown Total	24	OZ/A	EPOST	76	76	75	61	26	42.0
8	AMS	17	LB AI/100 GAL	EPOST						
9	Flexstar	0.75	PT/A	EPOST	59	96	100	88	0	37.6
9	COC	1	% V/V	EPOST						
9	UAN-28	2	QT/A	EPOST						
10	Sonic	3	OZ/A	PRE	96	98	99	100	6	60.6
10	Durango DMA	24	OZ/A	LPOST						
10	AMS	17	LB AI/100 GAL	LPOST						
11	Sonic	4.5	OZ/A	PRE	96	98	100	100	0	63.0
11	Durango DMA	24	OZ/A	LPOST						
11	AMS	17	LB AI/100 GAL	LPOST						
12	Durango DMA	24	OZ/A	EPOST	94	100	83	98	24	52.0
12	FirstRate	0.3	OZ/A	EPOST						
12	AMS	17	LB AI/100 GAL	EPOST						
13	Roundup PowerMax	22	OZ/A	EPOST	80	71	86	89	1	50.0
13	AMS	17	LB AI/100 GAL	EPOST						
LSD (P=.05)					19.5	28.2	11.1	12.1	37.8	9.2