

Valor and Tank-mix Partners for Weed Control in Soybeans (S0932)

A field study was initiated near Clay Center, Nebraska to compare crop response and weed control efficacy of Valor (flumioxazin) alone or in combination with other partners. 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', was planted at 144,000 seeds/A on May 9 and emerged on May 21. Herbicides were applied PRE on May 14, EPOST on June 10, MPOST on June 12, and LPOST on June 25. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 15 gallons of water per acre at 30 PSI. The PRE, EPOST, and MPOST timings were applied using TurboTee 110015 flat spray nozzles and the LPOST timing was applied using AIXR 110015 flat spray nozzles. The environmental conditions at the time of herbicide application are given in Table 1. Rainfall in the amount of 0.62 inch was received nineteen days after PRE application. Rainfall received 10 days before and 10 days after herbicide applications is listed in Table 2. Plots received 13.7 inches of rain and 8.25 inches of irrigation water applied by lateral-move overhead sprinklers during growing season.

There was no crop injury observed from preemergence herbicide treatments (data not shown). There was minor injury (some chlorosis) from the treatments that included rimsulfuron. The shorter plant heights that were observed in treatments 10-13 on June 26 was likely due to early season competition from the weeds. None of the treatments that included a preemergence product had the same level of shortening (Table 3).

Weed density in the trial was extremely high, especially of the foxtail and common waterhemp/Palmer amaranth complex. Weeds present were giant foxtail (SETFA), velvetleaf (ABUTH), and common waterhemp (AMATA), lambsquarters (CHEAL) at average densities of 27, 1, 10, and 3 plants per square foot, respectively.

Less than 0.4 inches of rain fell in the 2 weeks following the Pre application. As a result, none of the preemergence herbicides activated well, and we chose to apply the postemergence application of glyphosate to the experiment when the soybeans were still small (V2). As a result, later emerging weeds grew and were able to compete with the crop later in the growing season. There was some reduction in late season control of foxtail and waterhemp when glyphosate was applied alone at EPOST timing. Herbicides treatments generally provided good to excellent weed control.

Areas in the study became infected with Sudden Death Syndrome in late August. A rating was made in early September that may help explain some of the yield reduction.

Soybean yield across all herbicide treatments averaged 61.8 bu/A. Soybean yield in the untreated plots averaged 17.8 bu/A.

Weed control and soybean yield are listed in Table 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 14	63	33	6 S	1:41 pm	PRE	NA	NA	NA	NA	NA
June 10	71	57	6 SE	3:20 pm	EPOST	3.0	3.0	3.0	3.0	4.0
June 12	68	63	8 NW	3:26 pm	MPOST	4.5	5.0	5.5	5.0	6.0
June 25	90	61	7 E	4:20 pm	LPOST	14.0	12.0	13.0	15.0	12.5

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

Appl. Date (May 14)	Amount (in)		Appl. Date (June 10)	Amount (in)		Appl. Date (June 12)	Amount (in)		Appl. Date (June 25)	Amount (in)
May 8	0.25		June 1	0.62		June 2	0.22		June 15	2.41
May 10	0.11		June 5	0.16		June 5	0.16		June 19	0.14
May 13	0.03		June 6	0.52		June 6	0.52		June 20	0.07
May 15	0.03		June 9	0.16		June 9	0.16		June 24	0.23
May 23	0.17		June 10	0.06		June 10	0.06		June 26	0.10
			June 12	0.30		June 12	0.30		July 3	0.25
			June 14	0.11		June 14	0.11			
			June 15	2.41		June 15	2.41			
			June 19	0.14		June 19	0.14			
			June 20	0.07		June 20	0.07			

Table 3A. Valor and tank-mix partners for weed control in soybeans (S0932)

Trt No	Product	Appl Rate	Rate Unit	Appl Timing	SETFA	ABUTH	AMATA	CHEAL	SETFA	ABUTH	AMATA	CHEAL
					6/25/2009	6/25/2009	6/25/2009	6/25/2009	7/8/2009	7/8/2009	7/8/2009	7/8/2009
					CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
					%	%	%	%	%	%	%	%
9	VALOR SX	2	OZ WT/A	PRE	98	99	99	100	94	97	96	100
9	INTRRO	16	FL OZ/A	PRE								
9	ROUNDUP POWER MAX	22	FL OZ/A	MPOST								
9	AMMONIUM SULFATE	2.5	LB AI/A	MPOST								
10	VALOR SX	2	OZ WT/A	PRE	97	97	99	100	94	96	98	100
10	INTRRO	32	FL OZ/A	PRE								
10	ROUNDUP POWER MAX	22	FL OZ/A	MPOST								
10	AMMONIUM SULFATE	2.5	LB AI/A	MPOST								
11	PREFIX	2	PT/A	PRE	98	97	99	99	94	95	98	99
11	ROUNDUP POWER MAX	22	FL OZ/A	MPOST								
11	AMMONIUM SULFATE	2.5	LB AI/A	MPOST								
12	ROUNDUP POWER MAX	22	FL OZ/A	EPOST	96	97	96	97	85	95	87	92
12	AMMONIUM SULFATE	2.5	LB AI/A	EPOST								
13	ROUNDUP POWER MAX	22	FL OZ/A	EPOST	96	97	97	99	85	94	89	97
13	AMMONIUM SULFATE	2.5	LB AI/A	EPOST								
LSD (P=.05)					1.4	1.1	1.4	1	6.2	3.1	3.5	2.4

Table 3B. Valor and tank-mix partners for weed control in soybeans (S0932)

Trt No	Product	Appl Rate	Rate Unit	Appl Timing	SETFA 8/11/2009 CONTRO %	ABUTH 8/11/2009 CONTRO %	AMATA 8/11/2009 CONTRO %	CHEAL 8/11/2009 CONTRO %	BSOY 9/9/2009 MORTAL %	BSOY 11/14/2009 YIELD bu/A
1	UNTREATED CHECK				0	0	0	0	0	17.8
2	ROUNDUP POWER MAX	22	FL OZ/A	LPOST	99	94	96	93	10	54.9
2	AMMONIUM SULFATE	2.5	LB AI/A	LPOST						
3	VALOR SX	2.5	OZ WT/A	PRE	95	97	98	99	25	59.6
3	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
3	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
4	VALOR XLT	3	OZ WT/A	PRE	90	97	98	100	14	60.9
4	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
4	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
5	GANGSTER FR	0.4	OZ WT/A	PRE	93	96	97	99	16	63.5
5	GANGSTER V	2	OZ WT/A	PRE						
5	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
5	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
6	V-10233	3	OZ WT/A	PRE	96	97	97	100	10	68.5
6	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
6	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
7	VALOR SX	2	OZ WT/A	PRE	94	97	97	100	5	63.2
7	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
7	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
8	VALOR SX	2	OZ WT/A	PRE	94	96	97	100	0	66.8
8	SENCOR	5.33	OZ WT/A	PRE						
8	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
8	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						

Table 3B. Valor and tank-mix partners for weed control in soybeans (S0932)

Trt No	Product	Appl Rate	Rate Unit	Appl Timing	SETFA	ABUTH	AMATA	CHEAL	BSOY	BSOY
					8/11/2009	8/11/2009	8/11/2009	8/11/2009	9/9/2009	11/14/2009
					CONTRO	CONTRO	CONTRO	CONTRO	MORTAL	YIELD
					%	%	%	%	%	bu/A
9	VALOR SX	2	OZ WT/A	PRE	93	97	96	100	0	63.8
9	INTRRO	16	FL OZ/A	PRE						
9	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
9	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
10	VALOR SX	2	OZ WT/A	PRE	94	96	99	100	25	59.1
10	INTRRO	32	FL OZ/A	PRE						
10	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
10	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
11	PREFIX	2	PT/A	PRE	93	95	98	99	6	66.9
11	ROUNDUP POWER MAX	22	FL OZ/A	MPOST						
11	AMMONIUM SULFATE	2.5	LB AI/A	MPOST						
12	ROUNDUP POWER MAX	22	FL OZ/A	EPOST	87	95	90	92	4	60.0
12	AMMONIUM SULFATE	2.5	LB AI/A	EPOST						
13	ROUNDUP POWER MAX	22	FL OZ/A	EPOST	88	93	91	97	13	54.6
13	AMMONIUM SULFATE	2.5	LB AI/A	EPOST						
LSD (P=.05)					6	3	2.9	2.8	34.4	8.74