

Encapsulated acetochlor in Soybeans (S0936)

A field study was initiated near Clay Center, Nebraska to compare different application rates and timings of MON 63410. MON 63410 is an encapsulated herbicide for weed control in soybeans and cotton. 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. Roundup Ready soybeans, 'Pioneer 93M11' was planted on May 9 and emerged on May 21. Herbicides application dates and timings are listed in Table 1. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 15 gallons of water per acre at 30 PSI. TurboTee 110015 flat spray nozzles were used to apply the PRE and V5-V6 timings while AIXR 110015 flat spray nozzles were used to apply the V2-V3 timing. The environmental conditions at the time of herbicide application are given in Table 1. Rainfall in the amount of 0.62 inch was received seventeen days after the 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.

Valor was applied PRE to all treatments in the study at 1 oz/A.

Weed density in the trial was extremely high, especially of common waterhemp (and some palmer amaranth).

There was no observable injury from post applications of MON 63410. As expected, there was some necrosis following the application of Cobra.

Weed control with all the Roundup treatments was excellent. Weed control with the Cobra treatments was poor.

Observations recorded on September 2 indicated that soybeans that were treated at V2-V3 had full canopy closure. There was some waterhemp that escaped at both rates, and generally more at the lower rate. Soybeans that received both the V3 and V6 applications of MON 63410 did not appear to have as full a canopy as soybeans receiving only the V3 application. They were clean (almost no waterhemp). Soybeans that received only the V6 application were stunted by weed competition. MON 63410 performed similarly to Dual at both timings.

Soybean yield across all herbicide treatments averaged 57.9 bu/A. Soybean yield in the plots with Valor followed by MON 63410 (1.5 qt/A) plus glyphosate applied at V3 timing averaged 63.6 bu/A. Soybean yield in the plots with Valor followed by MON 63410 (1.5 qt/A) plus glyphosate at the V6 timing averaged 58.8 bu/A. Soybean yield in the plots with a Valor followed by MON 63410 (1.5 qt/A) plus glyphosate applied both at V3 and V6 timing averaged 66.8 bu/A. Soybean yield in the plots with a PRE followed by Cobra or Cobra plus MON 63410 applied at V6 timing averaged 35.4 bu/A. Soybean yield in plots with Valor followed by glyphosate applied at both the V3 and V6 timings averaged 67.1 bu/A. Soybean yield in plots with MON 63410 at 1.5 qt and 2.0 qt/A rates were similar.

Weed control ratings and soybean yields are found in 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)				
						SETVI	ABUTH	AMATA	CHEAL	SOYBEAN
May 14	64	43	4 S	8:02 pm	PRE	NA	NA	NA	NA	NA
June 10	71	57	6 SE	4:58 pm	V2-V3	4.0	2.0	4.0	3.0	5.0
June 29	84	33	5 NNW	12:16 pm	V5-V6	14.0	14.0	23.0	4.0	25.0

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

SETFA= Giant foxtail ABUTH= Velvetleaf AMATA= Common waterhemp CHEAL= Common lambsquarters
 GLXMA= Soybean

Table 3. Encapsulated acetochlor in soybeans (S0936)

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Appl Description	SETVI	AMATA	CHEAL	GLXMA	SETVI	AMATA	CHEAL	GLXMA
						6/26/2009	6/26/2009	6/26/2009	7/7/2009	7/20/2009	7/20/2009	7/20/2009	11/17/2009
						CONTRO	CONTRO	CONTRO	PHYNEC	CONTRO	CONTRO	CONTRO	YIELD
						%	%	%	0-100	%	%	%	bu/A
8	VALOR	1	OZ/A	A	PRE	0	0	0	0	100	100	97	53.5
8	MON 63410	2	QT/A	C	V5-V6								
8	ROUNDUP POWERMAX	21.3	FL OZ/A	C	V5-V6								
8	AMS	17	LB AI/100 GAL	C	V5-V6								
9	VALOR	1	OZ/A	A	PRE	100	99	100	0	100	98	100	64.9
9	DUAL II MAGNUM	1.31	PT/A	B	V2-V3								
9	ROUNDUP POWERMAX	0.75	LB AE/A	B	V2-V3								
9	AMS	17	LB AI/100 GAL	B	V2-V3								
10	VALOR	1	OZ/A	A	PRE	0	0	0	0	100	97	99	56.9
10	DUAL II MAGNUM	1.31	PT/A	C	V5-V6								
10	ROUNDUP POWERMAX	21.3	FL OZ/A	C	V5-V6								
10	AMS	17	LB AI/100 GAL	C	V5-V6								
11	VALOR	1	OZ/A	A	PRE	0	0	0	25	5	15	10	37.1
11	COBRA	12.5	FL OZ/A	C	V5-V6								
11	CROP OIL CONC	0.25	% V/V	C	V5-V6								
12	VALOR	1	OZ/A	A	PRE	0	0	0	25	5	18	10	33.8
12	COBRA	12.5	FL OZ/A	C	V5-V6								
12	CROP OIL CONC	0.25	% V/V	C	V5-V6								
12	MON 63410	48	FL OZ/A	C	V5-V6								
13	VALOR	1	OZ/A	A	PRE	98	99	100	0	100	100	100	67.1
13	ROUNDUP POWERMAX	21.3	FL OZ/A	B	V2-V3								
13	AMS	17	LB AI/100 GAL	B	V2-V3								
13	ROUNDUP POWERMAX	21.3	FL OZ/A	C	V5-V6								
13	AMS	17	LB AI/100 GAL	C	V5-V6								
LSD (P=.05)						1	1.3	1.6	0	1.4	2.8	2.2	5.36