

Sequential Herbicide Programs in Roundup Ready Corn with KIH-485.

Project Code: 07-10B-ME90 Location: Belleville Research Center
 Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 1-23-08

Objective:

Determine the utility and rate of KIH-485 as a foundation herbicide in Roundup Ready corn.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. XANST	cocklebur, common	Xanthium strumarium L.
3. AMBTR	ragweed, giant	Ambrosia trifida L.
4. CYPES	nutsedge, yellow	Cyperus esculentus L.

Crop 1: ZEAMX corn, field Variety: 33K44
 Planting Method: Seeded Planting Date: 4-30-07
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 24 FT Reps: 3
 Tillage Type: Reduced-Till Study Design: Randomized complete block
 Previous Crop, Year: GLXMA, 2006
 Field Prep./Maintenance: N 150 LB/A, P2O5 0 LB/A, K2O 0 LB/A

Soil Name: Weir % OM: 2.2 pH: 6.5 CEC: 11
 Texture: Silt loam Fert. Level: P1: 70 LB/A, K: 421 LB/A

APPLICATION DESCRIPTION

	A	B
Application Date:	5-1-07	5-21-07
Time of Day:	10:30	7:45
Application Method:	Spray	Spray
Application Timing:	PRE	V3-4
Applic. Placement:	BROSOI	BROPOL
Air Temp., Unit:	84 F	64 F
% Relative Humidity:	60	90
Wind Velocity, Unit:	3 MPH	1-3 MPH
Dew Presence (Y/N):	N	N
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	50	25

CROP STAGE AT EACH APPLICATION

	A		B	
Crop 1 Code, Stage:	ZEAMX	NA	ZEAMX	V3
Height, Unit:	NA	NA	8	IN

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:		SETFA
Stage(leaves):		2-3
Height(inches):		1-2
Density:		Low
Weed 2 Code:		XANST
Stage(leaves):		4-6
Height(inches):		2-5
Density:		High
Weed 3 Code:		AMBTR
Stage(leaves):		2-4
Height(inches):		3-5
Density:		High
Weed 4 Code:		CYPES
Stage(leaves):		3-4
Height(inches):		2-3
Density:		Medium

APPLICATION EQUIPMENT

	A		B	
Appl. Equipment:	CO2	sprayer	CO2	sprayer
Operating Pressure:	40	PSI	40	PSI
Nozzle Type:	Flat	fan	Flat	fan
Nozzle Size:	XR	8002	XR	8002
Boom Length, Unit:	7.5	FT	7.5	FT
Spray Volume, Unit:	15	GPA	15	GPA

NOTES:

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Weed Code									SETFA	SETFA	SETFA	XANST	XANST	XANST
Crop Code									Control	Control	Control	Control	Control	Control
Rating Data Type									Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit									5-21-07	6-18-07	9-27-07	5-21-07	6-18-07	9-27-07
Rating Date									0 DA-B	28 DA-B	@Harvest	0 DA-B	28 DA-B	@Harvest
Trt-Eval Interval														

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code									
1	NONTREATED									0 a	0 a	0 a	0 b	0 b	0 b	0 g	0 c	0 d
2	KIH-485	85	WG	0.074	lb ai/a	1.39	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	15 def	0 c	0 d
3	KIH-485	85	WG	0.094	lb ai/a	1.77	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	17 de	0 c	0 d
4	KIH-485	85	WG	0.134	lb ai/a	2.52	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	20 cd	0 c	0 d
5	KIH-485	85	WG	0.16	lb ai/a	3	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	25 bc	0 c	0 d
6	KIH-485	85	WG	0.186	lb ai/a	3.5	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	32 a	0 c	0 d
7	KIH-485	85	WG	0.223	lb ai/a	4.2	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	33 a	0 c	0 d
8	KIH-485	85	WG	0.074	lb ai/a	1.39	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	13 ef	60 b	0 d
8	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
8	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
9	KIH-485	85	WG	0.094	lb ai/a	1.77	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	17 de	63 b	3 d
9	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
9	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
10	KIH-485	85	WG	0.134	lb ai/a	2.52	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	23 c	73 a	10 c
10	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
10	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
11	KIH-485	85	WG	0.16	lb ai/a	3	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	23 c	77 a	20 b
11	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
11	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
12	KIH-485	85	WG	0.186	lb ai/a	3.5	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	30 ab	77 a	23 b
12	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
12	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
13	KIH-485	85	WG	0.223	lb ai/a	4.2	oz/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	35 a	73 a	23 b
13	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
13	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
14	DUAL II MAGNUM	7.64	EC	1.24	lb ai/a	1.3	pt/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	12 ef	0 c	0 d
15	DUAL II MAGNUM	7.64	EC	1.24	lb ai/a	1.3	pt/a	PRE	A	0 a	0 a	0 a	99 a	99 a	99 a	10 f	77 a	30 a
15	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B									
15	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B									
LSD (P=.05)										0.0	0.0	0.0	0.0	0.0	0.0	6.5	7.5	6.5
Replicate F										0.000	0.000	0.000	0.000	0.000	0.000	0.331	1.000	5.688
Replicate Prob(F)										1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7212	0.3806	0.0085
Treatment F										0.000	0.000	0.000	0.000	0.000	0.000	19.071	207.143	23.813
Treatment Prob(F)										1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

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Crop Code	Control	Control	Control	Control	Control	Control
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	5-21-07	6-18-07	9-27-07	5-21-07	6-18-07	9-27-07
Rating Date	0 DA-B	28 DA-B	@Harvest	0 DA-B	28 DA-B	@Harvest
Trt-Eval Interval	0 DA-B	28 DA-B	@Harvest	0 DA-B	28 DA-B	@Harvest

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code						
1	NONTREATED									0 g	0 c	0 a	0 j	0 g	0 g
2	KIH-485	85	WG	0.074	lb ai/a	1.39	oz/a	PRE	A	18	def	0 c	0 a	33 i	30 f
3	KIH-485	85	WG	0.094	lb ai/a	1.77	oz/a	PRE	A	22	cde	0 c	0 a	43 gh	37 ef
4	KIH-485	85	WG	0.134	lb ai/a	2.52	oz/a	PRE	A	23	cd	0 c	0 a	53 def	47 de
5	KIH-485	85	WG	0.16	lb ai/a	3	oz/a	PRE	A	27	cd	0 c	0 a	60 cd	47 de
6	KIH-485	85	WG	0.186	lb ai/a	3.5	oz/a	PRE	A	40	a	0 c	0 a	63 bc	53 bcd
7	KIH-485	85	WG	0.223	lb ai/a	4.2	oz/a	PRE	A	40	a	0 c	0 a	73 a	60 bc
8	KIH-485	85	WG	0.074	lb ai/a	1.39	oz/a	PRE	A	20	def	70 a	0 a	37 hi	47 de
8	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
8	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
9	KIH-485	85	WG	0.094	lb ai/a	1.77	oz/a	PRE	A	22	cde	70 a	0 a	47 fg	50 cd
9	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
9	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
10	KIH-485	85	WG	0.134	lb ai/a	2.52	oz/a	PRE	A	23	cd	63 b	0 a	50 efg	57 bcd
10	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
10	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
11	KIH-485	85	WG	0.16	lb ai/a	3	oz/a	PRE	A	27	cd	65 ab	0 a	57 cde	63 ab
11	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
11	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
12	KIH-485	85	WG	0.186	lb ai/a	3.5	oz/a	PRE	A	30	bc	70 a	0 a	60 cd	63 ab
12	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
12	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
13	KIH-485	85	WG	0.223	lb ai/a	4.2	oz/a	PRE	A	38	ab	70 a	0 a	73 a	63 ab
13	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
13	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
14	DUAL II MAGNUM	7.64	EC	1.24	lb ai/a	1.3	pt/a	PRE	A	12	f	0 c	0 a	70 ab	60 bc
15	DUAL II MAGNUM	7.64	EC	1.24	lb ai/a	1.3	pt/a	PRE	A	13	ef	68 ab	0 a	77 a	73 a
15	ROUNDUP ORIG MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	V3-4	B						
15	N-PAK AMS	100	LIQ	5.0	% v/v	5	% v/v	V3-4	B						
LSD (P=.05)										8.4	5.7	0.0	8.2	10.4	10.4
Replicate F										6.142	0.189	0.000	4.997	2.220	2.220
Replicate Prob(F)										0.0061	0.8287	1.0000	0.0139	0.1274	0.1274
Treatment F										14.160	316.669	0.000	48.842	24.390	24.390
Treatment Prob(F)										0.0001	0.0001	1.0000	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Trial Comments

1. Protocol: Kumiai.
2. Ratings: CI/WC 14-21 DA"A" and prior to POST; CI/WC 28 DA"B" and end of season.
3. KIH-485 alone treatments may need an application of a post-broadleaf herbicide if broadleaf weeds are a problem.
4. DA-B = Days after V3-4 application.
 Ratings at 0 DA-B were also 20 days after the PRE (A) application.
5. Not harvested.