

Impact Programs on Glyphosate-Resistant Weeds.

Trial ID: 15-KRC-ImpactPrograms Location: Kuehn Res. Center Trial Year: 2015  
Investigator: Ronald F. Krausz

**Trial Status:** F one-year/final  
**Initiation Date:** 5-24-15  
**Completion Date:** 10-8-15

**Trial Location**

**City:** Dowell **Country:** USA  
**State/Prov.:** Illinois IL  
**Postal Code:** 62927

**Objectives:**

Evaluate Impact programs on glyphosate-resistant common waterhemp.

**Contacts**

**Study Director:** Ronald F. Krausz **Title:** Researcher/Farm Manager  
**Organization:** Belleville Research Center - Southern Illinois Univ Carbondale  
**Address:** 2036 Charles Lane **Phone No.:** 618-566-4761  
**City+State/Prov:** Belleville, IL  
**Postal Code:** 62221 **E-mail:** rkrausz@siu.edu  
**Country:** USA

**Crop Description**

**Crop 1:** ZEAMD Zea mays indentata **Dent corn**  
**Variety:** DKC 63-33 **BBCH Scale:** BCOR  
**Description:** SS RIB  
**Planting Rate, Unit:** 32000 S/A **Planting Date:** 5-24-15  
**Depth, Unit:** 1.5 IN **Planting Method:** SEEDED  
**Row Spacing, Unit:** 30 IN

**Pest Description**

**Pest 1 Type:** W **Code:** AMATA *Amaranthus rudis* Sauer  
**Common Name:** waterhemp, common  
**Description:** glyphosate-resistant waterhemp  
**Pest 2 Type:** W **Code:** ERICA *Conyza canadensis* (L.) Crong.  
**Common Name:** horseweed  
**Description:** glyphosate-resistant marestail  
**Pest 3 Type:** W **Code:** PANDI *Panicum dichotomiflorum* Michx.  
**Common Name:** panicum, fall

**Site and Design**

**Treated Plot Width:** 6.67 FT **Total Plot Width:** 10 FT **Site Type:** FIELD  
**Treated Plot Length:** 30 FT **Total Plot Length:** 30 FT **Experimental Unit:** 1 PLOT  
**Tillage Type:** NOTILL no-till  
**Replications:** 4 **Study Design:** RACOB� Randomized Complete Block (RCB)  
**Untreated Arrangement:** INCLUDED single control randomized in each block

No.	Previous Crop	Year
1.	GLXMA	2014

**Maintenance**

No.	Maintenance Product Name
1.	N 150 LB/A, P2O5 0 LB/A, K2O 0 LB/A

**Soil Description**

**Description Name:** KRC3\_2011 NE corner  
**% OM:** 2.1 **Texture:** SIL silt loam  
**pH:** 6.95 **Soil Name:** Wynoose  
**CEC:** 9.3

**Additional Measured Elements**

Element	Quantity	Unit
P1	81	lb/A
K	205	lb/A

**Moisture and Weather Conditions**

**Overall Moisture Conditions:** ABONOR  
**Closest Weather Station:** SOUTHERN IL AIRPORT (93810) **Distance, Unit:** 11 MI

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No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	4-1-15					7	DAY	33	76	F
2.	4-2-15	2.72	IN	RAIN	rain	2	DAY			
3.	4-6-15	1.65	IN	RAIN	rain	4	DAY			
4.	4-8-15					7	DAY	43	78	F
5.	4-13-15	0.15	IN	RAIN	rain	4	DAY			
6.	4-15-15					7	DAY	42	79	F
7.	4-19-15	0.89	IN	RAIN	rain	3	DAY			
8.	4-22-15					7	DAY	36	77	F
9.	4-25-15	0.26	IN	RAIN	rain	1	DAY			
10.	4-29-15					7	DAY	36	84	F
11.	5-6-15					7	DAY	49	85	F
12.	5-7-15	1.59	IN	RAIN	rain	5	DAY			
13.	5-13-15					7	DAY	45	83	F
14.	5-14-15	0.49	IN	RAIN	rain	5	DAY			
15.	5-20-15					7	DAY	44	85	F
16.	5-20-15	0.46	IN	RAIN	rain	1	DAY			
17.	5-24-15	0.46	IN	RAIN	rain	1	DAY			
18.	5-25-15	0.05	IN	RAIN	rain	1	DAY			
19.	5-27-15					7	DAY	55	84	F
20.	5-27-15	0.13	IN	RAIN	rain	1	DAY			
21.	5-29-15	0.07	IN	RAIN	rain	1	DAY			
22.	5-30-15	0.62	IN	RAIN	rain	1	DAY			
23.	6-3-15					7	DAY	53	89	F
24.	6-5-15	0.1	IN	RAIN	rain	1	DAY			
25.	6-8-15	1.13	IN	RAIN	rain	1	DAY			
26.	6-10-15					7	DAY	64	91	F
27.	6-13-15	0.39	IN	RAIN	rain	2	DAY			
28.	6-16-15	1.78	IN	RAIN	rain	2	DAY			
29.	6-17-15					7	DAY	71	91	F
30.	6-19-15	3.17	IN	RAIN	rain	1	DAY			
31.	6-24-15					7	DAY	61	91	F
32.	6-25-15	0.18	IN	RAIN	rain	2	DAY			
33.	6-28-15	0.15	IN	RAIN	rain	1	DAY			
34.	7-1-15					7	DAY	65	85	F
35.	7-1-15	0.49	IN	RAIN	rain	1	DAY			
36.	7-2-15	0.86	IN	RAIN	rain	1	DAY			
37.	7-7-15	1.6	IN	RAIN	rain	1	DAY			
38.	7-8-15					7	DAY	64	93	F
39.	7-8-15	0.54	IN	RAIN	rain	1	DAY			
40.	7-9-15	0.27	IN	RAIN	rain	1	DAY			
41.	7-10-15	0.49	IN	RAIN	rain	1	DAY			
42.	7-15-15					7	DAY	68	92	F
43.	7-19-15	0.38	IN	RAIN	rain	1	DAY			
44.	7-20-15	0.25	IN	RAIN	rain	1	DAY			
45.	7-22-15					7	DAY	64	85	F
46.	7-26-15	1.63	IN	RAIN	rain	4	DAY			
47.	7-29-15					7	DAY	66	92	F
48.	8-5-15					7	DAY	63	87	F
49.	8-5-15	0.74	IN	RAIN	rain	2	DAY			
50.	8-9-15	0.62	IN	RAIN	rain	2	DAY			
51.	8-12-15					7	DAY	62	87	F
52.	8-18-15	1.1	IN	RAIN	rain	2	DAY			
53.	8-19-15					7	DAY	52	82	F
54.	8-22-15	0.12	IN	RAIN	rain	1	DAY			
55.	8-26-15					7	DAY	51	87	F

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56.	8-29-15	0.09	IN	RAIN	rain	1	DAY			
57.	9-2-15					7	DAY	66	92	F
58.	9-8-15	1.82	IN	RAIN	rain	2	DAY			
59.	9-9-15					7	DAY	45	83	F
60.	9-11-15	0.17	IN	RAIN	rain	2	DAY			
61.	9-16-15					7	DAY	48	88	F
62.	9-19-15	0.04	IN	RAIN	rain	1	DAY			
63.	9-23-15					7	DAY	50	85	F
64.	9-27-15	0.05	IN	RAIN	rain	2	DAY			
65.	9-29-15	0.95	IN	RAIN	rain	1	DAY			

**Application Description**

	A	B	C
<b>Application Date:</b>	5-27-15	6-23-15	6-23-15
<b>Appl. Start Time:</b>	8:00	10:30	10:30
<b>Appl. Stop Time:</b>	8:15	10:50	10:50
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	V2	V4
<b>Application Placement:</b>	BROSOI	BROFOL	BROFOL
<b>Applied By:</b>	EAE	EAE	EAE
<b>Air Temperature, Unit:</b>	69 F	88 F	88 F
<b>% Relative Humidity:</b>	100	70	70
<b>Wind Velocity, Unit:</b>	6 MPH	4 MPH	4 MPH
<b>Wind Direction:</b>	E	N	N
<b>Dew Presence (Y/N):</b>	N	N	N
<b>Soil Temperature, Unit:</b>	62 F	79 F	79 F
<b>Soil Moisture:</b>	ABONOR	NORMAL	NORMAL
<b>% Cloud Cover:</b>	99	99	99
<b>Next Moisture Occurred On:</b>	5-27-15	6-27-15	6-27-15
<b>Time to Next Moisture, Unit:</b>	1 HR	4 DAY	4 DAY

**Crop Stage At Each Application**

	A	B	C
<b>Crop 1 Code, BBCH Scale:</b>	ZEAMD	ZEAMD	ZEAMD
<b>Stage Scale Used:</b>	DESC	DESC	DESC
<b>Stage Majority, Percent:</b>	NA	V4	V4
<b>Stage Minimum, Percent:</b>		V2	V2
<b>Stage Maximum, Percent:</b>		V6	V6
<b>Height, Unit:</b>		10 IN	10 IN
<b>Height Minimum, Maximum:</b>		8 20	8 20

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Pest Stage At Each Application			
	A	B	C
<b>Pest 1 Code, Type, Scale:</b>	AMATA W	AMATA W	AMATA W
<b>Stage Majority, Percent:</b>	NA	6	6
<b>Stage Minimum, Percent:</b>		2	2
<b>Stage Maximum, Percent:</b>		35	35
<b>Height, Unit:</b>		3 IN	3 IN
<b>Height Minimum, Maximum:</b>		0.5 10	0.5 10
<b>Density, Unit:</b>		12 FT2	12 FT2
<b>Pest 2 Code, Type, Scale:</b>	ERICA W	ERICA W	ERICA W
<b>Stage Majority, Percent:</b>	NA	10+	10+
<b>Stage Minimum, Percent:</b>		10+	10+
<b>Stage Maximum, Percent:</b>		10+	10+
<b>Height, Unit:</b>		3 IN	3 IN
<b>Height Minimum, Maximum:</b>		1 3	1 3
<b>Density, Unit:</b>		0.001 FT2	0.001 FT2
<b>Pest 3 Code, Type, Scale:</b>	PANDI W	PANDI W	PANDI W
<b>Stage Majority, Percent:</b>	NA	5	5
<b>Stage Minimum, Percent:</b>		2	2
<b>Stage Maximum, Percent:</b>		7	7
<b>Height, Unit:</b>		10 IN	10 IN
<b>Height Minimum, Maximum:</b>		4 24	4 24
<b>Density, Unit:</b>		1 FT2	1 FT2

Application Equipment			
	A	B	C
<b>Appl. Equipment:</b>	CO2 sprayer	CO2 sprayer	CO2 sprayer
<b>Equipment Type:</b>	BACSPR	BACSPR	BACSPR
<b>Operation Pressure, Unit:</b>	30 PSI	30 PSI	30 PSI
<b>Nozzle Type:</b>	XR	XR	XR
<b>Nozzle Size:</b>	8002	8002	8002
<b>Boom Length, Unit:</b>	6.67 FT	6.67 FT	6.67 FT
<b>Spray Volume, Unit:</b>	15 GPA	15 GPA	15 GPA

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Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	ZEAMD 6-3-15 Injury Percent	ZEAMD 6-10-15 Injury Percent	ZEAMD 6-23-15 Injury Percent	ZEAMD 6-30-15 Injury Percent	ZEAMD 7-7-15 Injury Percent	ZEAMD 7-21-15 Injury Percent	
							7 DA-A	14 DA-A	0 DA-B+C 27 DA-A	7 DA-B 7 DA-C	14 DA-B 14 DA-C	28 DA-B 28 DA-C	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit	Appl Stage	Code				
1	NONTREATED									0	0	0	0
2	HARNESXTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A		0 a	0 a	0 a	0 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C					
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C					
3	HARNESXTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A		0 a	0 a	0 a	6 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C					4 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C					
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C					
	MSO (MSO ULTRA)	100	SL	0.5 % v/v	0.5 % v/v		V4	C					
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C					
4	HARNESXTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A		0 a	0 a	0 a	5 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C					4 a
	STATUS	56	WG	0.175 lb ae/a	5 oz/a		V4	C					
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C					
	MSO (MSO ULTRA)	100	SL	1 % v/v	1 % v/v		V4	C					
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C					
5	HARNESXTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		V2	B					4 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V2	B					3 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V2	B					
	MSO (MSO ULTRA)	100	SL	0.25 % v/v	0.25 % v/v		V2	B					
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B					
6	HALEX GT	4.389	CS	1.98 lb ai/a	3.6 pt/a		V2	B					6 a
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V2	B					5 a
	NIS	100	SL	0.25 % v/v	0.25 % v/v		V2	B					
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B					
LSD P=.05										2.5	4.5		
Standard Deviation							0.0	0.0	0.0	1.6	2.9	0.0	
CV							0.0	0.0	0.0	38.72	97.42	0.0	
Replicate F							0.000	0.000	0.000	2.923	0.390	0.000	
Replicate Prob(F)							1.0000	1.0000	1.0000	0.0773	0.7622	1.0000	
Treatment F							0.000	0.000	0.000	9.923	1.683	0.000	
Treatment Prob(F)							1.0000	1.0000	1.0000	0.0009	0.2182	1.0000	

Means followed by same letter do not significantly differ (P=.05, LSD)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Could not calculate LSD (% mean diff) for columns 10,13,16,28,32,11,12,15,18 because error mean square = 0.

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Pest Code							ZEAMD	
Crop Code							8-4-15	
Rating Date							Injury	
Rating Type							Percent	
Rating Unit							42 DA-B	
Rating Timing							42 DA-C	
Trt-Eval Interval								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Stage	Appl Code
1	NONTREATED							0
2	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
3	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C
	MSO (MSO ULTRA)	100	SL	0.5 % v/v	0.5 % v/v		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
4	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C
	STATUS	56	WG	0.175 lb ae/a	5 oz/a		V4	C
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C
	MSO (MSO ULTRA)	100	SL	1 % v/v	1 % v/v		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
5	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		V2	B
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V2	B
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V2	B
	MSO (MSO ULTRA)	100	SL	0.25 % v/v	0.25 % v/v		V2	B
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B
6	HALEX GT	4.389	CS	1.98 lb ai/a	3.6 pt/a		V2	B
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V2	B
	NIS	100	SL	0.25 % v/v	0.25 % v/v		V2	B
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B
LSD P=.05								.
Standard Deviation								0.0
CV								0.0
Replicate F								0.000
Replicate Prob(F)								1.0000
Treatment F								0.000
Treatment Prob(F)								1.0000

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Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	AMATA-HR	AMATA-HR	AMATA-HR	AMATA-HR	AMATA-HR				
							6-3-15 Control Percent	6-10-15 Control Percent	6-23-15 Control Percent	6-30-15 Control Percent	7-7-15 Control Percent				
							7 DA-A	14 DA-A	0 DA-B+C 27 DA-A	7 DA-C	14 DA-B 14 DA-C				
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Other Rate	Other Rate	Other Rate	Growth Stage	Appl Code					
1	NONTREATED										0	0	0	0	0
2	HARNESS XTRA 5.6L	5.6	EC	2.24	lb ai/a	3.2	pt/a		PRE	A	99 a	99 a	71 a	89 a	86 a
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a		V4	C					
	N-PAK AMS	100	SL	2.5	% v/v	2.5	% v/v		V4	C					
3	HARNESS XTRA 5.6L	5.6	EC	2.24	lb ai/a	3.2	pt/a		PRE	A	99 a	98 a	58 a	97 a	98 a
	IMPACT	2.8	SC	0.0164	lb ai/a	0.75	fl oz/a		V4	C					
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a		V4	C					
	AATREX 4L	4	SC	0.5	lb ai/a	1	pt/a		V4	C					
	MSO (MSO ULTRA)	100	SL	0.5	% v/v	0.5	% v/v		V4	C					
	N-PAK AMS	100	SL	2.5	% v/v	2.5	% v/v		V4	C					
4	HARNESS XTRA 5.6L	5.6	EC	2.24	lb ai/a	3.2	pt/a		PRE	A	99 a	97 a	51 a	91 a	99 a
	IMPACT	2.8	SC	0.0164	lb ai/a	0.75	fl oz/a		V4	C					
	STATUS	56	WG	0.175	lb ae/a	5	oz/a		V4	C					
	AATREX 4L	4	SC	0.5	lb ai/a	1	pt/a		V4	C					
	MSO (MSO ULTRA)	100	SL	1	% v/v	1	% v/v		V4	C					
	N-PAK AMS	100	SL	2.5	% v/v	2.5	% v/v		V4	C					
5	HARNESS XTRA 5.6L	5.6	EC	2.24	lb ai/a	3.2	pt/a		V2	B			80 a	93 a	
	IMPACT	2.8	SC	0.0164	lb ai/a	0.75	fl oz/a		V2	B					
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a		V2	B					
	MSO (MSO ULTRA)	100	SL	0.25	% v/v	0.25	% v/v		V2	B					
	N-PAK AMS	100	SL	2.5	% v/v	2.5	% v/v		V2	B					
6	HALEX GT	4.389	CS	1.98	lb ai/a	3.6	pt/a		V2	B			46 b	34 b	
	AATREX 4L	4	SC	0.5	lb ai/a	1	pt/a		V2	B					
	NIS	100	SL	0.25	% v/v	0.25	% v/v		V2	B					
	N-PAK AMS	100	SL	2.5	% v/v	2.5	% v/v		V2	B					
LSD P=.05								4.8	38.9	18.5	15.5				
Standard Deviation							0.0	2.8	22.5	12.0	10.1				
CV							0.0	2.85	37.45	14.9	12.26				
Replicate F							0.000	0.712	0.583	1.359	0.579				
Replicate Prob(F)							1.0000	0.5796	0.6476	0.3020	0.6397				
Treatment F							0.000	0.673	0.829	11.198	29.782				
Treatment Prob(F)							1.0000	0.5451	0.4808	0.0005	0.0001				

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Pest Code							AMATA-HR	AMATA-HR
Crop Code							7-21-15	8-4-15
Rating Date							Control	Control
Rating Type							Percent	Percent
Rating Unit							28 DA-B	42 DA-B
Rating Timing							28 DA-C	42 DA-C
Trt-Eval Interval								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Other Rate	Other Rate	Growth Stage	Appl Code
1	NONTREATED							
2	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
3	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C
	MSO (MSO ULTRA)	100	SL	0.5 % v/v	0.5 % v/v		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
4	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C
	STATUS	56	WG	0.175 lb ae/a	5 oz/a		V4	C
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C
	MSO (MSO ULTRA)	100	SL	1 % v/v	1 % v/v		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
5	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		V2	B
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V2	B
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V2	B
	MSO (MSO ULTRA)	100	SL	0.25 % v/v	0.25 % v/v		V2	B
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B
6	HALEX GT	4.389	CS	1.98 lb ai/a	3.6 pt/a		V2	B
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V2	B
	NIS	100	SL	0.25 % v/v	0.25 % v/v		V2	B
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B
LSD P=.05							11.8	28.3
Standard Deviation							7.7	18.3
CV							11.48	35.55
Replicate F							0.574	0.780
Replicate Prob(F)							0.6432	0.5274
Treatment F							111.984	13.527
Treatment Prob(F)							0.0001	0.0002



Impact Programs on Glyphosate-Resistant Weeds.

Trial ID: 15-KRC-ImpactPrograms Location: Kuehn Res. Center Trial Year: 2015  
 Investigator: Ronald F. Krausz

Pest Code							ERICA-HR	ERICA-HR	ERICA-HR	ERICA-HR	ERICA-HR
Crop Code							6-3-15	6-10-15	6-23-15	6-30-15	7-7-15
Rating Date							Control	Control	Control	Control	Control
Rating Type							Percent	Percent	Percent	Percent	Percent
Rating Unit							7 DA-A	14 DA-A	27 DA-A	7 DA-C	14 DA-B
Rating Timing									0 DA-B+C	7 DA-B	14 DA-B
Trt-Eval Interval							7 DA-A	14 DA-A	27 DA-A	7 DA-C	14 DA-C
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Stage	Appl Code			
1	NONTREATED								0	0	0
2	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A	99 a	99 a	99 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C			
3	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A	99 a	99 a	99 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C			
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C			
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C			
	MSO (MSO ULTRA)	100	SL	0.5 % v/v	0.5 % v/v		V4	C			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C			
4	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A	99 a	99 a	99 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C			
	STATUS	56	WG	0.175 lb ae/a	5 oz/a		V4	C			
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C			
	MSO (MSO ULTRA)	100	SL	1 % v/v	1 % v/v		V4	C			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C			
5	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		V2	B		89 a	88 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V2	B			
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V2	B			
	MSO (MSO ULTRA)	100	SL	0.25 % v/v	0.25 % v/v		V2	B			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B			
6	HALEX GT	4.389	CS	1.98 lb ai/a	3.6 pt/a		V2	B		82 a	82 a
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V2	B			
	NIS	100	SL	0.25 % v/v	0.25 % v/v		V2	B			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B			
LSD P=.05							.	.	.	17.6	17.2
Standard Deviation							0.0	0.0	0.0	11.4	11.2
CV							0.0	0.0	0.0	12.22	11.93
Replicate F							0.000	0.000	0.000	1.843	1.980
Replicate Prob(F)							1.0000	1.0000	1.0000	0.1930	0.1709
Treatment F							0.000	0.000	0.000	1.839	2.015
Treatment Prob(F)							1.0000	1.0000	1.0000	0.1862	0.1563

Impact Programs on Glyphosate-Resistant Weeds.

Trial ID: 15-KRC-ImpactPrograms Location: Kuehn Res. Center Trial Year: 2015  
 Investigator: Ronald F. Krausz

Pest Code							ERICA-HR	ERICA-HR
Crop Code							7-21-15	8-4-15
Rating Date							Control	Control
Rating Type							Percent	Percent
Rating Unit							28 DA-B	42 DA-B
Rating Timing							28 DA-C	42 DA-C
Trt-Eval Interval								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Stage	Appl Code
1	NONTREATED							
2	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
3	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C
	MSO (MSO ULTRA)	100	SL	0.5 % v/v	0.5 % v/v		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
4	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C
	STATUS	56	WG	0.175 lb ae/a	5 oz/a		V4	C
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C
	MSO (MSO ULTRA)	100	SL	1 % v/v	1 % v/v		V4	C
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C
5	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		V2	B
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V2	B
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V2	B
	MSO (MSO ULTRA)	100	SL	0.25 % v/v	0.25 % v/v		V2	B
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B
6	HALEX GT	4.389	CS	1.98 lb ai/a	3.6 pt/a		V2	B
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V2	B
	NIS	100	SL	0.25 % v/v	0.25 % v/v		V2	B
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B
LSD P=.05							42.0	42.5
Standard Deviation							27.3	27.6
CV							34.87	35.9
Replicate F							1.919	2.011
Replicate Prob(F)							0.1804	0.1662
Treatment F							5.148	5.130
Treatment Prob(F)							0.0119	0.0121

## Impact Programs on Glyphosate-Resistant Weeds.

Trial ID: 15-KRC-ImpactPrograms Location: Kuehn Res. Center Trial Year: 2015  
Investigator: Ronald F. Krausz

Pest Code							PANDI	PANDI	PANDI	PANDI	PANDI
Crop Code							6-23-15	6-30-15	7-7-15	7-21-15	8-4-15
Rating Date							Control	Control	Control	Control	Control
Rating Type							Percent	Percent	Percent	Percent	Percent
Rating Unit							0 DA-B+C	7 DA-B	14 DA-B	28 DA-B	42 DA-B
Rating Timing							27 DA-A	7 DA-C	14 DA-C	28 DA-C	42 DA-C
Trt-Eval Interval											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit	Appl Stage	Code		
1	NONTREATED									0	0
2	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A		76 a	99 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C			98 a
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C			93 a
3	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A		69 a	98 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C			98 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V4	C			93 a
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C			78 ab
	MSO (MSO ULTRA)	100	SL	0.5 % v/v	0.5 % v/v		V4	C			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C			
4	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		PRE	A		50 a	91 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V4	C			94 a
	STATUS	56	WG	0.175 lb ae/a	5 oz/a		V4	C			97 a
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V4	C			71 b
	MSO (MSO ULTRA)	100	SL	1 % v/v	1 % v/v		V4	C			
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V4	C			
5	HARNESS XTRA 5.6L	5.6	EC	2.24 lb ai/a	3.2 pt/a		V2	B			96 a
	IMPACT	2.8	SC	0.0164 lb ai/a	0.75 fl oz/a		V2	B		96 a	99 a
	ROUNDUP POWERMAX	4.5	SL	1.13 lb ae/a	32 fl oz/a		V2	B			96 a
	MSO (MSO ULTRA)	100	SL	0.25 % v/v	0.25 % v/v		V2	B			88 a
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B			
6	HALEX GT	4.389	CS	1.98 lb ai/a	3.6 pt/a		V2	B			64 b
	AATREX 4L	4	SC	0.5 lb ai/a	1 pt/a		V2	B			28 b
	NIS	100	SL	0.25 % v/v	0.25 % v/v		V2	B			15 b
	N-PAK AMS	100	SL	2.5 % v/v	2.5 % v/v		V2	B			0 c
LSD P=.05							38.4	13.8	22.1	12.7	15.5
Standard Deviation							22.2	8.9	14.4	8.3	10.1
CV							34.14	10.0	17.27	10.52	15.93
Replicate F							0.564	1.792	1.391	1.080	0.084
Replicate Prob(F)							0.6583	0.2023	0.2930	0.3944	0.9677
Treatment F							1.485	10.748	18.854	74.192	50.592
Treatment Prob(F)							0.2992	0.0006	0.0001	0.0001	0.0001

## Impact Programs on Glyphosate-Resistant Weeds.

Trial ID: 15-KRC-ImpactPrograms      Location: Kuehn Res. Center      Trial Year: 2015  
Investigator: Ronald F. Krausz

## Trial Comments

1. Protocol: AMVAC (15C04H028B Gly-R).
2. Ratings:
  - CI at 7 and 14 DA-A, B, and C;
  - WC at 7, 14, and 28 DA-A, prior to every POST (B+C);
  - WC at 7, 14, 28 and 42 DA-B;
  - WC at 7, 14, 28 and 42 DA-C.Rate each POST timing at different dates but record in the same column by DAT.  
Rate weeds by species; target lambsquarters, waterhemp, marestail, giant and common ragweed.
3. Yield.
4. Blanket application of Roundup Powermax (32 floz/A) was applied to all plots on 4-23-15.  
Start clean; blanket paraquat at planting if needed, Gramoxone (3 pt/A) was applied 5-27-15.
5. Application B (V2) = Corn stage V2 and 2 to 5 inch weeds.  
Application C (V4) = Corn stage V4 and 2 to 5 inch weeds.
6. AMATA-HR = Herbicide-resistant waterhemp (glyphosate).  
ERICA-HR = Herbicide-resistant marestail (glyphosate).  
Annual grasses in the nontreated and POST only plots was a mixture of giant foxtail and fall panicum,  
Where giant foxtail was controlled with a PRE application, the primary grass was late emerging fall panicum.
7. Planting was delayed due to wet soil conditions in early spring, and when finally planted  
the soil was still wetter than desired with more rain following planting,  
which resulted in poor emergence in some spots.  
Corn seed was hand planted into bare spots 10 days after the original planting date  
resulting in the wide range of corn sizes at POST applications B and C.  
Overall yield was quite variable and not always related to weed control.  
Lower than expected yield was likely due to denitification due to standing water.
8. Harvested 10-8-15, (2) 30 inch rows by 24 ft (not reported).