

Impact Programs for Glyphosate-Resistant Waterhemp.

Trial ID: 14-DSO-AMVAC-GRW Location: De Soto, IL Trial Year: 2014
Investigator: Ronald F. Krausz

Trial Status: F one-year/final Initiation Date: 5-23-14 Completion Date: 8-12-14	Trial Location City: De Soto Country: USA State/Prov.: Illinois IL Postal Code: 62924
---	---

Objectives:
Evaluate Impact when used alone and in tank-mixes with glyphosate for control of glyphosate-tolerant weeds.

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

Crop 1: ZEAMD Zea mays indentata Dent corn Variety: DKC 63-33 BBCH Scale: BCOR Description: SS RIB Planting Rate, Unit: 30000 S/A Planting Date: 5-23-14 Depth, Unit: 1.5 IN Planting Method: SEEDED Row Spacing, Unit: 30 IN	Crop Description
--	-------------------------

Pest 1 Type: W Code: AMATAAmaranthus rudis Sauer Common Name: waterhemp, common Description: glyphosate-resistant waterhemp	Pest Description
---	-------------------------

Treated Plot Width: 6.67 FT Total Plot Width: 10 FT Treated Plot Length: 30 FT Total Plot Length: 30 FT Replications: 3 Untreated Arrangement: INCLUDED single control randomized in each block	Site and Design Site Type: FIELD Experimental Unit: 1 PLOT Tillage Type: NOTILL no-till Study Design: RACOB L Randomized Complete Block (RCB)
--	--

No.	Previous Crop	Year
1.	ZEAMD	2013

Maintenance <table border="1"> <thead> <tr> <th>No.</th> <th>Maintenance Product Name</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>N 180 LB/A, P2O5 0 LB/A, K2O 0 LB/A</td> </tr> </tbody> </table>	No.	Maintenance Product Name	1.	N 180 LB/A, P2O5 0 LB/A, K2O 0 LB/A
No.	Maintenance Product Name			
1.	N 180 LB/A, P2O5 0 LB/A, K2O 0 LB/A			

% Sand: 14 % OM: 2.12 Texture: SIL silt loam % Silt: 67 pH: 6.9 Soil Name: Okaw % Clay: 19 CEC: 12.7	Soil Description
--	-------------------------

Element	Quantity	Unit
P1	112	lb/A
K	386	lb/A

Overall Moisture Conditions: NORMAL Closest Weather Station: SOUTHERN IL AIRPORT (93810)	Moisture and Weather Conditions Distance, Unit: 1.5 MI
---	---

Impact Programs for Glyphosate-Resistant Waterhemp.

Trial ID: 14-DSO-AMVAC-GRW Location: De Soto, IL Trial Year: 2014
Investigator: Ronald F. Krausz

No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	4-29-14					7	DAY	39	84	F
2.	5-6-14					7	DAY	54	83	F
3.	5-8-14	1.25	IN	RAIN	rain	2	DAY			
4.	5-11-14	0.34	IN	RAIN	rain	1	DAY			
5.	5-13-14	2.53	IN	RAIN	rain	3	DAY			
6.	5-13-14					7	DAY	39	80	F
7.	5-20-14					7	DAY	46	85	F
8.	5-22-14	0.06	IN	RAIN	rain	1	DAY			
9.	5-25-14	0.07	IN	RAIN	rain	2	DAY			
10.	5-27-14					7	DAY	62	88	F
11.	5-30-14	0.09	IN	RAIN	rain	1	DAY			
12.	6-1-14	0.66	IN	RAIN	rain	2	DAY			
13.	6-3-14					7	DAY	64	88	F
14.	6-4-14	0.91	IN	RAIN	rain	1	DAY			
15.	6-7-14	0.32	IN	RAIN	rain	1	DAY			
16.	6-9-14	0.71	IN	RAIN	rain	2	DAY			
17.	6-10-14					7	DAY	51	91	F
18.	6-12-14	0.06	IN	RAIN	rain	1	DAY			
19.	6-17-14					7	DAY	69	93	F
20.	6-24-14	1.69	IN	RAIN	rain	1	DAY			
21.	6-24-14					7	DAY	67	92	F
22.	6-29-14	0.08	IN	RAIN	rain	1	DAY			
23.	7-1-14	0.81	IN	RAIN	rain	1	DAY			
24.	7-1-14					7	DAY	55	90	F
25.	7-8-14	0.15	IN	RAIN	rain	1	DAY			
26.	7-13-14	0.71	IN	RAIN	rain	2	DAY			
27.	7-15-14					7	DAY	54	85	F
28.	7-22-14					7	DAY	56	91	F
29.	7-23-14	0.16	IN	RAIN	rain	1	DAY			
30.	7-29-14					7	DAY	55	87	F
31.	8-5-14	0.13	IN	RAIN	rain	1	DAY			
32.	8-5-14					7	DAY	63	89	F
33.	8-7-14	1.95	IN	RAIN	rain	3	DAY			
34.	8-11-14	0.19	IN	RAIN	rain	1	DAY			
35.	8-12-14					7	DAY	56	84	F
36.	8-16-14	0.77	IN	RAIN	rain	2	DAY			
37.	8-19-14					7	DAY	66	93	F
38.	8-26-14					7	DAY	68	94	F
39.	8-28-14	0.02	IN	RAIN	rain	1	DAY			
40.	8-30-14	0.49	IN	RAIN	rain	1	DAY			

Application Description

	A
Application Date:	6-13-14
Appl. Start Time:	17:00
Appl. Stop Time:	17:40
Application Method:	Spray
Application Timing:	2-4"W
Application Placement:	BROFOL
Applied By:	LXF
Air Temperature, Unit:	78 F
% Relative Humidity:	35
Wind Velocity, Unit:	1 MPH
Wind Direction:	S
Dew Presence (Y/N):	N
Soil Temperature, Unit:	76 F
Soil Moisture:	NORMAL
% Cloud Cover:	5
Next Moisture Occurred On:	6-24-14
Time to Next Moisture, Unit:	11 DAY

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	ZEAMD
Stage Scale Used:	DESC
Stage Majority, Percent:	V4
Stage Minimum, Percent:	V4
Stage Maximum, Percent:	V4
Height, Unit:	18 IN
Height Minimum, Maximum:	14 18

Impact Programs for Glyphosate-Resistant Waterhemp.

Trial ID: 14-DSO-AMVAC-GRW Location: De Soto, IL Trial Year: 2014
Investigator: Ronald F. Krausz**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale:	AMATA W
Stage Majority, Percent:	8
Stage Minimum, Percent:	4
Stage Maximum, Percent:	16
Height, Unit:	4 IN
Height Minimum, Maximum:	1 6
Density, Unit:	10 FT2

Application Equipment

	A
Appl. Equipment:	CO2 sprayer
Equipment Type:	BACSPR
Operation Pressure, Unit:	30 PSI
Nozzle Type:	XR
Nozzle Size:	8002
Boom Length, Unit:	6.67 FT
Spray Volume, Unit:	15 GPA

Southern Illinois University

Impact Programs for Glyphosate-Resistant Waterhemp.

Trial ID: 14-DSO-AMVAC-GRW Location: De Soto, IL Trial Year: 2014
Investigator: Ronald F. Krausz

Pest Code										ZEAMD	ZEAMD	ZEAMD	ZEAMD
Crop Code										6-20-14	6-28-14	7-13-14	8-12-14
Rating Date										Injury	Injury	Injury	Injury
Rating Type										Percent	Percent	Percent	Percent
Rating Unit													
Rating Timing													
Trt-Eval Interval										7 DA-A	15 DA-A	30 DA-A	60 DA-A
Trt Treatment	Form	Form	Rate	Other	Other	Growth	Appl						
No. Name	Conc	Type	Rate	Rate	Rate	Unit	Stage	Code					
1 NONTREATED									0	0	0	0	
2 ROUNDUP POWERMAX	4.5 SL		1.13 lb ae/a	32 fl oz/a	2-4"W	A			0b	0c	0a	0a	
N-PAK AMS	100 SL		2.5 % v/v	2.5 % v/v	2-4"W	A							
3 IMPACT	2.8 SC		0.0164 lb ai/a	0.75 fl oz/a	2-4"W	A			0b	0c	0a	0a	
ROUNDUP POWERMAX	4.5 SL		1.13 lb ae/a	32 fl oz/a	2-4"W	A							
AATREX 4L	4 SC		1 lb ai/a	2 pt/a	2-4"W	A							
MSO (MSO ULTRA)	100 SL		0.50 % v/v	0.5 % v/v	2-4"W	A							
N-PAK AMS	100 SL		2.5 % v/v	2.5 % v/v	2-4"W	A							
4 IMPACT	2.8 SC		0.0164 lb ai/a	0.75 fl oz/a	2-4"W	A			2b	2bc	0a	0a	
ROUNDUP POWERMAX	4.5 SL		1.13 lb ae/a	32 fl oz/a	2-4"W	A							
STATUS	56 WG		0.175 lb ae/a	5 oz/a	2-4"W	A							
AATREX 4L	4 SC		1 lb ai/a	2 pt/a	2-4"W	A							
MSO (MSO ULTRA)	100 SL		0.50 % v/v	0.5 % v/v	2-4"W	A							
N-PAK AMS	100 SL		2.5 % v/v	2.5 % v/v	2-4"W	A							
5 HARNESS XTRA 5.6L	5.6 EC		2.24 lb ai/a	3.2 pt/a	2-4"W	A			10a	5a	1a	0a	
IMPACT	2.8 SC		0.0164 lb ai/a	0.75 fl oz/a	2-4"W	A							
ROUNDUP POWERMAX	4.5 SL		1.13 lb ae/a	32 fl oz/a	2-4"W	A							
MSO (MSO ULTRA)	100 SL		0.50 % v/v	0.5 % v/v	2-4"W	A							
N-PAK AMS	100 SL		2.5 % v/v	2.5 % v/v	2-4"W	A							
6 HALEX GT	4.389 CS		1.97 lb ai/a	3.6 pt/a	2-4"W	A			4b	3b	2a	0a	
AATREX 4L	4 SC		1 lb ai/a	2 pt/a	2-4"W	A							
NIS (ACTIVATOR 90)	100 SL		0.25 % v/v	0.25 % v/v	2-4"W	A							
N-PAK AMS	100 SL		2.5 % v/v	2.5 % v/v	2-4"W	A							
LSD (P=.05)									3.8	2.2	1.9	0.0	
Standard Deviation									2.0	1.2	1.0	0.0	
CV									66.67	60.47	147.48	0.0	
Replicate F									0.000	1.366	0.483	0.000	
Replicate Prob(F)									1.0000	0.3088	0.6340	1.0000	
Treatment F									12.125	9.561	2.759	0.000	
Treatment Prob(F)									0.0018	0.0039	0.1036	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.

Southern Illinois University

Impact Programs for Glyphosate-Resistant Waterhemp.

Trial ID: 14-DSO-AMVAC-GRW Location: De Soto, IL Trial Year: 2014
Investigator: Ronald F. Krausz

Pest Code									AMATA-HR	AMATA-HR	AMATA-HR	AMATA-HR
Crop Code									6-20-14	6-28-14	7-13-14	8-12-14
Rating Date									Control	Control	Control	Control
Rating Type									Percent	Percent	Percent	Percent
Rating Unit												
Rating Timing												
Trt-Eval Interval									7 DA-A	15 DA-A	30 DA-A	60 DA-A
Trt Treatment	Form	Form	Rate	Other	Other	Growth	Appl					
No. Name	Conc	Type	Rate	Rate	Rate	Unit	Stage	Code				
1 NONTREATED									0	0	0	0
2 ROUNDUP POWERMAX N-PAK AMS	4.5 SL 100 SL		1.13 lb ae/a 2.5 % v/v		32 fl oz/a 2.5 % v/v		2-4"W A 2-4"W A		12 b	10 d	27 b	32 b
3 IMPACT ROUNDUP POWERMAX AATREX 4L MSO (MSO ULTRA) N-PAK AMS	2.8 SC 4.5 SL 4 SC 100 SL 100 SL		0.0164 lb ai/a 1.13 lb ae/a 1 lb ai/a 0.50 % v/v 2.5 % v/v		0.75 fl oz/a 32 fl oz/a 2 pt/a 0.5 % v/v 2.5 % v/v		2-4"W A 2-4"W A 2-4"W A 2-4"W A 2-4"W A		98 a	97 c	95 a	94 a
4 IMPACT ROUNDUP POWERMAX STATUS AATREX 4L MSO (MSO ULTRA) N-PAK AMS	2.8 SC 4.5 SL 56 WG 4 SC 100 SL 100 SL		0.0164 lb ai/a 1.13 lb ae/a 0.175 lb ae/a 1 lb ai/a 0.50 % v/v 2.5 % v/v		0.75 fl oz/a 32 fl oz/a 5 oz/a 2 pt/a 0.5 % v/v 2.5 % v/v		2-4"W A 2-4"W A 2-4"W A 2-4"W A 2-4"W A 2-4"W A		98 a	98 b	96 a	95 a
5 HARNESS XTRA 5.6L IMPACT ROUNDUP POWERMAX MSO (MSO ULTRA) N-PAK AMS	5.6 EC 2.8 SC 4.5 SL 100 SL 100 SL		2.24 lb ai/a 0.0164 lb ai/a 1.13 lb ae/a 0.50 % v/v 2.5 % v/v		3.2 pt/a 0.75 fl oz/a 32 fl oz/a 0.5 % v/v 2.5 % v/v		2-4"W A 2-4"W A 2-4"W A 2-4"W A 2-4"W A		98 a	98 ab	97 a	97 a
6 HALEX GT AATREX 4L NIS (ACTIVATOR 90) N-PAK AMS	4.389 CS 4 SC 100 SL 100 SL		1.97 lb ai/a 1 lb ai/a 0.25 % v/v 2.5 % v/v		3.6 pt/a 2 pt/a 0.25 % v/v 2.5 % v/v		2-4"W A 2-4"W A 2-4"W A 2-4"W A		99 a	98 a	97 a	97 a
LSD (P=.05)									2.5	0.6	6.6	3.6
Standard Deviation									1.3	0.3	3.5	1.9
CV									1.63	0.43	4.23	2.29
Replicate F									1.385	1.714	1.417	0.516
Replicate Prob(F)									0.3045	0.2401	0.2973	0.6154
Treatment F									2600.385	39606.575	239.707	680.396
Treatment Prob(F)									0.0001	0.0001	0.0001	0.0001

Impact Programs for Glyphosate-Resistant Waterhemp.

Trial ID: 14-DSO-AMVAC-GRW Location: De Soto, IL Trial Year: 2014
Investigator: Ronald F. Krausz

Trial Comments

1. Protocol: AMVAC (GLY-RES WEEDS).
2. Ratings: CI 7, 15, and 30 DA-A; WC 7, 15, 30 and 60 DA-A.
3. Yield not requested.
4. Blanket PRE application (start clean) of Gramoxone (4 pt/A) + Clethodim 2EC (8 floz/A) + COC (1%) was applied to all plots on 5-23-14
5. Following the 2-4"W application the first rainfall was 1.69 inch 11 days later.
6. AMATA-HR = Herbicide-resistant waterhemp (glyphosate).
7. Crop injury was stunting and slight chlorosis.
8. Not harvested.