

Purdue Weed Science

Fierce 64.01 - Liberty Link Soybean - Waterhemp
 Trial ID: 17S-MGS-Soy-06 Location: Meigs Trial Year: 2017
 Protocol ID: 17S-MGS-Soy-06 Investigator: Dr. Bill Johnson
 Project ID: Fierce 64.01 - LL Soy Study Director: Taylor Campbell
 Sponsor Contact: Eric Ott - Valent

General Trial Information

Study Director: Taylor Campbell
Investigator: Dr. Bill Johnson

Discipline: H herbicide
Trial Status: E established
Initiation Date: 4/17/2017

Trial Location

City: Indiana **Country:** USA United States
State/Prov.: Lafayette
Postal Code: 47909

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Taylor Campbell
Organization: Purdue University
Address: 915 W State Street
City+State/Prov: West Lafayette, IN
Postal Code: 47907
Country: USA United States

Investigator: Dr. Bill Johnson
Organization: Purdue University
Address: 915 W State Street
City+State/Prov: West Lafayette, IN
Postal Code: 47907
Country: USA United States

Cooperator/Landowner
Cooperator: Jay Young **Role:** Superintendent
Organization: Purdue University
Address 1: 8343 US 231 S
City: Lafayette **Phone No.:** 765-538-3422
State/Prov: IN **Fax No.:** 765-538-3423
Postal Code: 47909
Country: USA United States **E-mail:** jayyoung@purdue.edu

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: CZ2915LL

Planting Rate, Unit: 140000 S/A
Depth, Unit: 1 IN
Row Spacing, Unit: 30 IN
Planting Density, Unit: 140000 S/A
Soil Temperature, Unit: 70 F
Soil Moisture: DAMP damp

Planting Date: 5/30/2017
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: 6/4/2017

Pest Description

Pest 1 Type: W **Code:** AMATA Amaranthus tamariscinus
Common Name: Common waterhemp

Site and Design

Treated Plot Width: 6.67 FT

Treated Plot Length: 25 FT

Treated Plot Area: 166.75 FT² Treatments: 8

Replications: 4

Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Type	Maintenance Product Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit
1.	4/13/2017	HERB	ROUNDUP POWERMAX	4.5	LBAE/GA	SL	32	FL OZ/A
2.	4/13/2017	HERB	SHREDDER 2,4-D LV4	3.8	LBAE/GA	SL	1	PT/A
3.	4/13/2017	ADJ	N-PAK	3.4	LBA/GAL	L	2.5	% V/V
4.	5/22/2017	HERB	GRAMOXONE SL	2	LBAE/GA	SL	4	PT/A
5.	5/22/2017	ADJ	COC	100	%	SL	1	% V/V
6.	5/29/2017	HERB	GRAMOXONE SL	2	LBAE/GA	SL	3	PT/A
7.	5/29/2017	ADJ	COC	100	%	SL	1	% V/V

Field Prep./Maintenance:

The trial area was cleaned in early spring with glyphosate and 2,4-D to encourage germination of waterhemp. Paraquat was sprayed twice before planting to keep the trial clean at planting.

Soil Description

Description Name: MGS-S3

% Sand: 40.7	% OM: 2.3	Texture: L	loam
% Silt: 38.6	pH: 6.5	Soil Name: Starks-Fincastle complex	
% Clay: 20.7	CEC: 14.3	Fert. Level: G	good

Application Description

	A	B	C
Application Date:	5/30/2017	7/3/2017	7/17/2017
Appl. Start Time:	4:25 PM	10:05 AM	2:40 PM
Appl. Stop Time:	4:35 PM	10:30 AM	2:55 PM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PREPLA	POSPOS	POSPOS
Application Placement:	BROADC	BROADC	BROADC
Applied By:	N. Steppig	T. Campbell	T. Campbell
Air Temperature, Unit:	83 F	87 F	86 F
% Relative Humidity:	41	61	67
Wind Velocity, Unit:	3 MPH	1 MPH	1 MPH
Wind Direction:	W	NW	NE
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	80 F	90 F	87 F
Soil Moisture:	SLIWET	DRY	DRY
% Cloud Cover:	50	20	30

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH	BBCH
Stage Majority, Percent:		16	51
Stage Minimum, Percent:		15	19
Stage Maximum, Percent:		17	55
Height, Unit:		12 IN	16 IN
Height Minimum, Maximum:		12 14	14 18

Pest Stage At Each Application			
	A	B	C
Pest 1 Code, Type, Scale:	AMATA W	AMATA W	AMATA W
Stage Majority, Percent:		17	16
Stage Minimum, Percent:		16	15
Stage Maximum, Percent:		19	19
Height, Unit:		4 IN	2 IN
Height Minimum, Maximum:		2 8	2 4
Density, Unit:		8 FT2	0.25 FT2

Application Equipment			
	A	B	C
Appl. Equipment:	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:	BACCAI	BACCAI	BACCAI
Operation Pressure, Unit:	43 PSI	27 PSI	27 PSI
Nozzle Type:	TTI	XR	XR
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 IN	20 IN	20 IN
Nozzles/Row:	4	4	4
Boom Length, Unit:	6.7 FT	6.7 FT	6.7 FT
Boom Height, Unit:	15 IN	25 IN	30 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size, Unit:	945 mL	945 mL	945 mL
Propellant:	COMCO2	COMCO2	COMCO2

Trt No Treatment Application Comment
 Weeds were small at C application and pressure was low, except for treatment 2 weeds were large and not completely dead from app B

Purdue Weed Science

Trial ID: 17S-MGS-Soy-06	Fierce 64.01 - Liberty Link Soybean - Waterhemp
Protocol ID: 17S-MGS-Soy-06	Location: Meigs Trial Year: 2017
Project ID: Fierce 64.01 - LL Soy	Investigator: Dr. Bill Johnson
	Study Director: Taylor Campbell
	Sponsor Contact: Eric Ott - Valent

Reps: 4 Plots: 6.67 by 25 feet
 Spray vol: 15 GAL/AC Mix Size: 945 mL (869.45 mL calculated mix size)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	UNTREATED CHECK									101	404	602	704
2	LIBERTY 280 SL	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx	102	402	601	801
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	C	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	L	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				
3	FIERCE	76	%W/W	WG	3 oz wt/a		PREE	A	1.415 g/mx	103	401	503	701
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	C	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	EC	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				
4	BOUNDARY	6.5	LB/GAL	EC	2 pt/a		PREE	A	15.75 ml/mx	104	403	504	802
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	C	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	EC	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				
5	AUTHORITY ELITE	7	LB/GAL	EC	25 fl oz/a		PREE	A	12.3 ml/mx	201	303	502	703
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	B	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	EC	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				
6	ZIDUA PRO	4.09	LB/GAL	SC	4.5 fl oz/a		PREE	A	2.215 ml/mx	202	304	501	803
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	C	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	EC	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				
7	FIERCE MTZ SC (2030)	2.64	LB/GAL	SC	1 pt/a		PREE	A	7.875 ml/mx	203	301	603	702
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	C	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	EC	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				
8	FIERCE	76	%W/W	WG	3.75 oz wt/a		PREE	A	1.769 g/mx	204	302	604	804
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		EPOT	B	14.27 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		EPOT	B	23.62 ml/mx				
	LIBERTY 280	2.34	LB/GAL	SL	29 fl oz/a		POST	C	14.27 ml/mx				
	SELECT MAX	0.97	LB/GAL	EC	6 fl oz/a		POST	C	2.953 ml/mx				
	N-PAK	3.4	LBA/GAL	L	2.5 % v/v		POST	C	23.62 ml/mx				
	NIS	100	%W/W	SF	0.25 % v/v		POST	C	2.362 ml/mx				

Sort Order: Replicate 1

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Trial ID: 17S-MGS-Soy-06	Location: Meigs	Trial Year: 2017
Protocol ID: 17S-MGS-Soy-06	Investigator: Dr. Bill Johnson	
Project ID: Fierce 64.01 - LL Soy	Study Director: Taylor Campbell	
	Sponsor Contact: Eric Ott - Valent	

				W Weed AMATA		W Weed AMATA	
Pest Type				Common waterhe>		Common waterhe>	
Pest Code					GLXMA		GLXMA
Pest Name					Soybean		Soybean
Crop Code					6/20/2017		6/26/2017
Crop Name					6/20/2017		6/26/2017
Rating Date					PHYGEN		PHYGEN
Rating Type					CONTRO		CONTRO
Rating Unit					%		%
Number of Subsamples					1		1
Assessed By					T. Campbell		T. Campbell
Days After First/Last Applic.					21 21		27 27
Trt-Eval Interval					21 DA-A		27 DA-A
Days After Emergence					16 DE-1		22 DE-1
ARM Action Codes					P		P
Number of Decimals					0		0
Trt Treatment	Rate	Appl		1	2	3	4
No. Name	Rate Unit	Code Plot					
1 UNTREATED CHECK		101		0	0	0	0
		404		0	0	0	0
		602		0	0	0	0
		704		0	0	0	0
		Mean =		0	0	0	0
2 LIBERTY 280 SL	29 fl oz/a	B 102		0	0	0	0
N-PAK	2.5 % v/v	B 402		0	0	0	0
LIBERTY 280	29 fl oz/a	C 601		0	0	0	0
SELECT MAX	6 fl oz/a	C 801		0	0	0	0
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		0	0	0	0
3 FIERCE	3 oz wt/a	A 103		100	5	100	0
LIBERTY 280	29 fl oz/a	B 401		100	10	98	0
N-PAK	2.5 % v/v	B 503		100	5	98	0
LIBERTY 280	29 fl oz/a	C 701		90	5	100	0
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		98	6	99	0
4 BOUNDARY	2 pt/a	A 104		100	0	100	0
LIBERTY 280	29 fl oz/a	B 403		90	0	70	0
N-PAK	2.5 % v/v	B 504		95	5	90	0
LIBERTY 280	29 fl oz/a	C 802		95	0	80	0
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		95	1	85	0
5 AUTHORITY ELITE	25 fl oz/a	A 201		100	0	95	0
LIBERTY 280	29 fl oz/a	B 303		90	0	85	0
N-PAK	2.5 % v/v	B 502		85	0	75	0
LIBERTY 280	29 fl oz/a	B 703		95	0	90	0
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		93	0	86	0

Pest Type Pest Code Pest Name Crop Code Crop Name Rating Date Rating Type Rating Unit Number of Subsamples Assessed By Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals				W Weed AMATA Common waterhe>	GLXMA Soybean 6/20/2017 PHYGEN % 1 T. Campbell 21 21 21 DA-A 16 DE-1 P 0	W Weed AMATA Common waterhe>	GLXMA Soybean 6/26/2017 PHYGEN % 1 T. Campbell 27 27 27 DA-A 22 DE-1 P 0
Trt Treatment No. Name	Rate Rate Unit	Appl Code Plot	1	2	3	4	
6 ZIDUA PRO	4.5 fl oz/a	A 202	95	0	85	0	
LIBERTY 280	29 fl oz/a	B 304	90	0	75	0	
N-PAK	2.5 % v/v	B 501	90	0	70	0	
LIBERTY 280	29 fl oz/a	C 803	85	0	70	0	
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =	90	0	75	0	
7 FIERCE MTZ SC (2030)	1 pt/a	A 203	100	0	100	0	
LIBERTY 280	29 fl oz/a	B 301	98	5	95	0	
N-PAK	2.5 % v/v	B 603	100	10	100	0	
LIBERTY 280	29 fl oz/a	C 702	100	5	100	0	
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =	100	5	99	0	
8 FIERCE	3.75 oz wt/a	A 204	100	5	100	0	
LIBERTY 280	29 fl oz/a	B 302	100	5	100	0	
N-PAK	2.5 % v/v	B 604	100	10	100	0	
LIBERTY 280	29 fl oz/a	C 804	100	10	98	0	
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =	100	8	100	0	

Pest Type				W Weed		W Weed		
Pest Code				AMATA		AMATA		
Pest Name				Common waterhe>		Common waterhe>		
Crop Code					GLXMA		GLXMA	
Crop Name					Soybean		Soybean	
Rating Date				7/9/2017	7/9/2017	7/24/2017	7/24/2017	
Rating Type				CONTRO	PHYGEN	CONTRO	PHYGEN	
Rating Unit				%	%	%	%	
Number of Subsamples				1	1	1	1	
Assessed By				T. Campbell	T. Campbell	T. Campbell	T. Campbell	
Days After First/Last Applic.				40 6	40 6	55 7	55 7	
Trt-Eval Interval				27 DA-A	27 DA-A	27 DA-A	27 DA-A	
Days After Emergence				35 DE-1	35 DE-1	50 DE-1	50 DE-1	
ARM Action Codes				P	P	P	P	
Number of Decimals				0	0	0	0	
Trt No.	Treatment Name	Rate	Appl Code	Plot	5	6	7	8
1	UNTREATED CHECK			101	0	0	0	0
				404	0	0	0	0
				602	0	0	0	0
				704	0	0	0	0
				Mean =	0	0	0	0
2	LIBERTY 280 SL	29 fl oz/a	B	102	60	0	95	0
	N-PAK	2.5 % v/v	B	402	65	0	90	0
	LIBERTY 280	29 fl oz/a	C	601	70	0	95	0
	SELECT MAX	6 fl oz/a	C	801	70	0	95	0
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
				Mean =	66	0	94	0
3	FIERCE	3 oz wt/a	A	103	100	0	100	0
	LIBERTY 280	29 fl oz/a	B	401	100	0	100	0
	N-PAK	2.5 % v/v	B	503	98	0	100	0
	LIBERTY 280	29 fl oz/a	C	701	85	0	100	0
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
				Mean =	96	0	100	0
4	BOUNDARY	2 pt/a	A	104	100	0	100	0
	LIBERTY 280	29 fl oz/a	B	403	80	0	100	0
	N-PAK	2.5 % v/v	B	504	90	0	100	0
	LIBERTY 280	29 fl oz/a	C	802	90	0	100	0
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
				Mean =	90	0	100	0
5	AUTHORITY ELITE	25 fl oz/a	A	201	100	0	100	0
	LIBERTY 280	29 fl oz/a	B	303	90	0	100	0
	N-PAK	2.5 % v/v	B	502	85	0	100	0
	LIBERTY 280	29 fl oz/a	B	703	98	0	100	0
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
				Mean =	93	0	100	0

Pest Type Pest Code Pest Name Crop Code Crop Name Rating Date Rating Type Rating Unit Number of Subsamples Assessed By Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals				W Weed AMATA Common waterhe>		W Weed AMATA Common waterhe>	
				7/9/2017 CONTRO %	GLXMA Soybean 7/9/2017 PHYGEN %	7/24/2017 CONTRO %	GLXMA Soybean 7/24/2017 PHYGEN %
				1 T. Campbell	1 T. Campbell	1 T. Campbell	1 T. Campbell
				40 6 27 DA-A 35 DE-1 P	40 6 27 DA-A 35 DE-1 P	55 7 27 DA-A 50 DE-1 P	55 7 27 DA-A 50 DE-1 P
				0	0	0	0
Trt Treatment No. Name	Rate Rate Unit	Appl Code Plot		5	6	7	8
6 ZIDUA PRO	4.5 fl oz/a	A 202		95	0	100	0
LIBERTY 280	29 fl oz/a	B 304		85	0	100	0
N-PAK	2.5 % v/v	B 501		75	0	100	0
LIBERTY 280	29 fl oz/a	C 803		80	0	100	0
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		84	0	100	0
7 FIERCE MTZ SC (2030)	1 pt/a	A 203		98	0	100	0
LIBERTY 280	29 fl oz/a	B 301		98	0	100	0
N-PAK	2.5 % v/v	B 603		98	0	100	0
LIBERTY 280	29 fl oz/a	C 702		100	0	100	0
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		99	0	100	0
8 FIERCE	3.75 oz wt/a	A 204		100	0	100	0
LIBERTY 280	29 fl oz/a	B 302		100	0	100	0
N-PAK	2.5 % v/v	B 604		100	0	100	0
LIBERTY 280	29 fl oz/a	C 804		98	0	100	0
SELECT MAX	6 fl oz/a	C					
N-PAK	2.5 % v/v	C					
NIS	0.25 % v/v	C					
		Mean =		100	0	100	0

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<u>Pest Type</u> W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
<u>Pest Code</u> AMATA, Amaranthus tamariscinus, Common waterhemp = US
<u>Crop Code</u> GLXMA, BSOY, Glycine max, Soybean = US
<u>Rating Type</u> CONTRO = control / burndown or knockdown PHYGEN = phytotoxicity - general / injury
<u>Rating Unit</u> % = percent
<u>ARM Action Codes</u> P = Rating scale of 0 to 100 (e.g. % control or injury)

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Project ID: Fierce 64.01 - LL Soy	Investigator: Dr. Bill Johnson		
	Study Director: Taylor Campbell		
	Sponsor Contact: Eric Ott - Valent		

Pest Type	W Weed		W Weed			
Pest Code	AMATA		AMATA			
Pest Name	Common waterhe>		Common waterhe>			
Crop Code	GLXMA		GLXMA			
Crop Name	Soybean		Soybean			
Rating Date	6/20/2017	6/20/2017	6/26/2017	6/26/2017		
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN		
Rating Unit	%	%	%	%		
Number of Subsamples	1	1	1	1		
Assessed By	T. Campbell	T. Campbell	T. Campbell	T. Campbell		
Days After First/Last Applic.	21 21	21 21	27 27	27 27		
Trt-Eval Interval	21 DA-A	21 DA-A	27 DA-A	27 DA-A		
Days After Emergence	16 DE-1	16 DE-1	22 DE-1	22 DE-1		
ARM Action Codes	P	P	P	P		
Number of Decimals	0	0	0	0		
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	1	2	3	4
1 UNTREATED CHECK			0 d	0 b	0 d	0 a
2 LIBERTY 280 SL	29 fl oz/a	B	0 d	0 b	0 d	0 a
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	C				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				
3 FIERCE	3 oz wt/a	A	98 ab	6 a	99 a	0 a
LIBERTY 280	29 fl oz/a	B				
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	C				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				
4 BOUNDARY	2 pt/a	A	95 abc	1 b	85 b	0 a
LIBERTY 280	29 fl oz/a	B				
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	C				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				
5 AUTHORITY ELITE	25 fl oz/a	A	93 bc	0 b	86 b	0 a
LIBERTY 280	29 fl oz/a	B				
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	B				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Could not calculate LSD (% mean diff) for columns 4,6,8 because error mean square = 0.

Pest Type	W Weed		W Weed			
Pest Code	AMATA		AMATA			
Pest Name	Common waterhe>		Common waterhe>			
Crop Code	GLXMA		GLXMA			
Crop Name	Soybean		Soybean			
Rating Date	6/20/2017	6/20/2017	6/26/2017	6/26/2017		
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN		
Rating Unit	%	%	%	%		
Number of Subsamples	1	1	1	1		
Assessed By	T. Campbell	T. Campbell	T. Campbell	T. Campbell		
Days After First/Last Applic.	21 21	21 21	27 27	27 27		
Trt-Eval Interval	21 DA-A	21 DA-A	27 DA-A	27 DA-A		
Days After Emergence	16 DE-1	16 DE-1	22 DE-1	22 DE-1		
ARM Action Codes	P	P	P	P		
Number of Decimals	0	0	0	0		
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	1	2	3	4
6 ZIDUA PRO	4.5 fl oz/a	A	90 c	0 b	75 c	0 a
LIBERTY 280	29 fl oz/a	B				
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	C				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				
7 FIERCE MTZ SC (2030)	1 pt/a	A	100 a	5 a	99 a	0 a
LIBERTY 280	29 fl oz/a	B				
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	C				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				
8 FIERCE	3.75 oz wt/a	A	100 a	8 a	100 a	0 a
LIBERTY 280	29 fl oz/a	B				
N-PAK	2.5 % v/v	B				
LIBERTY 280	29 fl oz/a	C				
SELECT MAX	6 fl oz/a	C				
N-PAK	2.5 % v/v	C				
NIS	0.25 % v/v	C				
LSD P=.05			4.9	3.0	8.2	.
Standard Deviation			3.3	2.0	5.6	0.0
CV			4.62	81.65	8.24	0.0
Bartlett's X2			6.899	1.008	22.195	0.0
P(Bartlett's X2)			0.141	0.799	0.001*	.
Skewness			-1.173*	1.1136*	-1.0252*	.
Kurtosis			-0.6075	-0.0802	-0.7678	.
Replicate F			2.167	2.000	2.518	0.000
Replicate Prob(F)			0.1221	0.1449	0.0858	1.0000
Treatment F			717.353	9.857	233.805	0.000
Treatment Prob(F)			0.0001	0.0001	0.0001	1.0000

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Trt No.	Treatment Name	Rate	Unit	Appl Code	5	6	7	8
1	UNTREATED CHECK				0 d	0 a	0 c	0 a
2	LIBERTY 280 SL	29 fl oz/a	B		66 c	0 a	94 b	0 a
	N-PAK	2.5 % v/v	B					
	LIBERTY 280	29 fl oz/a	C					
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
3	FIERCE	3 oz wt/a	A		96 a	0 a	100 a	0 a
	LIBERTY 280	29 fl oz/a	B					
	N-PAK	2.5 % v/v	B					
	LIBERTY 280	29 fl oz/a	C					
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
4	BOUNDARY	2 pt/a	A		90 ab	0 a	100 a	0 a
	LIBERTY 280	29 fl oz/a	B					
	N-PAK	2.5 % v/v	B					
	LIBERTY 280	29 fl oz/a	C					
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					
5	AUTHORITY ELITE	25 fl oz/a	A		93 ab	0 a	100 a	0 a
	LIBERTY 280	29 fl oz/a	B					
	N-PAK	2.5 % v/v	B					
	LIBERTY 280	29 fl oz/a	B					
	SELECT MAX	6 fl oz/a	C					
	N-PAK	2.5 % v/v	C					
	NIS	0.25 % v/v	C					

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 4,6,8 because error mean square = 0.

Pest Type		W Weed		W Weed	
Pest Code		AMATA		AMATA	
Pest Name		Common waterhe>		Common waterhe>	
Crop Code			GLXMA		GLXMA
Crop Name			Soybean		Soybean
Rating Date		7/9/2017	7/9/2017	7/24/2017	7/24/2017
Rating Type		CONTRO	PHYGEN	CONTRO	PHYGEN
Rating Unit		%	%	%	%
Number of Subsamples		1	1	1	1
Assessed By		T. Campbell	T. Campbell	T. Campbell	T. Campbell
Days After First/Last Applic.		40 6	40 6	55 7	55 7
Trt-Eval Interval		27 DA-A	27 DA-A	27 DA-A	27 DA-A
Days After Emergence		35 DE-1	35 DE-1	50 DE-1	50 DE-1
ARM Action Codes		P	P	P	P
Number of Decimals		0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	5	6	7
6 ZIDUA PRO	4.5 fl oz/a	A	84 b	0 a	100 a
LIBERTY 280	29 fl oz/a	B			
N-PAK	2.5 % v/v	B			
LIBERTY 280	29 fl oz/a	C			
SELECT MAX	6 fl oz/a	C			
N-PAK	2.5 % v/v	C			
NIS	0.25 % v/v	C			
7 FIERCE MTZ SC (2030)	1 pt/a	A	99 a	0 a	100 a
LIBERTY 280	29 fl oz/a	B			
N-PAK	2.5 % v/v	B			
LIBERTY 280	29 fl oz/a	C			
SELECT MAX	6 fl oz/a	C			
N-PAK	2.5 % v/v	C			
NIS	0.25 % v/v	C			
8 FIERCE	3.75 oz wt/a	A	100 a	0 a	100 a
LIBERTY 280	29 fl oz/a	B			
N-PAK	2.5 % v/v	B			
LIBERTY 280	29 fl oz/a	C			
SELECT MAX	6 fl oz/a	C			
N-PAK	2.5 % v/v	C			
NIS	0.25 % v/v	C			
LSD P=.05			8.4	.	1.3
Standard Deviation			5.7	0.0	0.9
CV			7.28	0.0	1.02
Bartlett's X2			16.4	0.0	0.0
P(Bartlett's X2)			0.012*	.	.
Skewness			-1.857*	.	-2.3607*
Kurtosis			2.3014*	.	3.8488*
Replicate F			1.171	0.000	1.000
Replicate Prob(F)			0.3443	1.0000	0.4123
Treatment F			137.587	0.000	6310.715
Treatment Prob(F)			0.0001	1.0000	0.0001

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Purdue Weed Science

Trial ID: 17S-MGS-Soy-06 Protocol ID: 17S-MGS-Soy-06 Project ID: Fierce 64.01 - LL Soy	Fierce 64.01 - Liberty Link Soybean - Waterhemp Location: Meigs Trial Year: 2017 Investigator: Dr. Bill Johnson Study Director: Taylor Campbell Sponsor Contact: Eric Ott - Valent
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<u>Pest Type</u> W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
<u>Pest Code</u> AMATA, Amaranthus tamariscinus, Common waterhemp = US
<u>Crop Code</u> GLXMA, BSOY, Glycine max, Soybean = US
<u>Rating Type</u> CONTRO = control / burndown or knockdown PHYGEN = phytotoxicity - general / injury
<u>Rating Unit</u> % = percent
<u>ARM Action Codes</u> P = Rating scale of 0 to 100 (e.g. % control or injury)