

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

## General Trial Information

**Study Director:** Dustin Johnson      **Title:** Research Associate  
**Investigator:** Dr. Bill Johnson      **Title:** Professor

**Discipline:** H      herbicide  
**Trial Status:** E      established  
**Initiation Date:** Apr-14-2016

## Trial Location

**City:** Cortland      **Country:** USA United States  
**State/Prov.:** Indiana  
**Postal Code:** 47228

**Conducted Under GLP:** No  
**Conducted Under GEP:** No

## Contacts

**Study Director:** Dustin Johnson      **Title:** Research Associate  
**Organization:** Purdue University  
**Address:** 915 West State Street      **Phone No.:** (765) 496-6690  
**City+State/Prov:** West Lafayette, IN  
**Postal Code:** 47907      **E-mail:** john1357@purdue.edu  
**Country:** USA      United States

**Investigator:** Dr. Bill Johnson      **Title:** Professor  
**Organization:** Purdue University  
**Address:** 915 W. State Street  
**City+State/Prov:** West Lafayette, IN  
**Postal Code:** 47907      **E-mail:** wgj@purdue.edu  
**Country:** USA      United States

## Crop Description

**Crop 1:** GLXMA      Glycine max      Soybean  
**Variety:** ASGROW 2933      **BBCH Scale:** BSOY  
**Description:** RoundUp Ready  
**Planting Rate, Unit:** 140000 S/A      **Planting Date:** May-26-2016  
**Depth, Unit:** 1 IN      **Planting Method:** DIRDRI direct drilled  
**Row Spacing, Unit:** 30 IN      **Emergence Date:** May-31-2016  
**Soil Temperature, Unit:** 68 F  
**Soil Moisture:** SLIWET slightly wet, moist

## Pest Description

**Pest 1 Type:** W      **Code:** ERICA      Conyza canadensis  
**Common Name:** Canada horseweed

**Pest 2 Type:** W      **Code:** AMBTR      Ambrosia trifida  
**Common Name:** Giant ragweed

**Pest 3 Type:** W      **Code:** CAPBP      Capsella bursa-pastoris  
**Common Name:** Shepherd's purse

**Pest 4 Type:** W      **Code:** LEPCA      Lepidium campestre  
**Common Name:** Field pepperweed

**Pest 5 Type:** W      **Code:** XANST      Xanthium strumarium  
**Common Name:** Common cocklebur

**Pest 6 Type:** W      **Code:** SETFA      Setaria faberi  
**Common Name:** Giant foxtail

## Site and Design

**Treated Plot Width:** 10 FT      **Site Type:** FIELD      field  
**Treated Plot Length:** 30 FT      **Experimental Unit:** 1      PLOT      plot  
**Treated Plot Area:** 300 FT<sup>2</sup>      **Treatments:** 6      **Tillage Type:** NOTILL      no-till  
**Replications:** 4      **Study Design:** RACOBL Randomized Complete Block (RCB)

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
    Sponsor Contact: FMC-Nick Hustedde

### Soil Description

**Description Name:** SEPAC-Field U4  
**% Sand:** 20      **% OM:** 1.8      **Texture:** SIL silt loam  
**% Silt:** 65      **pH:** 5.6      **Soil Name:** Avonburg  
**% Clay:** 15      **CEC:** 6.7      **Fert. Level:** G good  
    **Soil Drainage:** P poor

### Application Description

	A	B	C
<b>Application Date:</b>	Apr-23-2016	May-27-2016	Jun-24-2016
<b>Appl. Start Time:</b>	9:30 AM	9:15 AM	12:00 PM
<b>Appl. Stop Time:</b>	10:00 AM	9:30 AM	12:30 PM
<b>Application Method:</b>	SPRAY	SPRAY	SPRAY
<b>Application Timing:</b>	E-PRE "A"	PRE "B"	POST "C"
<b>Application Placement:</b>	BROADC	BROADC	BROADC
<b>Applied By:</b>	D. JOHNSON	T. CAMPBELL	
<b>Air Temperature, Unit:</b>	52 F	74 F	82 F
<b>% Relative Humidity:</b>	83	83	60
<b>Wind Velocity, Unit:</b>	8 MPH	8 MPH	6 MPH
<b>Wind Direction:</b>	NNE	S	N
<b>Dew Presence (Y/N):</b>	Y yes	N no	
<b>Soil Temperature, Unit:</b>	58 F	66 F	88 F
<b>Soil Moisture:</b>	WET	SLIWET	SLIWET
<b>% Cloud Cover:</b>	100	50	50

### Crop Stage At Each Application

	A	B	C
<b>Crop 1 Code, BBCH Scale:</b>	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
<b>Stage Scale Used:</b>			BBCH
<b>Stage Majority, Percent:</b>			13
<b>Stage Minimum, Percent:</b>			12
<b>Stage Maximum, Percent:</b>			14
<b>Height, Unit:</b>			5 IN
<b>Height Minimum, Maximum:</b>			4 6

## Purdue Weed Science

### Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03  
 Protocol ID: 16S-SEP-SOY-03  
 Project ID: Authority Preplant App

Location: SEPAC      Trial Year: 2016  
 Investigator: Dr. Bill Johnson  
 Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

#### Pest Stage At Each Application

	A	B	C
<b>Pest 1 Code, Type, Scale:</b>	ERICA W	ERICA W	ERICA W
<b>Stage Majority, Percent:</b>	13		
<b>Stage Minimum, Percent:</b>	12		
<b>Stage Maximum, Percent:</b>	14		
<b>Diameter, Unit:</b>	1 IN		
<b>Height, Unit:</b>		11 IN	15 IN
<b>Height Minimum, Maximum:</b>		6 16	8 22
<b>Density, Unit:</b>	3 YD2	18 YD2	27 YD2
<b>Pest 2 Code, Type, Scale:</b>	AMBTR W	AMBTR W	AMBTR W
<b>Stage Majority, Percent:</b>	10		
<b>Stage Minimum, Percent:</b>	10		
<b>Stage Maximum, Percent:</b>	12		
<b>Height, Unit:</b>	1.5 IN	4 IN	15 IN
<b>Height Minimum, Maximum:</b>	1 2	4 6	7 23
<b>Density, Unit:</b>	22 YD2	45 YD2	45 YD2
<b>Pest 3 Code, Type, Scale:</b>	CAPBP W	CAPBP W	CAPBP W
<b>Stage Majority, Percent:</b>	65		
<b>Stage Minimum, Percent:</b>	65		
<b>Stage Maximum, Percent:</b>	67		
<b>Height, Unit:</b>	15.5 IN		
<b>Height Minimum, Maximum:</b>	14 17		
<b>Density, Unit:</b>	18 YD2		
<b>Pest 4 Code, Type, Scale:</b>	LEPCA W	LEPCA W	LEPCA W
<b>Stage Majority, Percent:</b>	65		
<b>Stage Minimum, Percent:</b>	65		
<b>Stage Maximum, Percent:</b>	65		
<b>Height, Unit:</b>	11 IN		
<b>Height Minimum, Maximum:</b>	9 13		
<b>Density, Unit:</b>	13.5 YD2		
<b>Pest 5 Code, Type, Scale:</b>	XANST W	XANST W	XANST W
<b>Stage Majority, Percent:</b>		12	
<b>Stage Minimum, Percent:</b>		12	
<b>Stage Maximum, Percent:</b>		14	
<b>Height, Unit:</b>		2 IN	7 IN
<b>Height Minimum, Maximum:</b>		2 4	2 12
<b>Density, Unit:</b>		9 YD2	22 YD2
<b>Pest 6 Code, Type, Scale:</b>	SETFA W	SETFA W	SETFA W
<b>Height, Unit:</b>		4 IN	19 IN
<b>Height Minimum, Maximum:</b>		2 6	12 26
<b>Density, Unit:</b>		45 YD2	45 YD2

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

### Application Equipment

	A	B	C
<b>Appl. Equipment:</b>	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK
<b>Equipment Type:</b>	BACSPR	BACSPR	BACSPR
<b>Operation Pressure, Unit:</b>	18 PSI	18 PSI	18 PSI
<b>Nozzle Type:</b>	FLAFXR	FLAFXR	FLAFXR
<b>Nozzle Size:</b>	XR11002	XR11002	XR11002
<b>Nozzle Spacing, Unit:</b>	15 IN	15 IN	15 IN
<b>Nozzles/Row:</b>	8	8	8
<b>Boom Length, Unit:</b>	10 FT	10 FT	10 FT
<b>Boom Height, Unit:</b>	17 IN	17 IN	17 IN
<b>Ground Speed, Unit:</b>	3 MPH	3 MPH	3 MPH
<b>Carrier:</b>	WATER	WATER	WATER
<b>Spray Volume, Unit:</b>	15 GAL/AC	15 GAL/AC	15 GAL/AC
<b>Mix Size, Unit:</b>	1.8 liters	1.8 liters	1.8 liters
<b>Propellant:</b>	COMCO2	COMCO2	COMCO2

Date	By	Notes
Apr-14-2016	D. JOHNSON	Setup Trial
Apr-23-2016	D. JOHNSON	Sprayed Application A-21DBP
May-6-2016	D. JOHNSON	Rated 14-DAT: Horseweed sporadic. Treatments killed most WA/Giant ragweed throughout. Most plots clean. Ck-206 had most HW w/ approx. 10 and other cks much lower. 101-401 not as clean. Alley way and plots 101-401 has some cocklebur.
May-18-2016	D. JOHNSON	Rated 28-DAT: Plots all mostly clean.
May-26-2016	T. LEGLIETE	Planted: Was delayed due to excessive rain and moisture saturation.
May-26-2016	D. JOHNSON	Rated 0-DAT "B": Sprayed PRE "B" application. Cocklebur has started to emerge and rated. Plots clean. Weeds/pest stage are from untreated checks. Application weed counts except Cocklebur were from untreated checks.
Jun-8-2016	D. JOHNSON	Rated 14-DAT "B": Plots clean overall. No crop injury.
Jun-21-2016	D. JOHNSON	Rated 28 DAT "B": Plots still clean overall. No crop injury.
Jun-24-2016	T. CAMPBELL	Sprayed Post Blanket Application
Jun-24-2016	T. CAMPBELL	There are some new weeds emerging in treated areas such as common ragweed, fall panicum and large crabgrass.
Jul-8-2016	D. JOHNSON	Rated 14 DAT "C". There was some crop injury from "C" application.
Jul-20-2016	D. JOHNSON	Rated 28 DAT "C". GLXMA grew out of crop injury.

### Trial Comments

Reps: 4      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 1.8 liters (calculated mix size 1.5642)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Appl Code	Amt Product to Measure	Rep			
									1	2	3	4
1									101	206	303	404
6	SHARPEN	2.85 LBA/GAL	SC		1 fl oz/a	A		0.9375 ml/mx	102	204	305	402
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		22 fl oz/a	A		20.62 ml/mx				
	2,4-D LV4 ESTER	3.8 LBAE/GAL	SC		16 fl oz/a	A		15.0 ml/mx				
	MSO ULTRA	100 %	L		1 % v/v	A		18.0 ml/mx				
	N-PAK AMS	3.4 LBA/GAL	SL		2.5 % v/v	A		45.0 ml/mx				
	GRAMOXONE SL	2.0 LBA/GAL	SL		44 fl oz/a	B		41.25 ml/mx				
	AUTHORITY XL	70 %	WG		4 oz/a	B		3.595 g/mx				
	COC	100 %	OS		1 % v/v	B		18.0 ml/mx				
	MARVEL	3.0 LBA/GAL	SL		7.25 fl oz/a	C		6.797 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	C		30.0 ml/mx				
	N-PAK AMS	3.4 LBA/GAL	SL		2.5 % v/v	C		45.0 ml/mx				

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Reps: 4      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 1.8 liters (calculated mix size 1.5642)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
5	VALOR SX	51 %		WG	2 oz/a	A	1.797 g/mx	103	205	302	403
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	22 fl oz/a	A	20.62 ml/mx				
	2,4-D LV4 ESTER	3.8 LBAE/GAL		SC	16 fl oz/a	A	15.0 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	A	18.0 ml/mx				
	GRAMOXONE SL	2.0 LBA/GAL		SL	44 fl oz/a	B	41.25 ml/mx				
	AUTHORITY XL	70 %		WG	4 oz/a	B	3.595 g/mx				
	COC	100 %		OS	1 % v/v	B	18.0 ml/mx				
	MARVEL	3.0 LBA/GAL		SL	7.25 fl oz/a	C	6.797 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	C	30.0 ml/mx				
N-PAK AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	45.0 ml/mx					
2	2,4-D LV4 ESTER	3.8 LBAE/GAL		SC	16 fl oz/a	A	15.0 ml/mx	104	201	304	406
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	22 fl oz/a	A	20.62 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	A	18.0 ml/mx				
	GRAMOXONE SL	2.0 LBA/GAL		SL	44 fl oz/a	B	41.25 ml/mx				
	AUTHORITY XL	70 %		WG	4 oz/a	B	3.595 g/mx				
	COC	100 %		OS	1 % v/v	B	18.0 ml/mx				
	MARVEL	3.0 LBA/GAL		SL	7.25 fl oz/a	C	6.797 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	C	30.0 ml/mx				
	N-PAK AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	45.0 ml/mx				
4	AUTHORITY MTZ	45 %		WG	10 oz/a	A	8.987 g/mx	105	202	306	401
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	22 fl oz/a	A	20.62 ml/mx				
	2,4-D LV4 ESTER	3.8 LBAE/GAL		SC	16 fl oz/a	A	15.0 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	A	18.0 ml/mx				
	GRAMOXONE SL	2.0 LBA/GAL		SL	44 fl oz/a	B	41.25 ml/mx				
	AUTHORITY XL	70 %		WG	4 oz/a	B	3.595 g/mx				
	COC	100 %		OS	1 % v/v	B	18.0 ml/mx				
	MARVEL	3.0 LBA/GAL		SL	7.25 fl oz/a	C	6.797 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	C	30.0 ml/mx				
N-PAK AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	45.0 ml/mx					
3	AUTHORITY MAXX	66 %		WG	3 oz/a	A	2.696 g/mx	106	203	301	405
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	22 fl oz/a	A	20.62 ml/mx				
	2,4-D LV4 ESTER	3.8 LBAE/GAL		SC	16 fl oz/a	A	15.0 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	A	18.0 ml/mx				
	GRAMOXONE SL	2.0 LBA/GAL		SL	44 fl oz/a	B	41.25 ml/mx				
	AUTHORITY XL	70 %		WG	4 oz/a	B	3.595 g/mx				
	COC	100 %		OS	1 % v/v	B	18.0 ml/mx				
	MARVEL	3.0 LBA/GAL		SL	7.25 fl oz/a	C	6.797 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	C	30.0 ml/mx				
N-PAK AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	45.0 ml/mx					

Sort Order: Replicate 1

Product quantities required for listed treatments and applications of trials included in this table:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
93.750	ml	2,4-D LV4 ESTER	3.8	SC	
316.406	ml	ROUNDUP POWERMAX	4.5	SL	
112.488	ml	MSO ULTRA	100	L	
257.812	ml	GRAMOXONE SL	2.0	SL	
22.467	g	AUTHORITY XL	70	WG	
112.488	ml	COC	100	OS	
42.480	ml	MARVEL	3.0	SL	
337.463	ml	N-PAK AMS	3.4	SL	

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Product quantities required for listed treatments and applications of trials included in this table:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
3.370	g	AUTHORITY MAXX	66	WG	
11.234	g	AUTHORITY MTZ	45	WG	
2.247	g	VALOR SX	51	WG	
1.172	ml	SHARPEN	2.85	SC	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 1.8 liters (mix size basis).

\* Product amount calculations increased 25 % for coverage adjustment.

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 1.8 liters.

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	ERICA	AMBTR	CAPBP	LEPCA	ERICA	ERICA
Pest Name	Canada horsewe>	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>	Canada horsewe>
Crop Code						
Crop Name						
Part Rated						
Rating Date	May-6-2016	May-6-2016	May-6-2016	May-6-2016	May-18-2016	May-18-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing						
Days After First/Last Applic.	13 13	13 13	13 13	13 13	25 25	25 25
Trt-Eval Interval	13 DA-A	13 DA-A	13 DA-A	13 DA-A		
Days After Emergence	-25 DE-1	-25 DE-1	-25 DE-1	-25 DE-1	-13 DE-1	-13 DE-1
ARM Action Codes	P	P	P	P	P	P
Number of Decimals	0	0	0	0	0	0
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	1	2	3	4
1						
		101	0	0	0	0
		206	0	0	0	0
		303	0	0	0	0
		404	0	0	0	0
		Mean =	0	0	0	0
2 2,4-D LV4 ESTER	16 fl oz/a A	104	.	100	100	100
ROUNDUP POWERMAX	22 fl oz/a A	201	60	80	70	100
MSO ULTRA	1 % v/v A	304	100	100	80	100
GRAMOXONE SL	44 fl oz/a B	406	.	90	100	100
AUTHORITY XL	4 oz/a B					
COC	1 % v/v B					
MARVEL	7.25 fl oz/a C					
ROUNDUP POWERMAX	32 fl oz/a C					
N-PAK AMS	2.5 % v/v C					
		Mean =	80	93	88	100
3 AUTHORITY MAXX	3 oz/a A	106	80	100	85	100
ROUNDUP POWERMAX	22 fl oz/a A	203	70	100	90	100
2,4-D LV4 ESTER	16 fl oz/a A	301	80	100	90	100
MSO ULTRA	1 % v/v A	405	.	100	80	100
GRAMOXONE SL	44 fl oz/a B					
AUTHORITY XL	4 oz/a B					
COC	1 % v/v B					
MARVEL	7.25 fl oz/a C					
ROUNDUP POWERMAX	32 fl oz/a C					
N-PAK AMS	2.5 % v/v C					
		Mean =	77	100	86	100

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

	W Weed ERICA	W Weed AMBTR	W Weed CAPBP	W Weed LEPCA	W Weed ERICA		
Pest Type	Canada horsewe>	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>		
Pest Code							
Pest Name							
Crop Code							
Crop Name							
Part Rated							
Rating Date	May-6-2016	May-6-2016	May-6-2016	May-6-2016	May-18-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON		
Rating Timing							
Days After First/Last Applic.	13 13	13 13	13 13	13 13	25 25		
Trt-Eval Interval	13 DA-A	13 DA-A	13 DA-A	13 DA-A			
Days After Emergence	-25 DE-1	-25 DE-1	-25 DE-1	-25 DE-1	-13 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment							
No. Name	Rate Unit	Code Plot	1	2	3	4	5
4 AUTHORITY MTZ	10 oz/a A	105	.	100	90	100	.
ROUNDUP POWERMAX	22 fl oz/a A	202	.	100	80	100	.
2,4-D LV4 ESTER	16 fl oz/a A	306	65	100	100	100	75
MSO ULTRA	1 % v/v A	401	.	100	80	90	.
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =		65	100	88	98	75
5 VALOR SX	2 oz/a A	103	.	100	100	100	.
ROUNDUP POWERMAX	22 fl oz/a A	205	85	100	100	100	80
2,4-D LV4 ESTER	16 fl oz/a A	302	.	100	95	100	.
MSO ULTRA	1 % v/v A	403	.	100	100	100	.
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =		85	100	99	100	80
6 SHARPEN	1 fl oz/a A	102	.	100	100	100	.
ROUNDUP POWERMAX	22 fl oz/a A	204	.	100	100	100	.
2,4-D LV4 ESTER	16 fl oz/a A	305	.	100	70	100	.
MSO ULTRA	1 % v/v A	402	.	100	90	100	.
N-PAK AMS	2.5 % v/v A						
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =		.	100	90	100	.

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	CAPBP	LEPCA	ERICA	AMBTR	AMBTR
Pest Name	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>	Giant ragweed	Giant ragweed
Crop Code						
Crop Name						
Part Rated						
Rating Date	May-18-2016	May-18-2016	May-18-2016	May-26-2016	May-26-2016	May-26-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing						
Days After First/Last Applic.	25 25	25 25	25 25	33 33	33 33	33 33
Trt-Eval Interval						
Days After Emergence	-13 DE-1	-13 DE-1	-13 DE-1	-5 DE-1	-5 DE-1	-5 DE-1
ARM Action Codes	P	P	P	P	P	P
Number of Decimals	0	0	0	0	0	0
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	6	7	8	9
1		101	0	0	0	0
		206	0	0	0	0
		303	0	0	0	0
		404	0	0	0	0
		Mean =	0	0	0	0
2 2,4-D LV4 ESTER	16 fl oz/a A	104	100	100	100	100
ROUNDUP POWERMAX	22 fl oz/a A	201	90	90	100	85
MSO ULTRA	1 % v/v A	304	100	100	100	95
GRAMOXONE SL	44 fl oz/a B	406	90	100	100	.
AUTHORITY XL	4 oz/a B					
COC	1 % v/v B					
MARVEL	7.25 fl oz/a C					
ROUNDUP POWERMAX	32 fl oz/a C					
N-PAK AMS	2.5 % v/v C					
		Mean =	95	98	100	90
3 AUTHORITY MAXX	3 oz/a A	106	100	90	100	100
ROUNDUP POWERMAX	22 fl oz/a A	203	100	100	100	70
2,4-D LV4 ESTER	16 fl oz/a A	301	100	90	100	100
MSO ULTRA	1 % v/v A	405	100	95	100	.
GRAMOXONE SL	44 fl oz/a B					
AUTHORITY XL	4 oz/a B					
COC	1 % v/v B					
MARVEL	7.25 fl oz/a C					
ROUNDUP POWERMAX	32 fl oz/a C					
N-PAK AMS	2.5 % v/v C					
		Mean =	100	94	100	90



# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

	W Weed AMBTR	W Weed CAPBP	W Weed LEPCA	W Weed ERICA	W Weed AMBTR
Pest Type	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>	Giant ragweed
Pest Code					
Pest Name					
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-18-2016	May-18-2016	May-18-2016	May-26-2016	May-26-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	25 25	25 25	25 25	33 33	33 33
Trt-Eval Interval					
Days After Emergence	-13 DE-1	-13 DE-1	-13 DE-1	-5 DE-1	-5 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	6	7	8
			9	10	
4 AUTHORITY MTZ	10 oz/a A	105	100	90	100
ROUNDUP POWERMAX	22 fl oz/a A	202	90	100	100
2,4-D LV4 ESTER	16 fl oz/a A	306	90	100	65
MSO ULTRA	1 % v/v A	401	100	100	100
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		95	98	100
				80	93
5 VALOR SX	2 oz/a A	103	100	100	100
ROUNDUP POWERMAX	22 fl oz/a A	205	100	100	90
2,4-D LV4 ESTER	16 fl oz/a A	302	100	100	100
MSO ULTRA	1 % v/v A	403	100	100	100
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		100	100	98
				100	96
6 SHARPEN	1 fl oz/a A	102	100	100	100
ROUNDUP POWERMAX	22 fl oz/a A	204	100	100	100
2,4-D LV4 ESTER	16 fl oz/a A	305	100	100	100
MSO ULTRA	1 % v/v A	402	100	100	100
N-PAK AMS	2.5 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		100	100	100
				100	91

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

	W Weed SETFA Giant foxtail	W Weed XANOR Common cockleb>	W Weed ERICA Canada horsewe>	W Weed AMBTR Giant ragweed	W Weed SETFA Giant foxtail
Pest Type					
Pest Code					
Pest Name					
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-26-2016	May-26-2016	Jun-8-2016	Jun-8-2016	Jun-8-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	33 33	33 33	46 12	46 12	46 12
Trt-Eval Interval					
Days After Emergence	-5 DE-1	-5 DE-1	8 DE-1	8 DE-1	8 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate Appl				
No. Name	Rate Unit Code Plot	11	12	13	14
1	101 206 303 404 Mean =	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
2 2,4-D LV4 ESTER	16 fl oz/a A 104	90	85	.	99
ROUNDUP POWERMAX	22 fl oz/a A 201	80	70	100	85
MSO ULTRA	1 % v/v A 304	80	90	100	95
GRAMOXONE SL	44 fl oz/a B 406	90	90	.	90
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =	85	84	100	92
3 AUTHORITY MAXX	3 oz/a A 106	100	100	100	98
ROUNDUP POWERMAX	22 fl oz/a A 203	100	100	100	100
2,4-D LV4 ESTER	16 fl oz/a A 301	100	95	100	95
MSO ULTRA	1 % v/v A 405	95	100	.	95
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =	99	99	100	97

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	SETFA	XANOR	ERICA	AMBTR	SETFA		
Pest Name	Giant foxtail	Common cockleb>	Canada horsewe>	Giant ragweed	Giant foxtail		
Crop Code							
Crop Name							
Part Rated							
Rating Date	May-26-2016	May-26-2016	Jun-8-2016	Jun-8-2016	Jun-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON		
Rating Timing							
Days After First/Last Applic.	33 33	33 33	46 12	46 12	46 12		
Trt-Eval Interval							
Days After Emergence	-5 DE-1	-5 DE-1	8 DE-1	8 DE-1	8 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code Plot	11	12	13	14	15
4 AUTHORITY MTZ	10 oz/a A	105	97	95	100	90	100
ROUNDUP POWERMAX	22 fl oz/a A	202	100	90	.	100	100
2,4-D LV4 ESTER	16 fl oz/a A	306	95	90	100	95	98
MSO ULTRA	1 % v/v A	401	95	90	.	95	100
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
Mean =			97	91	100	95	100
5 VALOR SX	2 oz/a A	103	100	90	.	98	100
ROUNDUP POWERMAX	22 fl oz/a A	205	98	95	100	100	100
2,4-D LV4 ESTER	16 fl oz/a A	302	100	90	.	90	99
MSO ULTRA	1 % v/v A	403	100	95	.	85	100
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
Mean =			100	93	100	93	100
6 SHARPEN	1 fl oz/a A	102	95	95	.	100	98
ROUNDUP POWERMAX	22 fl oz/a A	204	90	85	100	100	95
2,4-D LV4 ESTER	16 fl oz/a A	305	80	90	.	90	90
MSO ULTRA	1 % v/v A	402	95	90	.	90	95
N-PAK AMS	2.5 % v/v A						
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
Mean =			90	90	100	95	95

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type		W Weed		W Weed		W Weed	
Pest Code		XANOR		ERICA		AMBTR	
Pest Name		Common cocklebr>		Canada horsewe>		Giant ragweed	
Crop Code			GLXMA				W Weed
Crop Name			Soybean				SETFA
Part Rated			PLAEME -				Giant foxtail
Rating Date		Jun-8-2016	Jun-8-2016	Jun-21-2016	Jun-21-2016	Jun-21-2016	
Rating Type		CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	
Rating Unit		%	%	%	%	%	
Number of Subsamples		1	1	1	1	1	
Assessed By		D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	
Rating Timing			A1				
Days After First/Last Applic.		46 12	46 12	59 25	59 25	59 25	
Trt-Eval Interval							
Days After Emergence		8 DE-1	8 DE-1	21 DE-1	21 DE-1	21 DE-1	
ARM Action Codes		P	P	P	P	P	
Number of Decimals		0	0	0	0	0	
Trt Treatment	Rate Appl						
No. Name	Rate Unit Code Plot	16	17	18	19	20	
1	101	0	0	0	0	0	
	206	0	0	0	0	0	
	303	0	0	0	0	0	
	404	0	0	0	0	0	
	Mean =	0	0	0	0	0	
2 2,4-D LV4 ESTER	16 fl oz/a A 104	100	0	.	100	80	
ROUNDUP POWERMAX	22 fl oz/a A 201	100	0	100	70	80	
MSO ULTRA	1 % v/v A 304	98	0	100	85	90	
GRAMOXONE SL	44 fl oz/a B 406	98	0	.	90	85	
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =	99	0	100	86	84	
3 AUTHORITY MAXX	3 oz/a A 106	100	0	100	85	90	
ROUNDUP POWERMAX	22 fl oz/a A 203	100	0	100	100	95	
2,4-D LV4 ESTER	16 fl oz/a A 301	95	0	100	85	95	
MSO ULTRA	1 % v/v A 405	100	0	.	92	98	
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =	99	0	100	91	95	

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

				W Weed XANOR Common cockleb>		W Weed ERICA Canada horsewe>	W Weed AMBTR Giant ragweed	W Weed SETFA Giant foxtail
Pest Type					GLXMA Soybean			
Pest Code					PLAEME -			
Pest Name					PHYGEN			
Crop Code								
Crop Name								
Part Rated								
Rating Date				Jun-8-2016	Jun-8-2016	Jun-21-2016	Jun-21-2016	Jun-21-2016
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%	%
Number of Subsamples				1	1	1	1	1
Assessed By				D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					A1			
Days After First/Last Applic.				46 12	46 12	59 25	59 25	59 25
Trt-Eval Interval								
Days After Emergence				8 DE-1	8 DE-1	21 DE-1	21 DE-1	21 DE-1
ARM Action Codes				P	P	P	P	P
Number of Decimals				0	0	0	0	0
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code Plot		16	17	18	19	20
4 AUTHORITY MTZ	10 oz/a A	105		100	0	100	85	90
ROUNDUP POWERMAX	22 fl oz/a A	202		100	0	.	98	95
2,4-D LV4 ESTER	16 fl oz/a A	306		95	0	100	85	85
MSO ULTRA	1 % v/v A	401		100	0	.	85	98
GRAMOXONE SL	44 fl oz/a B							
AUTHORITY XL	4 oz/a B							
COC	1 % v/v B							
MARVEL	7.25 fl oz/a C							
ROUNDUP POWERMAX	32 fl oz/a C							
N-PAK AMS	2.5 % v/v C							
		Mean =		99	0	100	88	92
5 VALOR SX	2 oz/a A	103		100	0	.	95	95
ROUNDUP POWERMAX	22 fl oz/a A	205		100	0	100	100	90
2,4-D LV4 ESTER	16 fl oz/a A	302		100	0	.	75	95
MSO ULTRA	1 % v/v A	403		100	0	.	70	95
GRAMOXONE SL	44 fl oz/a B							
AUTHORITY XL	4 oz/a B							
COC	1 % v/v B							
MARVEL	7.25 fl oz/a C							
ROUNDUP POWERMAX	32 fl oz/a C							
N-PAK AMS	2.5 % v/v C							
		Mean =		100	0	100	85	94
6 SHARPEN	1 fl oz/a A	102		100	0	.	100	90
ROUNDUP POWERMAX	22 fl oz/a A	204		100	0	100	100	85
2,4-D LV4 ESTER	16 fl oz/a A	305		90	0	.	90	80
MSO ULTRA	1 % v/v A	402		100	0	.	85	97
N-PAK AMS	2.5 % v/v A							
GRAMOXONE SL	44 fl oz/a B							
AUTHORITY XL	4 oz/a B							
COC	1 % v/v B							
MARVEL	7.25 fl oz/a C							
ROUNDUP POWERMAX	32 fl oz/a C							
N-PAK AMS	2.5 % v/v C							
		Mean =		98	0	100	94	88

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type	W Weed		W Weed	W Weed	W Weed
Pest Code	XANOR		ERICA	AMBTR	SETFA
Pest Name	Common cockle>		Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated					
Rating Date	Jun-21-2016	Jun-21-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	59 25	59 25	76 14	76 14	76 14
Trt-Eval Interval					
Days After Emergence	21 DE-1	21 DE-1	38 DE-1	38 DE-1	38 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	21	22	23
1		101	0	0	0
		206	0	0	0
		303	0	0	0
		404	0	0	0
		Mean =	0	0	0
2 2,4-D LV4 ESTER	16 fl oz/a A	104	95	0	.
ROUNDUP POWERMAX	22 fl oz/a A	201	100	0	98
MSO ULTRA	1 % v/v A	304	100	0	100
GRAMOXONE SL	44 fl oz/a B	406	100	0	.
AUTHORITY XL	4 oz/a B				100
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
		Mean =	99	0	99
3 AUTHORITY MAXX	3 oz/a A	106	100	0	100
ROUNDUP POWERMAX	22 fl oz/a A	203	98	0	100
2,4-D LV4 ESTER	16 fl oz/a A	301	100	0	100
MSO ULTRA	1 % v/v A	405	100	0	.
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
		Mean =	100	0	100

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

	W Weed XANOR		W Weed ERICA	W Weed AMBTR	W Weed SETFA
Pest Type	Common cockleb>		Canada horsewe>	Giant ragweed	Giant foxtail
Pest Code					
Pest Name					
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated					
Rating Date	Jun-21-2016	Jun-21-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	59 25	59 25	76 14	76 14	76 14
Trt-Eval Interval					
Days After Emergence	21 DE-1	21 DE-1	38 DE-1	38 DE-1	38 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	21	22	23
4 AUTHORITY MTZ	10 oz/a A	105	95	0	95
ROUNDUP POWERMAX	22 fl oz/a A	202	100	0	100
2,4-D LV4 ESTER	16 fl oz/a A	306	100	0	100
MSO ULTRA	1 % v/v A	401	100	0	98
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		99	0	98
5 VALOR SX	2 oz/a A	103	100	0	95
ROUNDUP POWERMAX	22 fl oz/a A	205	100	0	100
2,4-D LV4 ESTER	16 fl oz/a A	302	100	0	95
MSO ULTRA	1 % v/v A	403	97	0	90
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		99	0	100
6 SHARPEN	1 fl oz/a A	102	100	0	100
ROUNDUP POWERMAX	22 fl oz/a A	204	100	0	100
2,4-D LV4 ESTER	16 fl oz/a A	305	100	0	100
MSO ULTRA	1 % v/v A	402	100	0	98
N-PAK AMS	2.5 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		100	0	100

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type		W Weed		W Weed		W Weed	
Pest Code		XANOR		ERICA		AMBTR	
Pest Name		Common cockle>		Canada horsewe>		Giant ragweed	
Crop Code			GLXMA				W Weed
Crop Name			Soybean				SETFA
Part Rated							Giant foxtail
Rating Date		Jul-8-2016	Jul-8-2016	Jul-22-2016	Jul-22-2016	Jul-22-2016	
Rating Type		CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	
Rating Unit		%	%	%	%	%	
Number of Subsamples		1	1	1	1	1	
Assessed By		D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	
Rating Timing							
Days After First/Last Applic.		76 14	76 14	90 28	90 28	90 28	
Trt-Eval Interval							
Days After Emergence		38 DE-1	38 DE-1	52 DE-1	52 DE-1	52 DE-1	
ARM Action Codes		P	P	P	P	P	
Number of Decimals		0	0	0	0	0	
Trt Treatment	Rate Appl						
No. Name	Rate Unit Code Plot	26	27	28	29	30	
1	101	0	0	0	0	0	
	206	0	0	0	0	0	
	303	0	0	0	0	0	
	404	0	0	0	0	0	
	Mean =	0	0	0	0	0	
2 2,4-D LV4 ESTER	16 fl oz/a A 104	100	10	.	100	100	
ROUNDUP POWERMAX	22 fl oz/a A 201	100	10	95	100	95	
MSO ULTRA	1 % v/v A 304	100	10	100	100	95	
GRAMOXONE SL	44 fl oz/a B 406	100	10	.	100	95	
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =	100	10	98	100	96	
3 AUTHORITY MAXX	3 oz/a A 106	100	10	100	100	97	
ROUNDUP POWERMAX	22 fl oz/a A 203	100	10	100	100	95	
2,4-D LV4 ESTER	16 fl oz/a A 301	100	10	100	100	95	
MSO ULTRA	1 % v/v A 405	100	10	.	95	95	
GRAMOXONE SL	44 fl oz/a B						
AUTHORITY XL	4 oz/a B						
COC	1 % v/v B						
MARVEL	7.25 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK AMS	2.5 % v/v C						
	Mean =	100	10	100	99	96	



# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed		W Weed	W Weed	W Weed
Pest Code	XANOR		ERICA	AMBTR	SETFA
Pest Name	Common cockleb>		Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated					
Rating Date	Jul-8-2016	Jul-8-2016	Jul-22-2016	Jul-22-2016	Jul-22-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	76 14	76 14	90 28	90 28	90 28
Trt-Eval Interval					
Days After Emergence	38 DE-1	38 DE-1	52 DE-1	52 DE-1	52 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	26	27	28
4 AUTHORITY MTZ	10 oz/a A	105	100	10	100
ROUNDUP POWERMAX	22 fl oz/a A	202	100	10	100
2,4-D LV4 ESTER	16 fl oz/a A	306	100	10	100
MSO ULTRA	1 % v/v A	401	99	10	100
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		100	10	100
5 VALOR SX	2 oz/a A	103	100	10	97
ROUNDUP POWERMAX	22 fl oz/a A	205	100	10	97
2,4-D LV4 ESTER	16 fl oz/a A	302	100	10	100
MSO ULTRA	1 % v/v A	403	95	10	100
GRAMOXONE SL	44 fl oz/a B				90
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		99	10	97
6 SHARPEN	1 fl oz/a A	102	100	10	100
ROUNDUP POWERMAX	22 fl oz/a A	204	100	10	100
2,4-D LV4 ESTER	16 fl oz/a A	305	100	10	100
MSO ULTRA	1 % v/v A	402	100	10	100
N-PAK AMS	2.5 % v/v A				100
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
	Mean =		100	10	100

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type			W Weed		
Pest Code			XANOR		
Pest Name			Common cockleb>		
Crop Code				GLXMA	
Crop Name				Soybean	
Part Rated					
Rating Date			Jul-22-2016	Jul-22-2016	
Rating Type			CONTRO	PHYGEN	
Rating Unit			%	%	
Number of Subsamples			1	1	
Assessed By			D. JOHNSON	D. JOHNSON	
Rating Timing					
Days After First/Last Applic.			90 28	90 28	
Trt-Eval Interval					
Days After Emergence			52 DE-1	52 DE-1	
ARM Action Codes			P	P	
Number of Decimals			0	0	
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	31	32	
1		101	0	0	
		206	0	0	
		303	0	0	
		404	0	0	
		Mean =	0	0	
2 2,4-D LV4 ESTER	16 fl oz/a	A 104	100	0	
ROUNDUP POWERMAX	22 fl oz/a	A 201	95	0	
MSO ULTRA	1 % v/v	A 304	100	0	
GRAMOXONE SL	44 fl oz/a	B 406	100	0	
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
		Mean =	99	0	
3 AUTHORITY MAXX	3 oz/a	A 106	100	0	
ROUNDUP POWERMAX	22 fl oz/a	A 203	100	0	
2,4-D LV4 ESTER	16 fl oz/a	A 301	100	0	
MSO ULTRA	1 % v/v	A 405	100	0	
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
		Mean =	100	0	

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type Pest Code Pest Name Crop Code Crop Name Part Rated Rating Date Rating Type Rating Unit Number of Subsamples Assessed By Rating Timing Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals	W Weed XANOR Common cockleb>  Jul-22-2016 CONTRO % 1 D. JOHNSON  90 28  52 DE-1 P 0	GLXMA Soybean  Jul-22-2016 PHYGEN % 1 D. JOHNSON  90 28  52 DE-1 P 0
Trt Treatment	Rate	Appl
No. Name	Rate Unit	Code Plot
	31	32
4 AUTHORITY MTZ	10 oz/a A	105
ROUNDUP POWERMAX	22 fl oz/a A	202
2,4-D LV4 ESTER	16 fl oz/a A	306
MSO ULTRA	1 % v/v A	401
GRAMOXONE SL	44 fl oz/a B	
AUTHORITY XL	4 oz/a B	
COC	1 % v/v B	
MARVEL	7.25 fl oz/a C	
ROUNDUP POWERMAX	32 fl oz/a C	
N-PAK AMS	2.5 % v/v C	
Mean =		
	100	0
5 VALOR SX	2 oz/a A	103
ROUNDUP POWERMAX	22 fl oz/a A	205
2,4-D LV4 ESTER	16 fl oz/a A	302
MSO ULTRA	1 % v/v A	403
GRAMOXONE SL	44 fl oz/a B	
AUTHORITY XL	4 oz/a B	
COC	1 % v/v B	
MARVEL	7.25 fl oz/a C	
ROUNDUP POWERMAX	32 fl oz/a C	
N-PAK AMS	2.5 % v/v C	
Mean =		
	100	0
6 SHARPEN	1 fl oz/a A	102
ROUNDUP POWERMAX	22 fl oz/a A	204
2,4-D LV4 ESTER	16 fl oz/a A	305
MSO ULTRA	1 % v/v A	402
N-PAK AMS	2.5 % v/v A	
GRAMOXONE SL	44 fl oz/a B	
AUTHORITY XL	4 oz/a B	
COC	1 % v/v B	
MARVEL	7.25 fl oz/a C	
ROUNDUP POWERMAX	32 fl oz/a C	
N-PAK AMS	2.5 % v/v C	
Mean =		
	100	0

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

**Pest Type**  
 W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

**Pest Code**  
 ERICA, Conyza canadensis, = ERICA, Conyza canadensis,  
 AMBTR, Ambrosia trifida, = US  
 CAPBP, Capsella bursa-pastoris, = US  
 LEPCA, Lepidium campestre, = US  
 ERICA, Erigeron canadensis, = US  
 SETFA, Setaria faberi, = US  
 XANOR, Xanthium orientale, = US

**Crop Code**  
 GLXMA, BSOY, Glycine max, = US

**Part Rated**  
 PLAEME = plant - emerged

**Rating Type**  
 CONTRO = control / burndown or knockdown  
 PHYGEN = phytotoxicity - general / injury

**Rating Unit**  
 % = percent

**Rating Timing**  
 A1 = 1st Assessment According to Trial Schedule

**ARM Action Codes**  
 P = Rating scale of 0 to 100 (e.g. % control or injury)

Pest Type	W Weed ERICA	W Weed AMBTR	W Weed CAPBP	W Weed LEPCA	W Weed ERICA
Pest Code	Canada horsewe>	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>
Pest Name					
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-6-2016	May-6-2016	May-6-2016	May-6-2016	May-18-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	13 13	13 13	13 13	13 13	25 25
Trt-Eval Interval	13 DA-A	13 DA-A	13 DA-A	13 DA-A	
Days After Emergence	-25 DE-1	-25 DE-1	-25 DE-1	-25 DE-1	-13 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment					
No. Name	1	2	3	4	5
Rate					
Rate Unit					
Appl Code					
1	0 b	0 b	0 b	0 b	0 -
2 2,4-D LV4 ESTER	80 a	93 a	88 a	100 a	75 -
ROUNDUP POWERMAX					
MSO ULTRA					
GRAMOXONE SL					
AUTHORITY XL					
COC					
MARVEL					
ROUNDUP POWERMAX					
N-PAK AMS					
3 AUTHORITY MAXX	77 a	100 a	86 a	100 a	73 -
ROUNDUP POWERMAX					
2,4-D LV4 ESTER					
MSO ULTRA					
GRAMOXONE SL					
AUTHORITY XL					
COC					
MARVEL					
ROUNDUP POWERMAX					
N-PAK AMS					

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	ERICA	AMBTR	CAPBP	LEPCA	ERICA
Pest Name	Canada horsewe>	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-6-2016	May-6-2016	May-6-2016	May-6-2016	May-18-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	13 13	13 13	13 13	13 13	25 25
Trt-Eval Interval	13 DA-A	13 DA-A	13 DA-A	13 DA-A	
Days After Emergence	-25 DE-1	-25 DE-1	-25 DE-1	-25 DE-1	-13 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Unit	Code	1	2	3
4 AUTHORITY MTZ	10 oz/a	A	65 a	100 a	88 a
ROUNDUP POWERMAX	22 fl oz/a	A			98 a
2,4-D LV4 ESTER	16 fl oz/a	A			
MSO ULTRA	1 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
5 VALOR SX	2 oz/a	A	85 a	100 a	99 a
ROUNDUP POWERMAX	22 fl oz/a	A			100 a
2,4-D LV4 ESTER	16 fl oz/a	A			
MSO ULTRA	1 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
6 SHARPEN	1 fl oz/a	A		100 a	90 a
ROUNDUP POWERMAX	22 fl oz/a	A			100 a
2,4-D LV4 ESTER	16 fl oz/a	A			
MSO ULTRA	1 % v/v	A			
N-PAK AMS	2.5 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
LSD P=.05	27.3	5.9	15.0	3.1	33.5
Standard Deviation	12.1	3.9	9.9	2.0	14.9
CV	44.94	4.76	13.24	2.46	56.79
Bartlett's X2	3.1	0.0	9.002	0.0	1.653
P(Bartlett's X2)	0.078	.	0.061	.	0.199
Skewness	-0.4135	-1.8571*	-1.627*	-1.8988*	-0.3269
Kurtosis	-1.8239	1.6594	1.1686	1.7652	-1.833
Replicate F	0.962	1.000	0.535	1.000	1.275
Replicate Prob(F)	0.5122	0.4199	0.6652	0.4199	0.4232
Treatment F	26.107	425.727	55.597	1585.000	16.145
Treatment Prob(F)	0.0115	0.0001	0.0001	0.0001	0.0228

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type Pest Code Pest Name	W Weed AMBTR Giant ragweed	W Weed CAPBP Shepherd's pur>	W Weed LEPCA Field pepperwe>	W Weed ERICA Canada horsewe>	W Weed AMBTR Giant ragweed
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-18-2016	May-18-2016	May-18-2016	May-26-2016	May-26-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	25 25	25 25	25 25	33 33	33 33
Trt-Eval Interval					
Days After Emergence	-13 DE-1	-13 DE-1	-13 DE-1	-5 DE-1	-5 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment No. Name	Rate Appl Rate Unit Code				
1		6	7	8	9
		0 b	0 b	0 b	0 b
2 2,4-D LV4 ESTER	16 fl oz/a A	95 a	98 a	100 a	90 a
ROUNDUP POWERMAX	22 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
3 AUTHORITY MAXX	3 oz/a A	100 a	94 a	100 a	90 a
ROUNDUP POWERMAX	22 fl oz/a A				
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed AMBTR	W Weed CAPBP	W Weed LEPCA	W Weed ERICA	W Weed AMBTR
Pest Code					
Pest Name	Giant ragweed	Shepherd's pur>	Field pepperwe>	Canada horsewe>	Giant ragweed
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-18-2016	May-18-2016	May-18-2016	May-26-2016	May-26-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	25 25	25 25	25 25	33 33	33 33
Trt-Eval Interval					
Days After Emergence	-13 DE-1	-13 DE-1	-13 DE-1	-5 DE-1	-5 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment					
No. Name	Rate Unit Appl Code				
4 AUTHORITY MTZ	10 oz/a A	6	7	8	9
ROUNDUP POWERMAX	22 fl oz/a A				
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
5 VALOR SX	2 oz/a A	100 a	100 a	98 a	100 a
ROUNDUP POWERMAX	22 fl oz/a A				
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
6 SHARPEN	1 fl oz/a A	100 a	100 a	100 a	100 a
ROUNDUP POWERMAX	22 fl oz/a A				
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
N-PAK AMS	2.5 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
LSD P=.05	5.0	5.5	3.1	24.0	8.3
Standard Deviation	3.3	3.6	2.0	12.2	5.5
CV	4.08	4.47	2.46	36.29	7.07
Bartlett's X2	0.0	0.007	0.0	0.923	4.454
P(Bartlett's X2)	.	0.996	.	0.63	0.348
Skewness	-1.8697*	-1.8688*	-1.8988*	-0.7424	-1.7839*
Kurtosis	1.7008	1.6996	1.7652	-1.4687	1.5176
Replicate F	1.000	0.497	1.000	1.111	3.621
Replicate Prob(F)	0.4199	0.6896	0.4199	0.4428	0.0380
Treatment F	578.400	481.838	1585.000	30.441	192.779
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0028	0.0001

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type Pest Code Pest Name	W Weed SETFA Giant foxtail	W Weed XANOR Common cockleb>	W Weed ERICA Canada horsewe>	W Weed AMBTR Giant ragweed	W Weed SETFA Giant foxtail
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-26-2016	May-26-2016	Jun-8-2016	Jun-8-2016	Jun-8-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	33 33	33 33	46 12	46 12	46 12
Trt-Eval Interval					
Days After Emergence	-5 DE-1	-5 DE-1	8 DE-1	8 DE-1	8 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment No. Name	Rate Rate Unit	Appl Code			
1			11	12	13
			0 c	0 c	0 -
2 2,4-D LV4 ESTER	16 fl oz/a A		85 b	84 b	100 -
ROUNDUP POWERMAX	22 fl oz/a A				92 a
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				95 b
3 AUTHORITY MAXX	3 oz/a A		99 a	99 a	100 -
ROUNDUP POWERMAX	22 fl oz/a A				97 a
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				100 a



# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	XANOR	ERICA	AMBTR	SETFA
Pest Name	Giant foxtail	Common cockleb>	Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code					
Crop Name					
Part Rated					
Rating Date	May-26-2016	May-26-2016	Jun-8-2016	Jun-8-2016	Jun-8-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	33 33	33 33	46 12	46 12	46 12
Trt-Eval Interval					
Days After Emergence	-5 DE-1	-5 DE-1	8 DE-1	8 DE-1	8 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Unit	Code	11	12	13
4 AUTHORITY MTZ	10 oz/a	A	97 a	91 ab	100 -
ROUNDUP POWERMAX	22 fl oz/a	A			95 a
2,4-D LV4 ESTER	16 fl oz/a	A			100 a
MSO ULTRA	1 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
5 VALOR SX	2 oz/a	A	100 a	93 ab	100 -
ROUNDUP POWERMAX	22 fl oz/a	A			93 a
2,4-D LV4 ESTER	16 fl oz/a	A			100 a
MSO ULTRA	1 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
6 SHARPEN	1 fl oz/a	A	90 b	90 ab	100 -
ROUNDUP POWERMAX	22 fl oz/a	A			95 a
2,4-D LV4 ESTER	16 fl oz/a	A			95 b
MSO ULTRA	1 % v/v	A			
N-PAK AMS	2.5 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			
LSD P=.05	5.8	6.9			6.9
Standard Deviation	3.8	4.6		0.0	4.6
CV	4.91	5.99		0.0	5.8
Bartlett's X2	10.503	8.494		0.0	3.073
P(Bartlett's X2)	0.033*	0.075		.	0.546
Skewness	-1.7885*	-1.7933*		-0.9462	-1.8438*
Kurtosis	1.515	1.5219		-1.3394	1.6496
Replicate F	1.493	1.120		0.000	1.797
Replicate Prob(F)	0.2568	0.3721		1.0000	0.1909
Treatment F	406.220	271.796		0.000	285.824
Treatment Prob(F)	0.0001	0.0001		1.0000	0.0001

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type Pest Code Pest Name	W Weed XANOR Common cockleb>	W Weed ERICA Canada horsewe>	W Weed AMBTR Giant ragweed	W Weed SETFA Giant foxtail
Crop Code		GLXMA		
Crop Name		Soybean		
Part Rated		PLAEME -		
Rating Date	Jun-8-2016	Jun-8-2016	Jun-21-2016	Jun-21-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing		A1		
Days After First/Last Applic.	46 12	46 12	59 25	59 25
Trt-Eval Interval				
Days After Emergence	8 DE-1	8 DE-1	21 DE-1	21 DE-1
ARM Action Codes	P	P	P	P
Number of Decimals	0	0	0	0
Trt Treatment No. Name	Rate Appl Rate Unit Code			
1		16	17	18
		0 b	0 -	0 -
2 2,4-D LV4 ESTER	16 fl oz/a A	99 a	0 -	100 -
ROUNDUP POWERMAX	22 fl oz/a A			86 a
MSO ULTRA	1 % v/v A			
GRAMOXONE SL	44 fl oz/a B			
AUTHORITY XL	4 oz/a B			
COC	1 % v/v B			
MARVEL	7.25 fl oz/a C			
ROUNDUP POWERMAX	32 fl oz/a C			
N-PAK AMS	2.5 % v/v C			
3 AUTHORITY MAXX	3 oz/a A	99 a	0 -	100 -
ROUNDUP POWERMAX	22 fl oz/a A			91 a
2,4-D LV4 ESTER	16 fl oz/a A			
MSO ULTRA	1 % v/v A			
GRAMOXONE SL	44 fl oz/a B			
AUTHORITY XL	4 oz/a B			
COC	1 % v/v B			
MARVEL	7.25 fl oz/a C			
ROUNDUP POWERMAX	32 fl oz/a C			
N-PAK AMS	2.5 % v/v C			

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed		W Weed	W Weed	W Weed
Pest Code	XANOR		ERICA	AMBTR	SETFA
Pest Name	Common cockleb>		Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated		PLAEME -			
Rating Date	Jun-8-2016	Jun-8-2016	Jun-21-2016	Jun-21-2016	Jun-21-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing		A1			
Days After First/Last Applic.	46 12	46 12	59 25	59 25	59 25
Trt-Eval Interval					
Days After Emergence	8 DE-1	8 DE-1	21 DE-1	21 DE-1	21 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Unit	Code	16	17	18
4 AUTHORITY MTZ	10 oz/a	A	99 a	0 -	100 -
ROUNDUP POWERMAX	22 fl oz/a	A			88 a
2,4-D LV4 ESTER	16 fl oz/a	A			
MSO ULTRA	1 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			92 a
5 VALOR SX	2 oz/a	A	100 a	0 -	100 -
ROUNDUP POWERMAX	22 fl oz/a	A			
2,4-D LV4 ESTER	16 fl oz/a	A			
MSO ULTRA	1 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			85 a
6 SHARPEN	1 fl oz/a	A	98 a	0 -	100 -
ROUNDUP POWERMAX	22 fl oz/a	A			
2,4-D LV4 ESTER	16 fl oz/a	A			
MSO ULTRA	1 % v/v	A			
N-PAK AMS	2.5 % v/v	A			
GRAMOXONE SL	44 fl oz/a	B			
AUTHORITY XL	4 oz/a	B			
COC	1 % v/v	B			
MARVEL	7.25 fl oz/a	C			
ROUNDUP POWERMAX	32 fl oz/a	C			
N-PAK AMS	2.5 % v/v	C			94 a
LSD P=.05	3.0	.			13.6
Standard Deviation	2.0	0.0		0.0	9.0
CV	2.41	0.0		0.0	12.2
Bartlett's X2	5.387	0.0		0.0	3.058
P(Bartlett's X2)	0.146	.		.	0.548
Skewness	-1.8941*	.		-0.9462	-1.6547*
Kurtosis	1.7556	.		-1.3394	1.2398
Replicate F	4.845	0.000		0.000	1.417
Replicate Prob(F)	0.0149	1.0000		1.0000	0.2767
Treatment F	1650.465	0.000		0.000	64.980
Treatment Prob(F)	0.0001	1.0000		1.0000	0.0001

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type	W Weed	GLXMA	W Weed	W Weed	W Weed
Pest Code	XANOR		ERICA	AMBTR	SETFA
Pest Name	Common cockleb>		Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated					
Rating Date	Jun-21-2016	Jun-21-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	59 25	59 25	76 14	76 14	76 14
Trt-Eval Interval					
Days After Emergence	21 DE-1	21 DE-1	38 DE-1	38 DE-1	38 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment					
No. Name	Rate Appl	Rate Appl	Rate Appl	Rate Appl	Rate Appl
	Rate Unit Code	Rate Unit Code	Rate Unit Code	Rate Unit Code	Rate Unit Code
1					
2 2,4-D LV4 ESTER	16 fl oz/a A	99 a	0 b	0 b	0 b
ROUNDUP POWERMAX	22 fl oz/a A		0 -	0 b	0 b
MSO ULTRA	1 % v/v A		0 -	0 b	0 b
GRAMOXONE SL	44 fl oz/a B		99 a	99 a	100 a
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
3 AUTHORITY MAXX	3 oz/a A	100 a	0 -	100 a	100 a
ROUNDUP POWERMAX	22 fl oz/a A				
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed		W Weed	W Weed	W Weed
Pest Code	XANOR		ERICA	AMBTR	SETFA
Pest Name	Common cockleb>		Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated					
Rating Date	Jun-21-2016	Jun-21-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	59 25	59 25	76 14	76 14	76 14
Trt-Eval Interval					
Days After Emergence	21 DE-1	21 DE-1	38 DE-1	38 DE-1	38 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	21	22	23
4 AUTHORITY MTZ	10 oz/a A		99 a	0 -	98 a
ROUNDUP POWERMAX	22 fl oz/a A				98 a
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
5 VALOR SX	2 oz/a A		99 a	0 -	100 a
ROUNDUP POWERMAX	22 fl oz/a A				95 a
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
6 SHARPEN	1 fl oz/a A		100 a	0 -	100 a
ROUNDUP POWERMAX	22 fl oz/a A				100 a
2,4-D LV4 ESTER	16 fl oz/a A				
MSO ULTRA	1 % v/v A				
N-PAK AMS	2.5 % v/v A				
GRAMOXONE SL	44 fl oz/a B				
AUTHORITY XL	4 oz/a B				
COC	1 % v/v B				
MARVEL	7.25 fl oz/a C				
ROUNDUP POWERMAX	32 fl oz/a C				
N-PAK AMS	2.5 % v/v C				
LSD P=.05	2.4	.	2.9	3.5	0.8
Standard Deviation	1.6	0.0	1.5	2.3	0.5
CV	1.92	0.0	3.99	2.8	0.62
Bartlett's X2	2.822	0.0	0.686	4.563	2.105
P(Bartlett's X2)	0.42	.	0.408	0.207	0.551
Skewness	-1.9038*	.	-0.9431	-1.8911*	-1.9096*
Kurtosis	1.7778	.	-1.3406	1.7496	1.7905
Replicate F	1.251	0.000	0.864	0.601	1.875
Replicate Prob(F)	0.3264	1.0000	0.5292	0.6241	0.1772
Treatment F	2606.901	0.000	2479.297	1225.494	24850.752
Treatment Prob(F)	0.0001	1.0000	0.0001	0.0001	0.0001

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	XANOR	ERICA	AMBTR	SETFA
Pest Name	Common cockleb>	Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA		
Crop Name		Soybean		
Part Rated				
Rating Date	Jul-8-2016	Jul-8-2016	Jul-22-2016	Jul-22-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing				
Days After First/Last Applic.	76 14	76 14	90 28	90 28
Trt-Eval Interval				
Days After Emergence	38 DE-1	38 DE-1	52 DE-1	52 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		
			26	27
1			0 b	0 -
2 2,4-D LV4 ESTER	16 fl oz/a A		100 a	10 -
ROUNDUP POWERMAX	22 fl oz/a A			98 a
MSO ULTRA	1 % v/v A			100 a
GRAMOXONE SL	44 fl oz/a B			
AUTHORITY XL	4 oz/a B			
COC	1 % v/v B			
MARVEL	7.25 fl oz/a C			
ROUNDUP POWERMAX	32 fl oz/a C			
N-PAK AMS	2.5 % v/v C			96 a
3 AUTHORITY MAXX	3 oz/a A		100 a	10 -
ROUNDUP POWERMAX	22 fl oz/a A			100 a
2,4-D LV4 ESTER	16 fl oz/a A			99 a
MSO ULTRA	1 % v/v A			
GRAMOXONE SL	44 fl oz/a B			
AUTHORITY XL	4 oz/a B			
COC	1 % v/v B			
MARVEL	7.25 fl oz/a C			
ROUNDUP POWERMAX	32 fl oz/a C			
N-PAK AMS	2.5 % v/v C			96 a

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03      Location: SEPAC      Trial Year: 2016  
 Protocol ID: 16S-SEP-SOY-03      Investigator: Dr. Bill Johnson  
 Project ID: Authority Preplant App      Study Director: Dustin Johnson  
 Sponsor Contact: FMC-Nick Hustedde

Pest Type	W Weed		W Weed	W Weed	W Weed
Pest Code	XANOR		ERICA	AMBTR	SETFA
Pest Name	Common cockleb>		Canada horsewe>	Giant ragweed	Giant foxtail
Crop Code		GLXMA			
Crop Name		Soybean			
Part Rated					
Rating Date	Jul-8-2016	Jul-8-2016	Jul-22-2016	Jul-22-2016	Jul-22-2016
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Assessed By	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON	D. JOHNSON
Rating Timing					
Days After First/Last Applic.	76 14	76 14	90 28	90 28	90 28
Trt-Eval Interval					
Days After Emergence	38 DE-1	38 DE-1	52 DE-1	52 DE-1	52 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment No. Name	Rate	Appl Code	Rate	Appl Code	Rate
4 AUTHORITY MTZ	10 oz/a	A	100 a	10 -	100 a
ROUNDUP POWERMAX	22 fl oz/a	A			100 a
2,4-D LV4 ESTER	16 fl oz/a	A			100 a
MSO ULTRA	1 % v/v	A			100 a
GRAMOXONE SL	44 fl oz/a	B			100 a
AUTHORITY XL	4 oz/a	B			100 a
COC	1 % v/v	B			100 a
MARVEL	7.25 fl oz/a	C			100 a
ROUNDUP POWERMAX	32 fl oz/a	C			100 a
N-PAK AMS	2.5 % v/v	C			100 a
5 VALOR SX	2 oz/a	A	99 a	10 -	97 a
ROUNDUP POWERMAX	22 fl oz/a	A			97 a
2,4-D LV4 ESTER	16 fl oz/a	A			97 a
MSO ULTRA	1 % v/v	A			97 a
GRAMOXONE SL	44 fl oz/a	B			97 a
AUTHORITY XL	4 oz/a	B			97 a
COC	1 % v/v	B			97 a
MARVEL	7.25 fl oz/a	C			97 a
ROUNDUP POWERMAX	32 fl oz/a	C			97 a
N-PAK AMS	2.5 % v/v	C			97 a
6 SHARPEN	1 fl oz/a	A	100 a	10 -	100 a
ROUNDUP POWERMAX	22 fl oz/a	A			100 a
2,4-D LV4 ESTER	16 fl oz/a	A			100 a
MSO ULTRA	1 % v/v	A			100 a
N-PAK AMS	2.5 % v/v	A			100 a
GRAMOXONE SL	44 fl oz/a	B			100 a
AUTHORITY XL	4 oz/a	B			100 a
COC	1 % v/v	B			100 a
MARVEL	7.25 fl oz/a	C			100 a
ROUNDUP POWERMAX	32 fl oz/a	C			100 a
N-PAK AMS	2.5 % v/v	C			100 a
LSD P=.05	1.5	.	2.9	3.0	4.3
Standard Deviation	1.0	0.0	1.5	2.0	2.8
CV	1.2	0.0	3.94	2.42	3.51
Bartlett's X2	5.578	0.0	0.0	1.105	7.247
P(Bartlett's X2)	0.018*	.	.	0.293	0.123
Skewness	-1.9073*	-1.9104*	-0.9426	-1.8957*	-1.8909*
Kurtosis	1.7855	1.7922	-1.3407	1.7588	1.7511
Replicate F	1.500	0.000	0.611	2.125	0.090
Replicate Prob(F)	0.2550	1.0000	0.6426	0.1399	0.9644
Treatment F	6627.667	0.000	2540.214	1638.417	780.831
Treatment Prob(F)	0.0001	1.0000	0.0001	0.0001	0.0001

# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type Pest Code Pest Name Crop Code Crop Name Part Rated Rating Date Rating Type Rating Unit Number of Subsamples Assessed By  Rating Timing Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals	W Weed XANOR Common cockleb>   Jul-22-2016 CONTRO % 1 D. JOHNSON  90 28  52 DE-1 P 0	GLXMA Soybean  Jul-22-2016 PHYGEN % 1 D. JOHNSON  90 28  52 DE-1 P 0																																																																																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Trt No.</td> <td style="width: 15%;">Treatment Name</td> <td style="width: 15%;">Rate</td> <td style="width: 15%;">Unit</td> <td style="width: 15%;">Appl Code</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>31</td> <td>32</td> </tr> </table>	Trt No.	Treatment Name	Rate	Unit	Appl Code			1					31	32	<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">31</td> <td style="width: 15%; text-align: center;">32</td> </tr> </table>						31	32	<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">0 b</td> <td style="width: 15%; text-align: center;">0 -</td> </tr> </table>						0 b	0 -																																																								
Trt No.	Treatment Name	Rate	Unit	Appl Code																																																																																		
1					31	32																																																																																
					31	32																																																																																
					0 b	0 -																																																																																
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">2</td> <td style="width: 15%;">2,4-D LV4 ESTER</td> <td style="width: 15%;">16 fl oz/a</td> <td style="width: 15%;">A</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td>ROUNDUP POWERMAX</td> <td>22 fl oz/a</td> <td>A</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>MSO ULTRA</td> <td>1 % v/v</td> <td>A</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>GRAMOXONE SL</td> <td>44 fl oz/a</td> <td>B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>AUTHORITY XL</td> <td>4 oz/a</td> <td>B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>COC</td> <td>1 % v/v</td> <td>B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>MARVEL</td> <td>7.25 fl oz/a</td> <td>C</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>ROUNDUP POWERMAX</td> <td>32 fl oz/a</td> <td>C</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>N-PAK AMS</td> <td>2.5 % v/v</td> <td>C</td> <td></td> <td></td> <td></td> </tr> </table>	2	2,4-D LV4 ESTER	16 fl oz/a	A					ROUNDUP POWERMAX	22 fl oz/a	A					MSO ULTRA	1 % v/v	A					GRAMOXONE SL	44 fl oz/a	B					AUTHORITY XL	4 oz/a	B					COC	1 % v/v	B					MARVEL	7.25 fl oz/a	C					ROUNDUP POWERMAX	32 fl oz/a	C					N-PAK AMS	2.5 % v/v	C				<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">99 a</td> <td style="width: 15%; text-align: center;">0 -</td> </tr> </table>						99 a	0 -	<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">0 -</td> <td style="width: 15%;"></td> </tr> </table>						0 -								
2	2,4-D LV4 ESTER	16 fl oz/a	A																																																																																			
	ROUNDUP POWERMAX	22 fl oz/a	A																																																																																			
	MSO ULTRA	1 % v/v	A																																																																																			
	GRAMOXONE SL	44 fl oz/a	B																																																																																			
	AUTHORITY XL	4 oz/a	B																																																																																			
	COC	1 % v/v	B																																																																																			
	MARVEL	7.25 fl oz/a	C																																																																																			
	ROUNDUP POWERMAX	32 fl oz/a	C																																																																																			
	N-PAK AMS	2.5 % v/v	C																																																																																			
					99 a	0 -																																																																																
					0 -																																																																																	
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">3</td> <td style="width: 15%;">AUTHORITY MAXX</td> <td style="width: 15%;">3 oz/a</td> <td style="width: 15%;">A</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td>ROUNDUP POWERMAX</td> <td>22 fl oz/a</td> <td>A</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>2,4-D LV4 ESTER</td> <td>16 fl oz/a</td> <td>A</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>MSO ULTRA</td> <td>1 % v/v</td> <td>A</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>GRAMOXONE SL</td> <td>44 fl oz/a</td> <td>B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>AUTHORITY XL</td> <td>4 oz/a</td> <td>B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>COC</td> <td>1 % v/v</td> <td>B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>MARVEL</td> <td>7.25 fl oz/a</td> <td>C</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>ROUNDUP POWERMAX</td> <td>32 fl oz/a</td> <td>C</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>N-PAK AMS</td> <td>2.5 % v/v</td> <td>C</td> <td></td> <td></td> <td></td> </tr> </table>	3	AUTHORITY MAXX	3 oz/a	A					ROUNDUP POWERMAX	22 fl oz/a	A					2,4-D LV4 ESTER	16 fl oz/a	A					MSO ULTRA	1 % v/v	A					GRAMOXONE SL	44 fl oz/a	B					AUTHORITY XL	4 oz/a	B					COC	1 % v/v	B					MARVEL	7.25 fl oz/a	C					ROUNDUP POWERMAX	32 fl oz/a	C					N-PAK AMS	2.5 % v/v	C				<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">100 a</td> <td style="width: 15%; text-align: center;">0 -</td> </tr> </table>						100 a	0 -	<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">0 -</td> <td style="width: 15%;"></td> </tr> </table>						0 -	
3	AUTHORITY MAXX	3 oz/a	A																																																																																			
	ROUNDUP POWERMAX	22 fl oz/a	A																																																																																			
	2,4-D LV4 ESTER	16 fl oz/a	A																																																																																			
	MSO ULTRA	1 % v/v	A																																																																																			
	GRAMOXONE SL	44 fl oz/a	B																																																																																			
	AUTHORITY XL	4 oz/a	B																																																																																			
	COC	1 % v/v	B																																																																																			
	MARVEL	7.25 fl oz/a	C																																																																																			
	ROUNDUP POWERMAX	32 fl oz/a	C																																																																																			
	N-PAK AMS	2.5 % v/v	C																																																																																			
					100 a	0 -																																																																																
					0 -																																																																																	



# Purdue Weed Science

## Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type	W Weed	
Pest Code	XANOR	
Pest Name	Common cockleb>	
Crop Code		GLXMA
Crop Name		Soybean
Part Rated		
Rating Date	Jul-22-2016	Jul-22-2016
Rating Type	CONTRO	PHYGEN
Rating Unit	%	%
Number of Subsamples	1	1
Assessed By	D. JOHNSON	D. JOHNSON
Rating Timing		
Days After First/Last Applic.	90 28	90 28
Trt-Eval Interval		
Days After Emergence	52 DE-1	52 DE-1
ARM Action Codes	P	P
Number of Decimals	0	0
Trt Treatment		
No. Name	Rate Unit Code	
	31	32
4 AUTHORITY MTZ	10 oz/a A	100 a
ROUNDUP POWERMAX	22 fl oz/a A	0 -
2,4-D LV4 ESTER	16 fl oz/a A	
MSO ULTRA	1 % v/v A	
GRAMOXONE SL	44 fl oz/a B	
AUTHORITY XL	4 oz/a B	
COC	1 % v/v B	
MARVEL	7.25 fl oz/a C	
ROUNDUP POWERMAX	32 fl oz/a C	
N-PAK AMS	2.5 % v/v C	
5 VALOR SX	2 oz/a A	100 a
ROUNDUP POWERMAX	22 fl oz/a A	0 -
2,4-D LV4 ESTER	16 fl oz/a A	
MSO ULTRA	1 % v/v A	
GRAMOXONE SL	44 fl oz/a B	
AUTHORITY XL	4 oz/a B	
COC	1 % v/v B	
MARVEL	7.25 fl oz/a C	
ROUNDUP POWERMAX	32 fl oz/a C	
N-PAK AMS	2.5 % v/v C	
6 SHARPEN	1 fl oz/a A	100 a
ROUNDUP POWERMAX	22 fl oz/a A	0 -
2,4-D LV4 ESTER	16 fl oz/a A	
MSO ULTRA	1 % v/v A	
N-PAK AMS	2.5 % v/v A	
GRAMOXONE SL	44 fl oz/a B	
AUTHORITY XL	4 oz/a B	
COC	1 % v/v B	
MARVEL	7.25 fl oz/a C	
ROUNDUP POWERMAX	32 fl oz/a C	
N-PAK AMS	2.5 % v/v C	
LSD P=.05	1.5	.
Standard Deviation	1.0	0.0
CV	1.23	0.0
Bartlett's X2	0.0	0.0
P(Bartlett's X2)	.	.
Skewness	-1.9074*	.
Kurtosis	1.7856	.
Replicate F	1.000	0.000
Replicate Prob(F)	0.4199	1.0000
Treatment F	6369.001	0.000
Treatment Prob(F)	0.0001	1.0000

## Purdue Weed Science

### Authority Preplant Application with 2-Pass Burndown

Trial ID: 16S-SEP-SOY-03	Location: SEPAC	Trial Year: 2016
Protocol ID: 16S-SEP-SOY-03	Investigator: Dr. Bill Johnson	
Project ID: Authority Preplant App	Study Director: Dustin Johnson	
	Sponsor Contact: FMC-Nick Hustedde	

Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

ERICA, Conyza canadensis, = ERICA, Conyza canadensis,

AMBTR, Ambrosia trifida, = US

CAPBP, Capsella bursa-pastoris, = US

LEPCA, Lepidium campestre, = US

ERICA, Erigeron canadensis, = US

SETFA, Setaria faberi, = US

XANOR, Xanthium orientale, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Part Rated

PLAEME = plant - emerged

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

Rating Unit

% = percent

Rating Timing

A1 = 1st Assessment According to Trial Schedule

ARM Action Codes

P = Rating scale of 0 to 100 (e.g. % control or injury)