

# Purdue University

**Soybean Marestail Tank-Mix Protocol: Evaluate tank-mix options for improved marestail control with Kixor applied preplant burndown to soybean**

Trial ID: 11S-SEP-NTS-02      Protocol ID: 11S-SEP-NTS-02  
 Location: SEPAC      Study Director: Paul Marquardt  
 Project ID: 11S-SEP-NTS-02      Investigator: Dr. Bill Johnson  
 Sponsor Contact: Gery Welker

## General Trial Information

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

**Discipline:** H herbicide  
**Trial Status:** E established  
**Initiation Date:** 3-15-2011

## Trial Location

**City:** Butleville  
**State/Prov.:** IN  
**Postal Code:** 47223  
**Country:** USA

## Personnel

**Study Director:** Paul Marquardt      **Title:** Research Associate  
**Affiliation:** Purdue University  
**Address:** 915 W. State Street  
**Location:** West Lafayette, IN  
**Postal Code:** 47907      **E-mail:** pmarquar@purdue.edu  
**Phone No.:** 765-494-0891      **Mobile No.:** 765-409-6369  
**Investigator:** Dr. Bill Johnson      **Title:** Professor  
**Affiliation:** Purdue University  
**Address:** 915 W. State Street  
**Location:** West Lafayette, IN  
**Postal Code:** 47907      **E-mail:** wji@purdue.edu  
**Phone No.:** 765-494-4656      **Mobile No.:** 765-404-9801

## Cooperator/Landowner

**Cooperator:** Don Biehle      **Role:** Director  
**Organization:** Southeast Purdue Agricultural Center      **Org. Type:** University  
**Address 1:** 4425 E. CR 350 N  
**City:** Butleville      **Phone No.:** 812-458-6977  
**State/Prov.:** IN      **Fax No.:** 812-458-6979  
**Postal Code:** 47223      **Mobile No.:** 812-592-8426  
**Country:** USA      **E-mail:** biehled@purdue.edu  
 United States

## Crop Description

**Crop 1:** GLXMA      Glycine max      Soybean  
**Variety:** AG2931      **Description:** Roundup Ready  
**BBCH Scale:** BSOY      **Planting Date:** 6-3-2011  
**Planting Method:** DIRDRI      direct drilled      **Rate, Unit:** 32000      S/A  
**Depth, Unit:** 2      IN  
**Row Spacing, Unit:** 30      IN      **Spacing Within Row, Unit:** 6      IN  
**Seed Bed:** MEDIUM      medium      **Soil Temperature, Unit:** 75      F  
**Soil Moisture:** MOIST      **Emergence Date:** 6-8-2011  
**Harvest Date:** 10-25-2011      **Harvest Equipment:** Gleaner F3 Combine  
**Harvested Width, Unit:** 10      FT      **Harvested Length, Unit:** 25      FT  
**% Standard Moisture:** 13.0      **Moisture Meter:** Carter 3" blade  
**Weighing Equipment:** Harvestmaster400

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## Pest Description

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

**Pest 2 Type:** W **Code:** RANAB *Ranunculus abortivus*  
**Common Name:** Smallflower buttercup

**Pest 3 Type:** W **Code:** TAROF *Taraxacum officinale*  
**Common Name:** Common dandelion

**Pest 4 Type:** W **Code:** AMBEL *Ambrosia artemisiifolia*  
**Common Name:** Common ragweed

**Pest 5 Type:** W **Code:** ALLVI *Allium vineale*  
**Common Name:** Wild garlic

**Pest 6 Type:** W **Code:** BROSS *Bromus sp.*  
**Common Name:** Bromegrass

**Pest 7 Type:** W **Code:** VERPG *Veronica peregrina*  
**Common Name:** Purslane speedwell

**Pest 8 Type:** W **Code:** PLARU *Plantago rugelii*  
**Common Name:** Blackseed plantain

**Pest 9 Type:** W **Code:** POAAN *Poa annua*  
**Common Name:** Annual bluegrass

**Pest10 Type:** W **Code:** XANST *Xanthium strumarium*  
**Common Name:** Common cocklebur

**Pest11 Type:** W **Code:** SETFA *Setaria faberi*  
**Common Name:** Giant fox tail

## Site and Design

<b>Plot Width, Unit:</b> 10 FT	<b>Site Type:</b> FIELD	field
<b>Plot Length, Unit:</b> 30 FT	<b>Experimental Unit:</b> 1	PLOT plot
<b>Plot Area, Unit:</b> 300 FT <sup>2</sup>	<b>Tillage Type:</b> NOTILL	no-till
<b>Replications:</b> 4	<b>Study Design:</b> RACOB	Randomized Complete Block (RCB)
	<b>Untreated Arrangement:</b> INCLUDED	single control randomized in each block

## Soil Description

**Description Name:** SEPAC-Field U41

<b>% OM:</b> 1.3	<b>Texture:</b> SIL silt loam
<b>pH:</b> 6.5	<b>Soil Name:</b> Avonburg
<b>CEC:</b> 5.7	<b>Fert. Level:</b> G good
	<b>Soil Drainage:</b> P poor

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### Application Description

	A	B
Application Date:	5-5-2011	6-24-2011
Time of Day:	10 AM	9 AM
Application Method:	SPRAY	SPRAY
Application Timing:	PREPLA	MIPOWE
Application Placement:	FOLIAR	FOLIAR
Applied By:	RT	RT
Air Temperature, Unit:	63 F	66 F
% Relative Humidity:	40	65
Wind Velocity, Unit:	5 MPH	4.5 MPH
Wind Direction:	S	W
Dew Presence (Y/N):	N no	Y yes
Soil Temperature, Unit:	51 F	
Soil Moisture:	WET	WET
% Cloud Cover:	5	100

### Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH
Stage Majority, Percent:		13 90
Stage Minimum, Percent:		12 10
Stage Maximum, Percent:		13 90
Height, Unit:		5 IN
Height Minimum, Maximum:		4 6

### Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	ERICA W	ERICA W
Stage Majority, Percent:	11 100	13 100
Height, Unit:	1 IN	3.5 IN
Height Minimum, Maximum:	0 1	1 6
Density, Unit:	1.5 YD2	15 YD2
Pest 2 Code, Type, Scale:	RANAB W	RANAB W
Stage Majority, Percent:	11 100	
Height, Unit:	2 IN	
Height Minimum, Maximum:	0 4	
Density, Unit:	10 YD2	
Pest 3 Code, Type, Scale:	TAROF W	TAROF W
Stage Majority, Percent:	65 100	
Height, Unit:	5 IN	
Height Minimum, Maximum:	0 10	

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Density, Unit:	2.5 YD2	
Pest 4 Code, Type, Scale:	AMBEL W	AMBEL W
Stage Majority, Percent:	12 100	14 90
Height, Unit:	1 IN	12 IN
Height Minimum, Maximum:	0 2	6 18
Density, Unit:	10 YD2	4
Pest 5 Code, Type, Scale:	ALLVI W	ALLVI W
Stage Majority, Percent:	40 100	
Height, Unit:	12 IN	
Height Minimum, Maximum:	6 18	
Density, Unit:	55 YD2	
Pest 6 Code, Type, Scale:	BROSS W	BROSS W
Stage Majority, Percent:	13 100	
Height, Unit:	2.5 IN	
Height Minimum, Maximum:	0 5	
Density, Unit:	50 YD2	
Pest 7 Code, Type, Scale:	VERPG W	VERPG W
Stage Majority, Percent:	32 100	
Height, Unit:	2 IN	
Height Minimum, Maximum:	1 3	
Density, Unit:	5 YD2	
Pest 8 Code, Type, Scale:	PLARU W	PLARU W
Stage Majority, Percent:	11 100	
Height, Unit:	1 IN	
Height Minimum, Maximum:	0 2	
Density, Unit:	5 YD2	
Pest 9 Code, Type, Scale:	POAAN W	POAAN W
Stage Majority, Percent:	65 100	
Height, Unit:	3.5 IN	
Height Minimum, Maximum:	3 4	
Density, Unit:	10	
Pest10 Code, Type, Scale:	XANST W	XANST W
Stage Majority, Percent:		13 100
Height, Unit:		7 IN
Height Minimum, Maximum:		2 12
Density, Unit:		7.5 YD2
Pest11 Code, Type, Scale:	SETFA W	SETFA W
Stage Majority, Percent:		22 100
Height, Unit:		10.5 IN
Height Minimum, Maximum:		3 18
Density, Unit:		55 YD2

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## Application Equipment

	A	B
<b>Appl. Equipment:</b>	CO2 Backpack	CO2 Backpack
<b>Equipment Type:</b>	SPRBAC	SPRBAC
<b>Operation Pressure, Unit:</b>	17 PSI	17 PSI
<b>Nozzle Type:</b>	Flat Fan	Flat Fan
<b>Nozzle Size:</b>	XR11002	XR11002
<b>Nozzle Spacing, Unit:</b>	15 IN	15 IN
<b>Nozzles/Row:</b>	8	8
<b>Boom Length, Unit:</b>	10 FT	10 FT
<b>Boom Height, Unit:</b>	18 IN	18 IN
<b>Ground Speed, Unit:</b>	3 MPH	3 MPH
<b>Carrier:</b>	H2O	H2O
<b>Water Hardness (ppm CaCO3):</b>	150	150
<b>Spray Volume, Unit:</b>	15 GAL/AC	15 GAL/AC
<b>Mix Size, Unit:</b>	1.8 Liters	1.8 Liters
<b>Propellant:</b>	CO2	CO2
<b>Tank Mix (Y/N):</b>	N no	N no

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**Soybean Marestalk Tank-Mix Protocol: Evaluate tank-mix options for improved marestalk control with Kixor applied preplant burndown to soybean**

Trial ID: 11S-SEP-NTS-02      Protocol ID: 11S-SEP-NTS-02  
 Location: SEPAC                  Study Director: Paul Marquardt  
 Project ID: 11S-SEP-NTS-02      Investigator: Dr. Bill Johnson  
 Sponsor Contact: Gery Welker

Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed		
Pest Code	ERICA	AMBEL	BROSE		ERICA	AMBEL		
Pest Scientific Name	<i>Conyza canadensis</i>	<i>Ambrosia artemisiifolia</i>	<i>Bromus secalinus</i>		<i>Conyza canadensis</i>	<i>Ambrosia artemisiifolia</i>		
Pest Name	Canada horseweed	Common ragweed	Cheat		Canada horseweed	Common ragweed		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	5-20-2011	5-20-2011	5-20-2011	6-14-2011	6-14-2011	6-14-2011		
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority				VC	VC	VC		
Pest Stage Majority	1-2"	1-4"	6-8"		1-3"	2-8"		
Pest Density, Unit	2.5 YD2	10 YD2	25 YD2		3 YD2	15 YD2		
Assessed By	PM	PM	PM	CB/RH	CB/RH	CB/RH		
Days After First/Last Applic.	15 15	15 15	15 15	40 40	40 40	40 40		
Trt-Eval Interval	15 DA-A	15 DA-A	15 DA-A	40 DA-A	40 DA-A	40 DA-A		
Plant-Eval Interval	-14 DP-1	-14 DP-1	-14 DP-1	11 DP-1	11 DP-1	11 DP-1		
Days After Emergence	-19 DE	-19 DE	-19 DE	6 DE-1	6 DE-1	6 DE-1		
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	1	2	3	4	5	6
1 UNTREATED	0.0 b		0.0 c	0.0 b	0.0 a	0.0 b	0.0 c	
2 Roundup Original	840 g ae/ha A		100.0 a	92.5 b	93.8 a	0.0 a	91.3 a	73.0 ab
NIS	0.25 % v/v A							
N-Pak AMS	5 % v/v A							
Roundup Original	840 g ae/ha B							
NIS	0.25 % v/v B							
N-Pak AMS	5 % v/v B							
3 Roundup Original	840 g ae/ha A		100.0 a	95.0 ab	90.0 a	0.0 a	100.0 a	59.5 b
2,4-D Ester	560 g ai/ha A							
NIS	0.25 % v/v A							
N-Pak AMS	5 % v/v A							
Roundup Original	840 g ae/ha B							
NIS	0.25 % v/v B							
N-Pak AMS	5 % v/v B							
4 Sharpen	25 g ai/ha A		100.0 a	97.5 ab	95.0 a	0.0 a	100.0 a	70.8 ab
Roundup Original	840 g ae/ha A							
MSO	1 % v/v A							
N-Pak AMS	5 % v/v A							
Roundup Original	840 g ae/ha B							
NIS	0.25 % v/v B							
N-Pak AMS	5 % v/v B							

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed		
Pest Code	ERICA	AMBEL	BROSE		ERICA	AMBEL		
Pest Scientific Name	Conyza canadens>	Ambrosia artem>	Bromus secalin>		Conyza canadens>	Ambrosia artem>		
Pest Name	Canada horsewee>	Common ragwee	Cheat		Canada horsewee>	Common ragweed		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	5-20-2011	5-20-2011	5-20-2011	6-14-2011	6-14-2011	6-14-2011		
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority				VC	VC	VC		
Pest Stage Majority	1-2"	1-4"	6-8"		1-3"	2-8"		
Pest Density, Unit	2.5 YD2	10 YD2	25 YD2		3 YD2	15 YD2		
Assessed By	PM	PM	PM	CB/RH	CB/RH	CB/RH		
Days After First/Last Applic.	15 15	15 15	15 15	40 40	40 40	40 40		
Trt-Eval Interval	15 DA-A	15 DA-A	15 DA-A	40 DA-A	40 DA-A	40 DA-A		
Plant-Eval Interval	-14 DP-1	-14 DP-1	-14 DP-1	11 DP-1	11 DP-1	11 DP-1		
Days After Emergence	-19 DE	-19 DE	-19 DE	6 DE-1	6 DE-1	6 DE-1		
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	1	2	3	4	5	6
5 Sharpen	37.5 g ai/ha	A	100.0 a	100.0 a	90.0 a	0.0 a	100.0 a	85.0 ab
Roundup Original	840 g ae/ha	A						
MSO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						
6 Verdict	244 g ai/ha	A	100.0 a	100.0 a	100.0 a	0.0 a	100.0 a	70.3 ab
Roundup Original	840 g ae/ha	A						
MSO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						
7 Verdict	366 g ai/ha	A	100.0 a	100.0 a	97.5 a	0.0 a	100.0 a	80.8 ab
Roundup Original	840 g ae/ha	A						
MSO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						
8 Sharpen	25 g ai/ha	A	100.0 a	100.0 a	100.0 a	0.0 a	100.0 a	92.5 ab
2,4-D Ester	560 g ai/ha	A						
Roundup Original	840 g ae/ha	A						
MSO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						

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 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed
Pest Code	ERICA	AMBEL	BROSE		ERICA	AMBEL
Pest Scientific Name	<i>Conyza canadensis</i>	<i>Ambrosia artemisiifolia</i>	<i>Bromus setaceus</i>		<i>Conyza canadensis</i>	<i>Ambrosia artemisiifolia</i>
Pest Name	Canada horseweed	Common ragweed	Cheat		Canada horseweed	Common ragweed
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931
Rating Date	5-20-2011	5-20-2011	5-20-2011	6-14-2011	6-14-2011	6-14-2011
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Crop Stage Majority				VC	VC	VC
Pest Stage Majority	1-2"	1-4"	6-8"		1-3"	2-8"
Pest Density, Unit	2.5 YD2	10 YD2	25 YD2		3 YD2	15 YD2
Assessed By	PM	PM	PM	CB/RH	CB/RH	CB/RH
Days After First/Last Applic.	15 15	15 15	15 15	40 40	40 40	40 40
Trt-Eval Interval	15 DA-A	15 DA-A	15 DA-A	40 DA-A	40 DA-A	40 DA-A
Plant-Eval Interval	-14 DP-1	-14 DP-1	-14 DP-1	11 DP-1	11 DP-1	11 DP-1
Days After Emergence	-19 DE	-19 DE	-19 DE	6 DE-1	6 DE-1	6 DE-1
ARM Action Codes						
Number of Decimals						
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	1	2	3	4
9 Sharpen	25 g ai/ha	A	100.0 a	96.3 ab	99.5 a	0.0 a
Ignite	595 g ae/ha	A				
MISO	1 % v/v	A				
N-Pak AMS	5 % v/v	A				
Roundup Original	840 g ae/ha	B				
NIS	0.25 % v/v	B				
N-Pak AMS	5 % v/v	B				
10 Authority First	147 g ai/ha	A	100.0 a	100.0 a	100.0 a	0.0 a
Roundup Original	840 g ae/ha	A				
MISO	1 % v/v	A				
N-Pak AMS	5 % v/v	A				
Roundup Original	840 g ae/ha	B				
NIS	0.25 % v/v	B				
N-Pak AMS	5 % v/v	B				
11 Valor XLT	85 g ai/ha	A	100.0 a	100.0 a	98.8 a	0.0 a
Roundup Original	840 g ae/ha	A				
2,4-D Ester	560 g ai/ha	A				
NIS	0.25 % v/v	A				
N-Pak AMS	5 % v/v	A				
Roundup Original	840 g ae/ha	B				
NIS	0.25 % v/v	B				
N-Pak AMS	5 % v/v	B				

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Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed		
Pest Code	ERICA	AMBEL	BROSE		ERICA	AMBEL		
Pest Scientific Name	<i>Conyza canadensis</i>	<i>Ambrosia artemisiifolia</i>	<i>Bromus setaceus</i>		<i>Conyza canadensis</i>	<i>Ambrosia artemisiifolia</i>		
Pest Name	Canada horseweed	Common ragweed	Cheat		Canada horseweed	Common ragweed		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>	<i>Glycine max</i>		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	5-20-2011	5-20-2011	5-20-2011	6-14-2011	6-14-2011	6-14-2011		
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority				VC	VC	VC		
Pest Stage Majority	1-2"	1-4"	6-8"		1-3"	2-8"		
Pest Density, Unit	2.5 YD2	10 YD2	25 YD2		3 YD2	15 YD2		
Assessed By	PM	PM	PM	CB/RH	CB/RH	CB/RH		
Days After First/Last Applic.	15 15	15 15	15 15	40 40	40 40	40 40		
Trt-Eval Interval	15 DA-A	15 DA-A	15 DA-A	40 DA-A	40 DA-A	40 DA-A		
Plant-Eval Interval	-14 DP-1	-14 DP-1	-14 DP-1	11 DP-1	11 DP-1	11 DP-1		
Days After Emergence	-19 DE	-19 DE	-19 DE	6 DE-1	6 DE-1	6 DE-1		
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	1	2	3	4	5	6
12 UNTREATED	0.0 b	0.0 c	0.0 b	0.0 a	0.0 b	0.0 c		
LSD (P=.05)	0.00	4.17	6.89	0.00	7.29	22.58		
Standard Deviation	0.00	2.89	4.77	0.00	5.05	15.64		
CV	0.0	3.53	5.94	0.0	6.12	23.29		
Bartlett's X2	0.0	0.121	15.584	0.0	0.0	23.122		
P(Bartlett's X2)	.	0.989	0.016*	.	.	0.006*		
Replicate F	0.000	1.726	2.393	0.000	1.000	0.362		
Replicate Prob(F)	1.0000	0.1807	0.0861	1.0000	0.4051	0.7808		
Treatment F	0.000	701.824	249.769	0.000	234.321	18.061		
Treatment Prob(F)	1.0000	0.0001	0.0001	1.0000	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)  
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Pest Type	W Weed	W Weed		W Weed	W Weed	W Weed	W Weed		
Pest Code	XANST	PANDI		GGGAN	AMBEL	ERICA	XANST		
Pest Scientific Name	Xanthium strum>	Panicum dichot>		Annual grasses	Ambrosia artem>	Conyza canad>	Xanthium strum>		
Pest Name	Common cockleb>	Fall panicum		Annual grasses	Common ragweed	Canada horsewe>	Common cockleb>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	6-14-2011	6-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	VC	VC	R2	R2	R2	R2	R2		
Pest Stage Majority	2-8"	0.5-2"		12 IN	8-12 IN	8 IN	8-12 IN		
Pest Density , Unit	5 YD2	75 YD2		37 YD2	18 YD2	7.5 YD2	2.5 YD2		
Assessed By	CB/RH	CB/RH	RH	RH	RH	RH	RH		
Days After First/Last Applic.	40 40	40 40	70 20	70 20	70 20	70 20	70 20		
Trt-Eval Interval	40 DA-A	40 DA-A							
Plant-Eval Interval	11 DP-1	11 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1		
Days After Emergence	6 DE-1	6 DE-1	36 DE-	36 DE-	36 DE-	36 DE-	36 DE-		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	7	8	9	10	11	12	13
1 UNTREATED	0.0 b		0.0 c	0.0 a	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
2 Roundup Original 840 g ae/ha A NIS 0.25 % v/v A N-Pak AMS 5 % v/v A Roundup Original 840 g ae/ha B NIS 0.25 % v/v B N-Pak AMS 5 % v/v B	55.0 a		42.5 abc	0.0 a	96.5 a	98.3 a	97.5 a	86.5 a	
3 Roundup Original 840 g ae/ha A 2,4-D Ester 560 g ai/ha A NIS 0.25 % v/v A N-Pak AMS 5 % v/v A Roundup Original 840 g ae/ha B NIS 0.25 % v/v B N-Pak AMS 5 % v/v B	48.3 a		33.8 bc	0.0 a	96.0 a	100.0 a	100.0 a	85.3 a	
4 Sharpen 25 g ai/ha A Roundup Original 840 g ae/ha A MSO 1 % v/v A N-Pak AMS 5 % v/v A Roundup Original 840 g ae/ha B NIS 0.25 % v/v B N-Pak AMS 5 % v/v B	61.3 a		42.5 abc	0.0 a	97.8 a	100.0 a	100.0 a	78.3 a	

Means followed by same letter do not significantly differ (P=.05, Student-New man-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Purdue University

Pest Type	W Weed	W Weed		W Weed	W Weed	W Weed	W Weed		
Pest Code	XANST	PANDI		GGGAN	AMBEL	ERICA	XANST		
Pest Scientific Name	Xanthium strum>	Panicum dichot>		Annual grasses	Ambrosia artem>	Conyza canadens>	Xanthium strum>		
Pest Name	Common cockleb>	Fall panicum		Annual grasses	Common ragweed	Canada horsewee>	Common cockleb>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	6-14-2011	6-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	VC	VC	R2	R2	R2	R2	R2		
Pest Stage Majority	2-8"	0.5-2"		12 IN	8-12 IN	8 IN	8-12 IN		
Pest Density, Unit	5 YD2	75 YD2		37 YD2	18 YD2	7.5 YD2	2.5 YD2		
Assessed By	CB/RH	CB/RH	RH	RH	RH	RH	RH		
Days After First/Last Applic.	40 40	40 40	70 20	70 20	70 20	70 20	70 20		
Trt-Eval Interval	40 DA-A	40 DA-A							
Plant-Eval Interval	11 DP-1	11 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1		
Days After Emergence	6 DE-1	6 DE-1	36 DE-	36 DE-	36 DE-	36 DE-	36 DE-		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	7	8	9	10	11	12	13
5 Sharpen	37.5 g ai/ha	A	74.5 a	43.8 abc	0.0 a	96.8 a	98.5 a	100.0 a	83.0 a
Roundup Original	840 g ae/ha	A							
MSO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
6 Verdict	244 g ai/ha	A	68.3 a	61.3 ab	0.0 a	97.0 a	99.3 a	100.0 a	83.8 a
Roundup Original	840 g ae/ha	A							
MSO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
7 Verdict	366 g ai/ha	A	70.0 a	70.3 ab	0.0 a	95.0 a	100.0 a	100.0 a	76.3 a
Roundup Original	840 g ae/ha	A							
MSO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
8 Sharpen	25 g ai/ha	A	70.8 a	69.0 ab	0.0 a	96.0 a	100.0 a	100.0 a	71.3 a
2,4-D Ester	560 g ai/ha	A							
Roundup Original	840 g ae/ha	A							
MSO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Purdue University

Pest Type	W Weed	W Weed		W Weed	W Weed	W Weed	W Weed		
Pest Code	XANST	PANDI		GGGAN	AMBEL	ERICA	XANST		
Pest Scientific Name	Xanthium strum>	Panicum dichot>		Annual grasses	Ambrosia artem>	Conyza canaden>	Xanthium strum>		
Pest Name	Common cockleb>	Fall panicum		Annual grasses	Common ragweed	Canada horsewe>	Common cockleb>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	6-14-2011	6-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	VC	VC	R2	R2	R2	R2	R2		
Pest Stage Majority	2-8"	0.5-2"		12 IN	8-12 IN	8 IN	8-12 IN		
Pest Density, Unit	5 YD2	75 YD2		37 YD2	18 YD2	7.5 YD2	2.5 YD2		
Assessed By	CB/RH	CB/RH	RH	RH	RH	RH	RH		
Days After First/Last Applic.	40 40	40 40	70 20	70 20	70 20	70 20	70 20		
Trt-Eval Interval	40 DA-A	40 DA-A							
Plant-Eval Interval	11 DP-1	11 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1		
Days After Emergence	6 DE-1	6 DE-1	36 DE-	36 DE-	36 DE-	36 DE-	36 DE-		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	7	8	9	10	11	12	13
9 Sharpen	25 g ai/ha	A	75.3 a	54.5 ab	0.0 a	97.8 a	100.0 a	100.0 a	84.5 a
Ignite	595 g ae/ha	A							
MISO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
10 Authority First	147 g ai/ha	A	75.8 a	75.8 ab	0.0 a	96.5 a	100.0 a	100.0 a	77.5 a
Roundup Original	840 g ae/ha	A							
MISO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
11 Valor XLT	85 g ai/ha	A	78.8 a	90.8 a	0.0 a	94.5 a	99.3 a	100.0 a	79.3 a
Roundup Original	840 g ae/ha	A							
2,4-D Ester	560 g ai/ha	A							
NIS	0.25 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

### Purdue University

Pest Type	W Weed	W Weed		W Weed	W Weed	W Weed	W Weed		
Pest Code	XANST	PANDI		GGGAN	AMBEL	ERICA	XANST		
Pest Scientific Name	Xanthium strum>	Panicum dichot>		Annual grasses	Ambrosia artem>	Conyza canad>	Xanthium strum>		
Pest Name	Common cockleb>	Fall panicum		Annual grasses	Common ragweed	Canada horsewe>	Common cockleb>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	6-14-2011	6-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011	7-14-2011		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	VC	VC	R2	R2	R2	R2	R2		
Pest Stage Majority	2-8"	0.5-2"		12 IN	8-12 IN	8 IN	8-12 IN		
Pest Density, Unit	5 YD2	75 YD2		37 YD2	18 YD2	7.5 YD2	2.5 YD2		
Assessed By	CB/RH	CB/RH	RH	RH	RH	RH	RH		
Days After First/Last Applic.	40 40	40 40	70 20	70 20	70 20	70 20	70 20		
Trt-Eval Interval	40 DA-A	40 DA-A							
Plant-Eval Interval	11 DP-1	11 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1	41 DP-1		
Days After Emergence	6 DE-1	6 DE-1	36 DE-	36 DE-	36 DE-	36 DE-	36 DE-		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	7	8	9	10	11	12	13
12 UNTREATED	0.0 b	0.0 c	0.0 a	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b	
LSD (P=.05)	25.66	31.86	0.00	2.84	1.77	2.08	12.50		
Standard Deviation	17.77	22.07	0.00	1.97	1.23	1.44	8.66		
CV	31.47	45.34	0.0	2.45	1.48	1.74	12.9		
Bartlett's X2	7.735	10.809	0.0	10.721	3.367	0.0	18.654		
P(Bartlett's X2)	0.561	0.289	.	0.218	0.338	.	0.028*		
Replicate F	10.585	1.320	0.000	0.839	2.117	1.000	3.915		
Replicate Prob(F)	0.0001	0.2846	1.0000	0.4821	0.1169	0.4051	0.0170		
Treatment F	9.832	6.449	0.000	1457.669	3988.019	2895.546	53.457		
Treatment Prob(F)	0.0001	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, Student-New man-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

# Purdue University

Pest Type	W Weed		W Weed	W Weed	W Weed				
Pest Code	IPOSS		XANST	ERICA	AMBEL				
Pest Scientific Name	Ipomoea sp.		Xanthium strum>	Conyza canaden>	Ambrosia artem>				
Pest Name	Morning glory		Common cockleb>	Canada horsewe e>	Common ragweed				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	7-14-2011	8-18-2011	8-18-2011	8-18-2011	8-18-2011	10-25-2011	10-25-2011		
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	YIELD	MOISTURE		
Rating Unit	%	%	%	%	%	LB	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	R2	R5	R5	R5	R5				
Pest Stage Majority	12 IN		24 IN	48 IN	38 IN				
Pest Density , Unit	7.5 YD2		10 YD2	5 YD2	20 YD2				
Assessed By	RH	PM	PM	PM	PM	PM	PM		
Days After First/Last Applic.	70 20	105 55	105 55	105 55	105 55	173 123	173 123		
Trt-Eval Interval									
Plant-Eval Interval	41 DP-1	76 DP-1	76 DP-1	76 DP-1	76 DP-1	144 DP-1	144 DP-1		
Days After Emergence	36 DE-	71 DE-	71 DE-	71 DE-	71 DE-	139 DE	139 DE		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	14	15	16	17	18	19	20
1 UNTREATED			20.0 b	0.0 a	0.0 a	0.0 b	0.0 b	9.2179346 c	14.8052755 a
2 Roundup Original	840 g ae/ha A		92.5 a	0.0 a	0.0 a	100.0 a	100.0 a	15.1168896 ab	14.3388906 a
NIS	0.25 % v/v A								
N-Pak AMS	5 % v/v A								
Roundup Original	840 g ae/ha B								
NIS	0.25 % v/v B								
N-Pak AMS	5 % v/v B								
3 Roundup Original	840 g ae/ha A		90.8 a	0.0 a	0.0 a	100.0 a	100.0 a	12.7519353 abc	14.0904803 a
2,4-D Ester	560 g ai/ha A								
NIS	0.25 % v/v A								
N-Pak AMS	5 % v/v A								
Roundup Original	840 g ae/ha B								
NIS	0.25 % v/v B								
N-Pak AMS	5 % v/v B								
4 Sharpen	25 g ai/ha A		97.8 a	0.0 a	0.0 a	100.0 a	100.0 a	13.4775461 abc	14.1215415 a
Roundup Original	840 g ae/ha A								
MSO	1 % v/v A								
N-Pak AMS	5 % v/v A								
Roundup Original	840 g ae/ha B								
NIS	0.25 % v/v B								
N-Pak AMS	5 % v/v B								

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

# Purdue University

Pest Type	W Weed		W Weed		W Weed		W Weed	
Pest Code	IPOSS		XANST		ERICA		AMBEL	
Pest Scientific Name	Ipomoea sp.		Xanthium strum>		Conyza canaden>		Ambrosia artem>	
Pest Name	Morning glory		Common cockleb>		Canada horsewee>		Common ragweed	
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931
Rating Date	7-14-2011	8-18-2011	8-18-2011	8-18-2011	8-18-2011	8-18-2011	10-25-2011	10-25-2011
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO	YIELD	MOISTURE
Rating Unit	%	%	%	%	%	%	LB	%
Number of Subsamples	1	1	1	1	1	1	1	1
Crop Stage Majority	R2	R5	R5	R5	R5	R5	R5	R5
Pest Stage Majority	12 IN		24 IN	48 IN	38 IN			
Pest Density, Unit	7.5 YD2		10 YD2	5 YD2	20 YD2			
Assessed By	RH	PM	PM	PM	PM	PM	PM	PM
Days After First/Last Applic.	70 20	105 55	105 55	105 55	105 55	105 55	173 123	173 123
Trt-Eval Interval								
Plant-Eval Interval	41 DP-1	76 DP-1	76 DP-1	76 DP-1	76 DP-1	76 DP-1	144 DP-1	144 DP-1
Days After Emergence	36 DE-	71 DE-	71 DE-	71 DE-	71 DE-	71 DE-	139 DE	139 DE
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	14	15	16	17	18	19
5 Sharpen	37.5 g ai/ha	A	98.5 a	0.0 a	0.0 a	100.0 a	100.0 a	13.2625498 abc
Roundup Original	840 g ae/ha	A						
MISO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						
6 Verdict	244 g ai/ha	A	92.0 a	0.0 a	0.0 a	100.0 a	100.0 a	12.7250570 abc
Roundup Original	840 g ae/ha	A						
MISO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						
7 Verdict	366 g ai/ha	A	91.3 a	0.0 a	0.0 a	100.0 a	100.0 a	13.3566107 abc
Roundup Original	840 g ae/ha	A						
MISO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						
8 Sharpen	25 g ai/ha	A	91.3 a	0.0 a	0.0 a	100.0 a	100.0 a	12.9803671 abc
2,4-D Ester	560 g ai/ha	A						
Roundup Original	840 g ae/ha	A						
MISO	1 % v/v	A						
N-Pak AMS	5 % v/v	A						
Roundup Original	840 g ae/ha	B						
NIS	0.25 % v/v	B						
N-Pak AMS	5 % v/v	B						

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

# Purdue University

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	IPOSS		XANST	ERICA		AMBEL			
Pest Scientific Name	Ipomoea sp.		Xanthium strum>	Conyza canadens>		Ambrosia artem>			
Pest Name	Morning glory		Common cockleb>	Canada horsewee>		Common ragweed			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	7-14-2011	8-18-2011	8-18-2011	8-18-2011	8-18-2011	10-25-2011	10-25-2011		
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	YIELD	MOISTURE		
Rating Unit	%	%	%	%	%	LB	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	R2	R5	R5	R5	R5	R5			
Pest Stage Majority	12 IN		24 IN	48 IN	38 IN				
Pest Density, Unit	7.5 YD2		10 YD2	5 YD2	20 YD2				
Assessed By	RH	PM	PM	PM	PM	PM	PM		
Days After First/Last Applic.	70 20	105 55	105 55	105 55	105 55	173 123	173 123		
Trt-Eval Interval									
Plant-Eval Interval	41 DP-1	76 DP-1	76 DP-1	76 DP-1	76 DP-1	144 DP-1	144 DP-1		
Days After Emergence	36 DE-	71 DE-	71 DE-	71 DE-	71 DE-	139 DE	139 DE		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	14	15	16	17	18	19	20
9 Sharpen	25 g ai/ha	A	93.8 a	0.0 a	0.0 a	100.0 a	100.0 a	13.8403563 ab	14.5204931 a
Ignite	595 g ae/ha	A							
MSO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
10 Authority First	147 g ai/ha	A	98.0 a	0.0 a	0.0 a	100.0 a	100.0 a	15.5155245 a	14.4705281 a
Roundup Original	840 g ae/ha	A							
MSO	1 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							
11 Valor XLT	85 g ai/ha	A	90.8 a	0.0 a	0.0 a	100.0 a	100.0 a	13.2356714 abc	14.5791831 a
Roundup Original	840 g ae/ha	A							
2,4-D Ester	560 g ai/ha	A							
NIS	0.25 % v/v	A							
N-Pak AMS	5 % v/v	A							
Roundup Original	840 g ae/ha	B							
NIS	0.25 % v/v	B							
N-Pak AMS	5 % v/v	B							

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



### Purdue University

Pest Type	W Weed		W Weed	W Weed	W Weed				
Pest Code	IPOSS		XANST	ERICA	AMBEL				
Pest Scientific Name	Ipomoea sp.		Xanthium strum>	Conyza canadens>	Ambrosia artem>				
Pest Name	Morning glory		Common cockleb>	Canada horsewee>	Common ragweed				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931	AG2931		
Rating Date	7-14-2011	8-18-2011	8-18-2011	8-18-2011	8-18-2011	10-25-2011	10-25-2011		
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	YIELD	MOISTURE		
Rating Unit	%	%	%	%	%	LB	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	R2	R5	R5	R5	R5				
Pest Stage Majority	12 IN		24 IN	48 IN	38 IN				
Pest Density, Unit	7.5 YD2		10 YD2	5 YD2	20 YD2				
Assessed By	RH	PM	PM	PM	PM	PM	PM		
Days After First/Last Applic.	70 20	105 55	105 55	105 55	105 55	173 123	173 123		
Trt-Eval Interval									
Plant-Eval Interval	41 DP-1	76 DP-1	76 DP-1	76 DP-1	76 DP-1	144 DP-1	144 DP-1		
Days After Emergence	36 DE-	71 DE-	71 DE-	71 DE-	71 DE-	139 DE	139 DE		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	14	15	16	17	18	19	20
12 UNTREATED	0.0 c	0.0 a	0.0 a	0.0 b	0.0 b	10.8035327 bc	14.5181689 a		
LSD (P=.05)	19.49	0.00	0.00	0.00	0.00	2.64734557	0.51019292		
Standard Deviation	13.50	0.00	0.00	0.00	0.00	1.83345336	0.35334069		
CV	16.94	0.0	0.0	0.0	0.0	14.08	2.45		
Bartlett's X2	50.993	0.0	0.0	0.0	0.0	13.645	4.736		
P(Bartlett's X2)	0.001*	.	.	.	.	0.253	0.943		
Replicate F	0.324	0.000	0.000	0.000	0.000	9.004	0.153		
Replicate Prob(F)	0.8076	1.0000	1.0000	1.0000	1.0000	0.0002	0.9272		
Treatment F	23.848	0.000	0.000	0.000	0.000	3.381	1.742		
Treatment Prob(F)	0.0001	1.0000	1.0000	1.0000	1.0000	0.0034	0.1069		

Means followed by same letter do not significantly differ (P=.05, Student-New man-Keuls)  
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# Purdue University

Pest Type		
Pest Code		
Pest Scientific Name		
Pest Name		
Crop Code	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max
Crop Name	Soybean	Soybean
Crop Variety	AG2931	AG2931
Rating Date	10-25-2011	10-25-2011
Rating Type	YIELD	YIELD
Rating Unit	BU	KG
Number of Subsamples	1	1
Crop Stage Majority		
Pest Stage Majority		
Pest Density, Unit		
Assessed By	PM	PM
Days After First/Last Applic.	173 123	173 123
Trt-Eval Interval		
Plant-Eval Interval	144 DP-1	144 DP-1
Days After Emergence	139 DE	139 DE
ARM Action Codes	TY1	TY2
Number of Decimals	1	1
Trt Treatment	Rate	Appl
No. Name	Rate Unit	Code
	21	22
1 UNTREATED	26.2 c	1764.4 c
2 Roundup Original 840 g ae/ha A NIS 0.25 % v/v A N-Pak AMS 5 % v/v A Roundup Original 840 g ae/ha B NIS 0.25 % v/v B N-Pak AMS 5 % v/v B	43.2 ab	2905.8 ab
3 Roundup Original 840 g ae/ha A 2,4-D Ester 560 g ai/ha A NIS 0.25 % v/v A N-Pak AMS 5 % v/v A Roundup Original 840 g ae/ha B NIS 0.25 % v/v B N-Pak AMS 5 % v/v B	36.6 abc	2459.9 abc
4 Sharpen 25 g ai/ha A Roundup Original 840 g ae/ha A MSO 1 % v/v A N-Pak AMS 5 % v/v A Roundup Original 840 g ae/ha B NIS 0.25 % v/v B N-Pak AMS 5 % v/v B	38.6 ab	2598.8 ab

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.





## Purdue University

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Code	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max		
Crop Name	Soybean	Soybean		
Crop Variety	AG2931	AG2931		
Rating Date	10-25-2011	10-25-2011		
Rating Type	YIELD	YIELD		
Rating Unit	BU	KG		
Number of Subsamples	1	1		
Crop Stage Majority				
Pest Stage Majority				
Pest Density, Unit				
Assessed By	PM	PM		
Days After First/Last Applic.	173 123	173 123		
Trt-Eval Interval				
Plant-Eval Interval	144 DP-1	144 DP-1		
Days After Emergence	139 DE	139 DE		
ARM Action Codes	TY1	TY2		
Number of Decimals	1	1		
Trt Treatment	Rate	Appl		
No. Name	Rate Unit	Code	21	22
12 UNTREATED			30.8 bc	2073.2 bc
LSD (P=.05)	7.56	508.75		
Standard Deviation	5.24	352.34		
CV	14.08	14.08		
Bartlett's X2	14.053	14.053		
P(Bartlett's X2)	0.23	0.23		
Replicate F	9.066	9.066		
Replicate Prob(F)	0.0002	0.0002		
Treatment F	3.412	3.412		
Treatment Prob(F)	0.0032	0.0032		

Means followed by same letter do not significantly differ (P=.05, Student-New man-Keuls)  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Purdue University

### Soybean Marestalk Tank-Mix Protocol: Evaluate tank-mix options for improved marestalk control with Kixor applied preplant burndown to soybean

Trial ID: 11S-SEP-NTS-02      Protocol ID: 11S-SEP-NTS-02  
 Location: SEPAC              Study Director: Paul Marquardt  
 Project ID: 11S-SEP-NTS-02      Investigator: Dr. Bill Johnson  
    Sponsor Contact: Gery Welker

#### Pest Type

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

#### Pest Code

ERICA, Conyza canadensis, = US  
 AMBEL, Ambrosia artemisiifolia, = US  
 BROSE, Bromus secalinus, = US  
 XANST, Xanthium strumarium, = US  
 PANDI, Panicum dichotomiflorum, = US  
 GGGAN, Annual grasses, = US  
 IPOSS, Ipomoea sp., = US

#### Crop Code

GLXMA, BSOY, Glycine max, = US

#### Rating Type

CONTRO = control / burndown or knockdown  
 PHYGEN = phytotoxicity - general / injury  
 YIELD = yield

#### Rating Unit

% = percent  
 LB = pound  
 BU = bushel  
 KG = kilogram

YD2 = per square yard

#### Plant-Eval Interval

-14 DP-1 = 1 GLXMA 6-3-2011  
 11 DP-1 = 1 GLXMA 6-3-2011  
 41 DP-1 = 1 GLXMA 6-3-2011  
 76 DP-1 = 1 GLXMA 6-3-2011  
 144 DP-1 = 1 GLXMA 6-3-2011

#### ARM Action Codes

$TY1 = 2.904 * [19] * (100 - [20]) / 87$   
 $TY2 = 195.2984 * [19] * (100 - [20]) / 87$