

# University of Tennessee

## Enlist One post system approaches mixed with Glyphosate in hard water (half rates)

Trial ID: 19-A-M-AMZ-RUPMEO-COMP-1      Location: Multiple      Trial Year: 2019  
 Protocol ID: 19-A-M-AMZ-RUPMEO-COMP-1      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: Ryan Edwards  
 Sponsor Contact:

### General Trial Information

**Study Director:** Ryan Edwards  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** May-20-2019  
**Initiation Date:** Jun-11-2019

### Trial Location

**Country:** USA United States

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

### Contacts

**Study Director:** Ryan Edwards

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max      Soybean      **BBCH Scale:** BSOY  
**Entry Date:** Jun-11-2019  
**Variety:** P49T62E-SU76  
**Attributes:** ENLIST

### Site and Design

**Treated Plot Width:** 5 FT      **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup>      **Treatments:** 10      **Tillage Type:** NOTILL no-till  
**Replications:** 4      **Study Design:** RACOBL Randomized Complete Block (RCB)

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY

### Application Equipment

	A
<b>Water Hardness (ppm CaCO<sub>3</sub>)</b>	1000 ppm

Date	By	Context	Notes
May-20-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-11-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Initiation Date entered.

Reps: 4      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Registration Type	Form Registration Number	Supplier	Rate	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated check									101	202	307	403
2	ROUNDUP POWERMAX ENLIST ONE	5.5 lb/gal 3.8 lb/gal	L L	524-549	Mon		11 fl oz/a 0.75 pt/a	A A	11.46 mL/mx 12.5 mL/mx	102	201	303	404
3	ROUNDUP POWERMAX ENLIST ONE CLASS ACT NG	5.5 lb/gal 3.8 lb/gal 100 %w/w	L L L	264-829	Bay Win		11 fl oz/a 0.75 pt/a 2.5 % v/v	A A A	11.46 mL/mx 12.5 mL/mx 49.99 mL/mx	103	205	304	410
4	ROUNDUP POWERMAX ENLIST ONE CLASS ACT NG INTERLOCK	5.5 lb/gal 3.8 lb/gal 100 %w/w 100 %w/w	L L L L	264-829	Bay Win Win		11 fl oz/a 0.75 pt/a 2.5 % v/v 4 fl oz/a	A A A A	11.46 mL/mx 12.5 mL/mx 49.99 mL/mx 4.167 mL/mx	104	207	308	405
5	ROUNDUP POWERMAX ENLIST ONE CLASS ACT NG STRIKELOCK	5.5 lb/gal 3.8 lb/gal 100 %w/w 100 %w/w	L L L L	264-829	Bay Win Win		11 fl oz/a 0.75 pt/a 2.5 % v/v 8 fl oz/a	A A A A	11.46 mL/mx 12.5 mL/mx 49.99 mL/mx 8.333 mL/mx	105	208	301	409

# University of Tennessee

## Enlist One post system approaches mixed with Glufosinate in hard water (half rates)

Trial ID: 19-A-M-AMZ-LIBEO-COMP-1      Location: Multiple      Trial Year: 2019  
 Protocol ID: 19-A-M-AMZ-LIBEO-COMP-1      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: Ryan Edwards  
 Sponsor Contact:

### General Trial Information

**Study Director:** Ryan Edwards  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** May-20-2019  
**Initiation Date:** Jun-11-2019

### Trial Location

**Country:** USA United States

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

### Contacts

**Study Director:** Ryan Edwards

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max      Soybean      **BBCH Scale:** BSOY  
**Entry Date:** Jun-11-2019  
**Variety:** P49T62E-SU76  
**Attributes:** ENLIST  
**Planting Date:** May-21-2019

### Site and Design

**Treated Plot Width:** 5 FT      **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup>      **Treatments:** 10      **Tillage Type:** NOTILL no-till  
**Replications:** 4      **Study Design:** RACOBL Randomized Complete Block (RCB)

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY

### Application Equipment

	A
<b>Water Hardness (ppm CaCO<sub>3</sub>)</b>	1000 ppm

Date	By	Context	Notes
May-20-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-11-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Initiation Date entered.

Reps: 4      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Registration Type	Supplier	Rate	Appl Code	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated check								101	210	307	406
2	LIBERTY 280 SL ENLIST ONE	2.34 lb/gal 3.8 lb/gal	SL L	264-829	Bay	16 fl oz/a 0.75 pt/a	A A	16.67 mL/mx 12.5 mL/mx	102	208	303	410
3	LIBERTY 280 SL ENLIST ONE CLASS ACT NG	2.34 lb/gal 3.8 lb/gal 100 %w/w	SL L L	264-829	Bay Win	16 fl oz/a 0.75 pt/a 2.5 % v/v	A A A	16.67 mL/mx 12.5 mL/mx 49.99 mL/mx	103	207	302	401
4	LIBERTY 280 SL ENLIST ONE CLASS ACT NG INTERLOCK	2.34 lb/gal 3.8 lb/gal 100 %w/w 100 %w/w	SL L L L	264-829	Bay Win Win	16 fl oz/a 0.75 pt/a 2.5 % v/v 4 fl oz/a	A A A A	16.67 mL/mx 12.5 mL/mx 49.99 mL/mx 4.167 mL/mx	104	205	309	407
5	LIBERTY 280 SL ENLIST ONE CLASS ACT NG STRIKELOCK	2.34 lb/gal 3.8 lb/gal 100 %w/w 100 %w/w	SL L L L	264-829	Bay Win Win Exempt	16 fl oz/a 0.75 pt/a 2.5 % v/v 8 fl oz/a	A A A A	16.67 mL/mx 12.5 mL/mx 49.99 mL/mx 8.333 mL/mx	105	204	306	404

# University of Tennessee

Trial ID: SYN24D19	Location: JACKSON	2,4-D Trial Year: 2019
Protocol ID: SYN24D	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

**General Trial Information**

Investigator: Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Apr-12-2019

**Trial Location**

Country: USA United States

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

Investigator: Dr. Larry Steckel

**Crop Description**

**Crop 1:** GLXMA Glycine max Soybean  
**Entry Date:** Jun-10-2019  
**Variety:** P49T62E  
**Attributes:** Enlist  
**Planting Date:** May-21-2019

**Site and Design**

**Treated Plot Width:** 5 FT      **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup>    **Treatments:** 5    **Tillage Type:** NOTILL no-till  
**Replications:** 4                      **Study Design:** RACOB L Randomized Complete Block (RCB)

**Application Description**

	A	B
Application Date	May-23-2019	
Appl. Start Time	2:35 AM	
Appl. Stop Time	2:41 AM	
Application Method	SPRAY	
Application Timing	PRE	
Application Placement	BROADC	
Applied By	CP	
Appl. Entry Date	Jun-6-2019	
Air Temperature Start, Stop	94.5 95 F	
% Relative Humidity Start, Stop	50 50	
Wind Velocity+Dir. Start	5 MPH SW	
Wind Velocity+Dir. Stop	5 MPH SW	
Wet Leaves (Y/N)	N no	
Soil Temperature	90 F	
Soil Moisture	NORMAL	
% Cloud Cover	20	

**Crop Stage At Each Application**

	A	B
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY	GLXMA BSOY

# University of Tennessee

Trial ID: SYN24D19	Location: JACKSON	<b>2,4-D</b>	Trial Year: 2019
Protocol ID: SYN24D	Investigator: Dr. Larry Steckel		
Project ID:	Study Director:		
	Sponsor Contact:		

Application Equipment		
	A	B
Appl. Equipment	BCKPK	
Equipment Type	BACCAI	
Operation Pressure	30 PSI	
Nozzle Type	AIXR	
Nozzle Size	003	
Nozzle Spacing	20 IN	
Boom Length	5 FT	
Boom Height	16 IN	
Ground Speed	4 MPH	
Carrier	WATER	

Date	By	Context	Notes
Apr-12-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-6-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Unit	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	101	205	301	403
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	BOUNDARY 6.5	6.5 LBA/GAL	EC		2.5 pt/a	PRE	A	15 GAL/AC	2 L			41.67 mL/mx				
	ENLIST ONE	3.8 LBA/GAL	EC		32 oz/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		2 pt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
2	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	102	201	304	405
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	BROADAXE	7 LBA/GAL	SC		22 oz/a	PRE	A	15 GAL/AC	2 L			22.92 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	ENLIST ONE	3.8 LBA/GAL	EC		32 oz/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
ROUNDUP POWERMAX	4.5 LBA/GAL	SL		2 pt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx					
3	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	103	202	303	402
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	PREFIX	5.29 LBA/GAL	EC		1 qt/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	ENLIST ONE	3.8 LBA/GAL	EC		32 oz/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
ROUNDUP POWERMAX	4.5 LBA/GAL	SL		2 pt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx					
4	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	104	203	302	401
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	BOUNDARY 6.5	6.5 LBA/GAL	EC		2.5 pt/a	PRE	A	15 GAL/AC	2 L			41.67 mL/mx				
	ENLIST ONE	3.8 LBA/GAL	EC		32 oz/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
	PREFIX	5.29 LBA/GAL	EC		1 qt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
5	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	105	204	305	404
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	BROADAXE	7 LBA/GAL	SC		22 oz/a	PRE	A	15 GAL/AC	2 L			22.92 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	ENLIST ONE	3.8 LBA/GAL	EC		32 oz/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
PREFIX	5.29 LBA/GAL	EC		1 qt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx					

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
31.247	mL	NIS	100	%	SL	
312.500	mL	GRAMOXONE SL 2.0	2	LBA/GAL	SL	

# University of Tennessee

## Enlist One post system approaches mixed with Glufosinate in hard water (half rates)

Trial ID: 19-A-M-AMZ-LIBEO-COMP-1	Location: Multiple	Trial Year: 2019
Protocol ID: 19-A-M-AMZ-LIBEO-COMP-1	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Ryan Edwards	
	Sponsor Contact:	

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Supplier	Rate Unit	Appl Code	Amt Product to Measure	Rep			
										1	2	3	4
6	LIBERTY 280 SL	2.34	lb/gal	SL	264-829	Bay	16 fl oz/a	A	16.67 mL/mx	106	203	305	403
	ENLIST ONE	3.8	lb/gal	L			0.75 pt/a	A	12.5 mL/mx				
	CLASS ACT RIDION	100	%w/w	L	Exempt	Win	1 % v/v	A	20.0 mL/mx				
7	LIBERTY 280 SL	2.34	lb/gal	SL	264-829	Bay	16 fl oz/a	A	16.67 mL/mx	107	201	308	409
	ENLIST ONE	3.8	lb/gal	L			0.75 pt/a	A	12.5 mL/mx				
	CLASS ACT RIDION	100	%w/w	L	Exempt	Win	1 % v/v	A	20.0 mL/mx				
	INTERLOCK	100	%w/w	L		Win	4 fl oz/a	A	4.167 mL/mx				
8	LIBERTY 280 SL	2.34	lb/gal	SL	264-829	Bay	16 fl oz/a	A	16.67 mL/mx	108	206	301	405
	ENLIST ONE	3.8	lb/gal	L			0.75 pt/a	A	12.5 mL/mx				
	CLASS ACT RIDION	100	%w/w	L	Exempt	Win	1 % v/v	A	20.0 mL/mx				
	STRIKELock	100	%w/w	L	Exempt	Win	8 fl oz/a	A	8.333 mL/mx				
9	LIBERTY 280 SL	2.34	lb/gal	SL	264-829	Bay	16 fl oz/a	A	16.67 mL/mx	109	202	310	402
	ENLIST ONE	3.8	lb/gal	L			0.75 pt/a	A	12.5 mL/mx				
	DOUBLE X	100	%W/W	L			0.5 % v/v	A	9.999 mL/mx				
10	LIBERTY 280 SL	2.34	lb/gal	SL	264-829	Bay	16 fl oz/a	A	16.67 mL/mx	110	209	304	408
	ENLIST ONE	3.8	lb/gal	L			0.75 pt/a	A	12.5 mL/mx				
	DOUBLE X	100	%W/W	L			0.5 % v/v	A	9.999 mL/mx				
	INTERLOCK	100	%w/w	L		Win	4 fl oz/a	A	4.167 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
187.500	mL	LIBERTY 280 SL	2.34	lb/gal	SL	
140.625	mL	ENLIST ONE	3.8	lb/gal	L	
187.480	mL	CLASS ACT NG	100	%w/w	L	
15.625	mL	INTERLOCK	100	%w/w	L	
20.833	mL	STRIKELock	100	%w/w	L	
74.992	mL	CLASS ACT RIDION	100	%w/w	L	
24.997	mL	DOUBLE X	100	%W/W	L	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 2 L.

# University of Tennessee

## Enlist One post system approaches mixed with Glyphosate in hard water (half rates)

Trial ID: 19-A-M-AMZ-RUPMEO-COMP-1	Location: Multiple	Trial Year: 2019
Protocol ID: 19-A-M-AMZ-RUPMEO-COMP-1	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Ryan Edwards	
	Sponsor Contact:	

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Supplier	Rate	Appl Unit	Appl Code	Amt Product to Measure	Rep			
											1	2	3	4
6	ROUNDUP POWERMAX	5.5 lb/gal	L	L	264-829	Bay	11 fl oz/a	A	A	11.46 mL/mx	106	203	302	407
	ENLIST ONE	3.8 lb/gal	L	L			0.75 pt/a	A	A	12.5 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	L	Exempt	Win	1 % v/v	A	A	20.0 mL/mx				
7	ROUNDUP POWERMAX	5.5 lb/gal	L	L	264-829	Bay	11 fl oz/a	A	A	11.46 mL/mx	107	204	309	402
	ENLIST ONE	3.8 lb/gal	L	L			0.75 pt/a	A	A	12.5 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	L	Exempt	Win	1 % v/v	A	A	20.0 mL/mx				
	INTERLOCK	100 %w/w	L	L		Win	4 fl oz/a	A	A	4.167 mL/mx				
8	ROUNDUP POWERMAX	5.5 lb/gal	L	L	264-829	Bay	11 fl oz/a	A	A	11.46 mL/mx	108	210	306	401
	ENLIST ONE	3.8 lb/gal	L	L			0.75 pt/a	A	A	12.5 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	L	Exempt	Win	1 % v/v	A	A	20.0 mL/mx				
	STRIKELock	100 %w/w	L	L	Exempt	Win	8 fl oz/a	A	A	8.333 mL/mx				
9	ROUNDUP POWERMAX	5.5 lb/gal	L	L	264-829	Bay	11 fl oz/a	A	A	11.46 mL/mx	109	206	305	406
	ENLIST ONE	3.8 lb/gal	L	L			0.75 pt/a	A	A	12.5 mL/mx				
	DOUBLE X	100 %W/W	L	L			0.5 % v/v	A	A	9.999 mL/mx				
10	ROUNDUP POWERMAX	5.5 lb/gal	L	L	264-829	Bay	11 fl oz/a	A	A	11.46 mL/mx	110	209	310	408
	ENLIST ONE	3.8 lb/gal	L	L			0.75 pt/a	A	A	12.5 mL/mx				
	DOUBLE X	100 %W/W	L	L			0.5 % v/v	A	A	9.999 mL/mx				
	INTERLOCK	100 %w/w	L	L		Win	4 fl oz/a	A	A	4.167 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
128.906	mL	ROUNDUP POWERMAX	5.5	lb/gal	L	
140.625	mL	ENLIST ONE	3.8	lb/gal	L	
187.480	mL	CLASS ACT NG	100	%w/w	L	
15.625	mL	INTERLOCK	100	%w/w	L	
20.833	mL	STRIKELock	100	%w/w	L	
74.992	mL	CLASS ACT RIDION	100	%w/w	L	
24.997	mL	DOUBLE X	100	%W/W	L	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 2 L.

# University of Tennessee

Trial ID: JSCORPRE2019	Location:	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

**General Trial Information**

Investigator: Dr. Larry Steckel

Trial Status: E established  
 ARM Trial Created On: May-23-2019

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Dr. Larry Steckel

**Site and Design**

Treated Plot Width: 5 FT  
 Treated Plot Length: 30 FT  
 Treated Plot Area: 150 FT<sup>2</sup> Treatments: 7  
 Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

**Application Description**

	A
Application Date	May-23-2019
Appl. Start Time	2:47 PM
Appl. Stop Time	2:58 PM
Application Method	SPRAY
Application Timing	PRE
Application Placement	BROADC
Applied By	CP
Appl. Entry Date	Jun-6-2019
Air Temperature Start, Stop	94.5 95 F
% Relative Humidity Start, Stop	50 50
Wind Velocity+Dir. Start	5 MPH SW
Wind Velocity+Dir. Stop	5 MPH SW
Wet Leaves (Y/N)	N no
Soil Temperature	90 F
Soil Moisture	NORMAL
% Cloud Cover	20

**Application Equipment**

	A
Appl. Equipment	BCKPK
Equipment Type	BACCAI
Operation Pressure	30 PSI
Nozzle Type	AIXR
Nozzle Size	003
Nozzle Spacing	20 IN
Boom Length	5 FT
Boom Height	16 IN
Ground Speed	4 MPH
Carrier	WATER

Date	By	Context	Notes
May-23-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-6-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

# University of Tennessee

Trial ID: JSCORPRE2019	Location:	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Appl Unit	Spray Volume	Mix Size	Mix Unit	Amt Product to Measure	Rep			
											1	2	3	4
1	Untreated Check										101	202	304	407
2	TRIVENCE	61.3	%AW/W	WG	8 oz/a	A	15 GAL/AC	2 L		7.988 g/mx	102	201	307	406
3	SURVEIL	48	%AW/W	WG	2.8 oz/a	A	15 GAL/AC	2 L		2.796 g/mx	103	207	301	403
	TRICOR	75	%AW/W	WG	5 oz/a	A	15 GAL/AC	2 L		4.993 g/mx				
4	SURVEIL	48	%AW/W	WG	2.8 oz/a	A	15 GAL/AC	2 L		2.796 g/mx	104	205	303	401
5	ENVIVE	58.7	%AW/W	WG	3.5 oz/a	A	15 GAL/AC	2 L		3.495 g/mx	105	203	306	404
6	SONIC	70	%AW/W	WG	2.8 oz/a	A	15 GAL/AC	2 L		2.796 g/mx	106	204	302	405
	TRICOR	75	%AW/W	WG	3.75 oz/a	A	15 GAL/AC	2 L		3.745 g/mx				
7	AUTHORITY MTZ	45	%AW/W	WG	16 oz/a	A	15 GAL/AC	2 L		15.98 g/mx	107	206	305	402

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
9.986	g	TRIVENCE	61.3	%AW/W	WG	
6.990	g	SURVEIL	48	%AW/W	WG	
10.922	g	TRICOR	75	%AW/W	WG	
4.369	g	ENVIVE	58.7	%AW/W	WG	
3.495	g	SONIC	70	%AW/W	WG	
19.971	g	AUTHORITY MTZ	45	%AW/W	WG	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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



# University of Tennessee

Protocol No.: NA19P2E001H Discipline: HERBICIDE Trial Category: EFFICACY/CROP TOL Trial Type: NATURAL-COM Plan Year: 2019	Trial ID: NA19P2E001H-DRR04 Trial Name: Main Chem: 2,4-D + GLYPHOSATE Prod. Dev. Stage: COMMERCIAL Site Type: CROPS,OILSEED Country:
DED#: P2E	
Title: 2019 Enlist Weed Control System in Soybean at Mid-south Universities	
Business Unit: US NORTHERN CROPS ARM License Holder: Dr. Larry Steckel	

Reps: 4      Appl Code: A      Plants: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt Num	Appl Code	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Timing	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	AB	UNTREATED								101	207	303	406
2	A	CLASSIC	250 g ai/kg	WG		21.9 g ai/ha	PRE		1.249 g/mx	102	206	301	403
	A	VALOR	510 g ai/kg	WG		72 g ai/ha	PRE	2.012 g/mx					
	A	METRIBUZIN 75	750 g ai/kg	WG		252 g ai/ha	PRE	4.789 g/mx					
3	A	CLASSIC	250 g ai/kg	WG		21.9 g ai/ha	PRE	1.249 g/mx	103	202	302	402	
	A	VALOR	510 g ai/kg	WG		72 g ai/ha	PRE	2.012 g/mx					
	A	METRIBUZIN 75	750 g ai/kg	WG		252 g ai/ha	PRE	4.789 g/mx					
4	A	CLASSIC	250 g ai/kg	WG		21.9 g ai/ha	PRE	1.249 g/mx	104	205	304	404	
	A	VALOR	510 g ai/kg	WG		72 g ai/ha	PRE	2.012 g/mx					
	A	METRIBUZIN 75	750 g ai/kg	WG		252 g ai/ha	PRE	4.789 g/mx					
5	A	CLASSIC	250 g ai/kg	WG		21.9 g ai/ha	PRE	1.249 g/mx	105	204	305	405	
	A	VALOR	510 g ai/kg	WG		72 g ai/ha	PRE	2.012 g/mx					
	A	METRIBUZIN 75	750 g ai/kg	WG		252 g ai/ha	PRE	4.789 g/mx					
6	A	CLASSIC	250 g ai/kg	WG		21.9 g ai/ha	PRE	1.249 g/mx	106	201	306	401	
	A	VALOR	510 g ai/kg	WG		72 g ai/ha	PRE	2.012 g/mx					
	A	METRIBUZIN 75	750 g ai/kg	WG		252 g ai/ha	PRE	4.789 g/mx					
7	A	CLASSIC	250 g ai/kg	WG		21.9 g ai/ha	PRE	1.249 g/mx	107	203	307	407	
	A	VALOR	510 g ai/kg	WG		72 g ai/ha	PRE	2.012 g/mx					
	A	METRIBUZIN 75	750 g ai/kg	WG		252 g ai/ha	PRE	4.789 g/mx					

Reps: 4      Appl Code: B      Plants: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt Num	Appl Code	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Timing	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	AB	UNTREATED								101	207	303	406
2	B	DURANGO DMA	480 g ae/l	SL		1120 g ae/ha	14-21	DAAA	33.26 mL/mx	102	206	301	403
3	B	ENLIST DUO	400 g ae/l	SL		1640 g ae/ha	14-21	DAAA	58.44 mL/mx	103	202	302	402
4	B	ENLIST DUO	400 g ae/l	SL		2185 g ae/ha	14-21	DAAA	77.86 mL/mx	104	205	304	404
5	B	Enlist	456 g ae/l	SL		1070 g ae/ha	14-21	DAAA	33.45 mL/mx	105	204	305	405
	B	GLUFOSINATE-AMMONIUM	182.8 g ae/l	EC		387 g ae/ha	14-21	DAAA	30.18 mL/mx				
6	B	GLUFOSINATE-AMMONIUM	255.92 g ae/l	SL		542 g ae/ha	14-21	DAAA	30.19 mL/mx	106	201	306	401
7	B	Enlist	456 g ae/l	SL		1070 g ae/ha	14-21	DAAA	33.45 mL/mx	107	203	307	407
	B	GLUFOSINATE-AMMONIUM	182.8 g ae/l	EC		387 g ae/ha	14-21	DAAA	30.18 mL/mx				
	B	EverpreX	914.4 g ai/l	EC		1070 g ai/ha	14-21	DAAA	16.68 mL/mx				

# University of Tennessee

## Soybean Performance Following Exposure to Dicamba at Multiple Growth Stages - USB 2019

Trial ID: USB-2019_Multiple_Expos	Location:	Trial Year: 2019
Protocol ID: USB-2019_Multiple_Expos	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Reynolds	
	Sponsor Contact:	

### General Trial Information

**Study Director:** Reynolds  
**Investigator:** Dr. Larry Steckel

**ARM Trial Created On:** Mar-26-2019

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

### Contacts

**Study Director:** Reynolds

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max Soybean  
**Harvested Width:** 5 FT  
**Harvested Length:** 30 FT

### Site and Design

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT<sup>2</sup> **Treatments:** 16  
**Replications:** 4 **Study Design:** FACTOR Factorial

### Application Description

	A	B	C
<b>Application Date</b>	Jun-6-2018	Jun-25-2018	Jul-9-2018
<b>Appl. Start Time</b>	10:40 AM	10:00 AM	9:00 AM
<b>Appl. Stop Time</b>	10:55 AM	10:20 AM	9:20 AM
<b>Application Method</b>	SPRAY	SPRAY	SPRAY
<b>Application Timing</b>	POSPOS	POSPOS	POSPOS
<b>Application Placement</b>	BROFOL	BROFOL	BROFOL
<b>Applied By</b>	DC	JB	JB
<b>Air Temperature Start, Stop</b>	91 F	81 F	80 F
<b>% Relative Humidity Start, Stop</b>	52	68	85
<b>Wind Velocity+Dir. Start</b>	3 MPH NE	3 MPH NE	6 MPH S
<b>Wet Leaves (Y/N)</b>	N no	N no	N no
<b>Soil Temperature</b>	82.6 F	78.6 F	80 F
<b>Soil Moisture</b>	NORMAL	NORMAL	NORMAL
<b>% Cloud Cover</b>	0	0	20

### 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	BBCH	BBCH
<b>Stage Majority, Percent</b>	13	60	69

# University of Tennessee

## Soybean Performance Following Exposure to Dicamba at Multiple Growth Stages - USB 2019

Trial ID: USB-2019\_Multiple\_Expos      Location:      Trial Year: 2019  
 Protocol ID: USB-2019\_Multiple\_Expos      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: Reynolds  
 Sponsor Contact:

### Application Equipment

	A	B	C
<b>Appl. Equipment</b>	BACKPACK	BACKPACK	BACKPACK
<b>Equipment Type</b>	BACCAI	BACCAI	BACCAI
<b>Operation Pressure</b>	32 PSE	32 PSE	32 PSE
<b>Nozzle Type</b>	TTI	TTI	TTI
<b>Nozzle Size</b>	11025	11025	11025
<b>Nozzle Spacing</b>	20 IN	20 IN	20 IN
<b>Band Width</b>	5 FT	5 FT	5 FT
<b>Boom Length</b>	5 FT	5 FT	5 FT
<b>Boom Height</b>	15 IN	15 IN	15 IN
<b>Ground Speed</b>	4 MPH	4 MPH	4 MPH
<b>Carrier</b>	WATER	WATER	WATER
<b>Spray Volume</b>	15 GAL/AC	15 GAL/AC	15 GAL/AC
<b>Mix Size</b>	3 GAL	3 GAL	3 GAL

Reps: 4      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 3 GAL (total for 4 plots; minimum=0.4132 GAL)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Registration Type	Form Re-Entry Number	Form Interval	Rate Rate	Rate Unit	Growth Stage	Appl Code	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1	No Clarity - Vegetative No Clarity - Reproductive								V3 R1,R3,R5				101	206	304	411
2	No Clarity - Vegetative Clarity - Reproductive R1	4 LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R1	B	V3 R1		0.4732 mL/mx		102	212	314	406
3	No Clarity - Vegetative Clarity - Reproductive R3	4 LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R3	C	V3 R3		0.4732 mL/mx		103	205	303	413
4	No Clarity - Vegetative Clarity - Reproductive R5	4 LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R5	D	V3 R5		0.4732 mL/mx		104	216	310	412
5	No Clarity - Vegetative Clarity - Reproductive R1 Clarity - Reproductive R3	4 LBAE/GAL 4 LBAE/GAL	EC EC	7969-137 7969-137	24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a	R1 R3	B C	V3 R1 R3		0.4732 mL/mx 0.4732 mL/mx		105	213	309	405
6	No Clarity - Vegetative Clarity - Reproductive R1 Clarity - Reproductive R5	4 LBAE/GAL 4 LBAE/GAL	EC EC	7969-137 7969-137	24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a	R1 R5	B D	V3 R1 R5		0.4732 mL/mx 0.4732 mL/mx		106	201	316	409
7	No Clarity - Vegetative Clarity - Reproductive R3 Clarity - Reproductive R5	4 LBAE/GAL 4 LBAE/GAL	EC EC	7969-137 7969-137	24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a	R3 R5	C D	V3 R3 R5		0.4732 mL/mx 0.4732 mL/mx		107	203	315	410
8	No Clarity - Vegetative Clarity - Reproductive R1 Clarity - Reproductive R3 Clarity - Reproductive R5	4 LBAE/GAL 4 LBAE/GAL 4 LBAE/GAL	EC EC EC	7969-137 7969-137 7969-137	24 hr 24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a 0.08 fl oz/a	R1 R3 R5	B C D	V3 R1 R3 R5		0.4732 mL/mx 0.4732 mL/mx 0.4732 mL/mx		108	209	302	416
9	Clarity - Vegetative V3 No Clarity - Reproductive	4 LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	V3 R1,R3,R5	A	V3		0.4732 mL/mx		109	215	301	408
10	Clarity - Vegetative V3 Clarity - Reproductive R1	4 LBAE/GAL 4 LBAE/GAL	EC EC	7969-137 7969-137	24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a	V3 R1	A B	V3 R1		0.4732 mL/mx 0.4732 mL/mx		110	204	307	404
11	Clarity - Vegetative V3 Clarity - Reproductive R3	4 LBAE/GAL 4 LBAE/GAL	EC EC	7969-137 7969-137	24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a	V3 R3	A C	V3 R3		0.4732 mL/mx 0.4732 mL/mx		111	207	312	415
12	Clarity - Vegetative V3 Clarity - Reproductive R5	4 LBAE/GAL 4 LBAE/GAL	EC EC	7969-137 7969-137	24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a	V3 R5	A D	V3 R5		0.4732 mL/mx 0.4732 mL/mx		112	214	306	403
13	Clarity - Vegetative V3 Clarity - Reproductive R1 Clarity - Reproductive R3	4 LBAE/GAL 4 LBAE/GAL 4 LBAE/GAL	EC EC EC	7969-137 7969-137 7969-137	24 hr 24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a 0.08 fl oz/a	V3 R1 R3	A B C	V3 R1 R3		0.4732 mL/mx 0.4732 mL/mx 0.4732 mL/mx		113	202	313	414
14	Clarity - Vegetative V3 Clarity - Reproductive R1 Clarity - Reproductive R5	4 LBAE/GAL 4 LBAE/GAL 4 LBAE/GAL	EC EC EC	7969-137 7969-137 7969-137	24 hr 24 hr 24 hr	0.08 fl oz/a 0.08 fl oz/a 0.08 fl oz/a	V3 R1 R5	A B D	V3 R1 R5		0.4732 mL/mx 0.4732 mL/mx 0.4732 mL/mx		114	211	308	407

# University of Tennessee

## Soybean Performance Following Exposure to Dicamba at Multiple Growth Stages - USB 2019

Trial ID: USB-2019_Multiple_Expos	Location:	Trial Year: 2019
Protocol ID: USB-2019_Multiple_Expos	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Reynolds	
	Sponsor Contact:	

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 3 GAL (total for 4 plots; minimum=0.4132 GAL)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Registration Type	Form Number	Re-Entry Interval	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
15	Clarity - Vegetative V3	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	V3	A	0.4732 mL/mx	115	210	311	402
	Clarity - Reproductive R3	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R3	C	0.4732 mL/mx				
	Clarity - Reproductive R5	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R5	D	0.4732 mL/mx				
16	Clarity - Vegetative V3	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	V3	A	0.4732 mL/mx	116	208	305	401
	Clarity - Reproductive R1	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R1	B	0.4732 mL/mx				
	Clarity - Reproductive R3	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R3	C	0.4732 mL/mx				
	Clarity - Reproductive R5	4	LBAE/GAL	EC	7969-137	24 hr	0.08 fl oz/a	R5	D	0.4732 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
4.732	mL	Clarity - Reproductive R1	4	LBAE/GAL	EC	
4.732	mL	Clarity - Reproductive R3	4	LBAE/GAL	EC	
4.732	mL	Clarity - Reproductive R5	4	LBAE/GAL	EC	
4.732	mL	Clarity - Vegetative V3	4	LBAE/GAL	EC	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 3 GAL (mix size basis).

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

# University of Tennessee

## EVALUATING SOIL SEEDBANK CHANGES WITH LONG TERM HERBICIDE SYSTEMS IN XTEND SOYBEANS

Trial ID: JS-SOILBANK-19      Location:      Trial Year: 2018  
 Protocol ID:      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director:  
                                  Sponsor Contact:

### Application Description

	A	B
Application Date	May-16-2019	Jun-3-2019
Appl. Start Time	10:36 AM	9:15 AM
Appl. Stop Time	10:44 AM	9:22 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	PREPLA
Application Placement	BROFOL	BROFOL
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-3-2019
Air Temperature Start, Stop	88 F	80 F
% Relative Humidity Start, Stop	49	50
Wind Velocity+Dir. Start	0 MPH	4 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	67 F	70 F
% Cloud Cover	0	0

### Application Equipment

	A	B
Appl. Equipment	BACKPACK	BACKPACK
Equipment Type	SPRAYE	SPRAYE
Operation Pressure	30 PSI	28 PSI
Nozzle Type	AIXR	TTI
Nozzle Size	11003	11003
Boom Length	5 FT	5 FT
Ground Speed	5 MPH	5 MPH
Spray Volume	15 GAL/AC	15 GAL/AC
Mix Size	2 L	2 L

Date	By	Context	Notes
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4      Plots: 15 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=2.346 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	AUTHORITY MTZ	45 %W/W	DF		14 oz/a	PREPRE A		15 GAL/AC		2 L		13.98 g/mx	101	204	301	402
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	PREPRE A		15 GAL/AC		2 L		33.33 mL/mx				
	ANTHEM MAXX	4.3 LB/GAL	SC		3.25 fl oz/a	POSPOS B		15 GAL/AC		2 L		3.385 mL/mx				
	XTENDIMAX	2.9 LBAE/GAL	L		22 fl oz/a	POSPOS B		15 GAL/AC		2 L		22.92 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		15 GAL/AC		2 L		33.33 mL/mx				
2	XTENDIMAX	2.9 LBAE/GAL	L		22 fl oz/a	POSPOS B		15 GAL/AC		2 L		22.92 mL/mx	102	203	302	403
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		15 GAL/AC		2 L		33.33 mL/mx				
3	WARRANT	3 LB/GAL	CS		48 fl oz/a	POSPOS B		15 GAL/AC		2 L		50.0 mL/mx	103	202	304	401
	XTENDIMAX	2.9 LBAE/GAL	L		22 fl oz/a	POSPOS B		15 GAL/AC		2 L		22.92 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		15 GAL/AC		2 L		33.33 mL/mx				
4	METRIBUZIN	75 %	WG		6 oz/a	PREPRE A		15 GAL/AC		2 L		5.991 g/mx	104	201	303	404
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	PREPRE A		15 GAL/AC		2 L		33.33 mL/mx				
	XTENDIMAX	2.9 LBAE/GAL	L		22 fl oz/a	POSPOS B		15 GAL/AC		2 L		22.92 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		15 GAL/AC		2 L		33.33 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
17.475	g	AUTHORITY MTZ	45	%W/W	DF	

# University of Tennessee

## RR Systems - TOUGH

Trial ID: JS-RRTOUGH-19	Location: Jackson, TN	Trial Year: 2019
Protocol ID: JS-RRTOUGH-19	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

### General Trial Information

Investigator: Dr. Larry Steckel

Trial Status: E established

ARM Trial Created On: Apr-9-2019

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Dr. Larry Steckel

### Crop Description

Crop 1: GLXMA Glycine max Soybean BBCH Scale: BSOY  
Variety: ROUNDUP READY

### Site and Design

Treated Plot Width: 5 FT

Treated Plot Length: 30 FT

Treated Plot Area: 150 FT<sup>2</sup> Treatments: 7

Replications: 4

Study Design: RACOB L Randomized Complete Block (RCB)

### Application Description

	A	B
Application Date	May-16-2019	Jun-5-2019
Appl. Start Time	11:00 AM	11:20 AM
Appl. Stop Time	11:10 AM	11:36 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROSOI	BROFOL
Applied By	LS	JR
Appl. Entry Date	Jun-3-2019	Jun-11-2019
Air Temperature Start, Stop	88 F	84 F
% Relative Humidity Start, Stop	49	70
Wind Velocity+Dir. Start	0 MPH	4 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	67 F	82 F
Soil Moisture		DRY
% Cloud Cover	0	50

### Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent	PRE	

### Application Equipment

	A	B
Appl. Equipment	TRACTOR	BACKPACK
Equipment Type		BACCAI
Operation Pressure		35 PSI
Nozzle Type		AIXR
Nozzle Size		025
Boom Length		5 FT
Ground Speed		4 MPH
Carrier		WATER
Spray Volume		15 GAL/AC
Mix Size		2 L

# University of Tennessee

Trial ID: JS-RRTOUGH-19	Location: Jackson, TN	RR Systems - TOUGH
Protocol ID: JS-RRTOUGH-19	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director:	
	Sponsor Contact:	

Date	By	Context	Notes
Apr-9-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-11-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	DUAL II MAGNUM Nontreated Check	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	101	203	305	407
2	DUAL II MAGNUM Roundup PowerMax	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	102	206	301	403
	Ammonium Sulfate	5.5	LBA/GAL	SL	32 fl oz/a		B	15	GAL/AC	2	L	33.33 mL/mx				
		100 %		SG	1.5 lb/a		B	15	GAL/AC	2	L	23.97 g/mx				
3	DUAL II MAGNUM Roundup PowerMax	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	103	205	303	401
	TOUGH	5.5	LBA/GAL	EC	32 fl oz/a		B	15	GAL/AC	2	L	33.33 mL/mx				
	Ammonium Sulfate	5	LBA/GAL	EC	8 fl oz/a		B	15	GAL/AC	2	L	8.333 mL/mx				
		100 %		SG	1.5 lb/a		B	15	GAL/AC	2	L	23.97 g/mx				
4	DUAL II MAGNUM Roundup PowerMax	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	104	207	302	404
	ULTRA BLAZER	5.5	LBA/GAL	SL	32 fl oz/a		B	15	GAL/AC	2	L	33.33 mL/mx				
	Ammonium Sulfate	2	LBA/GAL	EC	1 pt/a		B	15	GAL/AC	2	L	16.67 mL/mx				
		100 %		SG	1.5 lb/a		B	15	GAL/AC	2	L	23.97 g/mx				
5	DUAL II MAGNUM Roundup PowerMax	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	105	202	306	402
	ULTRA BLAZER	5.5	LBA/GAL	SL	32 fl oz/a		B	15	GAL/AC	2	L	33.33 mL/mx				
	TOUGH	2	LBA/GAL	EC	1 pt/a		B	15	GAL/AC	2	L	16.67 mL/mx				
	Ammonium Sulfate	5	LBA/GAL	EC	8 fl oz/a		B	15	GAL/AC	2	L	8.333 mL/mx				
		100 %		SG	1.5 lb/a		B	15	GAL/AC	2	L	23.97 g/mx				
6	DUAL II MAGNUM Roundup PowerMax	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	106	204	307	405
	Cobra	5.5	LBA/GAL	SL	32 fl oz/a		B	15	GAL/AC	2	L	33.33 mL/mx				
	Ammonium Sulfate	2	LBA/GAL	EC	6 fl oz/a		B	15	GAL/AC	2	L	6.25 mL/mx				
		100 %		SG	1.5 lb/a		B	15	GAL/AC	2	L	23.97 g/mx				
7	DUAL II MAGNUM Roundup PowerMax	7.64	LBA/GAL	EC	2 pt/a		A	15	GAL/AC	2	L	33.33 mL/mx	107	201	304	406
	Cobra	5.5	LBA/GAL	SL	32 fl oz/a		B	15	GAL/AC	2	L	33.33 mL/mx				
	TOUGH	2	LBA/GAL	EC	6 fl oz/a		B	15	GAL/AC	2	L	6.25 mL/mx				
	Ammonium Sulfate	5	LBA/GAL	EC	8 fl oz/a		B	15	GAL/AC	2	L	8.333 mL/mx				
		100 %		SG	1.5 lb/a		B	15	GAL/AC	2	L	23.97 g/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
291.666	mL	DUAL II MAGNUM	7.64	LBA/GAL	EC	
250.000	mL	Roundup PowerMax	5.5	LBA/GAL	SL	
179.739	g	Ammonium Sulfate	100	%	SG	
31.250	mL	TOUGH	5	LBA/GAL	EC	
41.667	mL	ULTRA BLAZER	2	LBA/GAL	EC	
15.625	mL	Cobra	2	LBA/GAL	EC	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

# University of Tennessee

## EVALUATING AUTHORITY BRANDS FOR LENGTH OF RESIDUAL IN SOYBEANS

Trial ID: FMC-USA-19-055      Location: JACKSON      Trial Year: 2019  
 Protocol ID: USA-19-055      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: STECKEL  
                                  Sponsor Contact:

### General Trial Information

**Study Director:** STECKEL  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E      established  
**ARM Trial Created On:** Mar-25-2019

### Trial Location

**Country:** USA United States

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

### Contacts

**Study Director:** STECKEL

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max      Soybean  
**Variety:** DICAMBA-TOLERANT

### Pest Description

**Pest 1 Type:** W      **Code:** AMAPA      *Amaranthus palmeri*  
**Common Name:** Palmer amaranth

**Pest 2 Type:** W      **Code:** IPOLA      *Ipomoea lacunosa*  
**Common Name:** pitted morning glory

**Pest 3 Type:** W      **Code:** ECHCG      *Echinochloa crus-galli*  
**Common Name:** Common barnyard grass

### Site and Design

**Treated Plot Width:** 10 FT      **Site Type:** FIELD      field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT<sup>2</sup>      **Treatments:** 11      **Tillage Type:** NOTILL      no-till  
**Replications:** 4      **Study Design:** RACOB      Randomized Complete Block (RCB)

### Application Description

	A
<b>Application Date</b>	May-16-2019
<b>Appl. Start Time</b>	10:07 AM
<b>Appl. Stop Time</b>	10:22 AM
<b>Application Method</b>	SPRAY
<b>Application Timing</b>	PREPLA
<b>Application Placement</b>	BROFOL
<b>Applied By</b>	CP
<b>Appl. Entry Date</b>	Jun-3-2019
<b>Air Temperature Start, Stop</b>	88      F
<b>% Relative Humidity Start, Stop</b>	49
<b>Wind Velocity+Dir. Start</b>	0      MPH
<b>Wet Leaves (Y/N)</b>	N no
<b>Soil Temperature</b>	67      F
<b>% Cloud Cover</b>	0

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY
<b>Stage Majority, Percent</b>	00



# University of Tennessee

## EVALUATING AUTHORITY BRANDS FOR LENGTH OF RESIDUAL IN SOYBEANS

Trial ID: FMC-USA-19-055      Location: JACKSON      Trial Year: 2019  
 Protocol ID: USA-19-055      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: STECKEL  
 Sponsor Contact:

### Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	AMAPA W
Pest 2 Code, Type, Scale	IPOLA W
Pest 3 Code, Type, Scale	ECHCG W

### Application Equipment

	A
Appl. Equipment	BACKPACK
Equipment Type	SPRAYE
Operation Pressure	30 PSI
Nozzle Type	AIXR
Nozzle Size	11003
Boom Length	5 FT
Ground Speed	5 MPH
Spray Volume	15 GAL/AC
Mix Size	2 L

Date	By	Context	Notes
Mar-25-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt to Measure	Product Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	UNTREATED CHECK									101	204	310	404
2	AUTHORITY ELITE ROUNDUP POWERMAX	7 LB/GAL 4.5 LBAE/GAL	EC SL		26 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	27.08 mL/mx 33.33 mL/mx		102	201	309	405
3	AUTHORITY SUPREME ROUNDUP POWERMAX	4.16 LB/GAL 4.5 LBAE/GAL	SC SL		6.4 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	6.667 mL/mx 33.33 mL/mx		103	210	304	401
4	AUTHORITY SUPREME ROUNDUP POWERMAX	4.16 LB/GAL 4.5 LBAE/GAL	SC SL		8 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	8.333 mL/mx 33.33 mL/mx		104	206	302	407
5	VHP58-R002 ROUNDUP POWERMAX	4.25 LB/GAL 4.5 LBAE/GAL	SC SL		7 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	7.292 mL/mx 33.33 mL/mx		105	208	305	409
6	VHP58-R002 ROUNDUP POWERMAX	4.25 LB/GAL 4.5 LBAE/GAL	SC SL		9 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	9.375 mL/mx 33.33 mL/mx		106	203	311	406
7	AUTHORITY SUPREME METRIBUZIN ROUNDUP POWERMAX	4.16 LB/GAL 75 % 4.5 LBAE/GAL	SC WG SL		6 fl oz/a 6 oz/a 32 fl oz/a	PREPRE PREPRE PREPRE	A A A	6.25 mL/mx 5.991 g/mx 33.33 mL/mx		107	205	306	402
8	VHP58-R002 METRIBUZIN ROUNDUP POWERMAX	4.25 LB/GAL 75 % 4.5 LBAE/GAL	SC WG SL		7 fl oz/a 6 oz/a 32 fl oz/a	PREPRE PREPRE PREPRE	A A A	7.292 mL/mx 5.991 g/mx 33.33 mL/mx		108	202	308	411
9	ZIDUA PRO ROUNDUP POWERMAX	4.09 LB/GAL 4.5 LBAE/GAL	SC SL		6 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	6.25 mL/mx 33.33 mL/mx		109	211	301	403
10	FIERCE ROUNDUP POWERMAX	76 %W/W 4.5 LBAE/GAL	WG SL		3 oz/a 32 fl oz/a	PREPRE PREPRE	A A	2.996 g/mx 33.33 mL/mx		110	207	303	408
11	BOUNDARY ROUNDUP POWERMAX	6.5 LB/GAL 4.5 LBAE/GAL	EC SL		24 fl oz/a 32 fl oz/a	PREPRE PREPRE	A A	25.0 mL/mx 33.33 mL/mx		111	209	307	410

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
33.854	mL	AUTHORITY ELITE	7	LB/GAL	EC	

# University of Tennessee

## EVALUATING AUTHORITY BRANDS AND ANTHEM MAXX FOR WEED CONTROL IN DICAMBA-TOLERANT SOYBEANS

Trial ID: FMC USA-19-764 2019      Location: JACKSON      Trial Year: 2019  
 Protocol ID: USA-19-764      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director:  
    Sponsor Contact:

### General Trial Information

**Investigator:** Dr. Larry Steckel

**Trial Status:** E      established

**ARM Trial Created On:** Mar-26-2019

### Trial Location

**Country:** USA United States

**Conducted Under GLP:** No

**Conducted Under GEP:** No

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max      Soybean  
**Variety:** DICAMBA-TOLERANT

### Pest Description

**Pest 1 Type:** W      **Code:** AMAPA *Amaranthus palmeri*  
**Common Name:** Palmer amaranth

**Pest 2 Type:** W      **Code:** IPOLA *Ipomoea lacunosa*  
**Common Name:** pitted morning glory

**Pest 3 Type:** W      **Code:** ECHCG *Echinochloa crus-galli*  
**Common Name:** Common barnyard grass

**Pest 4 Type:** W      **Code:** AMATU *Amaranthus tuberculatus*  
**Common Name:** Tall waterhemp

**Pest 5 Type:** W      **Code:** ABUTH *Abutilon theophrasti*  
**Common Name:** velvetleaf

**Pest 6 Type:** W      **Code:** CHEAL *Chenopodium album*  
**Common Name:** common lambsquarters

### Site and Design

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

### Application Description

	A	B
<b>Application Date</b>	May-16-2019	
<b>Appl. Start Time</b>	9:50 AM	
<b>Appl. Stop Time</b>	10:03 AM	
<b>Application Method</b>	SPRAY	SPRAY
<b>Application Timing</b>	PREPLA	POSPOS
<b>Application Placement</b>	BROSOI	BROFOL
<b>Applied By</b>	CP	
<b>Appl. Entry Date</b>	Jun-3-2019	
<b>Air Temperature Start, Stop</b>	88 F	
<b>% Relative Humidity Start, Stop</b>	49	
<b>Wind Velocity+Dir. Start</b>	0 MPH	
<b>Wet Leaves (Y/N)</b>	N no	
<b>Soil Temperature</b>	67 F	
<b>% Cloud Cover</b>	0	

# University of Tennessee

## EVALUATING AUTHORITY BRANDS AND ANTHEM MAXX FOR WEED CONTROL IN DICAMBA-TOLERANT SOYBEANS

Trial ID: FMC USA-19-764 2019	Location: JACKSON	Trial Year: 2019
Protocol ID: USA-19-764	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

### Crop Stage At Each Application

	A	B
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY	GLXMA BSOY
<b>Stage Majority, Percent</b>	00	13

### Pest Stage At Each Application

	A	B
<b>Pest 1 Code, Type, Scale</b>	AMAPA W	AMAPA W
<b>Pest 2 Code, Type, Scale</b>	IPOLA W	IPOLA W
<b>Pest 3 Code, Type, Scale</b>	ECHCG W	ECHCG W
<b>Pest 4 Code, Type, Scale</b>	AMATU W	AMATU W
<b>Pest 5 Code, Type, Scale</b>	ABUTH W	ABUTH W
<b>Pest 6 Code, Type, Scale</b>	CHEAL W	CHEAL W

### Application Equipment

	A	B
<b>Appl. Equipment</b>	BACKPACK	
<b>Equipment Type</b>	SPRAYE	
<b>Operation Pressure</b>	30 PSI	
<b>Nozzle Type</b>	AIXR	
<b>Nozzle Size</b>	11003	
<b>Boom Length</b>	5 FT	
<b>Ground Speed</b>	5 MPH	
<b>Spray Volume</b>	15 GAL/AC	
<b>Mix Size</b>	2 L	

Date	By	Context	Notes
Mar-26-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep			
									1	2	3	4
1	UNTREATED CHECK								101	204	307	406
2	VHP58-R002	4.25 LB/GAL		SC	7 fl oz/a	PREPRE	A	7.292 mL/mx	102	209	301	403
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	ANTHEM MAXX	4.3 LB/GAL		SC	3.25 fl oz/a	POSPOS	B	3.385 mL/mx				
	XTENDIMAX	2.9 LBAE/GAL		SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
INTACT	43.18 %W/W		SL	0.5 % v/v	POSPOS	B	9.999 mL/mx					
3	VHP58-R002	4.25 LB/GAL		SC	9 fl oz/a	PREPRE	A	9.375 mL/mx	103	207	302	405
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	ANTHEM MAXX	4.3 LB/GAL		SC	2.5 fl oz/a	POSPOS	B	2.604 mL/mx				
	XTENDIMAX	2.9 LBAE/GAL		SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
INTACT	43.18 %W/W		SL	0.5 % v/v	POSPOS	B	9.999 mL/mx					
4	AUTHORITY ELITE	7 LB/GAL		EC	26 fl oz/a	PREPRE	A	27.08 mL/mx	104	202	308	409
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	ANTHEM MAXX	4.3 LB/GAL		SC	3.25 fl oz/a	POSPOS	B	3.385 mL/mx				
	XTENDIMAX	2.9 LBAE/GAL		SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
INTACT	43.18 %W/W		SL	0.5 % v/v	POSPOS	B	9.999 mL/mx					

# University of Tennessee

## EVALUATING AUTHORITY BRANDS AND ANTHEM MAXX FOR WEED CONTROL IN DICAMBA-TOLERANT SOYBEANS

Trial ID: FMC USA-19-764 2019	Location: JACKSON	Trial Year: 2019
Protocol ID: USA-19-764	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep			
									1	2	3	4
5	AUTHORITY SUPREME	500	G/L	SC	6.4 fl oz/a	PREPRE	A	6.667 mL/mx	105	206	310	402
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	ANTHEM MAXX	4.3	LB/GAL	SC	2.5 fl oz/a	POSPOS	B	2.604 mL/mx				
	XTENDIMAX	2.9	LBAE/GAL	SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
	INTACT	43.18	%W/W	SL	0.5 % v/v	POSPOS	B	9.999 mL/mx				
6	ANTHEM MAXX	4.3	LB/GAL	SC	3.25 fl oz/a	PREPRE	A	3.385 mL/mx	106	210	304	401
	METRIBUZIN	75	%	WG	5 oz/a	PREPRE	A	4.993 g/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	ANTHEM MAXX	4.3	LB/GAL	SC	2.5 fl oz/a	POSPOS	B	2.604 mL/mx				
	XTENDIMAX	2.9	LBAE/GAL	SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
	INTACT	43.18	%W/W	SL	0.5 % v/v	POSPOS	B	9.999 mL/mx				
7	VALOR SX	51	%W/W	WG	2 oz/a	PREPRE	A	1.997 g/mx	107	203	309	404
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	WARRANT	3	LB/GAL	MS	48 fl oz/a	POSPOS	B	50.0 mL/mx				
	XTENDIMAX	2.9	LBAE/GAL	SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
	INTACT	43.18	%W/W	SL	0.5 % v/v	POSPOS	B	9.999 mL/mx				
8	ZIDUA PRO	4.09	LB/GAL	SC	6 fl oz/a	PREPRE	A	6.25 mL/mx	108	201	306	408
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	OUTLOOK	6	LB/GAL	EC	12 fl oz/a	POSPOS	B	12.5 mL/mx				
	ENGENIA	5	LBAE/GAL	L	12.8 fl oz/a	POSPOS	B	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
	INTACT	43.18	%W/W	SL	0.5 % v/v	POSPOS	B	9.999 mL/mx				
9	FIERCE	76	%W/W	WG	3 oz/a	PREPRE	A	2.996 g/mx	109	205	303	410
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	DUAL II MAGNUM	7.64	LB/GAL	EC	16 fl oz/a	POSPOS	B	16.67 mL/mx				
	XTENDIMAX	2.9	LBAE/GAL	SL	22 fl oz/a	POSPOS	B	22.92 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
	INTACT	43.18	%W/W	SL	0.5 % v/v	POSPOS	B	9.999 mL/mx				
10	BOUNDARY	6.5	LB/GAL	EC	24 oz/a	PREPRE	A	25.0 mL/mx	110	208	305	407
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	PREPRE	A	33.33 mL/mx				
	TAVIUM	3.39	LBAE/GAL	CS	56.5 fl oz/a	POSPOS	B	58.85 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	POSPOS	B	33.33 mL/mx				
		INTACT	43.18	%W/W	SL	0.5 % v/v	POSPOS	B				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
20.833	mL	VHP58-R002	4.25	LB/GAL	SC	
749.999	mL	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	
22.461	mL	ANTHEM MAXX	4.3	LB/GAL	SC	
200.521	mL	XTENDIMAX	2.9	LBAE/GAL	SL	
112.488	mL	INTACT	43.18	%W/W	SL	
33.854	mL	AUTHORITY ELITE	7	LB/GAL	EC	
8.333	mL	AUTHORITY SUPREME	500	G/L	SC	
6.241	g	METRIBUZIN	75	%	WG	
2.496	g	VALOR SX	51	%W/W	WG	
62.500	mL	WARRANT	3	LB/GAL	MS	
7.812	mL	ZIDUA PRO	4.09	LB/GAL	SC	
15.625	mL	OUTLOOK	6	LB/GAL	EC	
16.667	mL	ENGENIA	5	LBAE/GAL	L	

# University of Tennessee

## ENGENIA PRO VS COMPETITORS

Trial ID: 2019D04      Location: JACKSON      Trial Year: 2019  
 Protocol ID: D04      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: CHAD ASMUS  
                          Sponsor Contact:

### General Trial Information

**Study Director:** CHAD ASMUS  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Jun-12-2019  
**Initiation Date:** May-31-2019

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

### Contacts

**Study Director:** CHAD ASMUS

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max Soybean **BBCH Scale:** BSOY  
**Entry Date:** Jun-12-2019  
**Variety:** XTEND  
**Planting Date:** May-28-2019

### Site and Design

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT<sup>2</sup> **Treatments:** 4  
**Replications:** 4      **Study Design:** RAOBL Randomized Complete Block (RCB)

### Application Description

	A	B
Application Date	May-31-2019	
Appl. Start Time	8:45 AM	
Appl. Stop Time	8:50 AM	
Application Method	SPRAY	
Application Timing	PRE	
Application Placement	BROSOI	
Applied By	JR	
Appl. Entry Date	Jun-12-2019	
Air Temperature Start, Stop	78 78 F	
% Relative Humidity Start, Stop	60 60	
Wind Velocity+Dir. Start	2 MPH SW	
Wet Leaves (Y/N)	Y yes	
Soil Temperature	82 F	
% Cloud Cover	0	

### Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY

### Application Equipment

	A	B
Appl. Equipment	BACKPACK	
Equipment Type	SPRAYE	
Operation Pressure	30 PSI	
Nozzle Type	AIXR	
Nozzle Size	11003	
Boom Length	5 FT	
Ground Speed	4 MPH	
Spray Volume	15 GAL/AC	
Mix Size	2 L	

# University of Tennessee

## ENGENIA PRO VS COMPETITORS

Trial ID: 2019D04	Location: JACKSON	Trial Year: 2019
Protocol ID: D04	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: CHAD ASMUS	
	Sponsor Contact:	

Date	By	Context	Notes
Jun-12-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-12-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1,564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Supplier	Rate Unit	Growth Stage	Appl Code	Spray Volume Unit	Mix Size Unit	Mix Unit	Amt to Measure
1	CHECK												
2	VERDICT	668	GA/L	EC	H	BAS	5.0 fl oz/a	PRE	A	15 GAL/AC	2 L		5.208 mL
	ROUNDUP POWERMAX	540	GA/L	SL	H	BAS	32.0 fl oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL
	ADJUVANT-MSO	100	%	EC	S	BCH	1.0 % v/v	PRE	A	15 GAL/AC	2 L		20.0 mL
	AMMONIUM SULFATE (21% N)	100	%	SG	S	BAS	17.0 lb/100 gal	PRE	A	15 GAL/AC	2 L		40.74 g/n
	ENGENIA PRO	544.3	GA/L	SC	H	BAS	16.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		16.67 mL
	ROUNDUP POWERMAX	540	GA/L	SL	H	BAS	32.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		33.33 mL
	INDUCE	998	GA/L	TK	S	BAS	0.25 % v/v	EPOST	B	15 GAL/AC	2 L		4.999 mL
3	VERDICT	668	GA/L	EC	H	BAS	5.0 fl oz/a	PRE	A	15 GAL/AC	2 L		5.208 mL
	ROUNDUP POWERMAX	540	GA/L	SL	H	BAS	32.0 fl oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL
	ADJUVANT-MSO	100	%	EC	S	BCH	1.0 % v/v	PRE	A	15 GAL/AC	2 L		20.0 mL
	AMMONIUM SULFATE (21% N)	100	%	SG	S	BAS	17.0 lb/100 gal	PRE	A	15 GAL/AC	2 L		40.74 g/n
	XTENDIMAX WITH VAPORGRIP TECHN	350	GA/L	SL	H	BAS	22.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		22.92 mL
	DUAL MAGNUM	915	GA/L	EC	H	BAS	16.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		16.67 mL
	ROUNDUP POWERMAX	540	GA/L	SL	H	BAS	32.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		33.33 mL
	INDUCE	998	GA/L	TK	S	BAS	0.25 % v/v	EPOST	B	15 GAL/AC	2 L		4.999 mL
4	VERDICT	668	GA/L	EC	H	BAS	5.0 fl oz/a	PRE	A	15 GAL/AC	2 L		5.208 mL
	ROUNDUP POWERMAX	540	GA/L	SL	H	BAS	32.0 fl oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL
	ADJUVANT-MSO	100	%	EC	S	BCH	1.0 % v/v	PRE	A	15 GAL/AC	2 L		20.0 mL
	AMMONIUM SULFATE (21% N)	100	%	SG	S	BAS	17.0 lb/100 gal	PRE	A	15 GAL/AC	2 L		40.74 g/n
	XTENDIMAX WITH VAPORGRIP TECHN	350.0	GA/L	SL	H	BAS	22.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		22.92 mL
	WARRANT	360	GA/L	CS	H	BAS	48.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		50.0 mL
	ROUNDUP POWERMAX	540.0	GA/L	SL	H	BAS	32.0 fl oz/a	EPOST	B	15 GAL/AC	2 L		33.33 mL
	INDUCE	998.0	GA/L	TK	S	BAS	0.25 % v/v	EPOST	B	15 GAL/AC	2 L		4.999 mL

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
19.531	mL	VERDICT	668	GA/L	EC	
250.000	mL	ROUNDUP POWERMAX	540	GA/L	SL	
74.992	mL	ADJUVANT-MSO	100	%	EC	
152.778	g	AMMONIUM SULFATE (21% N)	100	%	SG	
20.833	mL	ENGENIA PRO	544.3	GA/L	SC	
18.748	mL	INDUCE	998	GA/L	TK	
57.292	mL	XTENDIMAX WITH VAPORGRIP TECHN	350	GA/L	SL	
20.833	mL	DUAL MAGNUM	915	GA/L	EC	
62.500	mL	WARRANT	360	GA/L	CS	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 2 L.

# University of Tennessee

Trial ID: JBD-TOD-CP- WTREC Protocol ID: JBD-JRTOD-CP Project ID:	<b>Junglerice Time of day applications - Clay</b> Location: Jackson, TN Investigator: Dr. Larry Steckel Study Director: Clay Perkins Sponsor Contact:	Trial Year: 2019
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<b>General Trial Information</b> <b>Study Director:</b> Clay Perkins <b>Investigator:</b> Dr. Larry Steckel  <b>Trial Status:</b> E established <b>ARM Trial Created On:</b> May-29-2019  <b>Conducted Under GLP:</b> No <b>Conducted Under GEP:</b> No
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<b>Contacts</b> <b>Study Director:</b> Clay Perkins  <b>Investigator:</b> Dr. Larry Steckel
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<b>Crop Description</b> <b>Crop 1:</b> GLXMA Glycine max Soybean <b>BBCH Scale:</b> BSOY <b>Entry Date:</b> Jun-10-2019
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<b>Pest Description</b> <b>Pest 1 Type:</b> W <b>Code:</b> SORHA Sorghum halepense <b>Common Name:</b> Johnson grass <b>Entry Date:</b> Jun-10-2019  <b>Pest 2 Type:</b> W <b>Code:</b> ECHCO Echinochloa colonum <b>Common Name:</b> Jungle rice <b>Entry Date:</b> Jun-10-2019  <b>Pest 3 Type:</b> W <b>Code:</b> GGGAN Annual grasses <b>Common Name:</b> Annual grasses <b>Entry Date:</b> Jun-10-2019
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<b>Site and Design</b> <b>Treated Plot Width:</b> 5 FT <b>Treated Plot Length:</b> 30 FT <b>Treated Plot Area:</b> 150 FT <sup>2</sup> <b>Treatments:</b> 17 <b>Replications:</b> 4 <b>Study Design:</b> RACOB L Randomized Complete Block (RCB)
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Application Description	A	B
<b>Application Date</b>	May-31-2019	May-31-2019
<b>Appl. Start Time</b>	6:02 AM	11:50 AM
<b>Appl. Stop Time</b>	6:15 AM	12:02 PM
<b>Interval to Prev. Appl.</b>		6 HOURS
<b>Application Method</b>	SPRAY	SPRAY
<b>Application Placement</b>	BROFOL	BROFOL
<b>Applied By</b>	CP	CP
<b>Appl. Entry Date</b>	Jun-10-2019	Jun-10-2019
<b>Air Temperature Start, Stop</b>	67.3 F	86 F
<b>% Relative Humidity Start, Stop</b>	76.8	35.9
<b>Wind Velocity+Dir. Max</b>	0	4
<b>Wet Leaves (Y/N)</b>	Y yes	N no
<b>Soil Temperature</b>	78	90
<b>% Cloud Cover</b>	0	30

Crop Stage At Each Application	A	B
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY	GLXMA BSOY
<b>Stage Majority, Percent</b>	2 Trifol	

# University of Tennessee

Trial ID: JBD-TOD-CP- WTREC	Location: Jackson, TN	Trial Year: 2019
Protocol ID: JBD-JRTOD-CP	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Clay Perkins	
	Sponsor Contact:	

Pest Stage At Each Application		
	A	B
<b>Pest 1 Code, Type, Scale</b>	SORHA W	SORHA W
<b>Height Average</b>	30 IN	
<b>Height Minimum, Maximum</b>	24 36	
<b>Pest 2 Code, Type, Scale</b>	ECHCO W	ECHCO W
<b>Height Average</b>	6 IN	
<b>Height Minimum, Maximum</b>	4 8	
<b>Pest 3 Code, Type, Scale</b>	GGGAN W	GGGAN W
<b>Height Average</b>	7 IN	
<b>Height Minimum, Maximum</b>	6 8	

Application Equipment			
	A	B	C
<b>Equipment Type</b>	SPRBAC	SPRBAC	
<b>Operation Pressure</b>	30 PSI	30 PSI	
<b>Nozzle Type</b>	AIXR	AIXR	
<b>Nozzle Size</b>	03	03	
<b>Boom Length</b>	5 FT	5 FT	
<b>Ground Speed</b>	4 MPH	4 MPH	
<b>Spray Volume</b>	15 GAL/AC	15 GAL/AC	
<b>Mix Size</b>	2 L	2 L	

Date	By	Context	Notes
May-29-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-10-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Registration Number	Form Re-Entry Interval	Rate	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1	Nontreated Check														101	212	317	414
2	Roundup PowerMax Sunrise Application	5.5 LBA/GAL	SL				16 fl oz/a	A	15 GAL/AC		2 L		16.67 mL/mx		102	210	314	405
3	Roundup PowerMax Noon Application	5.5 LBA/GAL	SL				16 fl oz/a	A	15 GAL/AC		2 L		16.67 mL/mx		103	208	302	407
4	Roundup PowerMax Sunrise Application	5.5 LBA/GAL	SL				32 fl oz/a	A	15 GAL/AC		2 L		33.33 mL/mx		104	215	308	413
5	Roundup PowerMax Noon Application	5.5 LBA/GAL	SL				32 fl oz/a	A	15 GAL/AC		2 L		33.33 mL/mx		105	203	309	402
6	Select 2EC COC Sunrise Application	2 LBA/GAL 100 %	SL SL				8 fl oz/a 1 pt/a	A A	15 GAL/AC 15 GAL/AC		2 L 2 L		8.333 mL/mx 16.67 mL/mx		106	214	301	401
7	Select 2EC COC Sunrise Application	2 LBA/GAL 100 %	SL SL				16 fl oz/a 1 pt/a	A A	15 GAL/AC 15 GAL/AC		2 L 2 L		16.67 mL/mx 16.67 mL/mx		107	211	312	406
8	Select 2EC COC Noon Application	2 LBA/GAL 100 %	SL SL				8 fl oz/a 1 pt/a	A A	15 GAL/AC 15 GAL/AC		2 L 2 L		8.333 mL/mx 16.67 mL/mx		108	216	311	417
9	Select 2EC COC Noon Application	2 LBA/GAL 100 %	SL SL				16 fl oz/a 1 pt/a	A A	15 GAL/AC 15 GAL/AC		2 L 2 L		16.67 mL/mx 16.67 mL/mx		109	213	310	408
10	FUSILADE COC Sunrise Application	2 LBA/GAL 100 %	SL SL				6 fl oz/a 1 pt/a	A A	15 GAL/AC 15 GAL/AC		2 L 2 L		6.25 mL/mx 16.67 mL/mx		110	205	307	416



# University of Tennessee

Trial ID: JBD-TOD-CP- WTREC	Location: Jackson, TN	Trial Year: 2019
Protocol ID: JBD-JRTOD-CP	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Clay Perkins	
Sponsor Contact:		

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Re-Entry Interval	Rate Rate Unit	Appl Code	Spray Volume Unit	Mix Size Unit	Mix Size Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
11	FUSILADE COC Sunrise Application	2 100 %	LBA/GAL	SL			12 fl oz/a 1 pt/a	A	15 GAL/AC 15 GAL/AC	2 L	2 L	12.5 mL/mx 16.67 mL/mx	111	206	304	410
12	FUSILADE COC Noon Application	2 100 %	LBA/GAL	SL			6 fl oz/a 1 pt/a	A	15 GAL/AC 15 GAL/AC	2 L	2 L	6.25 mL/mx 16.67 mL/mx	112	209	303	412
13	FUSILADE COC Noon Application	2 100 %	LBA/GAL	SL			12 fl oz/a 1 pt/a	A	15 GAL/AC 15 GAL/AC	2 L	2 L	12.5 mL/mx 16.67 mL/mx	113	202	313	415
14	LIBERTY Sunrise Application	2.34		SL	264829	12HR	16 oz/a	A	15 GAL/AC	2 L		16.67 mL/mx	114	207	316	409
15	LIBERTY Noon Application	2.34		SL	264829	12HR	16 oz/a	A	15 GAL/AC	2 L		16.67 mL/mx	115	204	315	411
16	LIBERTY Sunrise Application	2.34		SL	264829	12HR	32 oz/a	A	15 GAL/AC	2 L		33.33 mL/mx	116	201	306	403
17	LIBERTY Noon Application	2.34		SL	264829	12HR	32 oz/a	A	15 GAL/AC	2 L		33.33 mL/mx	117	217	305	404

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
125.000	mL	Roundup PowerMax	5.5	LBA/GAL	SL	
62.500	mL	Select 2EC	2	LBA/GAL	SL	
166.667	mL	COC	100	%	SL	
46.875	mL	FUSILADE	2	LBA/GAL	SL	
125.000	mL	LIBERTY	2.34		SL	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

# University of Tennessee

## JR Antagonism Study - Clay

Trial ID: JSB-Antagonism-CP- WTREC	Location: Jackson, TN	Trial Year: 2019
Protocol ID: JBG-Antagonism-CP	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Clay Perkins	
	Sponsor Contact:	

### General Trial Information

**Study Director:** Clay Perkins  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** May-29-2019

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

### Contacts

**Study Director:** Clay Perkins

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max Soybean **BBCH Scale:** BSOY  
**Entry Date:** Jun-10-2019

### Pest Description

**Pest 1 Type:** W **Code:** SORHA Sorghum halepense  
**Common Name:** Johnson grass **Entry Date:** Jun-10-2019

**Pest 2 Type:** W **Code:** ECHCO Echinochloa colonum  
**Common Name:** Jungle rice **Entry Date:** Jun-10-2019

**Pest 3 Type:** W **Code:** GGGAN Annual grasses  
**Common Name:** Annual grasses **Entry Date:** Jun-10-2019

### Site and Design

**Treated Plot Width:** 5 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup> **Treatments:** 16  
**Replications:** 2 **Study Design:** SPLPLO Split-Plot

### Application Description

	A
<b>Application Date</b>	May-31-2019
<b>Appl. Start Time</b>	11:50 AM
<b>Appl. Stop Time</b>	12:15 PM
<b>Application Method</b>	SPRAY
<b>Application Placement</b>	BROFOL
<b>Applied By</b>	CP
<b>Appl. Entry Date</b>	Jun-10-2019
<b>Air Temperature Start, Stop</b>	86 F
<b>% Relative Humidity Start, Stop</b>	35.9
<b>Wind Velocity+Dir. Max</b>	4
<b>Wet Leaves (Y/N)</b>	N no
<b>Soil Temperature</b>	90
<b>% Cloud Cover</b>	30

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY
<b>Stage Majority, Percent</b>	2 Trifol

# University of Tennessee

## JR Antagonism Study - Clay

Trial ID: JSB-Antagonism-CP- WTREC  
 Protocol ID: JBG-Antagonism-CP  
 Project ID:

Location: Jackson, TN      Trial Year: 2019  
 Investigator: Dr. Larry Steckel  
 Study Director: Clay Perkins  
 Sponsor Contact:

### Pest Stage At Each Application

	A
<b>Pest 1 Code, Type, Scale</b>	SORHA W
<b>Height Average</b>	30 IN
<b>Height Minimum, Maximum</b>	24 36
<b>Pest 2 Code, Type, Scale</b>	ECHCO W
<b>Height Average</b>	6 IN
<b>Height Minimum, Maximum</b>	4 8
<b>Pest 3 Code, Type, Scale</b>	GGGAN W
<b>Height Average</b>	7 IN
<b>Height Minimum, Maximum</b>	6 8

### Application Equipment

	A
<b>Equipment Type</b>	SPRBAC
<b>Operation Pressure</b>	30 PSI
<b>Nozzle Type</b>	TTI
<b>Nozzle Size</b>	03
<b>Boom Length</b>	5 FT
<b>Ground Speed</b>	4 MPH
<b>Spray Volume</b>	15 GAL/AC
<b>Mix Size</b>	2 L

Date	By	Context	Notes
May-29-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-10-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 2      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 2 plots; minimum=0.391 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	Rep 2
1	Nontreated Check TTI Nozzle												101	212
2	Nontreated Check Flat Fan Nozzle												102	211
3	Roundup PowerMax TTI Nozzle	5.5 LBA/GAL		F	32 fl oz/a	A		15 GAL/AC		2 L		33.33 mL/mx	103	215
4	Roundup PowerMax Flat Fan Nozzle	5.5 LBA/GAL		F	32 fl oz/a	A		15 GAL/AC		2 L		33.33 mL/mx	104	216
5	Select 2EC COC TTI Nozzle	2 LBA/GAL 100 %		F SL	16 fl oz/a 1 pt/a	A A		15 GAL/AC 15 GAL/AC		2 L 2 L		16.67 mL/mx 16.67 mL/mx	105	201
6	Select 2EC COC Flat Fan Nozzle	2 LBA/GAL 100 %		F SL	16 fl oz/a 1 pt/a	A A		15 GAL/AC 15 GAL/AC		2 L 2 L		16.67 mL/mx 16.67 mL/mx	106	202
7	Engenia TTI Nozzle	5 LBAE/GAL		SL	12.8 fl oz/a	A		15 GAL/AC		2 L		13.33 mL/mx	107	213
8	Engenia Flat Fan Nozzle	5 LBAE/GAL		SL	12.8 fl oz/a	A		15 GAL/AC		2 L		13.33 mL/mx	108	214
9	Roundup PowerMax Select 2EC COC TTI Nozzle	5.5 LBA/GAL 2 LBA/GAL 100 %		F F SL	32 fl oz/a 16 fl oz/a 1 pt/a	A A A		15 GAL/AC 15 GAL/AC 15 GAL/AC		2 L 2 L 2 L		33.33 mL/mx 16.67 mL/mx 16.67 mL/mx	109	206

# University of Tennessee

<b>JR Antagonism Study - Clay</b>	
Trial ID: JSB-Antagonism-CP- WTREC	Location: Jackson, TN
Protocol ID: JBG-Antagonism-CP	Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel
	Study Director: Clay Perkins
	Sponsor Contact:

Reps: 2                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 2 plots; minimum=0.391 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep	
												1	2
10	Roundup PowerMax	5.5	LBA/GAL	F	32 fl oz/a	A	15	GAL/AC	2	L	33.33 mL/mx	110	205
	Select 2EC	2	LBA/GAL	F	16 fl oz/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	COC	100	%	SL	1 pt/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	Flat Fan Nozzle												
11	Roundup PowerMax	5.5	LBA/GAL	F	32 fl oz/a	A	15	GAL/AC	2	L	33.33 mL/mx	111	208
	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	A	15	GAL/AC	2	L	13.33 mL/mx		
	TTI Nozzle												
12	Roundup PowerMax	5.5	LBA/GAL	F	32 fl oz/a	A	15	GAL/AC	2	L	33.33 mL/mx	112	207
	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	A	15	GAL/AC	2	L	13.33 mL/mx		
	Flat Fan Nozzle												
13	Select 2EC	2	LBA/GAL	F	16 fl oz/a	A	15	GAL/AC	2	L	16.67 mL/mx	113	209
	COC	100	%	SL	1 pt/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	A	15	GAL/AC	2	L	13.33 mL/mx		
	TTI Nozzle												
14	Select 2EC	2	LBA/GAL	F	16 fl oz/a	A	15	GAL/AC	2	L	16.67 mL/mx	114	210
	COC	100	%	SL	1 pt/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	A	15	GAL/AC	2	L	13.33 mL/mx		
	Flat Fan Nozzle												
15	Roundup PowerMax	5.5	LBA/GAL	F	32 fl oz/a	A	15	GAL/AC	2	L	33.33 mL/mx	115	203
	Select 2EC	2	LBA/GAL	F	16 fl oz/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	COC	100	%	SL	1 pt/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	A	15	GAL/AC	2	L	13.33 mL/mx		
	TTI Nozzle												
16	Roundup PowerMax	5.5	LBA/GAL	F	32 fl oz/a	A	15	GAL/AC	2	L	33.33 mL/mx	116	204
	Select 2EC	2	LBA/GAL	F	16 fl oz/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	COC	100	%	SL	1 pt/a	A	15	GAL/AC	2	L	16.67 mL/mx		
	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	A	15	GAL/AC	2	L	13.33 mL/mx		
	Flat Fan Nozzle												

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
333.333	mL	Roundup PowerMax	5.5	LBA/GAL	F	
166.667	mL	Select 2EC	2	LBA/GAL	F	
166.667	mL	COC	100	%	SL	
133.333	mL	Engenia	5	LBAE/GAL	SL	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).  
 \* Product amount calculations increased 25 % for overage adjustment.

# University of Tennessee

## Compare Weed Control in Cereal Rye and Bare Ground with Satellite Formulations

Trial ID: usglxma19	Location: TN	Trial Year: 2019
Protocol ID: H19USGLXMA-SATL-TN-16-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Larry Steckel	
	Sponsor Contact: Clyde Smith	

### General Trial Information

**Study Director:** Larry Steckel  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Apr-16-2019

### Trial Location

**Country:** USA United States

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

### Contacts

**Study Director:** Larry Steckel

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max Soybean

**Crop 2:** SECCE Secale cereale Rye

**Crop 3:** TRFPR Trifolium pratense Red clover

### Pest Description

**Pest 1 Type:** W **Code:** AMAPA *Amaranthus palmeri*  
**Common Name:** Palmer amaranth

### Site and Design

**Treated Plot Width:** 5 FT

**Treated Plot Length:** 30 FT

**Treated Plot Area:** 150 FT<sup>2</sup> **Treatments:** 8  
**Replications:** 4

**Site Type:** FIELD field

**Tillage Type:** NOTILL no-till

**Study Design:** RACOB� Randomized Complete Block (RCB)

### Application Description

	A
<b>Application Date</b>	May-8-2019
<b>Appl. Start Time</b>	1:50 AM
<b>Appl. Stop Time</b>	1:59 AM
<b>Application Method</b>	SPRAY
<b>Application Timing</b>	PREPLA
<b>Application Placement</b>	BROFOL
<b>Applied By</b>	CP
<b>Appl. Entry Date</b>	Jun-3-2019
<b>Air Temperature Start, Stop</b>	89 F
<b>% Relative Humidity Start, Stop</b>	47
<b>Wind Velocity+Dir. Start</b>	4.5 MPH SE
<b>Wet Leaves (Y/N)</b>	N no
<b>Soil Temperature</b>	78 F
<b>% Cloud Cover</b>	20

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY
<b>Crop 2 Code, BBCH Scale</b>	SECCE BCER
<b>Crop 3 Code, BBCH Scale</b>	TRFPR BDIC

### Pest Stage At Each Application

	A
<b>Pest 1 Code, Type, Scale</b>	AMAPA W

# University of Tennessee

## Compare Weed Control in Cereal Rye and Bare Ground with Satellite Formulations

Trial ID: usglxma19      Location: TN      Trial Year: 2019  
 Protocol ID: H19USGLXMA-SATL-TN-16-CS      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director: Larry Steckel  
    Sponsor Contact: Clyde Smith

### Application Equipment

	A
Appl. Equipment	BACKPACK
Equipment Type	SPRAYE
Operation Pressure	30 PSI
Nozzle Type	AIXR
Nozzle Size	11003
Boom Length	5 FT
Ground Speed	5 MPH
Spray Volume	15 GAL/AC
Mix Size	2 L

Date	By	Context	Notes
Apr-16-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check Cereal Rye							101	207	303	402
2	Untreated Check Bare Ground							102	204	308	403
3	Satellite Flex Cereal Rye	3.5 LBA/GAL	EW		1 lb ai/a	A	38.09 mL/mx	103	202	306	401
4	Satellite Flex Bare Ground	3.5 LBA/GAL	EW		1 lb ai/a	A	38.09 mL/mx	104	205	304	406
5	Satellite HydroCap Cereal Rye	3.8 LBA/GAL	SC		1 lb ai/a	A	35.08 mL/mx	105	201	305	407
6	Satellite HydroCap Bare Ground	3.8 LBA/GAL	SC		1 lb ai/a	A	35.08 mL/mx	106	208	307	408
7	Stealth Cereal Rye	3.3 LBA/GAL	EC		1 lb ai/a	A	40.4 mL/mx	107	203	302	405
8	Stealth Bare Ground	3.3 LBA/GAL	EC		1 lb ai/a	A	40.4 mL/mx	108	206	301	404

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
95.228	mL	Satellite Flex	3.5	LBA/GAL	EW	
87.710	mL	Satellite HydroCap	3.8	LBA/GAL	SC	
100.999	mL	Stealth	3.3	LBA/GAL	EC	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

# University of Tennessee

Trial ID: JCC-JR-CP	Location: Jackson, TN	<b>JR Cover Crop Study</b>
Protocol ID: JCC-JR-CP	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director: Clay Perkins	
	Sponsor Contact:	

## General Trial Information

**Study Director:** Clay Perkins  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** May-8-2019

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

## Contacts

**Study Director:** Clay Perkins

**Investigator:** Dr. Larry Steckel

## Site and Design

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT<sup>2</sup> **Treatments:** 5  
**Replications:** 4

**Study Design:** RACOB L Randomized Complete Block (RCB)

## Application Description

	A
<b>Application Date</b>	May-8-2019
<b>Appl. Start Time</b>	1:38 AM
<b>Appl. Stop Time</b>	1:48 AM
<b>Application Method</b>	SPRAY
<b>Application Timing</b>	PREPLA
<b>Application Placement</b>	BROFOL
<b>Applied By</b>	CP
<b>Appl. Entry Date</b>	Jun-3-2019
<b>Air Temperature Start, Stop</b>	89 F
<b>% Relative Humidity Start, Stop</b>	47
<b>Wind Velocity+Dir. Start</b>	4.5 MPH SE
<b>Wet Leaves (Y/N)</b>	N no
<b>Soil Temperature</b>	78 F
<b>% Cloud Cover</b>	20

## Application Equipment

	A
<b>Appl. Equipment</b>	BACKPACK
<b>Equipment Type</b>	SPRAYE
<b>Operation Pressure</b>	30 PSI
<b>Nozzle Type</b>	AIXR
<b>Nozzle Size</b>	11003
<b>Boom Length</b>	5 FT
<b>Ground Speed</b>	5 MPH
<b>Spray Volume</b>	15 GAL/AC
<b>Mix Size</b>	2 L

Date	By	Context	Notes
May-8-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

# University of Tennessee

Trial ID: JCC-JR-CP	Location: Jackson, TN	<b>JR Cover Crop Study</b>
Protocol ID: JCC-JR-CP	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director: Clay Perkins	
	Sponsor Contact:	

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Nontreated Check												101	204	303	402
2	WARRANT	3	LBA/GAL	ME	48 fl oz/a	A		15	GAL/AC	2	L	50.0 mL/mx	102	205	304	403
3	DUAL MAGNUM	7.62	LBA/GAL	EC	21 fl oz/a	A		15	GAL/AC	2	L	21.87 mL/mx	103	202	301	405
4	OUTLOOK	6	LB/GAL	SL	10 oz/a	A		15	GAL/AC	2	L	10.42 mL/mx	104	203	305	401
5	ZIDUA	0.85	LB/GAL	WG	2 oz/a	A		15	GAL/AC	2	L	1.997 g/mx	105	201	302	404

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
62.500	mL	WARRANT	3	LBA/GAL	ME	
27.344	mL	DUAL MAGNUM	7.62	LBA/GAL	EC	
13.021	mL	OUTLOOK	6	LB/GAL	SL	
2.496	g	ZIDUA	0.85	LB/GAL	WG	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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



# University of Tennessee

## Integrated Corn Herbicide Programs

Trial ID: MON 2019-01-24-08	Location: JACKSON	Trial Year: 2019
Protocol ID: 2019-01-24-08	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: David J Mayonado	
	Sponsor Contact:	

### General Trial Information

**Study Director:** David J Mayonado  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Mar-26-2019  
**Initiation Date:** Apr-24-2019

### Trial Location

**Country:** USA United States

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

### Objectives:

The objectives of this study are to increase internal knowledge of the combined Monsanto and Bayer corn portfolio as well as gain exposure and support of the academic community to Bayer corn product offerings and potential integrated weed control systems.

### Contacts

**Study Director:** David J Mayonado

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** ZEAMX Zea mays Corn  
**Entry Date:** Jun-4-2019  
**Variety:** P1197

### Pest Description

**Pest 1 Type:** W **Code:** AMAPA *Amaranthus palmeri*  
**Common Name:** Palmer amaranth **Entry Date:** Jun-4-2019

**Pest 2 Type:** W **Code:** IPOLA *Ipomoea lacunosa*  
**Common Name:** pitted morning glory **Entry Date:** Jun-4-2019

### Site and Design

**Treated Plot Width:** 5 FT **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup> **Treatments:** 18 **Tillage Type:** NOTILL no-till  
**Replications:** 4 **Study Design:** RACOB� Randomized Complete Block (RCB)

### Application Description

	A	B	C
<b>Application Date</b>	Apr-24-2019	May-21-2019	May-28-2019
<b>Appl. Start Time</b>	8:49 AM	8:25 AM	11:09 AM
<b>Appl. Stop Time</b>	9:13 AM	8:30 AM	11:19 AM
<b>Application Method</b>	SPRAY	SPRAY	SPRAY
<b>Application Timing</b>	PREPLA	POST	
<b>Application Placement</b>	BROADC	BROFOL	BROFOL
<b>Applied By</b>	CP	CP	CP
<b>Appl. Entry Date</b>	Jun-3-2019	Jun-4-2019	Jun-6-2019
<b>Air Temperature Start, Stop</b>	70 F	83 F	90 90 F
<b>% Relative Humidity Start, Stop</b>	66	64	61 61
<b>Wind Velocity+Dir. Start</b>	1 MPH NE	4 MPH E	9 MPH SW
<b>Wet Leaves (Y/N)</b>	Y yes	N no	N no
<b>Soil Temperature</b>	61 F	72 F	89 F
<b>% Cloud Cover</b>	0	0	60

# University of Tennessee

## Integrated Corn Herbicide Programs

Trial ID: MON 2019-01-24-08	Location: JACKSON	Trial Year: 2019
Protocol ID: 2019-01-24-08	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: David J Mayonado	
	Sponsor Contact:	

### Crop Stage At Each Application

	A	B	C
<b>Crop 1 Code, BBCH Scale</b>	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
<b>Stage Majority, Percent</b>		V5	V7

### Pest Stage At Each Application

	A	B	C
<b>Pest 1 Code, Type, Scale</b>	AMAPA W	AMAPA W	AMAPA W
<b>Height Average</b>		5 IN	3 IN
<b>Height Minimum, Maximum</b>		1 8	2 4
<b>Pest 2 Code, Type, Scale</b>	IPOLA W	IPOLA W	IPOLA W
<b>Height Average</b>		2 IN	3 IN
<b>Height Minimum, Maximum</b>		1 3	2 5

### Application Equipment

	A	B	C
<b>Appl. Equipment</b>	BACKPACK	BACKPACK	BCKPK
<b>Equipment Type</b>	SPRAYE	SPRAYE	BACCAI
<b>Operation Pressure</b>	30 PSI	30 PSI	35 PSI
<b>Nozzle Type</b>	AIXR	TTI	AIXR
<b>Nozzle Size</b>	11003	11003	025
<b>Nozzle Spacing</b>			20 IN
<b>Boom Length</b>	5 FT	5 FT	5 FT
<b>Boom Height</b>			16 IN
<b>Ground Speed</b>	4 MPH	4 MPH	4 MPH
<b>Carrier</b>			WATER
<b>Spray Volume</b>	15 GAL/AC	15 GAL/AC	
<b>Mix Size</b>	2 L	2 L	

Date	By	Context	Notes
Mar-26-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Lot Code	Rate Supplier	Rate Unit	Appl Code	Amt Product to Measure	Rep			
										1	2	3	4
1	HARNESS XTRA 5.6L	5.6 LB/GAL	SE			3.36 lb ai/a	A		79.99 mL/mx	101	214	310	418
2	HARNESS XTRA 5.6L BALANCE FLEXX	5.6 LB/GAL 2 LB/GAL	SE SC			2.8 lb ai/a 0.047 lb ai/a	A A		66.66 mL/mx 3.133 mL/mx	102	201	305	408
3	HARNESS XTRA 5.6L CORVUS	5.6 LB/GAL 2.63 LB/GAL	SE SC			2.8 lb ai/a 0.068 lb ai/a	A A		66.66 mL/mx 3.447 mL/mx	103	213	309	415
4	CORVUS ATRAZINE	2.63 LB/GAL 4 LB/GAL	SC SC			0.0925 lb ai/a 1 lb ai/a	A A		4.689 mL/mx 33.33 mL/mx	104	202	317	411
5	CORVUS HARNESS XTRA 5.6L	2.63 LB/GAL 5.6 LB/GAL	SC SE			0.0925 lb ai/a 2.24 lb ai/a	A A		4.689 mL/mx 53.33 mL/mx	105	218	316	414
6	HARNESS MAX ATRAZINE	3.85 LBA/GAL 4 LB/GAL	SE SC			1.92 lb ai/a 1 lb ai/a	A A		66.49 mL/mx 33.33 mL/mx	106	203	304	416
7	ACURON	3.44 LBA/GAL	SC			2.15 lb ai/a	A		83.32 mL/mx	107	209	311	409
8	RESICORE ATRAZINE	3.35 LBA/GAL 4 LB/GAL	EC SC			2.1 lb ai/a 1 lb ai/a	A A		83.57 mL/mx 33.33 mL/mx	108	216	318	404

# University of Tennessee

## Integrated Corn Herbicide Programs

Trial ID: MON 2019-01-24-08	Location: JACKSON	Trial Year: 2019
Protocol ID: 2019-01-24-08	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: David J Mayonado	
	Sponsor Contact:	

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Lot Code	Rate Supplier	Rate Unit	Appl Code	Amt Product to Measure	Rep			
										1	2	3	4
9	HARNESS MAX	3.85	LBA/GAL	SE		1.92	lb ai/a	A	66.49 mL/mx	109	217	308	413
	ATRAZINE	4	LB/GAL	SC		1	lb ai/a	A	33.33 mL/mx				
	DIFLEXX	4	LB/GAL	SC		0.25	lb ai/a	C	8.332 mL/mx				
	MISO	100 %		SL		1	% v/v	C	20.0 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	C	49.99 mL/mx				
10	HARNESS MAX	3.85	LBA/GAL	SE		1.92	lb ai/a	A	66.49 mL/mx	110	215	312	405
	ATRAZINE	4	LB/GAL	SC		1	lb ai/a	A	33.33 mL/mx				
	DIFLEXX DUO	2.13	LBA/GAL	SC		0.4	lb ai/a	C	25.04 mL/mx				
	METHYLATED OIL	100 %		SL		1	% v/v	C	20.0 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	C	49.99 mL/mx				
11	HARNESS MAX	3.85	LBA/GAL	SE		1.92	lb ai/a	A	66.49 mL/mx	111	205	303	401
	ATRAZINE	4	LB/GAL	SC		1	lb ai/a	A	33.33 mL/mx				
	CAPRENO	33.9 %		SL		0.0664	lb ai/a	C	3.125 mL/mx				
	NIS	100 %		SL		0.25	% v/v	C	4.999 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	C	49.99 mL/mx				
12	CORVUS	2.63	LB/GAL	SC		0.068	lb ai/a	A	3.447 mL/mx	112	208	302	406
	ATRAZINE	4	LB/GAL	SC		1	lb ai/a	A	33.33 mL/mx				
	HARNESS MAX	3.85	LBA/GAL	SE		1.68	lb ai/a	B	58.18 mL/mx				
	NI SURFACTANT	100 %		SL		0.25	% v/v	B	4.999 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	B	49.99 mL/mx				
13	HARNESS XTRA 5.6L	5.6	LB/GAL	SE		2.8	lb ai/a	A	66.66 mL/mx	113	210	301	410
	BALANCE FLEXX	2	LB/GAL	SC		0.047	lb ai/a	A	3.133 mL/mx				
	DIFLEXX	4	LB/GAL	SC		0.25	lb ai/a	C	8.332 mL/mx				
	METHYLATED OIL	100 %		SL		1	% v/v	C	20.0 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	C	49.99 mL/mx				
14	HARNESS XTRA 5.6L	5.6	LB/GAL	SE		2.8	lb ai/a	A	66.66 mL/mx	114	204	315	417
	BALANCE FLEXX	2	LB/GAL	SC		0.047	lb ai/a	A	3.133 mL/mx				
	CAPRENO	33.9 %		SL		0.0664	lb ai/a	C	3.125 mL/mx				
	NI SURFACTANT	100 %		SL		0.25	% v/v	C	4.999 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	C	49.99 mL/mx				
15	HARNESS MAX	3.85	LBA/GAL	SE		1.2	lb ai/a	A	41.55 mL/mx	115	211	306	407
	HARNESS MAX	3.85	LBA/GAL	SE		1.2	lb ai/a	B	41.55 mL/mx				
	NI SURFACTANT	100 %		SL		0.25	% v/v	B	4.999 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	B	49.99 mL/mx				
16	DEGREE XTRA	4.04	LB/GAL	CS		3.03	lb ai/a	B	99.99 mL/mx	116	212	307	402
	CAPRENO	33.9 %		SL		0.0664	lb ai/a	B	3.125 mL/mx				
	NI SURFACTANT	100 %		SL		0.25	% v/v	B	4.999 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	B	49.99 mL/mx				
17	HALEX GT	4.389	LBA/GAL	SL		1.98	lb ai/a	B	60.14 mL/mx	117	206	313	412
	ATRAZINE	4	LB/GAL	SC		1	lb ai/a	B	33.33 mL/mx				
	NI SURFACTANT	100 %		SL		0.25	% v/v	B	4.999 mL/mx				
	N-PAK AMS LIQUID	34 %		SL		2.5	% v/v	B	49.99 mL/mx				
18	BICEP II MAGNUM	5.5	LBA/GAL	SC		1	qt/a	A	33.33 mL/mx	118	207	314	403
	HALEX GT	4.39	LB/GAL	SC	4.38168 H	1.6	pt/a	C	26.67 mL/mx				
	AATREX 4L	4	LBA/GAL	SC		1	qt/a	C	33.33 mL/mx				
	NIS	100 %		SL		0.25	% v/v	C	4.999 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
499.946	mL	HARNESS XTRA 5.6L	5.6	LB/GAL	SE	
11.749	mL	BALANCE FLEXX	2	LB/GAL	SC	
20.340	mL	CORVUS	2.63	LB/GAL	SC	

# University of Tennessee

Trial ID: IFT CORN	Location: JACKSON	<b>ALITE 27 IN CORN</b>
Protocol ID: IFT	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director:	
	Sponsor Contact:	

## General Trial Information

Investigator: Dr. Larry Steckel

Trial Status: E established

ARM Trial Created On: Jun-12-2019

Initiation Date: Apr-30-2019

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Dr. Larry Steckel

## Crop Description

Crop 1: ZEAMX Zea mays Corn **BBCH Scale: BCOR**

Entry Date: Jun-12-2019

Variety: P1197

Attributes: RR LL

Planting Date: Apr-24-2019

## Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri

Common Name: Palmer amaranth Entry Date: Jun-12-2019

Pest 2 Type: W Code: IPOLA Ipomoea lacunosa

Common Name: pitted morning glory Entry Date: Jun-12-2019

## Site and Design

Treated Plot Width: 5 FT

Treated Plot Length: 30 FT

Treated Plot Area: 150 FT<sup>2</sup> Treatments: 10

Replications: 4

Study Design: RACOB L Randomized Complete Block (RCB)

## Application Description

	A	B	C
Application Date	Apr-30-2019	May-21-2019	May-29-2019
Appl. Start Time	2:47 PM	8:17 AM	2:20 PM
Appl. Stop Time	2:59 PM	8:31 AM	2:25 PM
Interval to Prev. Appl.		21 DAYS	8 DAYS
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	EPOST	MPOST
Application Placement	BROSOI	BROFOL	BROFOL
Applied By	CP	CP	CP
Appl. Entry Date	Jun-12-2019	Jun-12-2019	Jun-12-2019
Air Temperature Start, Stop	83 83 F	75 F	90 F
% Relative Humidity Start, Stop	60 60	61	50
Wind Velocity+Dir. Start	8 MPH	7 MPH SE	5 MPH SW
Wet Leaves (Y/N)	N no	Y yes	N no
Soil Temperature	76.8 F	71 F	90 F
% Cloud Cover	80	0	50

## Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Majority, Percent	PRE	V5	V6

# University of Tennessee

Trial ID: IFT CORN	Location: JACKSON	<b>ALITE 27 IN CORN</b>
Protocol ID: IFT	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Stage At Each Application			
	A	B	C
<b>Pest 1 Code, Type, Scale</b>	AMAPA W	AMAPA W	AMAPA W
<b>Height Average</b>		4 IN	1 IN
<b>Height Minimum, Maximum</b>		2 6	
<b>Pest 2 Code, Type, Scale</b>	IPOLA W	IPOLA W	IPOLA W
<b>Height Average</b>		2 IN	
<b>Height Minimum, Maximum</b>		1 3	

Application Equipment			
	A	B	C
<b>Appl. Equipment</b>	BACKPACK	BACKPACK	BACKPACK
<b>Equipment Type</b>	SPRAYE	SPRAYE	SPRAYE
<b>Operation Pressure</b>	30 PSI	30 PSI	30 PSI
<b>Nozzle Type</b>	AIXR	AIXR	AIXR
<b>Nozzle Size</b>	11003	11003	11003
<b>Boom Length</b>	5 FT	5 FT	5 FT
<b>Ground Speed</b>	4 MPH	4 MPH	4 MPH
<b>Spray Volume</b>	15 GAL/AC	15 GAL/AC	15 GAL/AC
<b>Mix Size</b>	2 L	2 L	2 L

Date	By	Context	Notes
Jun-12-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-12-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Lot Type	Registration Code	Re-Entry Interval	Rate Supplier	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measur
1	CHECK													
2	CAPAROL 4L	4 LBA/GAL	F				16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL/
	COTORAN 4L	4 LBA/GAL	F				16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL/
	LIBERTY 280 SL	2.34 LBA/GAL	L				32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL/
	DUAL MAGNUM	7.62 LBA/GAL	EC				16 oz/a	EPOST	B	15 GAL/AC		2 L		16.67 mL/
3	ALITE 27			SC			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL/
	COTORAN 4L	4 LBA/GAL	F				16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL/
	OUTLOOK	6 LB/GAL	SL				16 oz/a	EPOST	B	15 GAL/AC		2 L		16.67 mL/
	LIBERTY 280 SL	2.34 LBA/GAL	L				43 oz/a	EPOST	B	15 GAL/AC		2 L		44.79 mL/
	Ammonium Sulfate	100 %		SG			2.517 lb/a	EPOST	B	15 GAL/AC		2 L		40.21 g/m
	LIBERTY 280 SL	2.34 LBA/GAL	L				43 oz/a	MPOST	C	15 GAL/AC		2 L		44.79 mL/
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL				44 oz/a	MPOST	C	15 GAL/AC		2 L		45.83 mL/
	Ammonium Sulfate	100 %		SG			2.517 lb/a	MPOST	C	15 GAL/AC		2 L		40.21 g/m
4	ALITE 27			SC	480	GAL	2.994 pt/a	PRE	A	15 GAL/AC		2 L		49.9 mL/m
	PROWL H2O	3.8 LB/GAL	CS		455	GAL	1 qt/a	PRE	A	15 GAL/AC		2 L		33.33 mL/
	OUTLOOK	6 LB/GAL	SL		719	GAL	16 oz/a	EPOST	B	15 GAL/AC		2 L		16.67 mL/
	LIBERTY 280 SL	2.34 LBA/GAL	L		280	GAL	43 oz/a	EPOST	B	15 GAL/AC		2 L		44.79 mL/
	Ammonium Sulfate	100 %		SG	100	%AW/W	2.517 lb/a	EPOST	B	15 GAL/AC		2 L		40.21 g/m
	LIBERTY 280 SL	2.34 LBA/GAL	L		280	GAL	43 oz/a	MPOST	C	15 GAL/AC		2 L		44.79 mL/
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		660	GAL	44 oz/a	MPOST	C	15 GAL/AC		2 L		45.83 mL/
	Ammonium Sulfate	100 %		SG	100	%AW/W	2.517 lb/a	MPOST	C	15 GAL/AC		2 L		40.21 g/m

# University of Tennessee

Trial ID: IFT CORN Protocol ID: IFT Project ID:	Location: JACKSON Investigator: Dr. Larry Steckel Study Director: Sponsor Contact:	<b>ALITE 27 IN CORN</b> Trial Year: 2019
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Reps: 4      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Lot Code	Registration Number	Re-Entry Interval	Supplier	Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	
5	ALITE 27			SC	480	GAL			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL	
	COTORAN 4L	4	LBA/GAL	F	480	GAL		H	16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	PROWL H2O	3.8	LB/GAL	CS	455	GAL			1 qt/a	PRE	A	15 GAL/AC		2 L		33.33 mL	
	OUTLOOK	6	LB/GAL	SL	719	GAL			16 oz/a	EPOST	B	15 GAL/AC		2 L		16.67 mL	
	LIBERTY 280 SL	2.34	LBA/GAL	L	280	GAL			43 oz/a	EPOST	B	15 GAL/AC		2 L		44.79 mL	
	Ammonium Sulfate	100	%		SG	100	%AW/W			2.517 lb/a	EPOST	B	15 GAL/AC		2 L		40.21 g/m
	LIBERTY 280 SL	2.34	LBA/GAL	L	280	GAL			43 oz/a	MPOST	C	15 GAL/AC		2 L		44.79 mL	
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	660	GAL			44 oz/a	MPOST	C	15 GAL/AC		2 L		45.83 mL	
Ammonium Sulfate	100	%		SG	100	%AW/W			2.517 lb/a	MPOST	C	15 GAL/AC		2 L		40.21 g/m	
6	ALITE 27			SC	480	GAL			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL	
	CAPAROL 4L	4	LBA/GAL	F	SL	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	COTORAN 4L	4	LBA/GAL	F	SC	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	LIBERTY 280 SL	2.34	LBA/GAL	L	2.34	LB/GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ALITE 27			SC	480	GAL			2.994 oz/a	EPOST	B	15 GAL/AC		2 L		3.119 mL	
7	ALITE 27			SC	480	GAL			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL	
	CAPAROL 4L	4	LBA/GAL	F	SL	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	COTORAN 4L	4	LBA/GAL	F	SC	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	LIBERTY 280 SL	2.34	LBA/GAL	L	2.34	LB/GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ALITE 27			SC	480	GAL			2.994 oz/a	EPOST	B	15 GAL/AC		2 L		3.119 mL	
8	ALITE 27			SC	480	GAL			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL	
	CAPAROL 4L	4	LBA/GAL	F	SL	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	COTORAN 4L	4	LBA/GAL	F	SC	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	LIBERTY 280 SL	2.34	LBA/GAL	L	2.34	LB/GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ALITE 27			SC	480	GAL			1.5 oz/a	EPOST	B	15 GAL/AC		2 L		1.562 mL	
9	ALITE 27			SC	480	GAL			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL	
	CAPAROL 4L	4	LBA/GAL	F	SL	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	COTORAN 4L	4	LBA/GAL	F	SC	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	LIBERTY 280 SL	2.34	LBA/GAL	L	280	GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	660	GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ALITE 27			SC	480	GAL			2.994 oz/a	EPOST	B	15 GAL/AC		2 L		3.119 mL	
10	ALITE 27			SC	480	GAL			2.994 oz/a	PRE	A	15 GAL/AC		2 L		3.119 mL	
	CAPAROL 4L	4	LBA/GAL	F	SL	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	COTORAN 4L	4	LBA/GAL	F	SC	480	GAL		16 oz/a	PRE	A	15 GAL/AC		2 L		16.67 mL	
	LIBERTY 280 SL	2.34	LBA/GAL	L	280	GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	660	GAL			32 oz/a	EPOST	B	15 GAL/AC		2 L		33.33 mL	
	ALITE 27			SC	480	GAL			1.5 oz/a	EPOST	B	15 GAL/AC		2 L		1.562 mL	

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
20.833	mL	CAPAROL 4L	4	LBA/GAL	F	
41.667	mL	COTORAN 4L	4	LBA/GAL	F	
153.646	mL	LIBERTY 280 SL	2.34	LBA/GAL	L	
20.833	mL	DUAL MAGNUM	7.62	LBA/GAL	EC	
3.898	mL	ALITE 27			SC	
20.833	mL	OUTLOOK	6	LB/GAL	SL	
100.534	g	Ammonium Sulfate	100	%	SG	
57.292	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	
97.469	mL	ALITE 27			SC	480
83.333	mL	PROWL H2O	3.8	LB/GAL	CS	455
41.667	mL	OUTLOOK	6	LB/GAL	SL	719
307.291	mL	LIBERTY 280 SL	2.34	LBA/GAL	L	280
201.068	g	Ammonium Sulfate	100	%	SG	100
197.916	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	660

# University of Tennessee

Trial ID: JCBASFC41 Protocol ID: MKD-H-2019-US-C41 Project ID:	<b>Liberty / System comparison / LibertyLink corn / Efficacy, tolerance</b> Location: Jackson, TN      Trial Year: 2019 Investigator: Dr. Larry Steckel Study Director: Sponsor Contact: Dr. Greg Stapleton	
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<b>General Trial Information</b> Investigator: Dr. Larry Steckel  Trial Status: E      established ARM Trial Created On: Mar-27-2019  Conducted Under GLP: No Conducted Under GEP: No
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Investigator: Dr. Larry Steckel
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<b>Crop Description</b> Crop 1: ZEAMX Zea mays      Corn Entry Date: Jun-3-2019 Planting Date: Apr-23-2019  Row Spacing: 30      IN Emergence Date: Apr-29-2019  Planting Method: PLANTD planted
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<b>Pest Description</b> Pest 1 Type: W      Code: AMAPA Amaranthus palmeri Common Name: Palmer amaranth      Entry Date: Jun-3-2019  Pest 2 Type: W      Code: IPOLA Ipomoea lacunosa Common Name: pitted morning glory      Entry Date: Jun-3-2019
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<b>Site and Design</b> Treated Plot Width: 5 FT Treated Plot Length: 30 FT Treated Plot Area: 150 FT <sup>2</sup> Treatments: 14 Replications: 4      Study Design: RACOB L Randomized Complete Block (RCB)
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<b>Application Description</b>		
	<b>A</b>	<b>B</b>
Application Date	Apr-23-2019	May-21-2019
Appl. Start Time	2:00 PM	7:30 AM
Appl. Stop Time	2:12 PM	7:53 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POSPOS
Application Placement	BROFOL	BROFOL
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-3-2019
Air Temperature Start, Stop	78 F	72 F
% Relative Humidity Start, Stop	49	77
Wind Velocity+Dir. Start	7 MPH SW	7 MPH SSE
Wet Leaves (Y/N)	N no	N no
Soil Temperature	68 F	68.5 F
% Cloud Cover	20	0

<b>Crop Stage At Each Application</b>		
	<b>A</b>	<b>B</b>
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR
Days after Emergence	-6	22
Stage Majority, Percent		v5

# University of Tennessee

Trial ID: JCBASFC41 Protocol ID: MKD-H-2019-US-C41 Project ID:	<b>Liberty / System comparison / LibertyLink corn / Efficacy, tolerance</b> Location: Jackson, TN Investigator: Dr. Larry Steckel Study Director: Sponsor Contact: Dr. Greg Stapleton	Trial Year: 2019
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Pest Stage At Each Application		
	A	B
<b>Pest 1 Code, Type, Scale</b>	AMAPA W	AMAPA W
<b>Height Average</b>		3 in
<b>Height Minimum, Maximum</b>		1 6
<b>Pest 2 Code, Type, Scale</b>	IPOLA W	IPOLA W
<b>Height Average</b>		2 in
<b>Height Minimum, Maximum</b>		1 3

Application Equipment		
	A	B
<b>Appl. Equipment</b>	BCKPK	BACKPACK
<b>Equipment Type</b>	BACCAI	SPRAYE
<b>Operation Pressure</b>	30 PSI	30 PSI
<b>Nozzle Type</b>	AIXR	AIXR
<b>Nozzle Size</b>	003	11003
<b>Nozzle Spacing</b>	20 IN	
<b>Boom Length</b>	5 FT	5 FT
<b>Boom Height</b>	16 IN	
<b>Ground Speed</b>	4 MPH	5 MPH
<b>Carrier</b>	WATER	
<b>Spray Volume</b>		15 GAL/AC
<b>Mix Size</b>		2 L

Date	By	Context	Notes
Mar-27-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Appl Unit	Spray Code	Volume Volume	Mix Unit	Mix Size	Amt to Measure	Product Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	UNTREATED												101	204	311	408
2	Verdict	2 LBA/GAL		EC	10 oz/a	A		15 GAL/AC	2 L		10.42 mL/mx		102	213	312	403
	Atrazine	4 LBA/GAL		F	1 qt/a	A		15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B		15 GAL/AC	2 L		33.33 mL/mx					
	Ammonium Sulfate	100 %		SG	3 lb/a	B		15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL		F	1 qt/a	B		15 GAL/AC	2 L		33.33 mL/mx					
3	Verdict	2 LBA/GAL		EC	10 oz/a	A		15 GAL/AC	2 L		10.42 mL/mx		103	209	305	406
	Atrazine	4 LBA/GAL		F	1 qt/a	A		15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B		15 GAL/AC	2 L		33.33 mL/mx					
	STATUS	56 %AW/W		SG	2.5 oz/a	B		15 GAL/AC	2 L		2.496 g/mx					
	Ammonium Sulfate	100 %		SG	3 lb/a	B		15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL		F	1 qt/a	B		15 GAL/AC	2 L		33.33 mL/mx					
4	Verdict	2 LBA/GAL		EC	10 oz/a	A		15 GAL/AC	2 L		10.42 mL/mx		104	212	310	402
	Atrazine	4 LBA/GAL		F	1 qt/a	A		15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B		15 GAL/AC	2 L		33.33 mL/mx					
	ARMEZON	2.8 LBA/GAL		SL	1 oz/a	B		15 GAL/AC	2 L		1.042 mL/mx					
	Ammonium Sulfate	100 %		SG	3 lb/a	B		15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL		F	1 qt/a	B		15 GAL/AC	2 L		33.33 mL/mx					
5	Verdict	2 LBA/GAL		EC	10 oz/a	A		15 GAL/AC	2 L		10.42 mL/mx		105	203	309	405
	Atrazine	4 LBA/GAL		F	1 qt/a	A		15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B		15 GAL/AC	2 L		33.33 mL/mx					
	ARMEZON PRO	5.36 LB/GAL		L	16 oz/a	B		15 GAL/AC	2 L		16.67 mL/mx					
	Ammonium Sulfate	100 %		SG	3 lb/a	B		15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL		F	1 qt/a	B		15 GAL/AC	2 L		33.33 mL/mx					



# University of Tennessee

**Liberty / System comparison / LibertyLink corn / Efficacy, tolerance**

Trial ID: JCBASFC41      Location: Jackson, TN      Trial Year: 2019  
 Protocol ID: MKD-H-2019-US-C41      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director:  
 Sponsor Contact: Dr. Greg Stapleton

Reps: 4      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Spray Code	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
6	Verdict	2 LBA/GAL	EC	10 oz/a	A			15 GAL/AC	2 L		10.42 mL/mx		106	202	314	401
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL	L	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	ZIDUA SC	4.17 LBA/GAL	SC	4 oz/a	B			15 GAL/AC	2 L		4.167 mL/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
7	Verdict	2 LBA/GAL	EC	10 oz/a	A			15 GAL/AC	2 L		10.42 mL/mx		107	210	302	404
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL	L	22 oz/a	B			15 GAL/AC	2 L		22.92 mL/mx					
	STATUS	56 %AW/W	SG	5 oz/a	B			15 GAL/AC	2 L		4.993 g/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
8	Verdict	2 LBA/GAL	EC	10 oz/a	A			15 GAL/AC	2 L		10.42 mL/mx		108	214	304	413
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
9	Verdict	2 LBA/GAL	EC	10 oz/a	A			15 GAL/AC	2 L		10.42 mL/mx		109	207	306	412
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	STATUS	6 %AW/W	SG	2.5 oz/a	B			15 GAL/AC	2 L		2.496 g/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
10	Verdict	2 LBA/GAL	EC	10 oz/a	A			15 GAL/AC	2 L		10.42 mL/mx		110	205	307	409
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	ARMEZON	2.8 LBA/GAL	SL	1 oz/a	B			15 GAL/AC	2 L		1.042 mL/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
11	RESICORE	3.29 LBA/GAL	F	2.5 qt/a	A			15 GAL/AC	2 L		83.33 mL/mx		111	211	308	410
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	DURANGO DMA	5.4 LBAE/GAL	SL	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
12	RESICORE	3.29 LBA/GAL	F	2.5 qt/a	A			15 GAL/AC	2 L		83.33 mL/mx		112	201	313	407
	Atrazine	4 LBA/GAL	F	1 qt/a	A			15 GAL/AC	2 L		33.33 mL/mx					
	LIBERTY 280 SL	2.34 LBA/GAL	L	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	STATUS	56 %AW/W	L	2.5 oz/a	B			15 GAL/AC	2 L		2.604 mL/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
13	ACURON	3.44 LB/GAL	F	80 oz/a	A			15 GAL/AC	2 L		83.33 mL/mx		113	208	301	414
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					
14	ACURON	3.44 LB/GAL	F	80 oz/a	A			15 GAL/AC	2 L		83.33 mL/mx		114	206	303	411
	LIBERTY 280 SL	2.34 LBA/GAL	L	32 oz/a	B			15 GAL/AC	2 L		33.33 mL/mx					
	STATUS	56 %AW/W	SG	2.5 oz/a	B			15 GAL/AC	2 L		2.496 g/mx					
	Ammonium Sulfate	100 %	SG	3 lb/a	B			15 GAL/AC	2 L		47.93 g/mx					
	Atrazine	4 LBA/GAL	F	1 qt/a	B			15 GAL/AC	2 L		33.33 mL/mx					

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
117.187	mL	Verdict	2	LBA/GAL	EC	

# University of Tennessee

## Compare Weed Control in Cereal Rye and Bare Ground with Satellite Formulations

Trial ID: usglxma19	Location: TN	Trial Year: 2019
Protocol ID: H19USGLXMA-SATL-TN-16-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Larry Steckel	
	Sponsor Contact: Clyde Smith	

### General Trial Information

**Study Director:** Larry Steckel  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Apr-16-2019

### Trial Location

**Country:** USA United States

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

### Contacts

**Study Director:** Larry Steckel

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max Soybean

**Crop 2:** SECCE Secale cereale Rye

**Crop 3:** TRFPR Trifolium pratense Red clover

### Pest Description

**Pest 1 Type:** W **Code:** AMAPA *Amaranthus palmeri*  
**Common Name:** Palmer amaranth

### Site and Design

**Treated Plot Width:** 5 FT

**Treated Plot Length:** 30 FT

**Treated Plot Area:** 150 FT<sup>2</sup> **Treatments:** 8  
**Replications:** 4

**Site Type:** FIELD field

**Tillage Type:** NOTILL no-till

**Study Design:** RACOB� Randomized Complete Block (RCB)

### Application Description

	A
<b>Application Date</b>	May-8-2019
<b>Appl. Start Time</b>	1:50 AM
<b>Appl. Stop Time</b>	1:59 AM
<b>Application Method</b>	SPRAY
<b>Application Timing</b>	PREPLA
<b>Application Placement</b>	BROFOL
<b>Applied By</b>	CP
<b>Appl. Entry Date</b>	Jun-3-2019
<b>Air Temperature Start, Stop</b>	89 F
<b>% Relative Humidity Start, Stop</b>	47
<b>Wind Velocity+Dir. Start</b>	4.5 MPH SE
<b>Wet Leaves (Y/N)</b>	N no
<b>Soil Temperature</b>	78 F
<b>% Cloud Cover</b>	20

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY
<b>Crop 2 Code, BBCH Scale</b>	SECCE BCER
<b>Crop 3 Code, BBCH Scale</b>	TRFPR BDIC

### Pest Stage At Each Application

	A
<b>Pest 1 Code, Type, Scale</b>	AMAPA W

# University of Tennessee

## Compare Weed Control in Cereal Rye and Bare Ground with Satellite Formulations

Trial ID: usglxma19	Location: TN	Trial Year: 2019
Protocol ID: H19USGLXMA-SATL-TN-16-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Larry Steckel	
	Sponsor Contact: Clyde Smith	

### Application Equipment

	A
<b>Appl. Equipment</b>	BACKPACK
<b>Equipment Type</b>	SPRAYE
<b>Operation Pressure</b>	30 PSI
<b>Nozzle Type</b>	AIXR
<b>Nozzle Size</b>	11003
<b>Boom Length</b>	5 FT
<b>Ground Speed</b>	5 MPH
<b>Spray Volume</b>	15 GAL/AC
<b>Mix Size</b>	2 L

Date	By	Context	Notes
Apr-16-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check Cereal Rye							101	207	303	402
2	Untreated Check Bare Ground							102	204	308	403
3	Satellite Flex Cereal Rye	3.5 LBA/GAL	EW		1 lb ai/a	A	38.09 mL/mx	103	202	306	401
4	Satellite Flex Bare Ground	3.5 LBA/GAL	EW		1 lb ai/a	A	38.09 mL/mx	104	205	304	406
5	Satellite HydroCap Cereal Rye	3.8 LBA/GAL	SC		1 lb ai/a	A	35.08 mL/mx	105	201	305	407
6	Satellite HydroCap Bare Ground	3.8 LBA/GAL	SC		1 lb ai/a	A	35.08 mL/mx	106	208	307	408
7	Stealth Cereal Rye	3.3 LBA/GAL	EC		1 lb ai/a	A	40.4 mL/mx	107	203	302	405
8	Stealth Bare Ground	3.3 LBA/GAL	EC		1 lb ai/a	A	40.4 mL/mx	108	206	301	404

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
95.228	mL	Satellite Flex	3.5	LBA/GAL	EW	
87.710	mL	Satellite HydroCap	3.8	LBA/GAL	SC	
100.999	mL	Stealth	3.3	LBA/GAL	EC	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

# University of Tennessee

Trial ID: select tankmix LS test 2 L	Location:	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

## General Trial Information

Investigator: Dr. Larry Steckel

Trial Status: S setup  
 ARM Trial Created On: Jun-1-2019

Conducted Under GLP: No  
 Conducted Under GEP: No

Investigator: Dr. Larry Steckel

## Site and Design

Treated Plot Width: 6.33 FT

Treated Plot Length: 30 FT

Treated Plot Area: 189.9 FT<sup>2</sup> Treatments: 10

Replications: 4

Study Design: RACOB L Randomized Complete Block (RCB)

## Application Equipment

	A	
Spray Volume	15	GAL/AC
Mix Overage	5	%
Mix Size	2	L

Date	By	Context	Notes
Jun-1-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.

Reps: 4

Plots: 6.33 by 30 feet

Spray vol: 15 GAL/AC

Mix Size: 2 L (total for 4 plots; minimum=0.99 L, overage=95.24 mL)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1	Assure COC	0.8 100 %	LBA/GAL	EC SL	10 fl oz/a 0.25 % v/v	POST POST	A A	15 15	GAL/AC GAL/AC	2 2	L L	10.42 mL/mx 4.999 mL/mx		101	205	310	404
2	Engenia Select 2EC Dual Magnum	5 2 7.62	LBAE/GAL LBA/GAL LBA/GAL	SL F SL	12.8 fl oz/a 8 fl oz/a 16 fl oz/a	POST POST POST	A A A	15 15 15	GAL/AC GAL/AC GAL/AC	2 2 2	L L L	13.33 mL/mx 8.333 mL/mx 16.67 mL/mx		105	204	301	406
3	Engenia Select 2EC Dual Magnum COC	5 2 7.62 100 %	LBAE/GAL LBA/GAL LBA/GAL %	SL F SL SL	12.8 fl oz/a 8 fl oz/a 16 fl oz/a 0.25 % v/v	POST POST POST POST	A A A A	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	13.33 mL/mx 8.333 mL/mx 16.67 mL/mx 4.999 mL/mx		109	202	308	405
4	Engenia Select 2EC Dual Magnum COC	5 2 7.62 100 %	LBAE/GAL LBA/GAL LBA/GAL %	SL F SL SL	12.8 fl oz/a 16 fl oz/a 8 fl oz/a 0.5 % v/v	POST POST POST POST	A A A A	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	13.33 mL/mx 16.67 mL/mx 8.333 mL/mx 9.999 mL/mx		102	210	304	408
5	Engenia Select 2EC Dual Magnum COC	5 2 7.62 100 %	LBAE/GAL LBA/GAL LBA/GAL %	SL F SL SL	12.8 fl oz/a 8 fl oz/a 16 fl oz/a 1 % v/v	POST POST POST POST	A A A A	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	13.33 mL/mx 8.333 mL/mx 16.67 mL/mx 20.0 mL/mx		110	206	309	401
6	Engenia Select 2EC Dual Magnum	5 2 7.62	LBAE/GAL LBA/GAL LBA/GAL	SL F SL	12.8 fl oz/a 12 fl oz/a 16 fl oz/a	POST POST POST	A A A	15 15 15	GAL/AC GAL/AC GAL/AC	2 2 2	L L L	13.33 mL/mx 12.5 mL/mx 16.67 mL/mx		103	209	302	403
7	Engenia Select 2EC Dual Magnum COC	5 2 7.62 100 %	LBAE/GAL LBA/GAL LBA/GAL %	SL F SL SL	12.8 fl oz/a 12 fl oz/a 16 fl oz/a 0.25 % v/v	POST POST POST POST	A A A A	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	13.33 mL/mx 12.5 mL/mx 16.67 mL/mx 4.999 mL/mx		104	208	307	410
8	Engenia Select 2EC Dual Magnum COC	5 2 7.62 100 %	LBAE/GAL LBA/GAL LBA/GAL %	SL F SL SL	12.8 fl oz/a 16 fl oz/a 12 fl oz/a 0.5 % v/v	POST POST POST POST	A A A A	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	13.33 mL/mx 16.67 mL/mx 12.5 mL/mx 9.999 mL/mx		106	207	303	409

# University of Tennessee

Trial ID: select tankmix LS test 2 L	Location:	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

Reps: 4      Plots: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.99 L, overage=95.24 mL)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Spray Volume Unit	Mix Size Unit	Mix Unit	Amt Product to Measure	Rep			
												1	2	3	4
9	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	POST	A	15 GAL/AC	2 L		13.33 mL/mx	108	201	305	407
	Select 2EC	2	LBA/GAL	F	12 fl oz/a	POST	A	15 GAL/AC	2 L		12.5 mL/mx				
	Dual Magnum	7.62	LBA/GAL	SL	16 fl oz/a	POST	A	15 GAL/AC	2 L		16.67 mL/mx				
	COC	100	%	SL	1 % v/v	POST	A	15 GAL/AC	2 L		20.0 mL/mx				
10	Engenia	5	LBAE/GAL	SL	12.8 fl oz/a	POST	A	15 GAL/AC	2 L		13.33 mL/mx	107	203	306	402
	Select 2EC	2	LBA/GAL	F	12 fl oz/a	POST	A	15 GAL/AC	2 L		12.5 mL/mx				
	Dual Magnum	7.62	LBA/GAL	SL	16 fl oz/a	POST	A	15 GAL/AC	2 L		16.67 mL/mx				
	Roundup PowerMax	5.5	LBA/GAL	F	32 fl oz/a	POST	A	15 GAL/AC	2 L		33.33 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
13.021	mL	Assure	.8	LBA/GAL	EC	
93.740	mL	COC	100	%	SL	
150.000	mL	Engenia	5	LBAE/GAL	SL	
135.417	mL	Select 2EC	2	LBA/GAL	F	
171.875	mL	Dual Magnum	7.62	LBA/GAL	SL	
41.667	mL	Roundup PowerMax	5.5	LBA/GAL	F	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 2 L.

# University of Tennessee

## Preview, Tripzin, Moccasin MTZ/Soybean/Broadleaf & Grass Weeds

Trial ID: H19USGLXMA-PRVW-TN-14-CS	Location: TN	Trial Year: 2019
Protocol ID: H19USGLXMA-PRVW-TN-14-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Steckel	
	Sponsor Contact: Clyde Smith	

### General Trial Information

**Study Director:** Steckel  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Mar-26-2019  
**Planned Completion Date:** Oct-31-2019

### Trial Location

**Country:** USA United States

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

**Keywords:** Preview, Tripzin ZC, Moccasin MTZ, soybean, preemergence

### Objectives:

Demonstrate utility of UPL soybean herbicide pre-mixes alone and with additional active ingredient.

### Contacts

**Study Director:** Steckel

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** GLXMA Glycine max Soybean

### Pest Description

**Pest 1 Type:** W **Code:** AMAPA **Amaranthus palmeri**  
**Common Name:** Palmer amaranth

### Site and Design

Treated Plot Width: 10 FT	<b>Site Type:</b> FIELD field	
Treated Plot Length: 30 FT		
Treated Plot Area: 300 FT <sup>2</sup>	<b>Treatments:</b> 22	<b>Tillage Type:</b> NOTILL no-till
<b>Replications:</b> 4	<b>Study Design:</b> RACOBL Randomized Complete Block (RCB)	

### Field Prep./Maintenance:

Establish trial utilizing normal practices

### Application Description

	A
<b>Application Date</b>	May-15-2019
<b>Appl. Start Time</b>	8:55 AM
<b>Appl. Stop Time</b>	9:30 AM
<b>Application Method</b>	SPRAY
<b>Application Timing</b>	PREPLA
<b>Application Placement</b>	BROFOL
<b>Applied By</b>	JR
<b>Appl. Entry Date</b>	Jun-3-2019
<b>Air Temperature Start, Stop</b>	60 F
<b>% Relative Humidity Start, Stop</b>	71
<b>Wind Velocity+Dir. Start</b>	5.6 MPH NNE
<b>Wet Leaves (Y/N)</b>	N no
<b>Soil Temperature</b>	62 F
<b>% Cloud Cover</b>	99

### Crop Stage At Each Application

	A
<b>Crop 1 Code, BBCH Scale</b>	GLXMA BSOY

# University of Tennessee

## Preview, Tripzin, Moccasin MTZ/Soybean/Broadleaf & Grass Weeds

Trial ID: H19USGLXMA-PRVW-TN-14-CS	Location: TN	Trial Year: 2019
Protocol ID: H19USGLXMA-PRVW-TN-14-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Steckel	
	Sponsor Contact: Clyde Smith	

### Pest Stage At Each Application

	<b>A</b>
<b>Pest 1 Code, Type, Scale</b>	AMAPA W

### Application Equipment

	<b>A</b>
<b>Appl. Equipment</b>	BACKPACK
<b>Equipment Type</b>	SPRAYE
<b>Operation Pressure</b>	35 PSI
<b>Nozzle Type</b>	AIXR
<b>Nozzle Size</b>	110025
<b>Boom Length</b>	5 FT
<b>Ground Speed</b>	5 MPH
<b>Spray Volume</b>	15 GAL/AC
<b>Mix Size</b>	2 L

Date	By	Context	Notes
Mar-26-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep			
									1	2	3	4
1	Check					PRE	A		101	221	306	410
2	KFD-302-03	3.28 LB/GAL		SC	0.5 lb ai/a	PRE	A	20.32 mL/mx	102	204	307	413
3	Tripzin ZC	4 LB/GAL		ZC	1.38 lb ai/a	PRE	A	45.99 mL/mx	103	202	322	418
4	Moccasin MTZ	4.47 LB/GAL		EC	1.47 lb ai/a	PRE	A	43.84 mL/mx	104	203	316	419
5	Moccasin MTZ Shutdown	4.47 LB/GAL 4.16 LB/GAL		EC SC	1.47 lb ai/a 0.25 lb ai/a	PRE PRE	A A	43.84 mL/mx 8.012 mL/mx	105	214	319	411
6	KFD-302-03 KFD-308-02	3.28 LB/GAL 3 LB/GAL		SC CS	0.5 lb ai/a 0.75 lb ai/a	PRE PRE	A A	20.32 mL/mx 33.33 mL/mx	106	210	320	406
7	Tripzin ZC KFD-308-02	4 LB/GAL 3 LB/GAL		ZC CS	1.38 lb ai/a 0.75 lb ai/a	PRE PRE	A A	45.99 mL/mx 33.33 mL/mx	107	205	309	416
8	Moccasin MTZ KFD-308-02	4.47 LB/GAL 3 LB/GAL		EC CS	1.47 lb ai/a 0.75 lb ai/a	PRE PRE	A A	43.84 mL/mx 33.33 mL/mx	108	209	305	403
9	KFD-302-03 KFD-365-02	3.28 LB/GAL 120 g/L		SC SL	0.5 lb ai/a 0.0313 lb ai/a	PRE PRE	A A	20.32 mL/mx 4.173 mL/mx	109	211	317	402
10	Tripzin ZC KFD-365-02	4 LB/GAL 120 g/L		ZC SL	1.38 lb ai/a 0.0313 lb ai/a	PRE PRE	A A	45.99 mL/mx 4.173 mL/mx	110	207	302	414
11	Moccasin MTZ KFD-365-02	4.47 LB/GAL 120 g/L		EC SL	1.47 lb ai/a 0.0313 lb ai/a	PRE PRE	A A	43.84 mL/mx 4.173 mL/mx	111	212	313	405
12	KFD-302-03 Firstrate	3.28 LB/GAL 0.84 %		SC WG	0.5 lb ai/a .000394 lb ai/a	PRE PRE	A A	20.32 mL/mx 0.7494 g/mx	112	216	315	412
13	Tripzin ZC Firstrate	4 LB/GAL 0.84 %		ZC WG	1.38 lb ai/a .000394 lb ai/a	PRE PRE	A A	45.99 mL/mx 0.7494 g/mx	113	208	311	409
14	Moccasin MTZ Firstrate	4.47 LB/GAL 0.84 %		EC WG	1.47 lb ai/a .000394 lb ai/a	PRE PRE	A A	43.84 mL/mx 0.7494 g/mx	114	201	321	404
15	KFD-302-03 Valor SX	3.28 LB/GAL 51 %		SC WG	0.5 lb ai/a 0.064 lb ai/a	PRE PRE	A A	20.32 mL/mx 2.005 g/mx	115	218	304	420
16	Tripzin ZC Valor SX	4 LB/GAL 51 %		ZC WG	1.38 lb ai/a 0.064 lb ai/a	PRE PRE	A A	45.99 mL/mx 2.005 g/mx	116	213	308	417
17	Moccasin MTZ Valor SX	4.47 LB/GAL 51 %		EC WG	1.47 lb ai/a 0.064 lb ai/a	PRE PRE	A A	43.84 mL/mx 2.005 g/mx	117	206	314	401
18	KFD-302-03 Outlook	3.28 LB/GAL 6.0 LB/GAL		SC EC	0.5 lb ai/a 0.84 lb ai/a	PRE PRE	A A	20.32 mL/mx 18.66 mL/mx	118	217	318	408

# University of Tennessee

## Preview, Tripzin, Moccasin MTZ/Soybean/Broadleaf & Grass Weeds

Trial ID: H19USGLXMA-PRVW-TN-14-CS	Location: TN	Trial Year: 2019
Protocol ID: H19USGLXMA-PRVW-TN-14-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Steckel	
	Sponsor Contact: Clyde Smith	

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
19	Tripzin ZC Outlook	4 LB/GAL 6 LB/GAL		ZC EC	1.38 lb ai/a 0.84 lb ai/a	PRE PRE	A A	45.99 mL/mx 18.66 mL/mx	119	215	312	415
20	Authority MTZ	45 %		WG	0.45 lb ai/a	PRE	A	15.98 g/mx	120	219	303	421
21	Sharpen	2.85 LBA/GAL		SC	0.0223 lb ai/a	PRE	A	1.043 mL/mx	121	222	301	422
22	Outlook	6 LBA/GAL		EC	0.84 lb ai/a	PRE	A	18.66 mL/mx	122	220	310	407

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
152.422	mL	KFD-302-03	3.28	LB/GAL	SC	
344.962	mL	Tripzin ZC	4	LB/GAL	ZC	
328.823	mL	Moccasin MTZ	4.47	LB/GAL	EC	
10.015	mL	Shutdown	4.16	LB/GAL	SC	
124.986	mL	KFD-308-02	3	LB/GAL	CS	
15.648	mL	KFD-365-02	120	g/L	SL	
2.810	g	Firstrate	.84	%	WG	
7.518	g	Valor SX	51	%	WG	
46.662	mL	Outlook	6.0	LB/GAL	EC	
19.971	g	Authority MTZ	45	%	WG	
1.304	mL	Sharpen	2.85	LBA/GAL	SC	
23.331	mL	Outlook	6	LBA/GAL	EC	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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



# University of Tennessee

## Valent Actives in a Roundup Xtend System - Conven. or Reduced Tillage

Trial ID: VUSA2019MEVER0221      Trial Year: 2019  
 Protocol ID: VUSA2019FIERCCEMD64.10      Investigator: Mallory Everett  
 Project ID:      Sponsor Contact:

### General Trial Information

**Investigator:** Steckle, Larry

**Trial Status:** I one-year/interim  
**ARM Trial Created On:** Apr-12-2019

### Trial Location

**Address (Location):** 605 Airways BLVD  
**Country:** USA United States  
**State/Prov.:** Tennessee      **Region:** NAMS  
**Postal Code:** 38301

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

**Study Rules:** HERB-PREE

No.	Guideline	Discipline	Description
1.	ADM-C-PUB	CO	Confidentiality - Public Trial - No Secrecy Agreement Required

### Objectives:

To showcase Valent PREE herbicides in a program approach in a Roundup Xtend cropping system in university trials. Fierce EZ (6 fl oz/A) and Fierce MTZ (1 pt/ A) will be compared to university standards. Measures of success are weed control at 21, 42 & 56 DAT with acceptable crop response.

### Conclusions:

Roundup Xtend  
 See test subject list

**Investigator:** Steckle, Larry  
**Organization:** UN TN AG EXP Station

### Crop Description

**Crop 1:** GLXM06 Glycine max GMO Soybean, Glyph./Dicamba Tol.  
**Entry Date:** Jun-10-2019  
**Variety:** Pioneer 42A96X  
**Attributes:** Xtend  
**Planting Date:** May-14-2019

### Pest Description

**Pest 1 Type:** W      **Code:** ABUTH      Abutilon theophrasti  
**Common Name:** Velvetleaf

**Pest 2 Type:** W      **Code:** AMAPA      Amaranthus palmeri  
**Common Name:** Amaranth, Palmer

**Pest 3 Type:** W      **Code:** AMATA      Amaranthus rudis  
**Common Name:** Waterhemp, Common

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

**Pest 5 Type:** W      **Code:** AMBTR      Ambrosia trifida  
**Common Name:** Ragweed, Giant

**Pest 6 Type:** W      **Code:** CHEAL      Chenopodium album  
**Common Name:** Lambsquarters, Common

**Pest 7 Type:** W      **Code:** IPOHE      Ipomoea hederacea  
**Common Name:** Morningglory, Ivyleaf

### Site and Design

**Treated Plot Width:** 5 FT      **Site Type:** FIELD      field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup>      **Treatments:** 6      **Tillage Type:** NOTILL      no-till  
**Replications:** 4      **Study Design:** RACOB      Randomized Complete Block (RCB)  
**Distance between Blocks:** 0

### Soil Description

NA, MIDSO

# University of Tennessee

## Valent Actives in a Roundup Xtenxd System - Conven. or Reduced Tillage

Trial ID: VUSA2019MEVER0221      Trial Year: 2019  
 Protocol ID: VUSA2019FIERCCEMD64.10      Investigator: Mallory Everett  
 Project ID:      Sponsor Contact:

### Application Description

	A	B
Application Date	May-15-2019	
Appl. Start Time	8:45 AM	
Appl. Stop Time	8:50 AM	
Application Method	SPRAY	
Application Timing	PREPLA	
Application Placement	BROFOL	
Applied By	CP	
Appl. Entry Date	Jun-3-2019	
Air Temperature Start, Stop	60 F	
% Relative Humidity Start, Stop	71	
Wind Velocity+Dir. Start	5.5 MPH NNE	
Wet Leaves (Y/N)	N no	
Soil Temperature	62 F	
% Cloud Cover	99	

### Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXM06 BSOY	GLXM06 BSOY

### Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	ABUTH W	ABUTH W
Pest 2 Code, Type, Scale	AMAPA W	AMAPA W
Pest 3 Code, Type, Scale	AMATA W	AMATA W
Pest 4 Code, Type, Scale	AMBEL W	AMBEL W
Pest 5 Code, Type, Scale	AMBTR W	AMBTR W
Pest 6 Code, Type, Scale	CHEAL W	CHEAL W
Pest 7 Code, Type, Scale	IPOHE W	IPOHE W

### Application Equipment

	A	B
Appl. Equipment	BACKPACK	
Equipment Type	SPRAYE	
Operation Pressure	35 PSI	
Nozzle Type	AIXR	
Nozzle Size	110025	
Boom Length	5 FT	
Ground Speed	5 MPH	
Spray Volume	15 GAL/AC	
Mix Size	2 L	

# University of Tennessee

## Valent Actives in a Roundup Xtenxd System - Conven. or Reduced Tillage

Trial ID: VUSA2019MEVER0221      Trial Year: 2019  
 Protocol ID: VUSA2019FIERCCEMD64.10      Investigator: Mallory Everett  
 Project ID:      Sponsor Contact:

Reps: 3      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 3 plots; minimum=0.5866 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Re-Entry Interval
1	UNTREATED CHECK	0	NA	NA	UNTREATED CHECK	UNTREATED CHECK
2	ROUNDUP PWR MAX(AE)	4.5	LBAI/GAL	SL	GLYPHOSATE(AE)+SURF	GLYPHOSATE-POT(AE)
	XTENDIMAX WITH VAPORGRIP TECH	2.9	LBAI/GAL	SL	DICAMBA-DGC(AE)	DICAMBA-DGC(AE)
	INTACT	100	%W/W	AJ	DEP/RET-DRIFT RETARDANT	DEPOSITION/RETENTION-DRIF
	INDUCE	100	%W/W	SF	SURFACTANT	SURFACTANT
3	FIERCE EZ	3.04	LBAI/GAL	SC	FLUMIOXAZIN+PYROXASULFONE	FLUMIOXAZIN+PYROXASULFO
	ROUNDUP PWR MAX(AE)	4.5	LBAI/GAL	SL	GLYPHOSATE(AE)+SURF	GLYPHOSATE-POT(AE)
	XTENDIMAX WITH VAPORGRIP TECH	2.9	LBAI/GAL	SL	DICAMBA-DGC(AE)	DICAMBA-DGC(AE)
	INTACT	100	%W/W	AJ	DEP/RET-DRIFT RETARDANT	DEPOSITION/RETENTION-DRIF
	INDUCE	100	%W/W	SF	SURFACTANT	SURFACTANT
4	FIERCE MTZ SC (2030)	2.64	LBAI/GAL	SC	FLUMIOXAZIN+METRIBUZIN+PYROXASULFONE	FLUMIOXAZIN+METRIBUZIN+PY
	ROUNDUP PWR MAX(AE)	4.5	LBAI/GAL	SL	GLYPHOSATE(AE)+SURF	GLYPHOSATE-POT(AE)
	XTENDIMAX WITH VAPORGRIP TECH	2.9	LBAI/GAL	SL	DICAMBA-DGC(AE)	DICAMBA-DGC(AE)
	INTACT	100	%W/W	AJ	DEP/RET-DRIFT RETARDANT	DEPOSITION/RETENTION-DRIF
	INDUCE	100	%W/W	SF	SURFACTANT	SURFACTANT
5	VALOR SX	51	%W/W	WG	FLUMIOXAZIN	FLUMIOXAZIN
	TRICOR 4F	4	LBAI/GAL	SC	METRIBUZIN	METRIBUZIN
	PROWL H2O	3.8	LBAI/GAL	CS	PENDIMETHALIN	PENDIMETHALIN
	ROUNDUP PWR MAX(AE)	4.5	LBAI/GAL	SL	GLYPHOSATE(AE)+SURF	GLYPHOSATE-POT(AE)
	XTENDIMAX WITH VAPORGRIP TECH	2.9	LBAI/GAL	SL	DICAMBA-DGC(AE)	DICAMBA-DGC(AE)
	INTACT	100	%W/W	AJ	DEP/RET-DRIFT RETARDANT	DEPOSITION/RETENTION-DRIF
	INDUCE	100	%W/W	SF	SURFACTANT	SURFACTANT
6	FIERCE MTZ SC (2030)	2.64	LBAI/GAL	SC	FLUMIOXAZIN+METRIBUZIN+PYROXASULFONE	FLUMIOXAZIN+METRIBUZIN+PY
	SCOUT (GLUFOSINATE)	2.34	LBAI/GAL	SL	GLUFOSINATE-AMMONIUM	GLUFOSINATE-AMMONIUM
	DRY AMMONIUM SULFATE	100	%W/W	SG	AMMONIUM SULFATE	AMMONIUM SULFATE

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
166.667	mL	ROUNDUP PWR MAX(AE)	4.5	LBAI/GAL	SL	
114.583	mL	XTENDIMAX WITH VAPORGRIP TECH	2.9	LBAI/GAL	SL	
49.995	mL	INTACT	100	%W/W	AJ	
24.997	g	INDUCE	100	%W/W	SF	
7.812	mL	FIERCE EZ	3.04	LBAI/GAL	SC	
41.667	mL	FIERCE MTZ SC (2030)	2.64	LBAI/GAL	SC	
2.447	g	VALOR SX	51	%W/W	WG	
7.791	mL	TRICOR 4F	4	LBAI/GAL	SC	
31.312	mL	PROWL H2O	3.8	LBAI/GAL	CS	
41.667	mL	SCOUT (GLUFOSINATE)	2.34	LBAI/GAL	SL	
49.927	g	DRY AMMONIUM SULFATE	100	%W/W	SG	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 2 L.

# University of Tennessee

## 2019 Shieldex Visibility Protocol

Trial ID: summitvisibility	Location:	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Chuck Foresman	
	Sponsor Contact: Chuck Foresman	

### General Trial Information

**Study Director:** Chuck Foresman  
**Investigator:** Dr. Larry Steckel

**Trial Status:** E established  
**ARM Trial Created On:** Apr-22-2019

### Trial Location

**Country:** USA United States

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

### Contacts

**Study Director:** Chuck Foresman

**Investigator:** Dr. Larry Steckel

### Crop Description

**Crop 1:** ZEAMX Zea mays Corn  
**Entry Date:** May-28-2019  
**Variety:** Pioneer 0825  
**Planting Date:** Apr-29-2019 **Planting Rate:** 30000 P/A

### Pest Description

**Code:** AMAPA  
**Entry Date:** May-28-2019

### Site and Design

**Treated Plot Width:** 5 FT **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 150 FT<sup>2</sup> **Treatments:** 7 **Tillage Type:** NOTILL no-till  
**Replications:** 4 **Study Design:** RACOB� Randomized Complete Block (RCB)

### Application Description

	A	B
<b>Application Date</b>	Apr-23-2019	May-20-2019
<b>Appl. Start Time</b>	2:40 PM	3:37 AM
<b>Appl. Stop Time</b>	2:48 PM	3:48 AM
<b>Application Method</b>	SPRAY	SPRAY
<b>Application Timing</b>	PREPLA	POST
<b>Application Placement</b>	BROADC	BROFOL
<b>Applied By</b>	CP	
<b>Appl. Entry Date</b>	Jun-3-2019	May-28-2019
<b>Air Temperature Start, Stop</b>	78 F	100 F
<b>% Relative Humidity Start, Stop</b>	49	31
<b>Wind Velocity+Dir. Start</b>	7 MPH SW	2 MPH E
<b>Wet Leaves (Y/N)</b>	N no	
<b>Soil Temperature</b>	68 F	85 F
<b>% Cloud Cover</b>	20	15

### Crop Stage At Each Application

	A	B
<b>Crop 1 Code, BBCH Scale</b>	ZEAMX BCOR	ZEAMX BCOR
<b>Stage Majority, Percent</b>		V5

### Pest Stage At Each Application

	A	B
<b>Pest 1 Code, Type, Scale</b>	AMAPA	AMAPA
<b>Height Average</b>		2 in
<b>Height Minimum, Maximum</b>		1 4

# University of Tennessee

Trial ID: summitvisibility	Location:	2019 Shieldex Visibility Protocol
Protocol ID:	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director: Chuck Foresman	
	Sponsor Contact: Chuck Foresman	

Application Equipment			
	A	B	
Appl. Equipment	BACKPACK	BACKPACK	
Equipment Type	SPRAYE	SPRAYE	
Operation Pressure	30 PSI	30	PSI
Nozzle Type	AIXR	AIXR	
Nozzle Size	11003	11003	
Boom Length	5 FT	5	FT
Ground Speed	5 MPH	5	MPH
Spray Volume	15 GAL/AC	15	GAL/AC
Mix Size	2 L	2	L

Date	By	Context	Notes
Apr-22-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
May-28-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

Reps: 4                      Plots: 5 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.782 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Amt Product to Measure	Rep			
											1	2	3	4
1	Bicep-6	6 LBA/GAL	F		1.67 qt/a		A	15 GAL/AC		55.67 mL/mx	101	206	304	402
2	Bicep-6	6 LBA/GAL	F		1.67 qt/a		A	15 GAL/AC		55.67 mL/mx	102	207	302	407
	Shieldex	3.3 LB/GAL	SC		1 fl oz/a	3" - 5" Amar	B	15 GAL/AC		1.042 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	3" - 5" Amar	B	15 GAL/AC		16.66 mL/mx				
	MSO	100 %	SL		1 % v/v		B	15 GAL/AC		20.0 mL/mx				
	Ammonium Sulfate	100 %	SG		2 lb/a		B	15 GAL/AC		31.95 g/mx				
3	Bicep-6	6 LBA/GAL	F		1.67 qt/a		A	15 GAL/AC		55.67 mL/mx	103	201	306	405
	Shieldex	3.3 LB/GAL	SC		1.3 fl oz/a	3" - 5" Amar	B	15 GAL/AC		1.354 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	3" - 5" Amar	B	15 GAL/AC		16.66 mL/mx				
	MSO	100 %	SL		1 % v/v		B	15 GAL/AC		20.0 mL/mx				
	Ammonium Sulfate	100 %	SG		2 lb/a		B	15 GAL/AC		31.95 g/mx				
4	Bicep-6	6 LBA/GAL	F		1.67 qt/a		A	15 GAL/AC		55.67 mL/mx	104	203	305	404
	Impact	2.8 LB/GAL	SC		1 fl oz/a	3" - 5" Amar	B	15 GAL/AC		1.042 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	3" - 5" Amar	B	15 GAL/AC		16.66 mL/mx				
	MSO	100 %	SL		1 % v/v		B	15 GAL/AC		20.0 mL/mx				
	Ammonium Sulfate	100 %	SG		2 lb/a		B	15 GAL/AC		31.95 g/mx				
5	Bicep-6	6 LBA/GAL	F		1.67 qt/a		A	15 GAL/AC		55.67 mL/mx	105	204	301	406
	Laudis	3.5 LB/GAL	SC		3 fl oz/a	3" - 5" Amar	B	15 GAL/AC		3.125 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	3" - 5" Amar	B	15 GAL/AC		16.66 mL/mx				
	MSO	100 %	SL		1 % v/v		B	15 GAL/AC		20.0 mL/mx				
	Ammonium Sulfate	100 %	SG		2 lb/a		B	15 GAL/AC		31.95 g/mx				
6	Bicep-6	6 LBA/GAL	F		1.67 qt/a		A	15 GAL/AC		55.67 mL/mx	106	205	307	403
	Calisto	4 LB/GAL	SC		3 fl oz/a	3" - 5" Amar	B	15 GAL/AC		3.125 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	3" - 5" Amar	B	15 GAL/AC		16.66 mL/mx				
	NIS	100 %	SL		0.25 % v/v		B	15 GAL/AC		4.999 mL/mx				
	Ammonium Sulfate	100 %	SG		2 lb/a		B	15 GAL/AC		31.95 g/mx				
7	Check										107	202	303	401

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
417.499	mL	Bicep-6	6	LBA/GAL	F	
2.995	mL	Shieldex	3.3	LB/GAL	SC	
104.155	mL	Atrazine	4	LBA/GAL	F	
99.989	mL	MSO	100	%	SL	

# University of Tennessee

## Tavium Plus VaporGrip Technology - University testing program in Bollgard II XtendFlex cotton

Trial ID: USSG0H4012019	Location: Holloway James FS
Protocol ID: HDC100A4-2019US	Trial Year: 2019
Master Protocol ID:	Investigator: James Holloway
Official Trial ID:	Study Director:
Conducted Under GEP: No	Sponsor Contact:
	Trial Origin:

### General Trial Information

**Study Director:** James Holloway  
**Investigator:** James Holloway

**Discipline:** H herbicide  
**Trial Status:** E established  
**ARM Trial Created On:** Mar-6-2019  
**Initiation Date:** May-1-2019

**Protocol Revision Number:** 1.0 **Protocol Revision Date:** Mar-6-2019

### Trial Location

**Address (Location):** 605 Airways Blvd.  
**City:** Jackson **Country:** USA United States  
**State/Prov.:** Tennessee TN  
**Postal Code:** 38301

**Latitude of LL Corner °:** 35.6317  
**Longitude of LL Corner °:** 88.856 USATN 36.6781196 -34.9829216  
-81.6468963 -90.3103027

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

### Objectives:

1. Does Tavium Plus VaporGrip Technology + Roundup PowerMax applied early post in Bollgard II XtendFlex cotton provide greater weed control when compared to competitor treatments?
2. Is Tavium Plus VaporGrip Technology + Roundup PowerMax safe to apply early post in Bollgard II XtendFlex cotton?

### Contacts

**Study Director:** James Holloway  
**Organization:** Syngenta  
**Address:** 872 Harts Bridge Rd **Phone No.:** 731-423-0804  
**City+State/Prov:** Jackson, TN **Mobile No.:** 731-803-1730  
**Postal Code:** 38305 **E-mail:** james.holloway@syngenta.com  
United States

**Investigator:** James Holloway  
**Organization:** Syngenta  
**Address:** 872 Harts Brdige Rd **Phone No.:** 731-423-0804  
**City+State/Prov:** Jackson, TN **Mobile No.:** 731-803-1730  
**Postal Code:** 38305 **E-mail:** james.holloway@syngenta.com  
United States

**Sponsor:** Pete Eure  
**Organization:** Syngenta  
**Address:** 410 Swing Rd.  
**City+State/Prov:** Greensboro, NC  
**Postal Code:** 27409 **E-mail:** pete.eure@syngenta.com  
United States

### Cooperator/Landowner

**Cooperator:** Larry Steckel **Role:** UNVCOP  
**Organization:** University of Tennessee **Org. Type:** Univerity  
**Address 1:** 605 Airways Blvd.  
**City:** Jackson **Phone No.:** 731-425-4705  
**State/Prov:** TN **Fax No.:** 731-425-7203  
**Postal Code:** 38301 **Mobile No.:** 731-499-0120  
United States **E-mail:** lsteckel@utk.edu

### Crop Description

**Crop 1:** GOSSS Gossypium sp. Cotton plant **BBCH Scale:** BDIC  
**Entry Date:** Jun-10-2019  
**Variety:** B2XF  
**Attributes:** GLUFOSINATE-R, GLYPHOSATE-R, AUXIN-R  
**Planting Date:** May-1-2019

# University of Tennessee

## Tavium Plus VaporGrip Technology - University testing program in Bollgard II XtendFlex cotton

Trial ID: USSG0H4012019	Location: Holloway James FS
Protocol ID: HDC100A4-2019US	Trial Year: 2019
Master Protocol ID:	Investigator: James Holloway
Official Trial ID:	Study Director:
Conducted Under GEP: No	Sponsor Contact:
	Trial Origin:

### Pest Description

**Pest 1 Type:** W    **Code:** AMAPA *Amaranthus palmeri*  
**Common Name:** Palmer amaranth    **Entry Date:** Jun-10-2019

### Site and Design

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT<sup>2</sup>    **Treatments:** 5  
**Replications:** 4    **Study Design:** RACOB L Randomized Complete Block (RCB)

### Application Description

	A	B
<b>Application Date</b>	May-1-2019	May-29-2019
<b>Appl. Start Time</b>	11:00 AM	10:30 AM
<b>Appl. Stop Time</b>	11:05 AM	10:45 AM
<b>Interval to Prev. Appl.</b>		28 DAYS
<b>Application Method</b>	SPRAY	NONINC
<b>Application Timing</b>	PREPLA	POSPOS
<b>Application Placement</b>	BROFOL	BROFOL
<b>Applied By</b>	LS	CP
<b>Appl. Entry Date</b>	Jun-3-2019	Jun-10-2019
<b>Air Temperature Start, Stop</b>	80 F	87 87 F
<b>% Relative Humidity Start, Stop</b>	67	64
<b>Wind Velocity+Dir. Start</b>	6.5 MPH SW	3 MPH SE
<b>Wet Leaves (Y/N)</b>	N no	N no
<b>Soil Temperature</b>	70 F	80 F
<b>% Cloud Cover</b>	60	20

### Crop Stage At Each Application

	A	B
<b>Crop 1 Code, BBCH Scale</b>	GOSSS BDIC	GOSSS BDIC
<b>Stage Scale Used</b>		BBCH
<b>Stage Majority, Percent</b>		13

### Pest Stage At Each Application

	A	B
<b>Pest 1 Code, Type, Scale</b>	AMAPA W	AMAPA W
<b>Height Average</b>		2 IN
<b>Height Minimum, Maximum</b>		1 4

### Application Equipment

	A	B
<b>Appl. Equipment</b>	BACKPACK	BACKPACK
<b>Equipment Type</b>	SPRAYE	SPRAYE
<b>Operation Pressure</b>	30 PSI	30 PSI
<b>Nozzle Type</b>	AIXR	TEEJTU
<b>Nozzle Size</b>	11003	11003
<b>Boom Length</b>	6.33 FT	6.33 FT
<b>Ground Speed</b>	5 MPH	5 MPH
<b>Spray Volume</b>	15 GAL/AC	15 GAL/AC
<b>Minimum Mix/Treatment</b>	1.564 L	1.564 L
<b>Mix Size</b>	2 L	2 L

# University of Tennessee

## Tavium Plus VaporGrip Technology - University testing program in Bollgard II XtendFlex cotton

Trial ID: USSG0H4012019	Location: Holloway James FS
Protocol ID: HDC100A4-2019US	Trial Year: 2019
Master Protocol ID:	Investigator: James Holloway
Official Trial ID:	Study Director:
Conducted Under GEP: No	Sponsor Contact:
	Trial Origin:

Date	By	Context	Notes
Mar-6-2019	James Holloway	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

### SE Definitions

	1.	2.
<b>Rating Timing</b>	1	2
<b>SE Name</b>	ZUSW001	ZUSX001
<b>SE Description</b>	%CONTR OL	%PHYTO- GENERAL
<b>Part Rated</b>	PLANT	PLANT
<b>Rating Type</b>	CONTRO	PHYGEN
<b>Rating Unit</b>	%	%
<b>Sample Size</b>	1 PLOT	1 PLOT
<b>Collection Basis</b>	1 PLOT	1 PLOT
<b>Reporting Basis</b>	1 PLOT	1 PLOT
<b>Calculation</b>	NC	NC

### No. Task Comment

1. 1
2. 2

Reps: 4                      Plots: 10 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=1.564 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Amt Product to Measure	Rep			
									1	2	3	4
1	UNTREATED CHECK								101	204	305	404
2	NIS			SL	0.25 % v/v		A	5.0 mL/mx	102	201	302	403
	CAPAROL 4 L	480 gA/L		SC	1120 g ai/ha		A	33.26 mL/mx				
	GRAMOXONE 3 LB SL	360 gA/L		SL	842 g ai/ha		A	33.34 mL/mx				
	INTACT			SL	0.5 % v/v		B	10.0 mL/mx				
	TAVIUM PLUS VAPORGRIP TECH	406.8 gAE/L		CS	1680 g ae/ha		B	58.87 mL/mx				
	ROUNDUP POWERMAX 4.5 SL	540 gAE/L		SL	1262 g ae/ha		B	33.31 mL/mx				
3	NIS			SL	0.25 % v/v		A	5.0 mL/mx	103	205	304	401
	CAPAROL 4 L	480 gA/L		SC	1120 g ai/ha		A	33.26 mL/mx				
	GRAMOXONE 3 LB SL	360 gA/L		SL	842 g ai/ha		A	33.34 mL/mx				
	INTACT			SL	0.5 % v/v		B	10.0 mL/mx				
	XTENDIMAX 2.9 SL	350.2 gAE/L		SL	563 g ae/ha		B	22.92 mL/mx				
	ROUNDUP POWERMAX 4.5 SL	540 gAE/L		SL	1262 g ae/ha		B	33.31 mL/mx				
4	NIS			SL	0.25 % v/v		A	5.0 mL/mx	104	202	303	402
	INTACT			SL	0.5 % v/v		A	10.0 mL/mx				
	TAVIUM PLUS VAPORGRIP TECH	406.8 gAE/L		CS	1680 g ae/ha		A	58.87 mL/mx				
	CAPAROL 4 L	480 gA/L		SC	1120 g ai/ha		A	33.26 mL/mx				
	GRAMOXONE 3 LB SL	360 gA/L		SL	842 g ai/ha		A	33.34 mL/mx				
	INTACT			SL	0.5 % v/v		B	10.0 mL/mx				
TAVIUM PLUS VAPORGRIP TECH	406.8 gAE/L		CS	1680 g ae/ha		B	58.87 mL/mx					
ROUNDUP POWERMAX 4.5 SL	540 gAE/L		SL	1262 g ae/ha		B	33.31 mL/mx					
5	NIS			SL	0.25 % v/v		A	5.0 mL/mx	105	203	301	405
	WARRANT 3 CS	359 gA/L		CS	1260 g ai/ha		A	50.03 mL/mx				
	GRAMOXONE 3 LB SL	360 gA/L		SL	842 g ai/ha		A	33.34 mL/mx				
	INTACT			SL	0.5 % v/v		B	10.0 mL/mx				
	XTENDIMAX 2.9 SL	350.2 gAE/L		SL	563 g ae/ha		B	22.92 mL/mx				
	ROUNDUP POWERMAX 4.5 SL	540 gAE/L		SL	1262 g ae/ha		B	33.31 mL/mx				

Sort Order: Treatment

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



# University of Tennessee

## Tavium Plus VaporGrip Technology - University testing program in Bollgard II XtendFlex cotton

Trial ID: USSG0H4012019	Location: Holloway James FS
Protocol ID: HDC100A4-2019US	Trial Year: 2019
Master Protocol ID:	Investigator: James Holloway
Official Trial ID:	Study Director:
Conducted Under GEP: No	Sponsor Contact:
	Trial Origin:

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
25.000	mL	NIS			SL	
124.725	mL	CAPAROL 4 L	480	gA/L	SC	
166.696	mL	GRAMOXONE 3 LB SL	360	gA/L	SL	
62.500	mL	INTACT			SL	
220.752	mL	TAVIUM PLUS VAPORGRIP TECH	406.8	gAE/L	CS	
166.564	mL	ROUNDUP POWERMAX 4.5 SL	540	gAE/L	SL	
57.290	mL	XTENDIMAX 2.9 SL	350.2	gAE/L	SL	
62.536	mL	WARRANT 3 CS	359	gA/L	CS	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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

\* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 2 L.

# University of Tennessee

Trial ID: JCTBASFF41	<b>Liberty/Foundation of Weed Control /XtendFlex Cotton</b>	
Protocol ID: MKD-H-2019-US-F41	Location: JACKSON	Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel	
	Study Director:	
	Sponsor Contact:	

<b>General Trial Information</b>
Investigator: Dr. Larry Steckel
Trial Status: E established
ARM Trial Created On: Mar-25-2019
<b>Trial Location</b>
Country: USA United States
Conducted Under GLP: No
Conducted Under GEP: No

Investigator: Dr. Larry Steckel

<b>Crop Description</b>
Crop 1: GOSHI Gossypium hirsutum American upland cotton
Entry Date: Jun-6-2019
Variety: AG46X6

<b>Pest Description</b>
Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth Entry Date: Jun-6-2019

<b>Site and Design</b>	
Treated Plot Width: 6.33 FT	Site Type: FIELD field
Treated Plot Length: 30 FT	
Treated Plot Area: 189.9 FT2 Treatments: 14	Tillage Type: NOTILL no-till
Replications: 4	Study Design: RACOB L Randomized Complete Block (RCB)

<b>Application Description</b>			
	<b>A</b>	<b>B</b>	<b>C</b>
Application Date	May-1-2019	May-24-2019	
Appl. Start Time	10:52 AM	10:20 AM	
Appl. Stop Time	11:07 AM	10:30 AM	
Application Method	SPRAY	SPRAY	
Application Timing	PREPLA	PREPLA	
Application Placement	BROFOL	BROFOL	
Applied By	JR	JR	
Appl. Entry Date	Jun-3-2019	Jun-6-2019	
Air Temperature Start, Stop	80 F	87 87 F	
% Relative Humidity Start, Stop	67	64 64	
Wind Velocity+Dir. Start	6.5 MPH SW	4 MPH SW	
Wet Leaves (Y/N)	N no	N no	
Soil Temperature	70 F	80 F	
% Cloud Cover	60	20	

<b>Crop Stage At Each Application</b>			
	<b>A</b>	<b>B</b>	<b>C</b>
Crop 1 Code, BBCH Scale	GOSHI BCOT	GOSHI BCOT	GOSHI BCOT
Stage Majority, Percent		4 LF	

<b>Pest Stage At Each Application</b>			
	<b>A</b>	<b>B</b>	<b>C</b>
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Height Average		4 IN	
Height Minimum, Maximum		3 6	

# University of Tennessee

Trial ID: JCTBASFF41	<b>Liberty/Foundation of Weed Control /XtendFlex Cotton</b>	
Protocol ID: MKD-H-2019-US-F41	Location: JACKSON	Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel	
	Study Director:	
	Sponsor Contact:	

Application Equipment			
	A	B	C
Appl. Equipment	BACKPACK	BCKPK	
Equipment Type	SPRAYE	BACCAI	
Operation Pressure	30 PSI	30 PSI	
Nozzle Type	AIXR	TTI	
Nozzle Size	11003	11003	
Nozzle Spacing		19 IN	
Boom Length	6.33 FT	6.33 FT	
Ground Speed	5 MPH	4 MPH	
Carrier		WATER	
Spray Volume	15 GAL/AC	15 GAL/AC	
Mix Size	2 L	2 L	
Propellant		COMCO2	

Date	By	Context	Notes
Mar-25-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Mix	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	CHECK													101	204	305	411
2	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx			102	213	309	405	
	PROWL H2O	3.8 LB/GAL	CS	CS	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx							
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L	44.79 mL/mx							
	Ammonium Sulfate	100 %	SG	SG	1.5 lb/a	EPOST	B	15 GAL/AC	2 L	23.97 g/mx							
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	MPOST	C	15 GAL/AC	2 L	44.79 mL/mx							
	Ammonium Sulfate	100 %	SG	SG	1.5 lb/a	MPOST	C	15 GAL/AC	2 L	23.97 g/mx							
3	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx			103	201	303	413	
	PROWL H2O	3.8 LB/GAL	CS	CS	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx							
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L	44.79 mL/mx							
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	SL	32 oz/a	EPOST	B	15 GAL/AC	2 L	33.33 mL/mx							
	Ammonium Sulfate	100 %	SG	SG	1.5 lb/a	EPOST	B	15 GAL/AC	2 L	23.97 g/mx							
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	MPOST	C	15 GAL/AC	2 L	44.79 mL/mx							
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	SL	32 oz/a	MPOST	C	15 GAL/AC	2 L	33.33 mL/mx							
	Ammonium Sulfate	100 %	SG	SG	1.5 lb/a	MPOST	C	15 GAL/AC	2 L	23.97 g/mx							
4	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx			104	207	302	412	
	PROWL H2O	3.8 LB/GAL	CS	CS	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx							
	ENGENIA	5 LBAE/GAL	SL	SL	12.8 oz/a	EPOST	B	15 GAL/AC	2 L	13.33 mL/mx							
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	SL	32 oz/a	EPOST	B	15 GAL/AC	2 L	33.33 mL/mx							
	ENGENIA	5 LBAE/GAL	SL	SL	12.8 oz/a	MPOST	C	15 GAL/AC	2 L	13.33 mL/mx							
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	SL	32 oz/a	MPOST	C	15 GAL/AC	2 L	33.33 mL/mx							
5	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx			105	212	313	404	
	PROWL H2O	3.8 LB/GAL	CS	CS	32 oz/a	PRE	A	15 GAL/AC	2 L	33.33 mL/mx							
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L	44.79 mL/mx							
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	SL	32 oz/a	EPOST	B	15 GAL/AC	2 L	33.33 mL/mx							
	Ammonium Sulfate	100 %	SG	SG	1.5 lb/a	EPOST	B	15 GAL/AC	2 L	23.97 g/mx							
	ENGENIA	5 LBAE/GAL	SL	SL	12.8 oz/a	MPOST	C	15 GAL/AC	2 L	13.33 mL/mx							
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	SL	32 oz/a	MPOST	C	15 GAL/AC	2 L	33.33 mL/mx							

# University of Tennessee

**Liberty/Foundation of Weed Control /XtendFlex Cotton**

Trial ID: JCTBASFF41      Location: JACKSON      Trial Year: 2019  
 Protocol ID: MKD-H-2019-US-F41      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director:  
    Sponsor Contact:

Reps: 4      Plots: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep			
													1	2	3	4
6	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	106	209	307	408
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	ENGENIA	5 LBAE/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	EPOST	B	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	MPOST	C	15 GAL/AC	2 L			44.79 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	MPOST	C	15 GAL/AC	2 L			33.33 mL/mx				
	Ammonium Sulfate	100 %	SG	L	1.5 lb/a	MPOST	C	15 GAL/AC	2 L			23.97 g/mx				
7	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	107	214	312	406
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	ENGENIA	5 LBAE/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	10 oz/a	EPOST	B	15 GAL/AC	2 L			10.42 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	EPOST	B	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	MPOST	C	15 GAL/AC	2 L			44.79 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	10 oz/a	MPOST	C	15 GAL/AC	2 L			10.42 mL/mx				
ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	MPOST	C	15 GAL/AC	2 L			33.33 mL/mx					
Ammonium Sulfate	100 %	SG	L	1.5 lb/a	MPOST	C	15 GAL/AC	2 L			23.97 g/mx					
8	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	108	211	310	403
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L			44.79 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	EPOST	B	15 GAL/AC	2 L			33.33 mL/mx				
	Ammonium Sulfate	100 %	SG	L	1.5 lb/a	EPOST	B	15 GAL/AC	2 L			23.97 g/mx				
	ENGENIA	5 LBAE/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx				
OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx					
ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	MPOST	C	15 GAL/AC	2 L			33.33 mL/mx					
9	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	109	208	304	401
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L			44.79 mL/mx				
	Ammonium Sulfate	100 %	SG	L	1.5 lb/a	EPOST	B	15 GAL/AC	2 L			23.97 g/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	29 oz/a	MPOST	C	15 GAL/AC	2 L			30.21 mL/mx				
	Ammonium Sulfate	100 %	SG	L	1.5 lb/a	MPOST	C	15 GAL/AC	2 L			23.97 g/mx				
	ENGENIA	5 LBAE/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx				
OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx					
ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	MPOST	C	15 GAL/AC	2 L			33.33 mL/mx					
10	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	110	206	301	409
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L			44.79 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	Ammonium Sulfate	100 %	SG	L	1.5 lb/a	EPOST	B	15 GAL/AC	2 L			23.97 g/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	29 oz/a	MPOST	C	15 GAL/AC	2 L			30.21 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx				
Ammonium Sulfate	100 %	SG	L	1.5 lb/a	MPOST	C	15 GAL/AC	2 L			23.97 g/mx					
11	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	111	210	306	414
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	EPOST	B	15 GAL/AC	2 L			44.79 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	Ammonium Sulfate	100 %	SG	L	1.5 lb/a	EPOST	B	15 GAL/AC	2 L			23.97 g/mx				
	ENGENIA	5 LBAE/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx				
ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	MPOST	C	15 GAL/AC	2 L			33.33 mL/mx					
12	COTORAN 4L	4 LB/GAL	L	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx	112	202	311	402
	PROWL H2O	3.8 LB/GAL	CS	L	32 oz/a	PRE	A	15 GAL/AC	2 L			33.33 mL/mx				
	ENGENIA	5 LBAE/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	L	32 oz/a	EPOST	B	15 GAL/AC	2 L			33.33 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	EPOST	B	15 GAL/AC	2 L			13.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	L	L	43 oz/a	MPOST	C	15 GAL/AC	2 L			44.79 mL/mx				
	OUTLOOK	6 LB/GAL	SL	L	12.8 oz/a	MPOST	C	15 GAL/AC	2 L			13.33 mL/mx				
Ammonium Sulfate	100 %	SG	L	1.5 lb/a	MPOST	C	15 GAL/AC	2 L			23.97 g/mx					

# University of Tennessee

Trial ID: JCTBASFF41	<b>Liberty/Foundation of Weed Control /XtendFlex Cotton</b>	
Protocol ID: MKD-H-2019-US-F41	Location: JACKSON	Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel	
	Study Director:	
	Sponsor Contact:	

Reps: 4                      Plots: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep			
													1	2	3	4
13	COTORAN 4L	4	LB/GAL	L	32 oz/a	PRE	A	15	GAL/AC	2	L	33.33 mL/mx	113	205	314	410
	PROWL H2O	3.8	LB/GAL	CS	32 oz/a	PRE	A	15	GAL/AC	2	L	33.33 mL/mx				
	LIBERTY 280 SL	2.34	LBA/GAL	L	43 oz/a	EPOST	B	15	GAL/AC	2	L	44.79 mL/mx				
	OUTLOOK	6	LB/GAL	SL	12.8 oz/a	EPOST	B	15	GAL/AC	2	L	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	EPOST	B	15	GAL/AC	2	L	33.33 mL/mx				
	Ammonium Sulfate	100	%	SG	1.5 lb/a	EPOST	B	15	GAL/AC	2	L	23.97 g/mx				
	LIBERTY 280 SL	2.34	LBA/GAL	L	29 oz/a	MPOST	C	15	GAL/AC	2	L	30.21 mL/mx				
	OUTLOOK	6	LB/GAL	SL	12.8 oz/a	MPOST	C	15	GAL/AC	2	L	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	MPOST	C	15	GAL/AC	2	L	33.33 mL/mx				
	Ammonium Sulfate	100	%	SG	1.5 lb/a	MPOST	C	15	GAL/AC	2	L	23.97 g/mx				
14	COTORAN 4L	4	LB/GAL	L	32 oz/a	PRE	A	15	GAL/AC	2	L	33.33 mL/mx	114	203	308	407
	PROWL H2O	3.8	LB/GAL	CS	32 oz/a	PRE	A	15	GAL/AC	2	L	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	EPOST	B	15	GAL/AC	2	L	13.33 mL/mx				
	OUTLOOK	6	LB/GAL	SL	12.8 oz/a	EPOST	B	15	GAL/AC	2	L	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	EPOST	B	15	GAL/AC	2	L	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	MPOST	C	15	GAL/AC	2	L	13.33 mL/mx				
	OUTLOOK	6	LB/GAL	SL	12.8 oz/a	MPOST	C	15	GAL/AC	2	L	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	MPOST	C	15	GAL/AC	2	L	33.33 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
541.666	mL	COTORAN 4L	4	LB/GAL	L	
541.666	mL	PROWL H2O	3.8	LB/GAL	CS	
841.145	mL	LIBERTY 280 SL	2.34	LBA/GAL	L	
479.303	g	Ammonium Sulfate	100	%	SG	
749.999	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	
166.667	mL	ENGENIA	5	LBAE/GAL	SL	
226.041	mL	OUTLOOK	6	LB/GAL	SL	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).  
 \* Product amount calculations increased 25 % for overage adjustment.

# University of Tennessee

**Evaluate the efficacy of Brake in combination with Cotoran applied PRE followed by various POST programs in cotton in 2019.**

Trial ID: SEPRO201901      Location: JACKSON      Trial Year: 2019  
 Protocol ID: SEPRO2019      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director:  
    Sponsor Contact:

### General Trial Information

Investigator: Dr. Larry Steckel

Trial Status: E established

ARM Trial Created On: Apr-2-2019

### Trial Location

Country: USA United States

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Dr. Larry Steckel

### Crop Description

Crop 1: GOSHI *Gossypium hirsutum* American upland cotton

### Pest Description

Pest 1 Type: W Code: AMAPA *Amaranthus palmeri*  
 Common Name: Palmer amaranth Entry Date: Jun-6-2019

Pest 2 Type: W Code: IPOLA *Ipomoea lacunosa*  
 Common Name: pitted morning glory Entry Date: Jun-6-2019

### Site and Design

Treated Plot Width: 6.33 FT

Site Type: FIELD field

Treated Plot Length: 30 FT

Treated Plot Area: 189.9 FT<sup>2</sup> Treatments: 9 Tillage Type: NOTILL no-till

Replications: 4

Study Design: RACOB L Randomized Complete Block (RCB)

### Application Description

	A	B	C	D
Application Date	May-1-2019	May-24-2019		
Appl. Start Time	10:30 AM	10:20 AM		
Appl. Stop Time	10:50 AM	10:30 AM		
Application Method	SPRAY	SPRAY		
Application Timing	PREPLA	PREPLA		
Application Placement	BROFOL	BROFOL		
Applied By	JR	JR		
Appl. Entry Date	Jun-3-2019	Jun-6-2019		
Air Temperature Start, Stop	80 F	87 87 F		
% Relative Humidity Start, Stop	67	64 64		
Wind Velocity+Dir. Start	6.5 MPH SW	4 MPH SW		
Wet Leaves (Y/N)	N no	N no		
Soil Temperature	70 F	80 F		
% Cloud Cover	60	20		

### Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale	GOSHI BCOT	GOSHI BCOT	GOSHI BCOT	GOSHI BCOT
Stage Majority, Percent		4 LF		

### Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Height Average	4 IN			
Height Minimum, Maximum	1 6			
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W	IPOLA W	IPOLA W
Height Average	2			
Height Minimum, Maximum	1 4			

# University of Tennessee

**Evaluate the efficacy of Brake in combination with Cotoran applied PRE followed by various POST programs in cotton in 2019.**

Trial ID: SEPRO201901	Location: JACKSON	Trial Year: 2019
Protocol ID: SEPRO2019	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

## Application Equipment

	A	B	C	D
<b>Appl. Equipment</b>	BACKPACK	BCKPK		
<b>Equipment Type</b>	SPRAYE	BACCAI		
<b>Operation Pressure</b>	30 PSI	30 PSI		
<b>Nozzle Type</b>	AIXR	TTI		
<b>Nozzle Size</b>	11003	11003		
<b>Nozzle Spacing</b>		19 IN		
<b>Boom Length</b>	6.33 FT	6.33 FT		
<b>Ground Speed</b>	5 MPH	4 MPH		
<b>Carrier</b>		WATER		
<b>Spray Volume</b>	15 GAL/AC	15 GAL/AC		
<b>Mix Size</b>	2 L	2 L		
<b>Propellant</b>		COMCO2		

Date	By	Context	Notes
Apr-2-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
Jun-3-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Reps: 4                      Plots: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC                      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt No.	Treatment Name	Form Form		Form Type	Rate Rate	Appl Unit Code	Amt Product to Measure	Rep			
		Conc	Unit					1	2	3	4
1	Untreated Check							101	208	306	403
2	BRAKE	1.2 LB/GAL		SC	16 oz/a	A	16.67 mL/mx	102	205	309	408
	COTORAN 4L	4 LBA/GAL		F	24 oz/a	A	25.0 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B	33.33 mL/mx				
	DUAL MAGNUM	7.62 LBA/GAL		EC	16 oz/a	B	16.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	C	33.33 mL/mx				
	WARRANT	3 LB/GAL		CS	48 oz/a	C	50.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	D	33.33 mL/mx				
DIREX	4 LBA/GAL		L	32 oz/a	D	33.33 mL/mx					
3	BRAKE	1.2 LB/GAL		SC	16 oz/a	A	16.67 mL/mx	103	207	308	409
	COTORAN 4L	4 LBA/GAL		F	24 oz/a	A	25.0 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B	33.33 mL/mx				
	DUAL MAGNUM	7.62 LBA/GAL		EC	16 oz/a	B	16.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	D	33.33 mL/mx				
	DIREX	4 LBA/GAL		L	32 oz/a	D	33.33 mL/mx				
4	BRAKE	1.2 LB/GAL		SC	16 oz/a	A	16.67 mL/mx	104	209	301	406
	COTORAN 4L	4 LBA/GAL		F	24 oz/a	A	25.0 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL		L	32 oz/a	B	33.33 mL/mx				
	DUAL MAGNUM	7.62 LBA/GAL		EC	16 oz/a	B	16.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	C	33.33 mL/mx				
	WARRANT	3 LB/GAL		CS	48 oz/a	C	50.0 mL/mx				
5	BRAKE	1.2 LB/GAL		SC	16 oz/a	A	16.67 mL/mx	105	203	305	404
	COTORAN 4L	4 LBA/GAL		F	24 oz/a	A	25.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	B	33.33 mL/mx				
	ENGENIA	5 LBAE/GAL		SL	12.8 oz/a	B	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	C	33.33 mL/mx				
	WARRANT	3 LB/GAL		CS	48 oz/a	C	50.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL		SL	32 oz/a	D	33.33 mL/mx				
	DIREX	4 LBA/GAL		L	32 oz/a	D	33.33 mL/mx				

# University of Tennessee

**Evaluate the efficacy of Brake in combination with Cotoran applied PRE followed by various POST programs in cotton in 2019.**

Trial ID: SEPRO201901      Location: JACKSON      Trial Year: 2019  
 Protocol ID: SEPRO2019      Investigator: Dr. Larry Steckel  
 Project ID:      Study Director:  
                                  Sponsor Contact:

Reps: 4      Plots: 6.33 by 30 feet  
 Spray vol: 15 GAL/AC      Mix Size: 2 L (total for 4 plots; minimum=0.99 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
6	BRAKE	1.2	LB/GAL	SC	16 oz/a	A	A	16.67 mL/mx	106	201	304	401
	COTORAN 4L	4	LBA/GAL	F	24 oz/a	A	A	25.0 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	B	B	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	B	B	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	D	D	33.33 mL/mx				
	DIREX	4	LBA/GAL	L	32 oz/a	D	D	33.33 mL/mx				
7	BRAKE	1.2	LB/GAL	SC	16 oz/a	A	A	16.67 mL/mx	107	204	302	405
	COTORAN 4L	4	LBA/GAL	F	24 oz/a	A	A	25.0 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	B	B	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	B	B	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	C	C	33.33 mL/mx				
	WARRANT	3	LB/GAL	CS	48 oz/a	C	C	50.0 mL/mx				
8	BRAKE	1.2	LB/GAL	SC	16 oz/a	A	A	16.67 mL/mx	108	206	307	402
	COTORAN 4L	4	LBA/GAL	F	24 oz/a	A	A	25.0 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	B	B	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	B	B	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	C	C	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	C	C	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	D	D	33.33 mL/mx				
DIREX	4	LBA/GAL	L	32 oz/a	D	D	33.33 mL/mx					
9	BRAKE	1.2	LB/GAL	SC	16 oz/a	A	A	16.67 mL/mx	109	202	303	407
	COTORAN 4L	4	LBA/GAL	F	24 oz/a	A	A	25.0 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	B	B	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	B	B	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	32 oz/a	C	C	33.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	12.8 oz/a	C	C	13.33 mL/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
166.667	mL	BRAKE	1.2	LB/GAL	SC	
250.000	mL	COTORAN 4L	4	LBA/GAL	F	
125.000	mL	LIBERTY 280 SL	2.34	LBA/GAL	L	
62.500	mL	DUAL MAGNUM	7.62	LBA/GAL	EC	
666.666	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	
250.000	mL	WARRANT	3	LB/GAL	CS	359
208.333	mL	DIREX	4	LBA/GAL	L	
116.667	mL	ENGENIA	5	LBAE/GAL	SL	

\* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 2 L (mix size basis).

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