

University of Tennessee

COTORAN FOR PIGWEED CONTROL

Trial ID: COTORAN2019	Location:	Trial Year: 2017
Protocol ID: COTORAN2019	Investigator: Dr. Larry Steckel	
Project ID: COTORAN2019	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

Objectives:

Evaluate Cotoran, competitors and mixtures for weed control in cotton.

Focus on Palmer amaranth and morningglory, as well as other common and troublesome cotton weeds.

Researcher has the option to rate for 6 weeks and discontinue or to place this into an X-tend or Enlist program.

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: GOSHI Gossypium hirsutum American upland cotton

Site and Design

Treated Plot Width: 6.33 FT

Site Type: FIELD field

Treated Plot Length: 30 FT

Treated Plot Area: 189.9 FT² **Treatments:** 13 **Tillage Type:** NOTILL no-till

Replications: 4

Study Design: RACOB� Randomized Complete Block (RCB)

Field Prep./Maintenance:

Trail should be weed free and free of excessive crop or weed residue at the time of planting and application. Use conventional tillage or an effective, non-residual burndown program to assure weed-free conditions at planting.

Application Description

	A
Application Date	May-1-2019
Appl. Start Time	9:40 AM
Appl. Stop Time	9:56 AM
Application Method	SPRAY
Application Timing	PREPLA
Application Placement	BROFOL
Applied By	LS
Appl. Entry Date	Jun-3-2019
Air Temperature Start, Stop	80 F
% Relative Humidity Start, Stop	67
Wind Velocity+Dir. Start	6.5 MPH SW
Wet Leaves (Y/N)	N no
Soil Temperature	70 F
% Cloud Cover	60

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GOSHI BCOT

University of Tennessee

COTORAN FOR PIGWEED CONTROL

Trial ID: COTORAN2019	Location:	Trial Year: 2017
Protocol ID: COTORAN2019	Investigator: Dr. Larry Steckel	
Project ID: COTORAN2019	Study Director:	
	Sponsor Contact:	

Application Equipment

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

Date	By	Context	Notes
Apr-12-2019	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	Growth Stage	Appl Code	Amt Product to Measure	Rep			
									1	2	3	4
1	UNTREATED								101	209	305	407
2	COTORAN	4 LB/GAL	L		0.5 lb ai/a	PRE	A	16.66 mL/mx	102	205	313	402
3	COTORAN	4 LB/GAL	L		0.75 lb ai/a	PRE	A	25.0 mL/mx	103	204	306	408
4	COTORAN	4 LB/GAL	L		1 lb ai/a	PRE	A	33.33 mL/mx	104	212	302	411
5	COTORAN	4 LB/GAL	L		1 lb ai/a	PRE	A	33.33 mL/mx	105	208	311	406
	PROWL H20	3.8 LB/GAL	L		0.95 lb ai/a	PRE	A	33.33 mL/mx				
6	PROWL H20	3.8 LB/GAL	L		0.95 lb ai/a	PRE	A	33.33 mL/mx	106	207	301	413
7	CAPAROL	4 LB/GAL	L		1.5 lb ai/a	PRE	A	49.99 mL/mx	107	203	312	405
8	COTORAN	4 LB/GAL	L		0.5 lb ai/a	PRE	A	16.66 mL/mx	108	211	303	409
	CAPAROL	4 LB/GAL	L		0.5 lb ai/a	PRE	A	16.66 mL/mx				
9	DIREX	4 LB/GAL	L		1 lb ai/a	PRE	A	33.33 mL/mx	109	210	304	412
10	DIREX	4 LB/GAL	L		1 lb ai/a	PRE	A	33.33 mL/mx	110	213	310	404
	PROWL H20	3.8 LB/GAL	L		0.95 lb ai/a	PRE	A	33.33 mL/mx				
11	WARRANT	3 LB/GAL	L		1.125 lb ai/a	PRE	A	49.99 mL/mx	111	201	307	401
12	COTORAN	4 LB/GAL	L		0.75 lb ai/a	PRE	A	25.0 mL/mx	112	206	308	410
	WARRANT	3 LB/GAL	L		0.75 lb ai/a	PRE	A	33.33 mL/mx				
13	COTORAN	4 LB/GAL	L		0.5 lb ai/a	PRE	A	16.66 mL/mx	113	202	309	403
	BRAKE	1.2 LB/GAL	L		0.15 lb ai/a	PRE	A	16.66 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
208.311	mL	COTORAN	4	LB/GAL	L	
124.986	mL	PROWL H20	3.8	LB/GAL	L	
83.324	mL	CAPAROL	4	LB/GAL	L	
83.324	mL	DIREX	4	LB/GAL	L	
104.155	mL	WARRANT	3	LB/GAL	L	
20.831	mL	BRAKE	1.2	LB/GAL	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.

University of Tennessee

ALITE 27 / LIBERTYLINK GT27 SOYBEAN SYSTEM CONSERVATION TILL

Trial ID: MKD-H-2019-US-D62-A-04.0	Location:	Trial Year: 2019
Protocol ID: MKD-H-2019-US-D62-A-04.0	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Darren Unland	
	Sponsor Contact:	

General Trial Information

Study Director: Darren Unland
Investigator: Dr. Larry Steckel

Trial Status: E established
ARM Trial Created On: May-6-2019

Conducted Under GLP: No
Conducted Under GEP: No

Objectives:

Evaluate and demonstrate use of Alite 27 as part of burndown program in the LibertyLink GT27 system

Contacts

Study Director: Darren Unland

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: GLXMA Glycine max Soybean **BBCH Scale:** BSOY
Variety: LLGT27

Pest Description

Pest 1 Type: W **Code:** ERICA Erigeron canadensis
Common Name: Canada horseweed **Entry Date:** Jun-3-2019

Pest 2 Type: W **Code:** AMAPA Amaranthus palmeri
Common Name: Palmer amaranth **Entry Date:** Jun-3-2019

Pest 3 Type: W **Code:** 1SIDG Sida
Common Name: Sida **Entry Date:** Jun-3-2019
Attributes: Teaweed

Site and Design

Treated Plot Width: 5 m
Treated Plot Length: 30 m
Treated Plot Area: 150 m² **Treatments:** 10
Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	May-8-2019	
Appl. Start Time	9:09 AM	
Appl. Stop Time	9:21 AM	
Application Method	SPRAY	
Application Timing	PREPLA	NA2
Application Placement	BROFOL	
Applied By	CP	
Appl. Entry Date	Jun-3-2019	
Air Temperature Start, Stop	81 F	
% Relative Humidity Start, Stop	66	
Wind Velocity+Dir. Start	5 MPH SE	
Wet Leaves (Y/N)	N no	
Soil Temperature	70 F	
% Cloud Cover	10	

Crop Stage At Each Application

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

University of Tennessee

ALITE 27 / LIBERTYLINK GT27 SOYBEAN SYSTEM CONSERVATION TILL		
Trial ID: MKD-H-2019-US-D62-A-04.0	Location:	Trial Year: 2019
Protocol ID: MKD-H-2019-US-D62-A-04.0	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Darren Unland	
	Sponsor Contact:	

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale	ERICA W	ERICA W
Pest 2 Code, Type, Scale	AMAPA W	AMAPA W
Pest 3 Code, Type, Scale	1SIDG W	1SIDG W

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	5 MPH	
Spray Volume	15 GAL/AC	
Mix Size	2 L	

Date	By	Context	Notes
May-6-2019	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 meters
 Spray vol: 15 GAL/AC Mix Size: 2 L (total for 4 plots; minimum=8.42 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Supplier	Rate	Rate Unit	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Produced to Measure
1	CHECK														
2	ZIDUA PRO	490 GA/L	SC	H	BAS		6.0 fl oz/a		VS	A	15 GAL/AC		2 L		6.25 mL/m ²
	ROUNDUP POWERMAX	540 GA/L	SL	H	BAS		32.0 fl oz/a		VS	A	15 GAL/AC		2 L		33.33 mL/m ²
	AMMONIUM SULFATE (21% N)	100 %	SG	S	BAS		17.0 lb/100 gal		VS	A	15 GAL/AC		2 L		40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000 GA/L	OL	S	BAS		1.0 % v/v		VS	A	15 GAL/AC		2 L		20.0 mL/m ²
	2,4-D	456 gAE/L	EC				1 pt/a			A	15 GAL/AC		2 L		16.67 mL/m ²
	LIBERTY 280 SL	280 GA/L	SL	H	BAS		32.0 fl oz/a		NA2	B	15 GAL/AC		2 L		33.33 mL/m ²
	ROUNDUP POWERMAX	540.0 GA/L	SL	H	BAS		32.0 fl oz/a		NA2	B	15 GAL/AC		2 L		33.33 mL/m ²
	AMMONIUM SULFATE (21% N)	100.0 %	SG	S	BAS		3.0 lb/a		NA2	B	15 GAL/AC		2 L		47.93 g/m ²
3	ALITE 27	486 GA/L	SC	H	BAS		2.0 fl oz/a		VS	A	15 GAL/AC		2 L		2.083 mL/m ²
	ZIDUA PRO	490 GA/L	SC	H	BAS		6.0 fl oz/a		VS	A	15 GAL/AC		2 L		6.25 mL/m ²
	ROUNDUP POWERMAX	540 GA/L	SL	H	BAS		32.0 fl oz/a		VS	A	15 GAL/AC		2 L		33.33 mL/m ²
	AMMONIUM SULFATE (21% N)	100 %	SG	S	BAS		17.0 lb/100 gal		VS	A	15 GAL/AC		2 L		40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000 GA/L	OL	S	BAS		1.0 % v/v		VS	A	15 GAL/AC		2 L		20.0 mL/m ²
	2,4-D	456 gAE/L	EC				1 pt/a			A	15 GAL/AC		2 L		16.67 mL/m ²
	LIBERTY 280 SL	280 GA/L	SL	H	BAS		32.0 fl oz/a		NA2	B	15 GAL/AC		2 L		33.33 mL/m ²
	ROUNDUP POWERMAX	540.0 GA/L	SL	H	BAS		32.0 fl oz/a		NA2	B	15 GAL/AC		2 L		33.33 mL/m ²
	AMMONIUM SULFATE (21% N)	100.0 %	SG	S	BAS		3.0 lb/a		NA2	B	15 GAL/AC		2 L		47.93 g/m ²
4	SONIC	70 %	WG	H	BAS		5.0 oz wt/a		VS	A	15 GAL/AC		2 L		4.993 g/m ²
	ROUNDUP POWERMAX	540 GA/L	SL	H	BAS		32.0 fl oz/a		VS	A	15 GAL/AC		2 L		33.33 mL/m ²
	AMMONIUM SULFATE (21% N)	100 %	SG	S	BAS		17.0 lb/100 gal		VS	A	15 GAL/AC		2 L		40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000 GA/L	OL	S	BAS		1.0 % v/v		VS	A	15 GAL/AC		2 L		20.0 mL/m ²
	2,4-D	456 gAE/L	EC				1 pt/a			A	15 GAL/AC		2 L		16.67 mL/m ²
	LIBERTY 280 SL	280 GA/L	SL	H	BAS		32.0 fl oz/a		NA2	B	15 GAL/AC		2 L		33.33 mL/m ²
	ROUNDUP POWERMAX	540.0 GA/L	SL	H	BAS		32.0 fl oz/a		NA2	B	15 GAL/AC		2 L		33.33 mL/m ²
	AMMONIUM SULFATE (21% N)	100.0 %	SG	S	BAS		3.0 lb/a		NA2	B	15 GAL/AC		2 L		47.93 g/m ²

University of Tennessee

ALITE 27 / LIBERTYLINK GT27 SOYBEAN SYSTEM CONSERVATION TILL	
Trial ID: MKD-H-2019-US-D62-A-04.0	Location: Trial Year: 2019
Protocol ID: MKD-H-2019-US-D62-A-04.0	Investigator: Dr. Larry Steckel
Project ID:	Study Director: Darren Unland
	Sponsor Contact:

Reps: 4 Plots: 5 by 30 meters
 Spray vol: 15 GAL/AC Mix Size: 2 L (total for 4 plots; minimum=8.42 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Registration Number	Supplier	Rate Unit	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure
5	ALITE 27	486	GAL	SC	H	BAS	2.0 fl oz/a	VS	A	15	GAL/AC	2	L	2.083 mL/r
	SONIC	70	%	WG	H	BAS	5.0 oz wt/a	VS	A	15	GAL/AC	2	L	4.993 g/m ²
	ROUNDUP POWERMAX	540	GAL	SL	H	BAS	32.0 fl oz/a	VS	A	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100	%	SG	S	BAS	17.0 lb/100 gal	VS	A	15	GAL/AC	2	L	40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000	GAL	OL	S	BAS	1.0 % v/v	VS	A	15	GAL/AC	2	L	20.0 mL/m ²
	2,4-D	456	gAE/L	EC			1 pt/a		A	15	GAL/AC	2	L	16.67 mL/r
	LIBERTY 280 SL	280	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	3.0 lb/a	NA2	B	15	GAL/AC	2	L	47.93 g/m ²	
6	BOUNDARY	936	GAL	EC	H	BAS	24.0 fl oz/a	VS	A	15	GAL/AC	2	L	25.0 mL/m ²
	ROUNDUP POWERMAX	540	GAL	SL	H	BAS	32.0 fl oz/a	VS	A	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100	%	SG	S	BAS	17.0 lb/100 gal	VS	A	15	GAL/AC	2	L	40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000	GAL	OL	S	BAS	1.0 % v/v	VS	A	15	GAL/AC	2	L	20.0 mL/m ²
	2,4-D	456	gAE/L	EC			1 pt/a		A	15	GAL/AC	2	L	16.67 mL/r
	LIBERTY 280 SL	280	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	3.0 lb/a	NA2	B	15	GAL/AC	2	L	47.93 g/m ²
7	ALITE 27	486	GAL	SC	H	BAS	2.0 fl oz/a	VS	A	15	GAL/AC	2	L	2.083 mL/r
	BOUNDARY	936	GAL	EC	H	BAS	24.0 fl oz/a	VS	A	15	GAL/AC	2	L	25.0 mL/m ²
	ROUNDUP POWERMAX	540	GAL	SL	H	BAS	32.0 fl oz/a	VS	A	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100	%	SG	S	BAS	17.0 lb/100 gal	VS	A	15	GAL/AC	2	L	40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000	GAL	OL	S	BAS	1.0 % v/v	VS	A	15	GAL/AC	2	L	20.0 mL/m ²
	2,4-D	456	gAE/L	EC			1 pt/a		A	15	GAL/AC	2	L	16.67 mL/r
	LIBERTY 280 SL	280	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	3.0 lb/a	NA2	B	15	GAL/AC	2	L	47.93 g/m ²	
8	AUTHORITY ASSIST	480	GAL	SC	H	BAS	5.0 fl oz/a	VS	A	15	GAL/AC	2	L	5.208 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	VS	A	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	17.0 lb/100 gal	VS	A	15	GAL/AC	2	L	40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000.0	GAL	OL	S	BAS	1.0 % v/v	VS	A	15	GAL/AC	2	L	20.0 mL/m ²
	2,4-D	456	gAE/L	EC			1 pt/a		A	15	GAL/AC	2	L	16.67 mL/r
	LIBERTY 280 SL	280.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	3.0 lb/a	NA2	B	15	GAL/AC	2	L	47.93 g/m ²
9	ALITE 27	486.0	GAL	SC	H	BAS	2.0 fl oz/a	VS	A	15	GAL/AC	2	L	2.083 mL/r
	AUTHORITY ASSIST	480	GAL	SC	H	BAS	5.0 fl oz/a	VS	A	15	GAL/AC	2	L	5.208 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	VS	A	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	17.0 lb/100 gal	VS	A	15	GAL/AC	2	L	40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000.0	GAL	OL	S	BAS	1.0 % v/v	VS	A	15	GAL/AC	2	L	20.0 mL/m ²
	2,4-D	456	gAE/L	EC			1 pt/a		A	15	GAL/AC	2	L	16.67 mL/r
	LIBERTY 280 SL	280.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	3.0 lb/a	NA2	B	15	GAL/AC	2	L	47.93 g/m ²	
10	ALITE 27	486.0	GAL	SC	H	BAS	3.0 fl oz/a	VS	A	15	GAL/AC	2	L	3.125 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	VS	A	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	17.0 lb/100 gal	VS	A	15	GAL/AC	2	L	40.74 g/m ²
	METHYLATED SEED OIL - SOYBEAN	1000.0	GAL	OL	S	BAS	1.0 % v/v	VS	A	15	GAL/AC	2	L	20.0 mL/m ²
	2,4-D	456	gAE/L	EC			1 pt/a		A	15	GAL/AC	2	L	16.67 mL/r
	LIBERTY 280 SL	280.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	ROUNDUP POWERMAX	540.0	GAL	SL	H	BAS	32.0 fl oz/a	NA2	B	15	GAL/AC	2	L	33.33 mL/r
	AMMONIUM SULFATE (21% N)	100.0	%	SG	S	BAS	3.0 lb/a	NA2	B	15	GAL/AC	2	L	47.93 g/m ²

Sort Order: Treatment

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

University of Tennessee

Trial ID: SYNLLGT2719	Location: JACKSON	LLGT27
Protocol ID: SYN LLGT27	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: 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: S17008
Attributes: LLGT27
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 FT² **Treatments:** 4 **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	2:55 PM	
Appl. Stop Time	3:02 AM	
Application Method	SPRAY	
Application Timing	PRE	
Application Placement	BROADC	
Applied By	JR	
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	NORM	
% Cloud Cover	20	

Crop Stage At Each Application

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

University of Tennessee

Trial ID: SYNLLGT2719	Location: JACKSON	LLGT27	Trial Year: 2019
Protocol ID: SYN LLGT27	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	
Spray Volume	15 GAL/AC	
Mix Size	2 L	

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	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	204	301	404
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	ZEMAX	3.67 LBA/GAL	L		2 qt/a	PRE	A	15 GAL/AC	2 L			66.67 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		2 pt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	SL		2.25 pt/a	POST	B	15 GAL/AC	2 L			37.5 mL/mx				
	DUAL MAGNUM	7.62 LBA/GAL	EC		1.3 pt/a	POST	B	15 GAL/AC	2 L			21.67 mL/mx				
2	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	102	203	304	403
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	ZEMAX	3.67 LBA/GAL	L		2 qt/a	PRE	A	15 GAL/AC	2 L			66.67 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	PREFIX	5.29 LBA/GAL	EC		1 qt/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				
	ZEMAX	3.67 LBA/GAL	L		2 qt/a	PRE	A	15 GAL/AC	2 L			66.67 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	PREFIX	5.29 LBA/GAL	EC		1 qt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	SL		2.25 pt/a	POST	B	15 GAL/AC	2 L			37.5 mL/mx				
4	NIS	100 %	SL		0.25 % v/v	PRE	A	15 GAL/AC	2 L			4.999 mL/mx	104	201	302	401
	GRAMOXONE SL 2.0	2 LBA/GAL	SL		48 oz/a	PRE	A	15 GAL/AC	2 L			50.0 mL/mx				
	ZEMAX	3.67 LBA/GAL	L		2 qt/a	PRE	A	15 GAL/AC	2 L			66.67 mL/mx				
	TRICOR DF	75 %AW/W	DF		0.25 lb/a	PRE	A	15 GAL/AC	2 L			3.994 g/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		2 pt/a	POST	B	15 GAL/AC	2 L			33.33 mL/mx				
	LIBERTY 280 SL	2.34 LBA/GAL	SL		2.25 pt/a	POST	B	15 GAL/AC	2 L			37.5 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
24.997	mL	NIS	100	%	SL	
250.000	mL	GRAMOXONE SL 2.0	2	LBA/GAL	SL	

University of Tennessee

LL Systems - TOUGH

Trial ID: JS-LLTOUGH-19	Location: Jackson, TN	Trial Year: 2019
Protocol ID: JS-LLTOUGH-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: LIBERTY LINK

Site and Design

Treated Plot Width: 5 FT

Treated Plot Length: 30 FT

Treated Plot Area: 150 FT² Treatments: 5

Replications: 4

Study Design: RAOBL Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	May-23-2019	
Appl. Start Time	3:00 PM	
Application Method	SPRAY	
Application Placement	BROADC	
Appl. Entry Date	Jun-11-2019	
Air Temperature Start, Stop	95 F	
% Relative Humidity Start, Stop	50	
Wind Velocity+Dir. Start	5 MPH SW	
Wet Leaves (Y/N)	N no	
Soil Temperature	90 F	
% Cloud Cover	20	

Crop Stage At Each Application

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

Application Equipment

	A	B
Appl. Equipment	TRACTOR	

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.

University of Tennessee

LL Systems - TOUGH

Trial ID: JS-LLTOUGH-19	Location: Jackson, TN	Trial Year: 2019
Protocol ID: JS-LLTOUGH-19	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 Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep			
													1	2	3	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	204	303	404
2	DUAL II MAGNUM LIBERTY Ammonium Sulfate	7.64 280 g/L 100 %	LBA/GAL g/L %	EC SL SG	2 29 fl oz/a 1.5 lb/a	pt/a oz/a lb/a	A B B	15 15 15	GAL/AC GAL/AC GAL/AC	2 2 2	L L L	33.33 mL/mx 30.21 mL/mx 23.97 g/mx	102	203	301	405
3	DUAL II MAGNUM LIBERTY TOUGH Ammonium Sulfate	7.64 280 g/L 5 100 %	LBA/GAL g/L LBA/GAL %	EC SL EC SG	2 29 fl oz/a 8 fl oz/a 1.5 lb/a	pt/a oz/a oz/a lb/a	A B B B	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	33.33 mL/mx 30.21 mL/mx 8.333 mL/mx 23.97 g/mx	103	202	304	402
4	DUAL II MAGNUM LIBERTY PREFIX [F] Ammonium Sulfate	7.64 280 g/L 631.68 gA/L 100 %	LBA/GAL g/L gA/L %	EC SL EC SG	2 29 fl oz/a 2 pt/a 1.5 lb/a	pt/a oz/a pt/a lb/a	A B B B	15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2	L L L L	33.33 mL/mx 30.21 mL/mx 33.33 mL/mx 23.97 g/mx	104	205	302	401
5	DUAL II MAGNUM LIBERTY PREFIX [F] TOUGH Ammonium Sulfate	7.64 280 g/L 631.68 gA/L 5 100 %	LBA/GAL g/L gA/L LBA/GAL %	EC SL EC EC SG	2 29 fl oz/a 2 pt/a 8 fl oz/a 1.5 lb/a	pt/a oz/a pt/a oz/a lb/a	A B B B B	15 15 15 15 15	GAL/AC GAL/AC GAL/AC GAL/AC GAL/AC	2 2 2 2 2	L L L L L	33.33 mL/mx 30.21 mL/mx 33.33 mL/mx 8.333 mL/mx 23.97 g/mx	105	201	305	403

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
208.333	mL	DUAL II MAGNUM	7.64	LBA/GAL	EC	
151.042	mL	LIBERTY	280	g/L	SL	
119.826	g	Ammonium Sulfate	100	%	SG	
20.833	mL	TOUGH	5	LBA/GAL	EC	
83.333	mL	PREFIX [F]	631.68	gA/L	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: 19-A-M-AMZ-XXM-COT	Double X with Xtendimax plus glyphosate	Location: TN
Protocol ID: 19-A-M-AMZ-XXM-COMP1	Investigator: Dr. Larry Steckel	Trial Year: 2019
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: Apr-2-2019
Initiation Date: May-22-2019

Trial Location

Country: USA United States
State/Prov.: Tennessee

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Ryan Edwards

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: GOSHI Gossypium hirsutum American upland cotton
Entry Date: Jun-6-2019
Variety: AG46X6

Pest Description

Pest 1 Type: W **Code:** AMAPA Amaranthus palmeri
Common Name: Palmer amaranth **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 FT2 **Treatments:** 11 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

Application Description

	A
Application Date	May-22-2019
Appl. Start Time	7:43 AM
Appl. Stop Time	7:56 AM
Application Method	SPRAY
Application Placement	BROADC
Applied By	JR
Appl. Entry Date	Jun-6-2019
Air Temperature Start, Stop	75 75 F
% Relative Humidity Start, Stop	76 76
Wind Velocity+Dir. Start	3 MPH SE
Wind Velocity+Dir. Stop	3 MPH SE
Wet Leaves (Y/N)	N no
Soil Temperature	74 F
Soil Moisture	NORMAL
% Cloud Cover	100

Crop Stage At Each Application

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

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	AMAPA W
Height Average	2 IN

University of Tennessee

Trial ID: 19-A-M-AMZ-XXM-COT	Double X with Xtendimax plus glyphosate	Location: TN	Trial Year: 2019
Protocol ID: 19-A-M-AMZ-XXM-COMP1	Investigator: Dr. Larry Steckel	Study Director: Ryan Edwards	
Project ID:	Sponsor Contact:		

Application Equipment

	A
Appl. Equipment	BCKPK
Equipment Type	BACCAI
Operation Pressure	30 PSI
Nozzle Type	TTI
Nozzle Size	11003
Nozzle Spacing	19 IN
Boom Length	6.33 FT
Ground Speed	4 MPH
Carrier	WATER
Spray Volume	15 GAL/AC
Mix Size	2 L
Propellant	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-6-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Initiation 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 Registration Type	Registration Number	Supplier	Rate Unit	Appl Code	Amt Product to Measure	Rep			
										1	2	3	4
1	Untreated Check									101	205	308	409
2	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		22 fl oz/a A		22.92 mL/mx	102	201	311	408
	XTENDIMAX	2.9 LBAE/GAL	L				22 fl oz/a A		22.92 mL/mx				
	ON TARGET	100 %w/w	L	Exempt	Win		0.5 % v/v A		9.999 mL/mx				
3	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		22 fl oz/a A		22.92 mL/mx	103	202	309	404
	XTENDIMAX	2.9 LBAE/GAL	L				22 fl oz/a A		22.92 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	Exempt	Win		1 % v/v A		20.0 mL/mx				
	ON TARGET	100 %w/w	L	Exempt	Win		0.5 % v/v A		9.999 mL/mx				
4	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		22 fl oz/a A		22.92 mL/mx	104	208	304	405
	XTENDIMAX	2.9 LBAE/GAL	L				22 fl oz/a A		22.92 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	Exempt	Win		1 % v/v A		20.0 mL/mx				
	ON TARGET	100 %w/w	L	Exempt	Win		0.5 % v/v A		9.999 mL/mx				
	INTERLOCK	100 %w/w	L		Win		2 fl oz/a A		2.083 mL/mx				
5	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		22 fl oz/a A		22.92 mL/mx	105	209	301	406
	XTENDIMAX	2.9 LBAE/GAL	L				22 fl oz/a A		22.92 mL/mx				
	DOUBLE X	100 %w/w	L				0.5 % v/v A		9.999 mL/mx				
6	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		22 fl oz/a A		22.92 mL/mx	106	210	303	407
	XTENDIMAX	2.9 LBAE/GAL	L				22 fl oz/a A		22.92 mL/mx				
	DOUBLE X	100 %w/w	L				0.5 % v/v A		9.999 mL/mx				
	INTERLOCK	100 %w/w	L		Win		2 fl oz/a A		2.083 mL/mx				
7	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		11 fl oz/a A		11.46 mL/mx	107	203	307	410
	XTENDIMAX	2.9 LBAE/GAL	L				11 fl oz/a A		11.46 mL/mx				
	ON TARGET	100 %w/w	L	Exempt	Win		0.5 % v/v A		9.999 mL/mx				
8	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		11 fl oz/a A		11.46 mL/mx	108	211	310	401
	XTENDIMAX	2.9 LBAE/GAL	L				11 fl oz/a A		11.46 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	Exempt	Win		1 % v/v A		20.0 mL/mx				
	ON TARGET	100 %w/w	L	Exempt	Win		0.5 % v/v A		9.999 mL/mx				
9	ROUNDUP POWERMAX	5.5 lb/gal	L	524-549	Mon		11 fl oz/a A		11.46 mL/mx	109	206	305	403
	XTENDIMAX	2.9 LBAE/GAL	L				11 fl oz/a A		11.46 mL/mx				
	CLASS ACT RIDION	100 %w/w	L	Exempt	Win		1 % v/v A		20.0 mL/mx				
	ON TARGET	100 %w/w	L	Exempt	Win		0.5 % v/v A		9.999 mL/mx				
	INTERLOCK	100 %w/w	L		Win		2 fl oz/a A		2.083 mL/mx				

University of Tennessee

Trial ID: 19-A-M-AMZ-XXM-COT	Double X with Xtendimax plus glyphosate	Location: TN
Protocol ID: 19-A-M-AMZ-XXM-COMP1	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director: Ryan Edwards	
	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	Registration Number	Supplier	Rate Unit	Appl Code	Amt Product to Measure	Rep			
										1	2	3	4
10	ROUNDUP POWERMAX	5.5 lb/gal	L	L	524-549	Mon	11 fl oz/a	A	11.46 mL/mx	110	204	302	411
	XTENDIMAX	2.9 LBAE/GAL	L	L			11 fl oz/a	A	11.46 mL/mx				
	DOUBLE X	100 %w/w	L	L			0.5 % v/v	A	9.999 mL/mx				
11	ROUNDUP POWERMAX	5.5 lb/gal	L	L	524-549	Mon	11 fl oz/a	A	11.46 mL/mx	111	207	306	402
	XTENDIMAX	2.9 LBAE/GAL	L	L			11 fl oz/a	A	11.46 mL/mx				
	DOUBLE X	100 %w/w	L	L			0.5 % v/v	A	9.999 mL/mx				
	INTERLOCK	100 %w/w	L	L		Win	2 fl oz/a	A	2.083 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
214.844	mL	ROUNDUP POWERMAX	5.5	lb/gal	L	
214.844	mL	XTENDIMAX	2.9	LBAE/GAL	L	
74.992	mL	ON TARGET	100	%w/w	L	
99.989	mL	CLASS ACT RIDION	100	%w/w	L	
10.417	mL	INTERLOCK	100	%w/w	L	
49.995	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

Ratio Comparison of Interline + Moc2+ vs Intermoc in Cotton

Trial ID: H19USGOSHI-INTL-TN-04-CS upl	Location: TN	Trial Year: 2019
Protocol ID: H19USGOSHI-INTL-TN-04-CS	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Steckel	
	Sponsor Contact:	

Pest Stage At Each Application

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

Application Equipment

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

Date	By	Context	Notes
Mar-26-2019	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: 12.6 by 30 feet
 Spray vol: 15 GAL/AC Mix Size: 2 L (total for 4 plots; minimum=1.971 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Rate Code	Amt Product to Measure	Rep			
									1	2	3	4
1	Untreated Check								102	202	304	402
2	Intermoc	428 g/L	EC		1.78 lb ai/a	A		66.53 mL/mx	101	201	303	404
3	Interline	2.34 LBA/GAL	SC		0.585 lb ai/a	A		33.33 mL/mx	103	204	301	403
	Moccasin II Plus	7.64 LBA/GAL	EC		0.955 lb ai/a	A		16.66 mL/mx				
4	Interline	2.34 LBA/GAL	SC		0.585 lb ai/a	A		33.33 mL/mx	104	203	302	401
	Warrant	3 LBA/GAL	EC		1.43 lb ai/a	A		63.55 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
83.169	mL	Intermoc	428	g/L	EC	
83.324	mL	Interline	2.34	LBA/GAL	SC	
20.831	mL	Moccasin II Plus	7.64	LBA/GAL	EC	
79.436	mL	Warrant	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: H19USZEAMX-INMC-AR-17-CS	InterMoc/Field Corn/Broadleaf & Grass Weeds	Location: TN
Protocol ID: H19USZEAMX-INMC-AR-17-CS		Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel	
	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: Mar-26-2019
Planned Completion Date: Oct-31-2019

Trial Location

Country: USA United States

Conducted Under GLP: No
Conducted Under GEP: No

Keywords: InterMoc, field corn, metribuzin

Objectives:

Demonstrate weed control efficacy of InterMoc when used at 70 Fl oz/A field rate versus competitors.

Contacts

Study Director: Larry Steckel

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: ZEAMX Zea mays Corn

Pest Description

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

Site and Design

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

Field Prep./Maintenance:

Establish trial utilizing normal practices

Application Description

	A	B
Application Date	Apr-29-2019	May-28-2019
Appl. Start Time	1:50 PM	10:12 AM
Appl. Stop Time	2:02 PM	10:18 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROADC	BROFOL
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-6-2019
Air Temperature Start, Stop	78 F	85 85 F
% Relative Humidity Start, Stop	60	68 68
Wind Velocity+Dir. Start	8 MPH SW	9 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	88 F
% Cloud Cover	60	70

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR
Stage Majority, Percent		V3

University of Tennessee

Trial ID: H19USZEAMX-INMC-AR-17-CS	InterMoc/Field Corn/Broadleaf & Grass Weeds	
Protocol ID: H19USZEAMX-INMC-AR-17-CS	Location: TN	Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel	
	Study Director: Larry Steckel	
	Sponsor Contact: Clyde Smith	

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		6 IN
Height Minimum, Maximum		2 8

Application Equipment

	A	B
Appl. Equipment	BACKPACK	BCKPK
Equipment Type	SPRAYE	BACCAI
Operation Pressure	30 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	11003	025
Nozzle Spacing		20 IN
Boom Length	5 FT	5 FT
Boom Height		16 IN
Ground Speed	4 MPH	4 MPH
Carrier		WATER
Spray Volume	15 GAL/AC	15 GAL/AC
Mix Overage		0 mL
Mix Size	2 L	2 L
Propellant		COMCO2

Date	By	Context	Notes
Mar-26-2019	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	Appl Code	Amt Product to Measure	Rep			
								1	2	3	4
1	Untreated							101	205	301	403
2	Atrazine	4 LBA/GAL	F		1 lb ai/a	A	33.33 mL/mx	102	201	303	401
3	Atrazine	4 LBA/GAL	F		1 lb ai/a	A	33.33 mL/mx	103	202	304	405
	InterMoc	428 g/L	F		1.95 lb ai/a	B	72.89 mL/mx				
	Ammonium Sulfate	100 %	SG		8.5 lb/100 gal	B	20.37 g/mx				
4	Atrazine	4 LBA/GAL	F		1 lb ai/a	A	33.33 mL/mx	104	206	305	406
	InterMoc	428 g/L	F		1.95 lb ai/a	B	72.89 mL/mx				
	Motif	480 g/L	SC		0.105 lb ai/a	B	3.5 mL/mx				
	Ammonium Sulfate	100 %	SG		8.5 lb/100 gal	B	20.37 g/mx				
	COC	100 %	SL		1 gal/100 gal	B	20.0 mL/mx				
5	Atrazine	4 LBA/GAL	F		1 lb ai/a	A	33.33 mL/mx	105	203	302	404
	Halex GT	4.389 LBA/GAL	EC		2.2 lb ai/a	B	66.83 mL/mx				
	NIS	100 %	SL		0.25 % v/v	B	4.999 mL/mx				
	Ammonium Sulfate	100 %	SG		8.5 lb/100 gal	B	20.37 g/mx				
6	BICEP II MAGNUM	5.5 LBA/GAL	SC		1 qt/a	A	33.33 mL/mx	106	204	306	402
	HALEX GT	4.39 LB/GAL	SC		1.6 pt/a	B	26.67 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
166.649	mL	Atrazine	4	LBA/GAL	F	
182.223	mL	InterMoc	428	g/L	F	
76.389	g	Ammonium Sulfate	100	%	SG	

University of Tennessee

EVALUATION OF IMPACTZ IN UNIVERSITY TRIALS

Trial ID: 19C04H020TN19	Location: JACKSON TN	Trial Year: 2019
Protocol ID: 19C04H020TN	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: ZEAMX Zea mays Corn

Site and Design

Treated Plot Width: 10 FT

Treated Plot Length: 30 FT

Treated Plot Area: 300 FT²

Replications: 4

Treatments: 6

Site Type: FIELD field

Tillage Type: NOTILL no-till

Study Design: RACOB L Randomized Complete Block (RCB)

Application Description

	A
Application Date	Apr-29-2019
Appl. Start Time	1:50 PM
Appl. Stop Time	2:02 PM
Application Method	SPRAY
Application Timing	PREPLA
Application Placement	BROFOL
Applied By	CP
Appl. Entry Date	Jun-3-2019
Air Temperature Start, Stop	78 F
% Relative Humidity Start, Stop	60
Wind Velocity+Dir. Start	8 MPH SW
Wet Leaves (Y/N)	N no
Soil Temperature	70 F
% Cloud Cover	60

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	ZEAMX BCOR

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	4 MPH
Spray Volume	15 GAL/AC
Mix Size	2 L

University of Tennessee

EVALUATION OF IMPACTZ IN UNIVERSITY TRIALS

Trial ID: 19C04H020TN19	Location: JACKSON TN	Trial Year: 2019
Protocol ID: 19C04H020TN	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

Date	By	Context	Notes
Apr-12-2019	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	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check											101	203	305	403
2	ImpactZ	4.26 LB/GAL	SC	8 oz/a	A		15 GAL/AC	2 L			8.333 mL/mx	102	206	301	402
	ATRAZINE	4 LB/GAL	F	4 pt/a	A		15 GAL/AC	2 L			66.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	A		15 GAL/AC	2 L			33.33 mL/mx				
	MSO	100 %	SL	0.25 % v/v	A		15 GAL/AC	2 L			4.999 mL/mx				
	Ammonium Sulfate	100 %	SG	2.5 % v/v	A		15 GAL/AC	2 L			49.99 g/mx				
3	ImpactZ	4.26 LB/GAL	SC	8 oz/a	A		15 GAL/AC	2 L			8.333 mL/mx	103	202	304	401
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	A		15 GAL/AC	2 L			33.33 mL/mx				
	ZIDUA	0.85 %AW/W	WG	2 oz/a	A		15 GAL/AC	2 L			1.997 g/mx				
	MSO	100 %	SL	0.25 % v/v	A		15 GAL/AC	2 L			4.999 mL/mx				
	Ammonium Sulfate	100 %	SG	2.5 % v/v	A		15 GAL/AC	2 L			49.99 g/mx				
4	ImpactZ	4.26 LB/GAL	SC	8 oz/a	A		15 GAL/AC	2 L			8.333 mL/mx	104	205	302	405
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL	32 oz/a	A		15 GAL/AC	2 L			33.33 mL/mx				
	DUAL MAGNUM	7.62 LBA/GAL	EC	1 pt/a	A		15 GAL/AC	2 L			16.67 mL/mx				
	MSO	100 %	SL	0.25 % v/v	A		15 GAL/AC	2 L			4.999 mL/mx				
	Ammonium Sulfate	100 %	SG	2.5 % v/v	A		15 GAL/AC	2 L			49.99 g/mx				
5	HALEX GT	4.39 LB/GAL	SC	3.6 pt/a	A		15 GAL/AC	2 L			60.0 mL/mx	105	204	306	404
	NIS	100 %	SL	0.25 % v/v	A		15 GAL/AC	2 L			4.999 mL/mx				
	Ammonium Sulfate	100 %	SG	2.5 % v/v	A		15 GAL/AC	2 L			49.99 g/mx				
6	BICEP II MAGNUM	5.5 LBA/GAL	SC	2 qt/a	A		15 GAL/AC	2 L			66.67 mL/mx	106	201	303	406
	NIS	100 %	SL	0.25 % v/v	A		15 GAL/AC	2 L			4.999 mL/mx				
	Ammonium Sulfate	100 %	SG	2.5 % v/v	A		15 GAL/AC	2 L			49.99 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
31.250	mL	ImpactZ	4.26	LB/GAL	SC	
83.333	mL	ATRAZINE	4	LB/GAL	F	
125.000	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	
18.748	mL	MSO	100	%	SL	
312.466	g	Ammonium Sulfate	100	%	SG	
2.496	g	ZIDUA	.85	%AW/W	WG	
20.833	mL	DUAL MAGNUM	7.62	LBA/GAL	EC	
75.000	mL	HALEX GT	4.39	LB/GAL	SC	4.38168
12.499	mL	NIS	100	%	SL	
83.333	mL	BICEP II MAGNUM	5.5	LBA/GAL	SC	

* '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.

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Shieldex Control of Palmer Amaranth		
Trial ID: Summitpalmer	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: ZEAMD Zea mays indentata Dent corn
Entry Date: May-28-2019
Variety: Pioneer 0825
Planting Date: Apr-29-2019

Pest Description
Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth 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 ²	Treatments: 16
Replications: 4	Tillage Type: NOTILL no-till
	Study Design: RACOB L Randomized Complete Block (RCB)

Application Description		
	A	B
Application Date	Apr-29-2019	May-28-2019
Appl. Start Time	1:30 PM	10:28 AM
Appl. Stop Time	1:42 PM	11:04 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROADC	BROADC
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-6-2019
Air Temperature Start, Stop	78 F	86 F
% Relative Humidity Start, Stop	60	68
Wind Velocity+Dir. Start	8 MPH SW	9 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	89 F
% Cloud Cover	60	65

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale	ZEAMD BCOR	ZEAMD BCOR
Stage Majority, Percent		V5

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		3 IN
Height Minimum, Maximum		2 5

University of Tennessee

Shieldex Control of Palmer Amaranth

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

Application Equipment

	A	B
Appl. Equipment	BACKPACK	BCKPK
Equipment Type	SPRAYE	BACCAI
Operation Pressure	30 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	11003	025
Nozzle Spacing		20 IN
Boom Length	5 FT	5 FT
Boom Height		16 IN
Ground Speed	5 MPH	4 MPH
Carrier		WATER
Spray Volume	15 GAL/AC	15 GAL/AC
Mix Overage		0 mL
Mix Size	2 L	2 L
Propellant		COMCO2

Date	By	Context	Notes
Apr-22-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
May-24-2019	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	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Surpass NXT	7 LB/GAL	EC		2.1 pt/a	A		15 GAL/AC		2 L		35.0 mL/mx	101	212	308	405
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
2	Surpass NXT	7 LB/GAL	EC		2.1 pt/a	A		15 GAL/AC		2 L		35.0 mL/mx	102	207	301	402
	Princep 4FL	4 LBA/GAL	F		1 lb ai/a	A		15 GAL/AC		2 L		33.33 mL/mx				
3	Surpass NXT	7 LB/GAL	EC		1.7 pt/a	A		15 GAL/AC		2 L		28.33 mL/mx	103	215	304	415
	Shieldex	3.33 LB/GAL	SC		0.85 fl oz/a	A		15 GAL/AC		2 L		0.8854 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
4	Surpass NXT	7 LB/GAL	EC		2.1 pt/a	A		15 GAL/AC		2 L		35.0 mL/mx	104	209	302	404
	Shieldex	3.33 LB/GAL	SC		1 fl oz/a	A		15 GAL/AC		2 L		1.042 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
5	Surpass NXT	7 LB/GAL	EC		1.7 pt/a	A		15 GAL/AC		2 L		28.33 mL/mx	105	203	306	411
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
	Shieldex	3.33 LB/GAL	SC		1 fl oz/a	B		15 GAL/AC		2 L		1.042 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	B		15 GAL/AC		2 L		16.66 mL/mx				
6	Surpass NXT	7 LB/GAL	EC		1.7 pt/a	A		15 GAL/AC		2 L		28.33 mL/mx	106	214	303	408
	Princep 4FL	4 LBA/GAL	F		1 lb ai/a	A		15 GAL/AC		2 L		33.33 mL/mx				
	Shieldex	3.33 LB/GAL	SC		1 fl oz/a	B		15 GAL/AC		2 L		1.042 mL/mx				
	Princep 4FL	4 LBA/GAL	F		1 lb ai/a	B		15 GAL/AC		2 L		33.33 mL/mx				
7	Surpass NXT	7 LB/GAL	EC		1.7 pt/a	A		15 GAL/AC		2 L		28.33 mL/mx	107	216	307	403
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
	Impact	2.8 LB/GAL	SC		1 fl oz/a	B		15 GAL/AC		2 L		1.042 mL/mx				
Atrazine	4 LBA/GAL	F		0.5 lb ai/a	B		15 GAL/AC		2 L		16.66 mL/mx					
8	Surpass NXT	7 LB/GAL	EC		1.7 pt/a	A		15 GAL/AC		2 L		28.33 mL/mx	108	204	305	406
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
	Tembotrione	3.5 LB/GAL	EC		3 fl oz/a	B		15 GAL/AC		2 L		3.125 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	B		15 GAL/AC		2 L		16.66 mL/mx				
9	Surpass NXT	7 LB/GAL	EC		1.7 pt/a	A		15 GAL/AC		2 L		28.33 mL/mx	109	211	312	414
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	A		15 GAL/AC		2 L		16.66 mL/mx				
	Mesotrione	4 LB/GAL	SC		3 fl oz/a	B		15 GAL/AC		2 L		3.125 mL/mx				
	Atrazine	4 LBA/GAL	F		0.5 lb ai/a	B		15 GAL/AC		2 L		16.66 mL/mx				

University of Tennessee

Shieldex Control of Palmer Amaranth

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

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	Appl Code	Spray Volume Unit	Mix Size Unit	Amt to Measure	Rep			
										1	2	3	4
10	Surpass NXT	7	LB/GAL	EC	1.7 pt/a	A	15 GAL/AC	2 L	28.33 mL/mx	110	201	316	413
	Shieldex	3.33	LB/GAL	SC	0.85 fl oz/a	A	15 GAL/AC	2 L	0.8854 mL/mx				
	Atrazine	4	LBA/GAL	F	0.5 lb ai/a	A	15 GAL/AC	2 L	16.66 mL/mx				
	Surpass NXT	7	LB/GAL	EC	1.7 pt/a	B	15 GAL/AC	2 L	28.33 mL/mx				
	Shieldex	3.33	LB/GAL	SC	0.85 fl oz/a	B	15 GAL/AC	2 L	0.8854 mL/mx				
	Atrazine	4	LBA/GAL	F	0.5 lb ai/a	B	15 GAL/AC	2 L	16.66 mL/mx				
11	Surpass NXT	7	LB/GAL	EC	1.05 pt/a	A	15 GAL/AC	2 L	17.5 mL/mx	111	210	309	412
	Shieldex	3.33	LB/GAL	SC	0.5 fl oz/a	A	15 GAL/AC	2 L	0.5208 mL/mx				
	Atrazine	4	LBA/GAL	F	0.5 lb ai/a	A	15 GAL/AC	2 L	16.66 mL/mx				
	Surpass NXT	7	LB/GAL	EC	1.05 pt/a	B	15 GAL/AC	2 L	17.5 mL/mx				
	Shieldex	3.33	LB/GAL	SC	0.5 fl oz/a	B	15 GAL/AC	2 L	0.5208 mL/mx				
	Atrazine	4	LBA/GAL	F	0.5 lb ai/a	B	15 GAL/AC	2 L	16.66 mL/mx				
12	Surpass NXT	7	LB/GAL	EC	1.7 pt/a	A	15 GAL/AC	2 L	28.33 mL/mx	112	206	313	410
	Atrazine	4	LBA/GAL	F	0.5 lb ai/a	A	15 GAL/AC	2 L	16.66 mL/mx				
	Status	61.1	%AEW/W	D	4 oz/a	B	15 GAL/AC	2 L	3.994 g/mx				
	Shieldex	3.33	LB/GAL	SC	1 fl oz/a	B	15 GAL/AC	2 L	1.042 mL/mx				
13	Resicore	9.06	LB/GAL	SL	40 fl oz/a	A	15 GAL/AC	2 L	41.67 mL/mx	113	202	310	407
	Atrazine	4	LB/GAL	F	0.5 lb ai/a	A	15 GAL/AC	2 L	16.66 mL/mx				
	Resicore	9.06	LB/GAL	SL	40 fl oz/a	B	15 GAL/AC	2 L	41.67 mL/mx				
	Atrazine	4	LB/GAL	F	0.5 lb ai/a	B	15 GAL/AC	2 L	16.66 mL/mx				
14	Acuron	2.5	LB/GAL	EC	40 fl oz/a	A	15 GAL/AC	2 L	41.67 mL/mx	114	213	311	416
	Acuron	2.5	LB/GAL	EC	40 fl oz/a	B	15 GAL/AC	2 L	41.67 mL/mx				
15	Armezon Pro	9.4	LB/GAL	SC	20 fl oz/a	A	15 GAL/AC	2 L	20.83 mL/mx	115	205	314	401
	Atrazine	4	LBA/GAL	F	0.5 lb ai/a	A	15 GAL/AC	2 L	16.66 mL/mx				
16	Untreated Check									116	208	315	409

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
493.750	mL	Surpass NXT	7	LB/GAL	EC	
354.128	mL	Atrazine	4	LBA/GAL	F	
124.986	mL	Princep 4FL	4	LBA/GAL	F	
9.831	mL	Shieldex	3.33	LB/GAL	SC	
1.302	mL	Impact	2.8	LB/GAL	SC	
3.906	mL	Temotrione	3.5	LB/GAL	EC	
3.906	mL	Mesotrione	4	LB/GAL	SC	
4.993	g	Status	61.1	%AEW/W	D	
104.167	mL	Resicore	9.06	LB/GAL	SL	
41.662	mL	Atrazine	4	LB/GAL	F	
104.167	mL	Acuron	2.5	LB/GAL	EC	
26.042	mL	Armezon Pro	9.4	LB/GAL	SC	

* '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

EVALUATION OF BCP1312 & TOUGH 5EC

Trial ID: BELCHBCP1312	Location: JACKSON	Trial Year: 2019
Protocol ID: BCP1312	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: LARRY STECKEL	
	Sponsor Contact:	

General Trial Information

Study Director: LARRY STECKEL
Investigator: Dr. Larry Steckel

Trial Status: E established
ARM Trial Created On: May-2-2019

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

Pest Description

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

Site and Design

Treated Plot Width: 5 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT
Treated Plot Area: 150 FT² **Treatments:** 4 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	May-2-2019	May-28-2019
Appl. Start Time	8:51 AM	10:22 AM
Appl. Stop Time	8:54 AM	10:27 AM
Interval to Prev. Appl.		26 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROADC	BROFOL
Applied By	JR	CP
Appl. Entry Date	Jun-3-2019	Jun-6-2019
Air Temperature Start, Stop	76 F	86 86 F
% Relative Humidity Start, Stop	84	66 66
Wind Velocity+Dir. Start	10 MPH SW	9 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	88 F
% Cloud Cover	18	65

Crop Stage At Each Application

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

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		4 IN
Height Minimum, Maximum		2 5

University of Tennessee

Trial ID: SYNCORN19	Location: Jackosn	Corn
Protocol ID:	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: 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: ZEAMX Zea mays Corn

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

Pest 3 Type: W **Code:** GGGAN Annual grasses
Common Name: Annual grasses **Entry Date:** Jun-6-2019

Site and Design

Treated Plot Width: 5 FT

Site Type: FIELD field

Treated Plot Length: 30 FT

Treated Plot Area: 150 FT² **Treatments:** 3 **Tillage Type:** NOTILL no-till**Replications:** 4**Study Design:** RACOB L Randomized Complete Block (RCB)
Application Description

	A	B
Application Date	Apr-29-2019	May-28-2019
Appl. Start Time	1:30 PM	10:07 AM
Appl. Stop Time	1:42 PM	10:11 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROADC	BROFOL
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-6-2019
Air Temperature Start, Stop	78 F	83 83 F
% Relative Humidity Start, Stop	60	68 68
Wind Velocity+Dir. Start	8 MPH SW	9 MPH SW
Wind Velocity+Dir. Stop		9 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	88 F
% Cloud Cover	60	70

Crop Stage At Each Application

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

University of Tennessee

Corn		
Trial ID: SYNCORN19	Location: Jackosn	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		4 IN
Height Minimum, Maximum		2 5
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W
Height Average		4 IN
Height Minimum, Maximum		2 6
Pest 3 Code, Type, Scale	GGGAN W	GGGAN W
Height Average		6 IN
Height Minimum, Maximum		2 9

Application Equipment		
	A	B
Appl. Equipment	BACKPACK	BCKPK
Equipment Type	SPRAYE	BACCAI
Operation Pressure	30 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	11003	025
Nozzle Spacing		20 IN
Boom Length	5 FT	5 FT
Boom Height		16 IN
Ground Speed	5 MPH	4 MPH
Carrier		WATER
Spray Volume	15 GAL/AC	15 GAL/AC
Mix Overage		0 mL
Mix Size	2 L	2 L
Propellant		COMCO2

Date	By	Context	Notes
Apr-12-2019	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	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	NIS	100 %		SL	0.25 % v/v	PRE	A	15 GAL/AC		2 L		4.999 mL/mx		101	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					
	ACURON	3.7 LBA/GAL		ZC	1.25 qt/a	PRE	A	15 GAL/AC		2 L		41.67 mL/mx					
	AATREX 4L	4 LBA/GAL		SC	1 qt/a	PRE	A	15 GAL/AC		2 L		33.33 mL/mx					
	NIS	100 %		SL	0.25 % v/v	POST	B	15 GAL/AC		2 L		4.999 mL/mx					
	ACURON	3.7 LBA/GAL		ZC	1.25 qt/a	POST	B	15 GAL/AC		2 L		41.67 mL/mx					
	AATREX 4L	4 LBA/GAL		SC	1 qt/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	303	402
	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	1 qt/a	PRE	A	15 GAL/AC		2 L		33.33 mL/mx					
	NIS	100 %		SL	0.25 % v/v	POST	B	15 GAL/AC		2 L		4.999 mL/mx					
	HALEX GT	4.389 LBA/GAL		CS	2 qt/a	POST	B	15 GAL/AC		2 L		66.67 mL/mx					
	AATREX 4L	4 LBA/GAL		SC	1 qt/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	301	403
	GRAMOXONE SL 2.0	2 LBA/GAL		SL	48 oz/a	PRE	A	15 GAL/AC		2 L		50.0 mL/mx					
	ACURON	3.7 LBA/GAL		ZC	1.25 qt/a	PRE	A	15 GAL/AC		2 L		41.67 mL/mx					
	NIS	100 %		SL	0.25 % v/v	POST	B	15 GAL/AC		2 L		4.999 mL/mx					
	HALEX GT	4.389 LBA/GAL		CS	2 qt/a	POST	B	15 GAL/AC		2 L		66.67 mL/mx					
	AATREX 4L	4 LBA/GAL		SC	1 qt/a	POST	B	15 GAL/AC		2 L		33.33 mL/mx					

University of Tennessee

Trial ID: 19-TCM-C-POST	Location: Jackson	19-TCM-C-POST
Protocol ID: 19-TCM-C-POST	Investigator: Dr. Larry Steckel	Trial Year: 2019
Project ID:	Study Director: Larry Steckel	
	Sponsor Contact:	

General Trial Information	
Study Director: Larry Steckel	
Investigator: Dr. Larry Steckel	
Trial Status: E established	
ARM Trial Created On: May-1-2019	
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: ZEAMX Zea mays	Corn BBCH Scale: BCOR
Entry Date: May-26-2019	
Variety: Pioneer 1199	
Planting Date: Apr-29-2019	

Pest Description	
Pest 1 Type: W Code: AMAPA Amaranthus palmeri	Entry Date: Jun-3-2019
Common Name: Palmer amaranth	
Pest 2 Type: W Code: IPOLA Ipomoea lacunosa	Entry Date: Jun-3-2019
Common Name: pitted morning glory	
Pest 3 Type: W Code: BRAPP Brachiaria platyphylla	Entry Date: Jun-3-2019
Common Name: Broadleaf signalgrass	

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

Application Description				
	A	B	C	D
Application Date	May-20-2019	May-26-2019	May-28-2019	
Appl. Start Time	3:45 AM	8:58 AM	10:03 AM	
Appl. Stop Time	3:52 AM	9:07 AM	10:05 AM	
Application Method	SPRAY	SPRAY	SPRAY	
Application Timing	PREPLA	PREPLA	PREPLA	
Application Placement	BROFOL	BROFOL	BROFOL	
Applied By	LS	LS	LS	
Appl. Entry Date	Jun-3-2019	Jun-3-2019	Jun-3-2019	
Air Temperature Start, Stop	100 F	84 F	83 F	
% Relative Humidity Start, Stop	31	60	68	
Wind Velocity+Dir. Start	2 MPH E	3.5 MPH SSW	9 MPH SW	
Wet Leaves (Y/N)	N no	Y yes	N no	
Soil Temperature	85 F	80 F	88 F	
% Cloud Cover	15	0	70	

Crop Stage At Each Application				
	A	B	C	D
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Majority, Percent	V5	V5	V6	

University of Tennessee

19-TCM-C-POST

Trial ID: 19-TCM-C-POST Location: Jackson Trial Year: 2019
 Protocol ID: 19-TCM-C-POST Investigator: Dr. Larry Steckel
 Project ID: Study Director: Larry Steckel
 Sponsor Contact:

Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Height Average	2 in	4.5 IN	3.5 in	
Height Minimum, Maximum	1 4	1 8	2 5	
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W	IPOLA W	IPOLA W
Height Average	2 IN		4 in	
Height Minimum, Maximum	1 4		2 6	
Pest 3 Code, Type, Scale	BRAPP W	BRAPP W	BRAPP W	BRAPP W
Height Average	2 IN	2 IN	6 in	
Height Minimum, Maximum	1 3	1 4	3 9	

Application Equipment

	A	B	C	D
Appl. Equipment	BACKPACK	BACKPACK	BACKPACK	
Equipment Type	SPRAYE	SPRAYE	SPRAYE	
Operation Pressure	30 PSI	30 PSI	35 PSI	
Nozzle Type	AIXR	AIXR	AIXR	
Nozzle Size	11003	11003	110025	
Boom Length	5 FT	5 FT	5 FT	
Ground Speed	5 MPH	5 MPH	5 MPH	
Spray Volume	15 GAL/AC	15 GAL/AC	15 GAL/AC	
Mix Size	2 L	2 L	2 L	

Date	By	Context	Notes
May-1-2019	Dr. Larry Steckel	STATUS	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
May-26-2019	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	Rate Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1														101	203	305	408
2	Armezon MSO	2.8 LBA/GAL 100 %		EC SL	0.75 fl oz/a 1 % v/v	A A		15 GAL/AC 15 GAL/AC		2 L 2 L		0.7812 mL/mx 20.0 mL/mx		102	209	306	407
3	AAtrex COC	4 LBA/GAL 100 %		F SL	2 qt/a 1 % v/v	A A		15 GAL/AC 15 GAL/AC		2 L 2 L		66.67 mL/mx 20.0 mL/mx		103	202	304	406
4	Callisto AAtrex COC	4 LBA/GAL 4 LBA/GAL 100 %		EC F SL	5 fl oz/a 1 pt/a 1 % v/v	A A A		15 GAL/AC 15 GAL/AC 15 GAL/AC		2 L 2 L 2 L		5.208 mL/mx 16.67 mL/mx 20.0 mL/mx		104	201	308	410
5	capreno AAtrex COC	3.45 LBA/GAL 4 LBA/GAL 100 %		EC F SL	3 fl oz/a 1 pt/a 1 % v/v	A A A		15 GAL/AC 15 GAL/AC 15 GAL/AC		2 L 2 L 2 L		3.125 mL/mx 16.67 mL/mx 20.0 mL/mx		105	210	303	402
6	Laudis MSO	3.5 LBA/GAL 100 %		EC SL	3 fl oz/a 1 % v/v	A A		15 GAL/AC 15 GAL/AC		2 L 2 L		3.125 mL/mx 20.0 mL/mx		106	205	307	405
7	Calisto AAtrex COC	4 LBA/GAL 4 LBA/GAL 100 %		EC F SL	5 fl oz/a 1 pt/a 1 % v/v	B B B		15 GAL/AC 15 GAL/AC 15 GAL/AC		2 L 2 L 2 L		5.208 mL/mx 16.67 mL/mx 20.0 mL/mx		107	204	309	403
8	Callisto AAtrex COC	4 LBA/GAL 4 LBA/GAL 100 %		EC F SL	5 fl oz/a 1 pt/a 1 % v/v	C C C		15 GAL/AC 15 GAL/AC 15 GAL/AC		2 L 2 L 2 L		5.208 mL/mx 16.67 mL/mx 20.0 mL/mx		108	207	301	409
9	Callisto AAtrex COC	4 LBA/GAL 4 LBA/GAL 100 %		EC F SL	5 fl oz/a 1 pt/a 1 % v/v	D D D		15 GAL/AC 15 GAL/AC 15 GAL/AC		2 L 2 L 2 L		5.208 mL/mx 16.67 mL/mx 20.0 mL/mx		109	206	310	401

University of Tennessee

19-TCM-C-POST

Trial ID: 19-TCM-C-POST	Location: Jackson	Trial Year: 2019
Protocol ID: 19-TCM-C-POST	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Larry Steckel	
	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 Unit	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
10	Callisto	4	LBA/GAL	EC	5 fl oz/a	B		15	GAL/AC	2	L	5.208 mL/mx	110	208	302	404
	AAtrex	4	LBA/GAL	F	1 pt/a	B		15	GAL/AC	2	L	16.67 mL/mx				
	COC	100 %		SL	1 % v/v	B		15	GAL/AC	2	L	20.0 mL/mx				
	Callisto	4	LBA/GAL	EC	5 fl oz/a	D		15	GAL/AC	2	L	5.208 mL/mx				
	AAtrex	4	LBA/GAL	F	1 pt/a	D		15	GAL/AC	2	L	16.67 mL/mx				
	COC	100 %		SL	1 % v/v	D		15	GAL/AC	2	L	20.0 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
0.977	mL	Armezon	2.8	LBA/GAL	EC	
49.995	mL	MSO	100	%	SL	
229.166	mL	AAtrex	4	LBA/GAL	F	
199.978	mL	COC	100	%	SL	
32.552	mL	Callisto	4	LBA/GAL	EC	
3.906	mL	capreno	3.45	LBA/GAL	EC	
3.906	mL	Laudis	3.5	LBA/GAL	EC	
6.510	mL	Calisto	4	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.

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

University of Tennessee

Trial ID: HP19USAWMUUZW1	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: Mar-25-2019

Trial Location

Country: USA United States

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: ZEAMX Zea mays Corn

Entry Date: Jun-12-2019

Planting Date: Apr-29-2019

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

Pest 3 Type: W **Code:** GGGAN **Annual grasses**
Common Name: Annual grasses **Entry Date:** Jun-6-2019

Site and Design

Treated Plot Width: 5 FT

Treated Plot Length: 30 FT

Treated Plot Area: 150 FT²

Replications: 4

Site Type: FIELD field

Tillage Type: NOTILL no-till

Study Design: RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Apr-29-2019	May-28-2019
Appl. Start Time	1:15 AM	9:49 AM
Appl. Stop Time	1:27 AM	10:02 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROADC	BROFOL
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-6-2019
Air Temperature Start, Stop	78 F	83 83 F
% Relative Humidity Start, Stop	60	68 68
Wind Velocity+Dir. Start	8 MPH SW	9 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	88 F
% Cloud Cover	60	70

Crop Stage At Each Application

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

University of Tennessee

Trial ID: HP19USAWMUZW1	Location:	Trial Year: 2019
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		3 in
Height Minimum, Maximum		2 5
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W
Height Average		4 in
Height Minimum, Maximum		2 6
Pest 3 Code, Type, Scale	GGGAN W	GGGAN W
Height Average		6 in
Height Minimum, Maximum		3 9

Application Equipment		
	A	B
Appl. Equipment	BACKPACK	BCKPK
Equipment Type	SPRAYE	BACCAI
Operation Pressure	30 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	11003	025
Nozzle Spacing		20 IN
Boom Length	5 FT	5 FT
Boom Height		16 IN
Ground Speed	4 MPH	4 MPH
Carrier		WATER
Spray Volume	15 GAL/AC	15 GAL/AC
Mix Overage		0 mL
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: 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	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	UNTREATED											101	210	306	409
2	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A	15 GAL/AC	2 L		4.167 mL/mx	102	209	310	405
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx				
	CAPRENO	3.45 LB/GAL	SC		3 oz/a	POST	B	15 GAL/AC	2 L		3.125 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx				
3	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A	15 GAL/AC	2 L		4.167 mL/mx	103	208	304	408
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx				
	CAPRENO	3.45 LB/GAL	SC		3 oz/a	POST	B	15 GAL/AC	2 L		3.125 mL/mx				
	DEGREE EXTRA	4.04 LB/GAL	ME		1.6 qt/a	POST	B	15 GAL/AC	2 L		53.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx				

University of Tennessee

Trial ID: HP19USAWMUZW1	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	Growth Unit	Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
4	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	104	201	302	407
	AATREX	4 LBA/GAL	SL		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWER MAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	CAPRENO	3.45 LB/GAL	SC		3 oz/a	POST	B		15 GAL/AC		2 L		3.125 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	WARRANT	3 LB/GAL	CS		40 oz/a	POST	B		15 GAL/AC		2 L		41.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
5	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	105	204	309	402
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	LAUDIS	3.5 LB/GAL	SC		3 oz/a	POST	B		15 GAL/AC		2 L		3.125 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
6	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	106	207	305	403
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	LAUDIS	3.5 LB/GAL	SC		3 oz/a	POST	B		15 GAL/AC		2 L		3.125 mL/mx				
	DEGREE EXTRA	4.04 LB/GAL	ME		1.6 qt/a	POST	B		15 GAL/AC		2 L		53.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
7	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	107	203	307	410
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	LAUDIS	3.5 LB/GAL	SC		3 oz/a	POST	B		15 GAL/AC		2 L		3.125 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	WARRANT	3 LB/GAL	CS		40 oz/a	POST	B		15 GAL/AC		2 L		41.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
8	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	108	202	308	406
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	DIFLEXX DUO	1.86 LB/GAL	SC		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
9	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	109	205	301	404
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	DIFLEXX DUO	1.86 LB/GAL	SC		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	DEGREE EXTRA	4.04 LB/GAL	ME		1.6 qt/a	POST	B		15 GAL/AC		2 L		53.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
10	BALANCE FLEXX	2 LB/GAL	SC		4 oz/a	PRE	A		15 GAL/AC		2 L		4.167 mL/mx	110	206	303	401
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	PRE	A		15 GAL/AC		2 L		33.33 mL/mx				
	DIFLEXX DUO	1.86 LB/GAL	SC		32 oz/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		1 qt/a	POST	B		15 GAL/AC		2 L		33.33 mL/mx				
	WARRANT	3 LB/GAL	CS		40 oz/a	POST	B		15 GAL/AC		2 L		41.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/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
46.875	mL	BALANCE FLEXX	2%	LB/GAL	0 g/1000	480
583.331	mL	AATREX 4L	4	LBA/GAL	SC	480
708.333	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	540
11.719	mL	CAPRENO	3.45%	LB/GAL	0 g/1000	4.55825
199.999	mL	DEGREE EXTRA	4.04	LB/GAL	ME	4.04167

University of Tennessee

Corn Treatments Evaluating Tough Herbicide - Belchim

Trial ID: BLECHIM CORN 19
 Protocol ID: BELCHIM 19
 Project ID:

Location: Jackson Trial Year: 2019
 Investigator: Dr. Larry Steckel
 Study Director:
 Sponsor Contact:

General Trial Information

Investigator: Dr. Larry Steckel

Trial Status: E established
 ARM Trial Created On: Mar-25-2019
 Initiation Date: Apr-29-2019

Trial Location

Country: USA United States

Conducted Under GLP: No
 Conducted Under GEP: No

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: ZEAMX Zea mays Corn

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

Pest 3 Type: W Code: GGGAN Annual grasses
 Common Name: Annual grasses Entry Date: Jun-6-2019

Site and Design

Treated Plot Width: 5 FT Site Type: FIELD field
 Treated Plot Length: 30 FT
 Treated Plot Area: 150 FT² Treatments: 8 Tillage Type: NOTILL no-till
 Replications: 4 Study Design: RACOB� Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Apr-29-2019	May-28-2019
Appl. Start Time	1:00 PM	9:37 AM
Appl. Stop Time	1:11 PM	9:46 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROADC	BROFOL
Applied By	CP	CP
Appl. Entry Date	Jun-3-2019	Jun-6-2019
Air Temperature Start, Stop	78 F	83 F
% Relative Humidity Start, Stop	50	68
Wind Velocity+Dir. Start	8 MPH SW	9 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	70 F	88 F
% Cloud Cover	60	70

Crop Stage At Each Application

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

University of Tennessee

Corn Treatments Evaluating Tough Herbicide - Belchim

Trial ID: BLECHIM CORN 19
 Protocol ID: BELCHIM 19
 Project ID:

Location: Jackson
 Investigator: Dr. Larry Steckel
 Study Director:
 Sponsor Contact:
 Trial Year: 2019

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		3 IN
Height Minimum, Maximum		2 5
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W
Height Average		4 IN
Height Minimum, Maximum		2 6
Pest 3 Code, Type, Scale	GGGAN W	GGGAN W
Height Average		6 IN
Height Minimum, Maximum		3 9

Application Equipment

	A	B
Appl. Equipment	BACKPACK	BCKPK
Equipment Type	SPRAYE	BACCAI
Operation Pressure	30 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	11003	025
Nozzle Spacing		20 IN
Boom Length	5 FT	5 FT
Boom Height		16 IN
Ground Speed	5 MPH	4 MPH
Carrier		WATER
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: 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	Mix Size	Mix Unit	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check												101	206	301	403
2	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx		102	207	306	401
3	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx		103	204	307	408
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx					
	CALLISTO	4 LBA/GAL	SC		3 oz/a	POST	B	15 GAL/AC	2 L		3.125 mL/mx					
	COC	100 %	SL		1 % v/v	POST	B	15 GAL/AC	2 L		20.0 mL/mx					
4	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx		104	202	303	405
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx					
	CALLISTO	4 LBA/GAL	SC		3 oz/a	POST	B	15 GAL/AC	2 L		3.125 mL/mx					
	COC	100 %	SL		1 % v/v	POST	B	15 GAL/AC	2 L		20.0 mL/mx					
	TOUGH	5 LB/GAL	EC		8 oz/a	POST	B	15 GAL/AC	2 L		8.333 mL/mx					
5	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx		105	203	305	402
	ROUNDUP POWERMAX	4.5 LBA/GAL	SL		32 oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx					
	CALLISTO	4 LBA/GAL	SC		3 oz/a	POST	B	15 GAL/AC	2 L		3.125 mL/mx					
	COC	100 %	SL		1 % v/v	POST	B	15 GAL/AC	2 L		20.0 mL/mx					
	AATREX 4L	4 LBA/GAL	SC		32 oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx					
6	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a	PRE	A	15 GAL/AC	2 L		33.33 mL/mx		106	205	308	407
	ARMEZON	2.8 LBA/GAL	SC		0.75 oz/a	POST	B	15 GAL/AC	2 L		0.7812 mL/mx					
	MSO	100 %	SL		1 % v/v	POST	B	15 GAL/AC	2 L		20.0 mL/mx					

University of Tennessee

Trial ID: BLECHIM CORN 19	Location: Jackson	Trial Year: 2019
Protocol ID: BELCHIM 19	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 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
7	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a		PRE	A	15 GAL/AC		2 L		33.33 mL/mx	107	208	304	406
	ARMEZON	2.8 LBA/GAL	SC		0.75 oz/a		POST	B	15 GAL/AC		2 L		0.7812 mL/mx				
	MSO	100 %	SL		1 % v/v		POST	B	15 GAL/AC		2 L		20.0 mL/mx				
	TOUGH	5 LBA/GAL	EC		8 oz/a		POST	B	15 GAL/AC		2 L		8.333 mL/mx				
8	BICEP II MAGNUM	5.5 LBA/GAL	SC		32 oz/a		PRE	A	15 GAL/AC		2 L		33.33 mL/mx	108	201	302	404
	ARMEZON	2.8 LBA/GAL	SC		0.75 oz/a		POST	B	15 GAL/AC		2 L		0.7812 mL/mx				
	MSO	100 %	SL		1 % v/v		POST	B	15 GAL/AC		2 L		20.0 mL/mx				
	AATREX 4L	4 LBA/GAL	SC		32 oz/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
291.666	mL	BICEP II MAGNUM	5.5	LBA/GAL	SC	
125.000	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	
11.719	mL	CALLISTO	4	LBA/GAL	SC	
74.992	mL	COC	100	%	SL	
10.417	mL	TOUGH	5	LB/GAL	EC	
83.333	mL	AATREX 4L	4	LBA/GAL	SC	
2.930	mL	ARMEZON	2.8	LBA/GAL	SC	
74.992	mL	MSO	100	%	SL	
10.417	mL	TOUGH	5	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.

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

University of Tennessee

HERBICIDE PROGRAM AND ROW SPACING EFFECT ON PPO-RESISTANT PALMER AMARANTH

Trial ID: FMC USA-19-762 Location: JACKSON Trial Year: 2019
 Protocol ID: USA-19-762 Investigator: Dr. Larry Steckel
 Project ID: Study Director: STECKEL
 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	Rep 2	Rep 3	Rep 4
1	UNTREATED CHECK 30" ROW SPACING								101	204	309	410
2	SPARTAN 30" ROW SPACING	4 LB/GAL	SC		6.15 fl oz/a	PREMCR A		6.406 mL/mx	102	208	307	411
3	ANTHEM MAXX 30" ROW SPACING	4.3 LB/GAL	SC		3.25 fl oz/a	PREMCR A		3.385 mL/mx	103	209	304	412
4	VHP58-R002 30" ROW SPACING	4.25 LB/GAL	SC		9 fl oz/a	PREMCR A		9.375 mL/mx	104	203	312	403
5	DUAL II MAGNUM 30" ROW SPACING	7.64 LB/GAL	EC		16.5 fl oz/a	PREMCR A		17.19 mL/mx	105	212	308	405
6	METRIBUZIN 30" ROW SPACING	75 %	WG		5 oz/a	PREMCR A		4.993 g/mx	106	210	302	406
7	BOUNDARY 30" ROW SPACING	6.5 LB/GAL	EC		24 fl oz/a	PREMCR A		25.0 mL/mx	107	202	301	404
8	UNTREATED CHECK 15" ROW SPACING								108	207	313	407
9	SPARTAN 15" ROW SPACING	4 LB/GAL	SC		6.15 fl oz/a	PREMCR A		6.406 mL/mx	109	213	305	413
10	ANTHEM MAXX 15" ROW SPACING	4.3 LB/GAL	SC		3.25 fl oz/a	PREMCR A		3.385 mL/mx	110	206	310	408
11	VHP58-R002 15" ROW SPACING	4.25 LB/GAL	SC		9 fl oz/a	PREMCR A		9.375 mL/mx	111	214	306	409
12	DUAL II MAGNUM 15" ROW SPACING	7.64 LB/GAL	EC		16.5 fl oz/a	PREMCR A		17.19 mL/mx	112	205	311	402
13	METRIBUZIN 15" ROW SPACING	75 %	WG		5 oz/a	PREMCR A		4.993 g/mx	113	201	314	401
14	BOUNDARY 15" ROW SPACING	6.5 LB/GAL	EC		24 fl oz/a	PREMCR A		25.0 mL/mx	114	211	303	414

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
16.016	mL	SPARTAN	4	LB/GAL	SC	
8.464	mL	ANTHEM MAXX	4.3	LB/GAL	SC	
23.437	mL	VHP58-R002	4.25	LB/GAL	SC	
42.969	mL	DUAL II MAGNUM	7.64	LB/GAL	EC	
12.482	g	METRIBUZIN	75	%	WG	
62.500	mL	BOUNDARY	6.5	LB/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

PPO-Resistant Weed Control in XtendFlex System

Trial ID: MON 2019-01-N8-01
 Protocol ID: 2019-01-N8-01
 Project ID:

Location: JACKSON Trial Year: 2019
 Investigator: Dr. Larry Steckel
 Study Director: Blake Barlow
 Sponsor Contact:

General Trial Information

Study Director: Blake Barlow
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

Objectives:

To develop weed control recommendations to control PPO-resistant weeds in the XtendFlex system.

Contacts

Study Director: Blake Barlow

Investigator: Dr. Larry Steckel

Crop Description

Crop 1: GLXMA Glycine max Soybean
Entry Date: Jun-11-2019
Variety: AG45XF0
Attributes: HT3
Planting Date: May-28-2019

Site and Design

Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT
Treated Plot Area: 300 FT2 **Treatments:** 13 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOB� Randomized Complete Block (RCB)

Application Description

	A	B	C
Application Date	May-31-2019		
Appl. Start Time	9:23 AM		
Appl. Stop Time	9:34 AM		
Application Method	SPRAY		
Application Timing	PRE		
Application Placement	BROSOI		
Applied By	JR		
Appl. Entry Date	Jun-11-2019		
Air Temperature Start, Stop	78 78 F		
% Relative Humidity Start, Stop	60 60		
Wind Velocity+Dir. Start	2.7 MPH SW		
Wind Velocity+Dir. Stop	2.7 MPH SW		
Wet Leaves (Y/N)	N no		
Soil Temperature	82 F		
Soil Moisture	NORMAL		
% Cloud Cover	0		

Crop Stage At Each Application

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

University of Tennessee

PPO-Resistant Weed Control in XtendFlex System

Trial ID: MON 2019-01-N8-01 Location: JACKSON Trial Year: 2019
 Protocol ID: 2019-01-N8-01 Investigator: Dr. Larry Steckel
 Project ID: Study Director: Blake Barlow
 Sponsor Contact:

Application Equipment

	A	B	C
Appl. Equipment	BACKPACK		
Equipment Type	BACCAI		
Operation Pressure	30 PSI		
Nozzle Type	TTI		
Nozzle Size	11003		
Boom Length	5 FT		
Boom Height	18 IN		
Ground Speed	4 MPH		
Carrier	WATER		
Spray Volume	15 GAL/AC		
Mix Size	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-11-2019	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

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Rate	Rate Unit	Appl Code	Mix Size	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	101	206	311	407
	VALOR SX	51 %		WG	0.064 lb ai/a		A	2 L	2.005 g/mx				
	REFLEX		2 LB/GAL	EC	0.25 lb ai/a		B	2 L	16.66 mL/mx				
	NONIONIC 90	100 %		SL	0.25 % v/v		B	2 L	4.999 mL/mx				
	COBRA		2 LB/GAL	EC	0.156 lb ai/a		C	2 L	10.4 mL/mx				
	CROP OIL CONC	100 %		SL	1 % v/v		C	2 L	20.0 mL/mx				
2	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	102	203	307	408
	WARRANT		3 LB/GAL	CS	1.13 lb ai/a		A	2 L	50.22 mL/mx				
	MAULER		4 LBA/GAL	SC	0.25 lb ai/a		A	2 L	8.332 mL/mx				
	ROUNDUP POWERMAX		4.5 LBAE/GAL	SL	1.13 lb ae/a		B	2 L	33.48 mL/mx				
	XTENDIMAX WITH VAPORGRIP		2.9 LBAE/GAL	SL	0.5 lb ae/a		B	2 L	22.99 mL/mx				
	INTACT	43.18 %		SL	0.5 % v/v		B	2 L	9.999 mL/mx				
	CLASS ACT RIDION	34.75 %		SL	1 % v/v		B	2 L	20.0 mL/mx				
	WARRANT ULTRA		3.49 LBA/GAL	CS	1.36 lb ai/a		C	2 L	51.95 mL/mx				
	NONIONIC 90	100 %		SL	0.25 % v/v		C	2 L	4.999 mL/mx				
3	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	103	208	306	402
	VALOR SX	51 %		WG	0.064 lb ai/a		A	2 L	2.005 g/mx				
	XTENDIMAX WITH VAPORGRIP		2.9 LBAE/GAL	SL	0.5 lb ae/a		A	2 L	22.99 mL/mx				
	ROUNDUP POWERMAX		4.5 LBAE/GAL	SL	1.13 lb ae/a		B	2 L	33.48 mL/mx				
	XTENDIMAX WITH VAPORGRIP		2.9 LBAE/GAL	SL	0.5 lb ae/a		B	2 L	22.99 mL/mx				
	INTACT	43.18 %		SL	0.5 % v/v		B	2 L	9.999 mL/mx				
	CLASS ACT RIDION	34.75 %		SL	1 % v/v		B	2 L	20.0 mL/mx				
	LIBERTY 280 SL		2.34 LB/GAL	SL	0.585 lb ai/a		C	2 L	33.33 mL/mx				
	AMSOL	34 %AW/W		SL	2.5 % v/v		C	2 L	49.99 mL/mx				
4	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	104	209	310	405
	VALOR SX	51 %		WG	0.064 lb ai/a		A	2 L	2.005 g/mx				
	MAULER		4 LBA/GAL	SC	0.25 lb ai/a		A	2 L	8.332 mL/mx				
	ROUNDUP POWERMAX		4.5 LBAE/GAL	SL	1.13 lb ae/a		B	2 L	33.48 mL/mx				
	XTENDIMAX WITH VAPORGRIP		2.9 LBAE/GAL	SL	0.5 lb ae/a		B	2 L	22.99 mL/mx				
	INTACT	43.18 %		SL	0.5 % v/v		B	2 L	9.999 mL/mx				
	CLASS ACT RIDION	34.75 %		SL	1 % v/v		B	2 L	20.0 mL/mx				
	LIBERTY 280 SL		2.34 LB/GAL	SL	0.585 lb ai/a		C	2 L	33.33 mL/mx				
	AMSOL	34 %AW/W		SL	2.5 % v/v		C	2 L	49.99 mL/mx				

University of Tennessee

PPO-Resistant Weed Control in XtendFlex System

Trial ID: MON 2019-01-N8-01	Location: JACKSON	Trial Year: 2019
Protocol ID: 2019-01-N8-01	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Blake Barlow	
	Sponsor Contact:	

Reps: 4 Plots: 10 by 30 feet
 Spray vol: 15 GAL/AC

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Mix Size	Amt Product to Measure	Rep			
										1	2	3	4
5	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	105	202	308	403
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	A	2 L	22.99 mL/mx					
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	A	2 L	50.22 mL/mx					
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx					
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx					
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	B	2 L	50.22 mL/mx					
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx					
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx					
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	C	2 L	33.33 mL/mx					
	AMSOL	34 %	AW/W	SL	2.5 % v/v	C	2 L	49.99 mL/mx					
6	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	106	205	309	411
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	A	2 L	22.99 mL/mx					
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	A	2 L	50.22 mL/mx					
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx					
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx					
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx					
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx					
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	C	2 L	33.33 mL/mx					
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	C	2 L	33.48 mL/mx					
	AMSOL	34 %	AW/W	SL	2.5 % v/v	C	2 L	49.99 mL/mx					
7	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	107	204	305	410
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	A	2 L	22.99 mL/mx					
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	A	2 L	50.22 mL/mx					
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx					
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx					
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx					
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx					
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	C	2 L	33.33 mL/mx					
	SELECTMAX	0.97	LB/GAL	EC	0.068 lb ai/a	C	2 L	9.346 mL/mx					
	NONIONIC 90	100 %		SL	0.25 % v/v	C	2 L	4.999 mL/mx					
AMSOL	34 %	AW/W	SL	2.5 % v/v	C	2 L	49.99 mL/mx						
8	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	108	213	312	404
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	A	2 L	22.99 mL/mx					
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	A	2 L	50.22 mL/mx					
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx					
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx					
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	B	2 L	33.33 mL/mx					
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx					
CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx						
9	GERMPLASM 1				140000 seeds/a		-		964 seeds/1 pl	109	211	304	412
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx					
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx					
	WARRANT ULTRA	3.49	LBA/GAL	CS	1.36 lb ai/a	B	2 L	51.95 mL/mx					
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx					
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx					
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	C	2 L	33.33 mL/mx					
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	C	2 L	33.48 mL/mx					
AMSOL	34 %	AW/W	SL	2.5 % v/v	C	2 L	49.99 mL/mx						

University of Tennessee

PPO-Resistant Weed Control in XtendFlex System

Trial ID: MON 2019-01-N8-01	Location: JACKSON	Trial Year: 2019
Protocol ID: 2019-01-N8-01	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: Blake Barlow	
	Sponsor Contact:	

Reps: 4 Plots: 10 by 30 feet
 Spray vol: 15 GAL/AC

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Mix Size	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
10	GERMPLASM 1				140000 seeds/a		-	964 seeds/1 pl	110	207	301	413
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx				
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx				
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	B	2 L	50.22 mL/mx				
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx				
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx				
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	C	2 L	33.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	C	2 L	33.48 mL/mx				
	AMSOL	34	%AW/W	SL	2.5 % v/v	C	2 L	49.99 mL/mx				
11	GERMPLASM 1				140000 seeds/a		-	964 seeds/1 pl	111	212	302	409
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx				
	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	22.99 mL/mx				
	WARRANT	3	LB/GAL	CS	1.13 lb ai/a	B	2 L	50.22 mL/mx				
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx				
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx				
	COBRA	2	LB/GAL	EC	0.156 lb ai/a	C	2 L	10.4 mL/mx				
	CROP OIL CONC	100 %		SL	1 % v/v	C	2 L	20.0 mL/mx				
12	GERMPLASM 1				140000 seeds/a		-	964 seeds/1 pl	112	210	303	401
	ZIDUA	85 %		WG	0.10625 lb ai/a	A	2 L	1.997 g/mx				
	ENGENIA	5	LBAE/GAL	SL	0.5 lb ae/a	A	2 L	13.33 mL/mx				
	ENGENIA	5	LBAE/GAL	SL	0.5 lb ae/a	B	2 L	13.33 mL/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13 lb ae/a	B	2 L	33.48 mL/mx				
	OUTLOOK	6	LB/GAL	EC	0.75008 lb ai/a	B	2 L	16.67 mL/mx				
	CLASS ACT RIDION	34.75 %		SL	1 % v/v	B	2 L	20.0 mL/mx				
	INTACT	43.18 %		SL	0.5 % v/v	B	2 L	9.999 mL/mx				
	LIBERTY 280 SL	2.34	LB/GAL	SL	0.585 lb ai/a	C	2 L	33.33 mL/mx				
	AMSOL	34	%AW/W	SL	2.5 % v/v	C	2 L	49.99 mL/mx				
13	GERMPLASM 1 Untreated Check				140000 seeds/a		-	964 seeds/1 pl	113	201	313	406

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
62,672	seed	GERMPLASM 1				
7.518	g	VALOR SX	51	%	WG	
20.831	mL	REFLEX	2	LB/GAL	EC	
18.748	mL	NONIONIC 90	100	%	SL	
25.997	mL	COBRA	2	LB/GAL	EC	
49.995	mL	CROP OIL CONC	100	%	SL	
502.168	mL	WARRANT	3	LB/GAL	CS	
20.831	mL	MAULER	4	LBA/GAL	SC	
585.862	mL	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	
430.988	mL	XTENDIMAX WITH VAPORGRIP	2.9	LBAE/GAL	SL	
137.485	mL	INTACT	43.18	%	SL	
274.970	mL	CLASS ACT RIDION	34.75	%	SL	
129.881	mL	WARRANT ULTRA	3.49	LBA/GAL	CS	
374.959	mL	LIBERTY 280 SL	2.34	LB/GAL	SL	
499.946	mL	AMSOL	34	%AW/W	SL	
11.683	mL	SELECTMAX	.97	LB/GAL	EC	
2.496	g	ZIDUA	85	%	WG	
33.330	mL	ENGENIA	5	LBAE/GAL	SL	
20.833	mL	OUTLOOK	6	LB/GAL	EC	

* 'Per area' calculations based on 4 replicates of 10 by 30 feet 'Plot' experimental units (area of one treatment).

University of Tennessee

F8 - USDA Cover Crop-2ND YR

Trial ID: F8-2 YR Location: Fayetteville Trial Year: 2018
 Protocol ID: F8 USDA CC Investigator: Jason Norsworthy
 Project ID: F8 Study Director: Nicholas E. Korres
 Sponsor Contact:

General Trial Information

Study Director: Lauren Lazaro
Investigator: Jason Norsworthy

Trial Status: E established

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Lauren Lazaro

Investigator: Jason Norsworthy

Crop Description

Crop 1: SECCE Secale cereale Rye **BBCH Scale:** BCER
Stage Scale: FEEKES

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 30 FT
Treated Plot Area: 300 FT² **Treatments:** 12
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Application Description

	A	B	C	D	E	F	G	H	I
Application Date	Apr-3-2019			May-31-2019					
Appl. Start Time	1:39 PM			8:05 AM					
Appl. Stop Time	1:51 PM			8:26 AM					
Application Method	SPRAY			spray					
Application Timing	Early			pre					
Application Placement	BROADC			BROSOI					
Applied By	CP			CP					
Air Temperature Start, Stop	77 F			78 F					
% Relative Humidity Start, Stop	32.6 32.6			60					
Wind Velocity+Dir. Start	3.5 MPH S			2 MPH SW					
Wind Velocity+Dir. Stop	3.5 MPH S								
Wet Leaves (Y/N)	N no			N no					
Soil Temperature	64 F			82 F					
Soil Moisture	NORMAL			MOIST					
% Cloud Cover	10			0					

Crop Stage At Each Application

	A	B	C	D	E	F
Crop 1 Code, BBCH Scale	SECCE BCER	SECCE BCER	SECCE BCER	SECCE BCER	SECCE BCER	SECCE BCER
Stage Scale Used	FEEKES	FEEKES	FEEKES	FEEKES	FEEKES	FEEKES
Stage Majority, Percent	2.0					
Stage Minimum, Percent	2.0					
Stage Maximum, Percent	2.0					
Height Average	13 IN					
Height Minimum, Maximum	12 14					

University of Tennessee

F8 - USDA Cover Crop-2ND YR

Trial ID: F8-2 YR	Location: Fayetteville	Trial Year: 2018
Protocol ID: F8 USDA CC	Investigator: Jason Norsworthy	
Project ID: F8	Study Director: Nicholas E. Korres	
	Sponsor Contact:	

	G	H	I
Crop 1 Code, BBCH Scale	SECCE BCER	SECCE BCER	SECCE BCER
Stage Scale Used	FEEKES	FEEKES	FEEKES
Stage Majority, Percent			
Stage Minimum, Percent			
Stage Maximum, Percent			
Height Average			
Height Minimum, Maximum			

Application Equipment

	A	B	C	D	E	F	G	H	I
Appl. Equipment	BCKPK			BCKPK					
Equipment Type	BACCAI			BACCAI					
Operation Pressure	30 PSI			30 PSI					
Nozzle Type	AIXR			AIXR					
Nozzle Size	003			003					
Nozzle Spacing	20 IN			20 IN					
Boom Length	5 FT			5 FT					
Boom Height	16 IN			16 IN					
Ground Speed	4 MPH			4 MPH					
Carrier	WATER			WATER					
Spray Volume	15 GAL/AC			15 GAL/AC					
Mix Size	2 L			2 L					
Tank Mix (Y/N)	N no			N no					

Date	By	Context	Notes
Apr-8-2019	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	Spray Volume	Mix Size	Mix Unit	Amt Product to Measure	Rep			
												1	2	3	4
1	LATE CC TERMINATION							15 GAL/AC	2 L		33.33 mL/mx	101	205	302	404
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a		A	15 GAL/AC	2 L						
	SOYBEAN PROG 1							15 GAL/AC	2 L						
	Valor	51		WDG	2 oz/a		D	15 GAL/AC	2 L	1.997 g/mx					
	Zidua	85 %		WDG	2.5 oz/a		D	15 GAL/AC	2 L	2.496 g/mx					
	Prefix	7.64 lb/gal		EC	2.5 pt/a	V2-V3	G	15 GAL/AC	2 L	41.67 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a	V2-V3	G	15 GAL/AC	2 L	30.21 mL/mx					
	Warrant	3 lb/gal		L	3 pt/a	V6-V7	I	15 GAL/AC	2 L	50.0 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a	V6-V7	I	15 GAL/AC	2 L	30.21 mL/mx						
2	MID CC TERMINATION							15 GAL/AC	2 L		33.33 mL/mx	102	209	304	408
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a		B	15 GAL/AC	2 L						
	SOYBEAN PROG 2							15 GAL/AC	2 L						
	Liberty	2.34 lb/gal		SL	29 fl oz/a		E	15 GAL/AC	2 L	30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a		F	15 GAL/AC	2 L	30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a		G	15 GAL/AC	2 L	30.21 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a		H	15 GAL/AC	2 L	30.21 mL/mx						
Liberty	2.34 lb/gal		SL	29 fl oz/a		I	15 GAL/AC	2 L	30.21 mL/mx						
3	EARLY CC TERMINATION							15 GAL/AC	2 L		33.33 mL/mx	103	201	312	405
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a		C	15 GAL/AC	2 L						

University of Tennessee

F8 - USDA Cover Crop-2ND YR

Trial ID: F8-2 YR	Location: Fayetteville	Trial Year: 2018
Protocol ID: F8 USDA CC	Investigator: Jason Norsworthy	
Project ID: F8	Study Director: Nicholas E. Korres	
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	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
4	MID CC TERMINATION								15 GAL/AC	2 L			33.33 mL/mx	104	207	301	407
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a			B	15 GAL/AC	2 L							
	SOYBEAN PROG 1								15 GAL/AC	2 L							
	Valor	51		WDG	2 oz/a			D	15 GAL/AC	2 L		1.997 g/mx					
	Zidua	85 %		WDG	2.5 oz/a			D	15 GAL/AC	2 L		2.496 g/mx					
	Prefix	7.64 lb/gal		EC	2.5 pt/a	V2-V3	G		15 GAL/AC	2 L		41.67 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a	V2-V3	G		15 GAL/AC	2 L		30.21 mL/mx					
	Warrant	3 lb/gal		L	3 pt/a	V6-V7	I		15 GAL/AC	2 L		50.0 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a	V6-V7	I		15 GAL/AC	2 L		30.21 mL/mx						
5	EARLY CC TERMINATION								15 GAL/AC	2 L			33.33 mL/mx	105	203	306	403
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a			C	15 GAL/AC	2 L							
	SOYBEAN PROG 2								15 GAL/AC	2 L							
	Liberty	2.34 lb/gal		SL	29 fl oz/a			E	15 GAL/AC	2 L		30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a			F	15 GAL/AC	2 L		30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a			G	15 GAL/AC	2 L		30.21 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a			H	15 GAL/AC	2 L		30.21 mL/mx						
Liberty	2.34 lb/gal		SL	29 fl oz/a			I	15 GAL/AC	2 L		30.21 mL/mx						
6	LATE CC TERMINATION								15 GAL/AC	2 L			33.33 mL/mx	106	204	305	412
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a			A	15 GAL/AC	2 L							
7	EARLY CC TERMINATION								15 GAL/AC	2 L			33.33 mL/mx	107	211	307	401
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a			C	15 GAL/AC	2 L							
	SOYBEAN PROG 1								15 GAL/AC	2 L							
	Valor	51		WDG	2 oz/a			D	15 GAL/AC	2 L		1.997 g/mx					
	Zidua	85 %		WDG	2.5 oz/a			D	15 GAL/AC	2 L		2.496 g/mx					
	Prefix	7.64 lb/gal		EC	2.5 pt/a	V2-V3	G		15 GAL/AC	2 L		41.67 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a	V2-V3	G		15 GAL/AC	2 L		30.21 mL/mx					
	Warrant	3 lb/gal		L	3 pt/a	V6-V7	I		15 GAL/AC	2 L		50.0 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a	V6-V7	I		15 GAL/AC	2 L		30.21 mL/mx						
8	LATE CC TERMINATION								15 GAL/AC	2 L			33.33 mL/mx	108	210	310	409
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a			A	15 GAL/AC	2 L							
	SOYBEAN PROG 2								15 GAL/AC	2 L							
	Liberty	2.34 lb/gal		SL	29 fl oz/a			E	15 GAL/AC	2 L		30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a			F	15 GAL/AC	2 L		30.21 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a			G	15 GAL/AC	2 L		30.21 mL/mx						
Liberty	2.34 lb/gal		SL	29 fl oz/a			H	15 GAL/AC	2 L		30.21 mL/mx						
9	MID CC TERMINATION								15 GAL/AC	2 L			33.33 mL/mx	109	206	311	402
	Roundup PowerMax	4.5 lbae/gal	L		32 fl oz/a			B	15 GAL/AC	2 L							
10	BAREGROUND								15 GAL/AC	2 L			30.21 mL/mx	110	202	303	410
	SOYBEAN PROG 1								15 GAL/AC	2 L							
	Valor	51		WDG	2 oz/a			D	15 GAL/AC	2 L		1.997 g/mx					
	Zidua	85 %		WDG	2.5 oz/a			D	15 GAL/AC	2 L		2.496 g/mx					
	Prefix	7.64 lb/gal		EC	2.5 pt/a	V2-V3	G		15 GAL/AC	2 L		41.67 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a	V2-V3	G		15 GAL/AC	2 L		30.21 mL/mx					
	Warrant	3 lb/gal		L	3 pt/a	V6-V7	I		15 GAL/AC	2 L		50.0 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a	V6-V7	I		15 GAL/AC	2 L		30.21 mL/mx					
11	BAREGROUND								15 GAL/AC	2 L			30.21 mL/mx	111	208	309	411
	SOYBEAN PROG 2								15 GAL/AC	2 L							
	Liberty	2.34 lb/gal		SL	29 fl oz/a			E	15 GAL/AC	2 L		30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a			F	15 GAL/AC	2 L		30.21 mL/mx					
	Liberty	2.34 lb/gal		SL	29 fl oz/a			G	15 GAL/AC	2 L		30.21 mL/mx					
Liberty	2.34 lb/gal		SL	29 fl oz/a			H	15 GAL/AC	2 L		30.21 mL/mx						
12	BAREGROUND												112	212	308	406	

Sort Order: Treatment

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

University of Tennessee

Duration of Residual Herbicide Efficacy on Palmer amaranth in Cover Crops in Liberty Link Soybean

Trial ID: JS-USBCC-19	Location:	Trial Year: 2017
Protocol ID:	Investigator: Dr. Larry Steckel	
Project ID:	Study Director:	
	Sponsor Contact:	

General Trial Information

Investigator: Dr. Larry Steckel

Trial Status: E established

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Dr. Larry Steckel

Site and Design

Treated Plot Width: 10 FT

Treated Plot Length: 30 FT

Treated Plot Area: 300 FT² Treatments: 9

Replications: 4

Study Design: RACOB L Randomized Complete Block (RCB)

Field Prep./Maintenance:

Start with clean plots before planting a blend of cereal rye in the fall of 2017. Use Gramoxone SL to clean up plots if necessary.

Terminate cover 21 days before planting with Roundup/clarity(Engenia)

Plant to Liberty Link soybean

Plots to be 4 row plots and treat the 2 center/5ft for PRE 15 GPA

Apply PRE

When the first PRE break - Let the PW get to 4 inches and take 1 sq/ft PW count - note date

Then wait 7-8 days (12 inch PW) and take 1 sq/ ft PW count and avg height of PW - note date

Then apply POST Liberty to clean up entire test - may need repeated applications thru out season

Take yield

Application Description

	A	B	C
Application Date	May-6-2019	May-31-2019	
Appl. Start Time	1:35 PM	8:05 AM	
Appl. Stop Time	1:44 PM	8:20 AM	
Application Method	SPRAY	SPRAY	
Application Timing	PREPLA	PRE	
Application Placement	BROFOL	BROSOI	
Applied By	CP	JR	
Appl. Entry Date	Jun-3-2019		
Air Temperature Start, Stop	80.6 F	78 F	
% Relative Humidity Start, Stop	55.6	60	
Wind Velocity+Dir. Start	1.6 MPH NE	2 MPH SW	
Wet Leaves (Y/N)	N no	N no	
Soil Temperature	73.5 F	82 F	
% Cloud Cover	40	0	

Application Equipment

	A	B	C
Appl. Equipment	MUDMASTER	BACKPACK	
Equipment Type	SPRAYE	BACCAI	
Operation Pressure	40 PSI	30 PSI	
Nozzle Type		aixr	
Nozzle Size		11003	
Boom Length		5 FT	
Ground Speed		4 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.

University of Tennessee

Duration of Residual Herbicide Efficacy on Palmer amaranth in Cover Crops in Liberty Link Soybean

Trial ID: JS-USBCC-19	Location:	Trial Year: 2017
Protocol ID:	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	Registration Number	Re-Entry Interval	Rate	Growth Stage	Appl Code	Spray Volume	Mix Size	Mix Unit	Amt to Measure	Rep 1	Rep 2	Rep 3
1	TRICOR LIBERTY	75 2.34		DF SL	264829	12HR	6 oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		5.991 g/mx 33.33 mL/mx	101	206	307
2	WARRANT LIBERTY	3 LB/GAL 2.34		SL SL	524-591 264829	12HR 12HR	48 fl oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		50.0 mL/mx 33.33 mL/mx	102	201	307
3	ZIDUA LIBERTY	85 2.34		WG SL	264829	12HR	2 oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		1.997 g/mx 33.33 mL/mx	103	208	307
4	DUAL MAGNUM LIBERTY	7.62 2.34		EC SL	100-816 264829	24HR 12HR	16 fl oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		16.67 mL/mx 33.33 mL/mx	104	207	307
5	OUTLOOK LIBERTY	6 2.34		SC SL	7969-156 264829	12HR 12HR	16 fl oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		16.67 mL/mx 33.33 mL/mx	105	209	307
6	SATELLITE HYDROCAP LIBERTY	3.8 2.34		SC SL	264829	12HR	32 fl oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		33.33 mL/mx 33.33 mL/mx	106	203	307
7	FIERCE LIBERTY	76 2.34		WG SL	264829	12HR	3 oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		2.996 g/mx 33.33 mL/mx	107	202	307
8	VALOR SX LIBERTY	51 %AW/W 2.34		WG SL	59639-99 264829	12HR 12HR	2 oz/a 32 fl oz/a	PRE POST	A B	15 GAL/AC 15 GAL/AC	2 L 2 L		1.997 g/mx 33.33 mL/mx	108	204	307
9	LIBERTY	2.34		SL	264829	12HR	32 fl oz/a	POST	B	15 GAL/AC	2 L		33.33 mL/mx	109	205	307

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
7.489	g	TRICOR	75		DF	
375.000	mL	LIBERTY	2.34		SL	
62.500	mL	WARRANT	3	LB/GAL	SL	
2.496	g	ZIDUA	85		WG	
20.833	mL	DUAL MAGNUM	7.62		EC	
20.833	mL	OUTLOOK	6		SC	
41.667	mL	SATELLITE HYDROCAP	3.8		SC	
3.745	g	FIERCE	76		WG	
2.496	g	VALOR SX	51	%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

Tavium Plus VaporGrip Technology - University testing program in RR2 Xtend soybeans

Trial ID: USSG0H4002019	Location: Holloway James FS
Protocol ID: HDC050A4-2019US	Trial Year: 2019
Master Protocol ID:	Investigator: James Holloway
Official Trial ID:	Study Director:
Conducted Under GEP: No	Sponsor Contact:
	Trial Origin:

Crop Description

Crop 1: GLXMA Glycine max Soybean **BBCH Scale:** BSOY
Entry Date: Jun-10-2019
Variety: RR 2 Xtend AG 46X6
Attributes: GLYPHOSATE-R,AUXIN-R
Planting Date: May-7-2019

Pest Description

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

Pest 2 Type: W **Code:** IPOLA *Ipomoea lacunosa*
Common Name: pitted morning glory **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 **Site Type:** FIELD field
Treated Plot Length: 30 FT
Treated Plot Area: 150 FT² **Treatments:** 6 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	May-8-2019	May-29-2019
Appl. Start Time	10:34 AM	4:41 PM
Appl. Stop Time	10:42 AM	4:50 PM
Interval to Prev. Appl.		21 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PREPRE	POST
Application Placement	BROSOI	BROFOL
Applied By	CP	JR
Appl. Entry Date	Jun-10-2019	Jun-10-2019
Air Temperature Start, Stop	84.3 84.3 F	91 91 F
% Relative Humidity Start, Stop	53.4 53.4	41 41
Wind Velocity+Dir. Start	6 MPH SW	7 MPH SW
Wind Velocity+Dir. Stop	6 MPH SW	7 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	72.7 F	90 F
Soil Moisture	NORMAL	
% Cloud Cover	5	20

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		BBCH
Stage Majority, Percent		13
Stage Minimum, Percent		13
Stage Maximum, Percent		14
Height Average		8 IN

University of Tennessee

Tavium Plus VaporGrip Technology - University testing program in RR2 Xtend soybeans

Trial ID: USSG0H4002019	Location: Holloway James FS Trial Year: 2019
Protocol ID: HDC050A4-2019US	Investigator: James Holloway
Master Protocol ID:	Study Director:
Official Trial ID:	Sponsor Contact:
Conducted Under GEP: No	Trial Origin:

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W W
Height Average		2.5 IN
Height Minimum, Maximum		2 3
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W W
Height Average		1 IN
Height Minimum, Maximum		1 2
Pest 3 Code, Type, Scale	GGGAN W	GGGAN W W
Height Average		2 IN
Height Minimum, Maximum		1 3

Application Equipment

	A	B
Appl. Equipment	BCKPK	BCKPK
Equipment Type	BACCAI	BACCAI
Operation Pressure	30 PSI	30 PSI
Nozzle Type	AIXR	TTI
Nozzle Size	003	11003
Nozzle Spacing	20 IN	
Boom Length	5 FT	5 FT
Boom Height	16 IN	
Ground Speed	4 MPH	4 MPH
Carrier	WATER	WATER
Spray Volume	15 GAL/AC	15 GAL/AC
Minimum Mix/Treatment	0.782 L	0.782 L
Mix Size	2 L	2 L
Propellant		COMCO2

Date	By	Context	Notes
Mar-6-2019	James Holloway	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.

SE Definitions

	1.	2.	3.
Rating Timing	1	2	3
SE Name	ZUSX052	ZUSW001	ZUSX001
SE Description	Yield/A	%Control	%Phyto- General
Part Rated		PLANT	PLANT
Rating Type	YIELD	CONTRO	PHYGEN
Rating Unit	BU	%	%
Sample Size	FT2	1 PLOT	1 PLOT
Collection Basis	1 PLOT	1 PLOT	1 PLOT
Reporting Basis	1 A	1 PLOT	1 PLOT
Calculation	IN	NC	NC
Number of Subsamples	1		

No. Task Comment

1. 1
2. 2
3. 3

University of Tennessee

Tavium Plus VaporGrip Technology - University testing program in RR2 Xtend soybeans

Trial ID: USSG0H4002019	Location: Holloway James FS
Protocol ID: HDC050A4-2019US	Trial Year: 2019
Master Protocol ID:	Investigator: James Holloway
Official Trial ID:	Study Director:
Conducted Under GEP: No	Sponsor Contact:
	Trial Origin:

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 Code	Amt Product to Measure	Rep 1	2	3	4
1	UNTREATED CHECK							101	204	306	405
2	BOUNDARY 6.5 EC	777.5	gA/L	EC	1640 g ai/ha	A	30.07 mL/mx	102	206	304	403
	INTACT			SL	0.5 % v/v	B	10.0 mL/mx				
	CLASS ACT RIDION			SL	1 % v/v	B	20.0 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	1120 g ae/ha	B	29.56 mL/mx				
3	BROADAXE XC 7 EC	840	gA/L	EC	1530 g ai/ha	A	25.96 mL/mx	103	205	303	406
	INTACT			SL	0.5 % v/v	B	10.0 mL/mx				
	CLASS ACT RIDION			SL	1 % v/v	B	20.0 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	1120 g ae/ha	B	29.56 mL/mx				
4	PREFIX [F]	631.68	gA/L	EC	1480 g ai/ha	A	33.4 mL/mx	104	201	305	404
	INTACT			SL	0.5 % v/v	B	10.0 mL/mx				
	CLASS ACT RIDION			SL	1 % v/v	B	20.0 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	1120 g ae/ha	B	29.56 mL/mx				
5	VALOR XLT 40.3 WG	40.3	%AW/W	WG	85 g ai/ha	A	3.006 g/mx	105	203	302	401
	INTACT			SL	0.5 % v/v	B	10.0 mL/mx				
	CLASS ACT RIDION			SL	1 % v/v	B	20.0 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	1120 g ae/ha	B	29.56 mL/mx				
6	ZIDUA PRO 4.09 SC	490.09	gA/L	SC	161 g ai/ha	A	4.683 mL/mx	106	202	301	402
	INTACT			SL	0.5 % v/v	B	10.0 mL/mx				
	CLASS ACT RIDION			SL	1 % v/v	B	20.0 mL/mx				
	ENGENIA 5 EC	600	gAE/L	EC	560 g ae/ha	B	13.3 mL/mx				
	ROUNDUP POWERMAX 4.5 SL	540	gAE/L	SL	1120 g ae/ha	B	29.56 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
37.584	mL	BOUNDARY 6.5 EC	777.5	gA/L	EC	
62.500	mL	INTACT			SL	
125.000	mL	CLASS ACT RIDION			SL	
220.752	mL	TAVIUM PLUS VAPORGRIP TECH	406.8	gAE/L	CS	
184.778	mL	ROUNDUP POWERMAX 4.5 SL	540	gAE/L	SL	
32.454	mL	BROADAXE XC 7 EC	840	gA/L	EC	
41.746	mL	PREFIX [F]	631.68	gA/L	EC	
3.758	g	VALOR XLT 40.3 WG	40.3	%AW/W	WG	
28.645	mL	XTENDIMAX 2.9 SL	350.2	gAE/L	SL	
5.853	mL	ZIDUA PRO 4.09 SC	490.09	gA/L	SC	
16.630	mL	ENGENIA 5 EC	600	gAE/L	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.

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

University of Tennessee

Trial ID: SYNXTD19	Location: JACKSON	XTEND SOYBEAN
Protocol ID: SYNXTD	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: 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: AG 46X6

Attributes: Xtend

Planting Date: May-7-2019

Pest Description

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

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

Site Type: FIELD field

Treated Plot Length: 30 FT

Treated Plot Area: 150 FT2 Treatments: 5 Tillage Type: NOTILL no-till

Replications: 4

Study Design: RACOB� Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	May-8-2019	May-29-2019
Appl. Start Time	10:43 AM	4:00 PM
Appl. Stop Time	10:49 AM	4:10 AM
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POST
Application Placement	BROFOL	BROFOL
Applied By	CP	JR
Appl. Entry Date	Jun-3-2019	Jun-10-2019
Air Temperature Start, Stop	84 F	91 91 F
% Relative Humidity Start, Stop	54	41 41
Wind Velocity+Dir. Start	6 MPH SW	7 MPH SW
Wind Velocity+Dir. Stop		7 MPH SW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	73 F	90 F
% Cloud Cover	5	20

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used		BBCH
Stage Majority, Percent		13
Stage Minimum, Percent		13
Stage Maximum, Percent		14

University of Tennessee

Trial ID: SYNXTD19	Location: JACKSON	XTEND SOYBEAN	
Protocol ID: SYNXTD	Investigator: Dr. Larry Steckel	Trial Year: 2019	
Project ID:	Study Director:		
	Sponsor Contact:		

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		2.5 IN
Height Minimum, Maximum		2 3
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W
Height Average		1 IN
Pest 3 Code, Type, Scale	GGGAN W	GGGAN W
Height Average		2 IN
Height Minimum, Maximum		1 3

Application Equipment

	A	B
Appl. Equipment	BACKPACK	BCKPK
Equipment Type	SPRAYE	BACCAI
Operation Pressure	30 PSI	30 PSI
Nozzle Type	AIXR	TTI
Nozzle Size	11003	11003
Boom Length	5 FT	5 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
Apr-12-2019	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 Supplier	Form Rate	Form Unit	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	NIS	100 %		SL		0.25 % v/v		PRE	A	15 GAL/AC		2 L		4.999 mL/mx		101	203	305	404
	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					
	TAVIUM + VAPORGRIP	406.8 GAE/L		CS	386	56.5 oz/a		POST	B	15 GAL/AC		2 L		58.85 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	302	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					
	TAVIUM + VAPORGRIP	406.8 GAE/L		CS	386	56.5 oz/a		POST	B	15 GAL/AC		2 L		58.85 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	205	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					
	TAVIUM + VAPORGRIP	406.8 GAE/L		CS	386	56.5 oz/a		POST	B	15 GAL/AC		2 L		58.85 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	202	301	402
	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					
	PREFIX	5.29 LBA/GAL		EC		1 qt/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					

University of Tennessee

Trial ID: SYNXTD19	Location: JACKSON	XTEND SOYBEAN
Protocol ID: SYNXTD	Investigator: Dr. Larry Steckel	Trial Year: 2019
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	Supplier	Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
5	NIS	100 %		SL		0.25 % v/v	PRE	A	15 GAL/AC		2 L		4.999 mL/mx	105	204	303	401
	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				
	PREFIX	5.29 LBA/GAL		EC		1 qt/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				

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	
125.000	mL	PREFIX	5.29	LBA/GAL	EC	
14.978	g	TRICOR DF	75	%AW/W	DF	
220.703	mL	TAVIUM + VAPORGRIP	406.8	GAE/L	CS	
208.333	mL	ROUNDUP POWERMAX	4.5	LBA/GAL	SL	
104.167	mL	BOUNDARY 6.5	6.5	LBA/GAL	EC	
57.292	mL	BROADAXE	7	LBA/GAL	SC	

* '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: SWEET CORN 2019	Early Post Treatments in Sweet Corn	Location: JACKSON
Protocol ID: SWTC2019		Trial Year: 2019
Project ID:	Investigator: Dr. Larry Steckel	
	Study Director: LARRY STECKEL	
	Sponsor Contact:	

General Trial Information
Study Director: LARRY STECKEL
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

Contacts
Study Director: LARRY STECKEL
Investigator: Dr. Larry Steckel

Crop Description
Crop 1: ZEAMS Zea mays saccharata Sweet corn

Pest Description
Pest 1 Type: W Code: AMAPA <i>Amaranthus palmeri</i>
Common Name: Palmer amaranth Entry Date: Jun-3-2019
Pest 2 Type: W Code: DIGSS <i>Digitaria sp.</i>
Common Name: Crabgrass Entry Date: Jun-3-2019

Site and Design	
Treated Plot Width: 5 FT	Site Type: FIELD field
Treated Plot Length: 30 FT	
Treated Plot Area: 150 FT ²	Tillage Type: NOTILL no-till
Replications: 4	Treatments: 6 Study Design: RACOB� Randomized Complete Block (RCB)

Application Description		
	A	B
Application Date	Apr-23-2019	May-20-2019
Appl. Start Time	2:22 AM	3:19 AM
Appl. Stop Time	2:30 AM	3:33 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	78 F	100 F
% Relative Humidity Start, Stop	49	31
Wind Velocity+Dir. Start	7 MPH SW	2 MPH E
Wet Leaves (Y/N)	N no	N no
Soil Temperature	68 F	85 F
% Cloud Cover	20	15

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale	ZEAMS BCOR	ZEAMS BCOR
Stage Scale Used		VR
Stage Majority, Percent		4

University of Tennessee

Trial ID: SWEET CORN 2019 Protocol ID: SWTC2019 Project ID:	Early Post Treatments in Sweet Corn Location: JACKSON Investigator: Dr. Larry Steckel Study Director: LARRY STECKEL Sponsor Contact:	Trial Year: 2019
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Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		2.5 IN
Height Minimum, Maximum		1 5
Pest 2 Code, Type, Scale	DIGSS W	DIGSS W
Height Average		2 IN
Height Minimum, Maximum		1 4

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
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	Rate	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep			
													1	2	3	4
1	GRAMOXONE SL 2.0	2 LB/GAL	SL	40 oz/a	PRE	A		15 GAL/AC	2 L	2 L		41.67 mL/mx	101	205	301	405
	BICEP II MAGNUM	5.5 LBA/GAL	SC	32 oz/a	PRE	A		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	ARMEZON	2.8 LBA/GAL	SC	0.75 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		0.7812 mL/mx				
	MSO	100 %	SL	1 % v/v	EPOST	B		15 GAL/AC	2 L	2 L		20.0 mL/mx				
	AATREX 4L	4 LBA/GAL	SC	32 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		33.33 mL/mx				
2	GRAMOXONE SL 2.0	2 LB/GAL	SL	40 oz/a	PRE	A		15 GAL/AC	2 L	2 L		41.67 mL/mx	102	206	305	401
	BICEP II MAGNUM	5.5 LBA/GAL	SC	32 oz/a	PRE	A		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	ARMEZON	2.8 LBA/GAL	SC	0.75 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		0.7812 mL/mx				
	MSO	100 %	SL	1 % v/v	EPOST	B		15 GAL/AC	2 L	2 L		20.0 mL/mx				
	AATREX 4L	4 LBA/GAL	SC	32 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		33.33 mL/mx				
3	GRAMOXONE SL 2.0	2 LB/GAL	SL	40 oz/a	PRE	A		15 GAL/AC	2 L	2 L		41.67 mL/mx	103	202	306	403
	BICEP II MAGNUM	5.5 LBA/GAL	SC	32 oz/a	PRE	A		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	ACURON	3.7 LBA/GAL	ZC	48 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		50.0 mL/mx				
	AATREX 4L	4 LBA/GAL	SC	32 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	NIS	100 %	SL	0.25 % v/v	EPOST	B		15 GAL/AC	2 L	2 L		4.999 mL/mx				
4	GRAMOXONE SL 2.0	2 LB/GAL	SL	40 oz/a	PRE	A		15 GAL/AC	2 L	2 L		41.67 mL/mx	104	201	302	404
	BICEP II MAGNUM	5.5 LBA/GAL	SC	32 oz/a	PRE	A		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	RESICORE	3.29 LBAE/GAL	SE	80 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		83.33 mL/mx				
	AATREX 4L	4 LBA/GAL	SC	32 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	NIS	100 %	SL	0.25 % v/v	EPOST	B		15 GAL/AC	2 L	2 L		4.999 mL/mx				
5	GRAMOXONE SL 2.0	2 LB/GAL	SL	40 oz/a	PRE	A		15 GAL/AC	2 L	2 L		41.67 mL/mx	105	204	303	406
	BICEP II MAGNUM	5.5 LBA/GAL	SC	32 oz/a	PRE	A		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	BICEP II MAGNUM	5.5 LBA/GAL	SC	32 oz/a	EPOST	B		15 GAL/AC	2 L	2 L		33.33 mL/mx				
	NIS	100 %	SL	0.25 % v/v	EPOST	B		15 GAL/AC	2 L	2 L		4.999 mL/mx				

University of Tennessee

Early Post Treatments in Sweet Corn

Trial ID: SWEET CORN 2019	Location: JACKSON	Trial Year: 2019
Protocol ID: SWTC2019	Investigator: Dr. Larry Steckel	
Project ID:	Study Director: LARRY STECKEL	
	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	Growth Stage	Appl Code	Spray Volume	Volume Unit	Mix Size	Mix Unit	Amt Product to Measure	Rep			
													1	2	3	4
6	GRAMOXONE SL 2.0	2	LB/GAL	SL	40 oz/a	PRE	A	15 GAL/AC		2	L	41.67 mL/mx	106	203	304	402
	BICEP II MAGNUM	5.5	LBA/GAL	SC	32 oz/a	PRE	A	15 GAL/AC		2	L	33.33 mL/mx				
	CORVUS	2.63	LBA/GAL	SC	5 oz/a	EPOST	B	15 GAL/AC		2	L	5.208 mL/mx				
	AATREX 4L	4	LBA/GAL	SC	32 oz/a	EPOST	B	15 GAL/AC		2	L	33.33 mL/mx				
	NIS	100 %		SL	0.25 % v/v	EPOST	B	15 GAL/AC		2	L	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
312.500	mL	GRAMOXONE SL 2.0	2	LB/GAL	SL	
291.666	mL	BICEP II MAGNUM	5.5	LBA/GAL	SC	
1.953	mL	ARMEZON	2.8	LBA/GAL	SC	
49.995	mL	MSO	100	%	SL	
208.333	mL	AATREX 4L	4	LBA/GAL	SC	
10.417	mL	TOUGH	5	LBA/GAL	EC	
62.500	mL	ACURON	3.7	LBA/GAL	ZC	
24.997	mL	NIS	100	%	SL	
104.167	mL	RESICORE	3.29	LBAE/GAL	SE	
6.510	mL	CORVUS	2.63	LBA/GAL	SC	

* '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: FMC USA 19-750 Protocol ID: USA-19-750 Project ID:	EVALUATING ANTHEM BRANDS FOR WEED CONTROL IN CORN Location: JACKSON Trial Year: 2019 Investigator: Dr. Larry Steckel Study Director: Sponsor Contact:	
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General Trial Information 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

Investigator: Dr. Larry Steckel

Crop Description Crop 1: ZEAMX Zea mays Corn Variety: GLYPHOSATE-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
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Site and Design Treated Plot Width: 10 FT Site Type: FIELD field Treated Plot Length: 30 FT Treated Plot Area: 300 FT2 Treatments: 6 Tillage Type: NOTILL no-till Replications: 4 Study Design: RACOB Randomized Complete Block (RCB)

Application Description		
	A	B
Application Date	Apr-24-2019	
Appl. Start Time	9:21 AM	
Appl. Stop Time	9:26 AM	
Application Method	SPRAY	SPRAY
Application Timing	PREPLA	POEMW3
Application Placement	BROFOL	BROFOL
Applied By	CP	
Appl. Entry Date	Jun-3-2019	
Air Temperature Start, Stop	70 F	
% Relative Humidity Start, Stop	66	
Wind Velocity+Dir. Start	3 MPH NE	
Wet Leaves (Y/N)	Y yes	
Soil Temperature	61 F	
% Cloud Cover	0	

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale	ZEAMX BCOR	ZEAMX BCOR
Stage Majority, Percent	00	13

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Pest 2 Code, Type, Scale	IPOLA W	IPOLA W
Pest 3 Code, Type, Scale	ECHCG W	ECHCG W

University of Tennessee

Trial ID: FMC USA 19-750	EVALUATING ANTHEM BRANDS FOR WEED CONTROL IN CORN	Location: JACKSON
Protocol ID: USA-19-750		Trial Year: 2019
Project ID:		Investigator: Dr. Larry Steckel
		Study Director:
		Sponsor Contact:

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	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 Product to Measure	Rep			
									1	2	3	4
1	UNTREATED CHECK								101	206	305	403
2	ANTHEM FLEX	4 LB/GAL	SE		4.5 fl oz/a	PREMCR A		4.687 mL/mx	102	203	304	402
	ATRAZINE	4 LB/GAL	F		32 fl oz/a	PREMCR A		33.33 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	PREMCR A		33.33 mL/mx				
	CALLISTO	4 LB/GAL	SC		3 fl oz/a	POSPOS B		3.125 mL/mx				
	ATRAZINE	4 LB/GAL	F		16 fl oz/a	POSPOS B		16.67 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		33.33 mL/mx				
3	ANTHEM MAXX	4.3 LB/GAL	SC		3.25 fl oz/a	POSPOS B		3.385 mL/mx	103	202	306	405
	CALLISTO	4 LB/GAL	SC		3 fl oz/a	POSPOS B		3.125 mL/mx				
	ATRAZINE	4 LB/GAL	F		48 fl oz/a	POSPOS B		50.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		33.33 mL/mx				
4	DUAL II MAGNUM	7.64 LB/GAL	EC		16 fl oz/a	PREMCR A		16.67 mL/mx	104	205	302	404
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	PREMCR A		33.33 mL/mx				
	ANTHEM MAXX	4.3 LB/GAL	SC		3.25 fl oz/a	POSPOS B		3.385 mL/mx				
	CALLISTO	4 LB/GAL	SC		3 fl oz/a	POSPOS B		3.125 mL/mx				
	ATRAZINE	4 LB/GAL	F		48 fl oz/a	POSPOS B		50.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		33.33 mL/mx				
5	ANTHEM MAXX	4.3 LB/GAL	SC		3.25 fl oz/a	POSPOS B		3.385 mL/mx	105	204	301	406
	CAPRENO	3.45 LB/GAL	SL		3 fl oz/a	POSPOS B		3.125 mL/mx				
	ATRAZINE	4 LB/GAL	F		48 fl oz/a	POSPOS B		50.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		33.33 mL/mx				
6	ANTHEM MAXX	4.3 LB/GAL	SC		4 fl oz/a	PREMCR A		4.167 mL/mx	106	201	303	401
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	PREMCR A		33.33 mL/mx				
	STATUS	56 %W/W	WG		4 oz/a	POSPOS B		3.994 g/mx				
	ATRAZINE	4 LB/GAL	F		48 fl oz/a	POSPOS B		50.0 mL/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL		32 fl oz/a	POSPOS B		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
5.859	mL	ANTHEM FLEX	4	LB/GAL	SE	
312.500	mL	ATRAZINE	4	LB/GAL	F	
333.333	mL	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	
11.719	mL	CALLISTO	4	LB/GAL	SC	

University of Tennessee

Protocol No.: NA19K1A002H	Trial ID: CORTEVA COTTON	Trial Name:
Discipline: HERBICIDE	DED#: K1A	Main Chem: 2,4-D
Trial Category: EFFICACY/CROP TOL	Prod. Dev. Stage: DEVELOPMENT	Site Type: CROPS,FIBER/LATEX
Trial Type: NATURAL-RES	Country:	
Plan Year: 2019		

Title: Enlist Duo and Enlist One Systems Approach for Weed Management in W3FE Cotton utilizing PRE followed by POST Sequential Programs

Business Unit: US SOUTHERN CROPS ARM License Holder: Dr. Larry Steckel

KEY QUESTIONS WITH PERFORMANCE TARGET

Key Question with Performance Target 1: What is the efficacy and crop tolerance of weed management systems that utilize Enlist Duo or Enlist One tank-mixed with glufosinate and EverpreX?

Key Question with Performance Target 2: What is the crop tolerance of Enlist cotton in a systems approach utilizing Enlist Duo or Enlist One tank-mixed with GLUF?

GENERAL INFORMATION

Protocol Writer: U372647

REGULATORY/SAFETY INFORMATION

For Registration Purposes (Y/N): N GEP Study (Y/N): N
Crop Yield Required (Y/N): N Crop Destruct (Y/N): N

Safety Issues/Protective Equipment Follow Label and MSDS safety and protective equipment requirements.

DESIGN/STATISTICAL SPECIFICATIONS

Experimental Design: RANDOMIZED COMPLETE BLOCK **Number Of Reps:** 4

Untreated Plot Type: INCLUDED

Experimental Unit

Name: PLOT

Width, Unit: 6.33 FT

Length, Unit: 30 FT

Additional Plot and/or Buffer Area Description Plots will be 4 rows wide x 20 ft long each, with the center 2 rows treated and a running NTC. Include at least 5 ft alley between reps.

APPLICATION INFORMATION

	B	C
Application Date	May-29-2019	
Start Time of Appl	9:35 AM	
Appl Duration, Unit	10 min	
Appl Method	FOLIAR	
Appl Placement	BROADFLR	
Applicator	CP	
Equipment Type	BKPCKCO2	
Equipment Speed, Unit	4 mph	
Equipment Pres, Unit	30 psi	
Nozzle Type	TURBOJET	
Nozzle Manufacturer	TTI	
Nozzle Size/Code Num	11003	
Band/Boom Width, Unit	6.33 ft	
Planter Type	ROWPLANT	
Diluent	WATER	
Output Volume, Unit	15 gal/A	
Air Temp at Appl Min, Max, Unit	83 83 F	
Wind Speed at Appl Min, Max, Unit	9 9 mph	
Wind Direction	SW	
% Relative Humidity Min, Max	62 62	
Cloud Cover	10%	
Foliage Moisture	NONE	
Tillage Type	NOTILL	
Soil Temperature Min, Max, Unit	80 80 F	

University of Tennessee

Protocol No.: NA19K1A002H	Trial ID: CORTEVA COTTON	Trial Name:
Discipline: HERBICIDE	DED#: K1A	Main Chem: 2,4-D
Trial Category: EFFICACY/CROP TOL	Prod. Dev. Stage: DEVELOPMENT	Site Type: CROPS,FIBER/LATEX
Trial Type: NATURAL-RES	Country:	
Plan Year: 2019		

Title: Enlist Duo and Enlist One Systems Approach for Weed Management in W3FE Cotton utilizing PRE followed by POST Sequential Programs

Business Unit: US SOUTHERN CROPS ARM License Holder: Dr. Larry Steckel

CROP TABLE

	1
Bayer Code	GOSHI
Scientific Name	Gossypium hirsutum
Common Name	American upland cotton
Variety/Hybrid	W3FE
Biotype	AAD-12/GLU/GLY-TOL

CROP STAGE AT EACH APPLICATION

	A		B		C	
Crop 1 Code	GOSHI	COTTON	GOSHI	COTTON	GOSHI	COTTON
Growth Stage I Min			13			

PEST TABLE

	1.	2.
Bayer Code	AMAPA	ECHCO
Scientific Name	Amaranthus palmeri	Echinochloa colonum
Common Name	Palmer amaranth	Junglerice
Biotype	GLY-RES	

PEST STAGE AT EACH APPLICATION

	A		B		C	
Pest 1 Code	AMAPA	GENERAL	AMAPA	GENERAL	AMAPA	GENERAL
Height, Diameter, Unit			5	3 in		
Pest 2 Code	ECHCO	GENERAL	ECHCO	GENERAL	ECHCO	GENERAL
Height, Diameter, Unit			5	in		

PROTOCOL COMMENTS

Sprayer: BKPCCKO2 **Spray Volume:** 15 GPA
Nozzle Type: FLAT FAN **Pressure Range:** 20-30 PSI
Desired Stage of Development of Crop and/or Pest at Application APPL A - Apply PRE immediately after planting. Cooperator has choice of using Treflan PPI or Cotoran, Direx or Reflex at recommended rate at preemergence timing

APPL B - Apply POST to 2-4 inch weeds, First POST application (Appl. B) should be based off the first weed flush after planting for treatment #2 which is Cotoran alone at preemergence timing.

APPL C - Apply POST 14-21 days after APPL B, Appl C should be applied 14-28 days after application B, timing should occur earlier as dictated by weed size. The second POST treatment (14-21 days after APPL B should not be applied as a salvage).

All plots should receive application B treatments, at the same time. The application timing should not be varied by treatment.

All plots should receive applicatin C treatment at the same time. The applicaiton timing should not be varied by treatment.

Site Selection/Environmental Conditions/Management Practices Select sites with uniform weed poulation and moderate densities.

Assessments and Other Data to Collect Make % cotton injury visual weed control for treatments immediately prior to applications B and immediately prior to application C. After C timing make one additional rating for overall crop injury and weed control at 14 DAAC.

At each application timing, record in ARM file the following:

Take the weed density, leaf stage and weed height when averaged across all treatments

Weed density (#/ft²)

Weed height (in)

University of Tennessee

Protocol No.: NA19K1A002H	Trial ID: CORTEVA COTTON
Discipline: HERBICIDE	Trial Name:
Trial Category: EFFICACY/CROP TOL	Main Chem: 2,4-D
Trial Type: NATURAL-RES	Prod. Dev. Stage: DEVELOPMENT
Plan Year: 2019	Site Type: CROPS,FIBER/LATEX
	Country:

Title: Enlist Duo and Enlist One Systems Approach for Weed Management in W3FE Cotton utilizing PRE followed by POST Sequential Programs

Business Unit: US SOUTHERN CROPS ARM License Holder: Dr. Larry Steckel

Reps: 4 Appl Code: B Plots: 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 Type	Rate Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
3	B	ROUNDUP WEATHERMAX	4.5 lb ae/gal	SL	28.4 fl oz pr/a	29.58 mL/mx	103	205	303	403
4	B	ENLIST DUO	3.34 lb ae/gal	SL	75 fl oz pr/a	78.12 mL/mx	104	202	301	408
5	B	Enlist One	3.8 lb ae/gal	SL	32 fl oz pr/a	33.33 mL/mx	105	204	305	407
	B	EverpreX	7.62 lb ai/gal	EC	16.2 fl oz pr/a	16.87 mL/mx				
	B	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx				
6	B	EverpreX	7.62 lb ai/gal	EC	16 fl oz pr/a	16.67 mL/mx	106	206	308	404
	B	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx				
7	B	Enlist One	3.8 lb ae/gal	SL	32 fl oz pr/a	33.33 mL/mx	107	201	306	405
	B	EverpreX	7.62 lb ai/gal	EC	16.2 fl oz pr/a	16.87 mL/mx				
	B	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx				
8	B	EverpreX	7.62 lb ai/gal	EC	16 fl oz pr/a	16.67 mL/mx	108	203	302	406
	B	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx				

Reps: 4 Appl Code: C Plots: 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 Type	Rate Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	ABC	UNTREATED					101	207	304	401
3	C	ROUNDUP WEATHERMAX	4.5 lb ae/gal	SL	28.4 fl oz pr/a	29.58 mL/mx	103	205	303	403
4	C	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx	104	202	301	408
	C	Enlist One	3.8 lb ae/gal	SL	32 fl oz pr/a	33.33 mL/mx				
	C	EverpreX	7.62 lb ai/gal	EC	16 fl oz pr/a	16.67 mL/mx				
5	C	ENLIST DUO	3.34 lb ae/gal	SL	75 fl oz pr/a	78.12 mL/mx	105	204	305	407
6	C	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx	106	206	308	404
	C	ROUNDUP WEATHERMAX	4.5 lb ae/gal	SL	28.4 fl oz pr/a	29.58 mL/mx				
7	C	Enlist One	3.8 lb ae/gal	SL	32 fl oz pr/a	33.33 mL/mx	107	201	306	405
	C	LIBERTY	2.13 lb ae/gal	SL	29 fl oz pr/a	30.21 mL/mx				
8	C	ENLIST DUO	3.34 lb ae/gal	SL	75 fl oz pr/a	78.12 mL/mx	108	203	302	406

Sort Order: Application Code, Treatment

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

Amount*	Unit	Treatment Name	Material Name	Form Conc	Conc Unit	Form Type	Lot Code
291.666	mL	COTORAN 4L	COTORAN 4L	4	lb ai/gal	SC	
110.937	mL	ROUNDUP WEATHERMAX	ROUNDUP WEATHERMAX	4.5	lb ae/gal	SL	
292.968	mL	ENLIST DUO	GF-2726	3.34	lb ae/gal	SL	
264.323	mL	LIBERTY	IGNITE 280 SL	2.13	lb ae/gal	SL	
166.667	mL	Enlist One	GF-3335	3.8	lb ae/gal	SL	
104.687	mL	EverpreX	EverpreX	7.62	lb ai/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.

* Adjusted for multiple applications in treatment list.

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 FT² 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
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
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 1	2	3	4
		Conc	Unit								
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 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.