

2019 Weeds AR Wild Soybean Research Summaries

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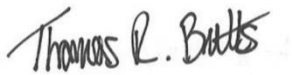
Acknowledgements

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We would also be remiss if we did not thank our industry supporters. We appreciate the support in the 2019 growing season from the following companies:

ADAMA
Albaugh, LLC
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Bayer CropScience Ag
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Corteva Agriscience
FMC Corporation
Gowan Company
Nichino America, Inc.
Syngenta AG
UPL North America
Valent USA Corporation

The data presented in this publication are intended to help growers, county agents, crop consultants, specialists, and industry representatives make unbiased decisions concerning best management practices for effective weed management. It represents results from only one year of research, and although it may serve as a guide, making decisions based on only one-year worth of data is always risky. Many of these same treatments will be included in subsequent year's research, and as additional data are collected, the better treatments will be included in Extension recommendations. Check the University of Arkansas System Division of Agriculture MP-44 publication, "Recommended Chemicals for Weed and Brush Control," for current Arkansas weed management recommendations. Some of the chemicals and application methods included in this research summary are not labeled for use in the manner they were evaluated. Always read and follow the label directions on all herbicides to ensure proper use.



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(TRB19 SOYBEAN 02)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02 Location:Newport, AR Trial Year:2019
 Protocol ID:Tavium Investigator:Thomas R. Butts
 Project ID:Tavium Syngenta Study Director:Dr. Thomas Butts
 Sponsor Contact:David Black

General Trial Information

Study Director:Dr. Thomas Butts
Investigator:Thomas R. Butts

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

Conducted Under GLP:No
Conducted Under GEP:No

Contacts

Study Director:Dr. Thomas Butts

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
Entry Date:Aug-7-2019
Variety:P48A60X
Planting Date:Jun-5-2019 **Planting Rate:**200000 S/A
Depth:0.5 IN
Harvested Width:7.5 FT
% Standard Moisture:12.5 **Harvested Length:**20 FT

Pest Description

Pest 1 Type:W **Code:**AMAPA **Amaranthus palmeri**
Common Name:Palmer amaranth **Entry Date:**Sep-18-2019

Pest 2 Type:W **Code:**CYPES **Cyperus esculentus**
Common Name:Yellow nutsedge **Entry Date:**Sep-18-2019

Site and Design

Treated Plot Width:7.5 FT
Treated Plot Length:20 FT
Treated Plot Area:150 FT² **Treatments:**7
Replications:4 **Study Design:**RACOB Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jun-6-2019	Aug-5-2019
Appl. Start Time	7:00 AM	11:00 AM
Appl. Stop Time	8:00 AM	11:45 AM
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	T. Dillon	A. McCormick
Appl. Entry Date	Aug-7-2019	Aug-7-2019
Air Temperature Start, Stop	75 F	88 F
% Relative Humidity Start, Stop	86	63
Wind Velocity+Dir. Start	8 MPH S	2 MPH E
Wet Leaves (Y/N)	N no	N no
Soil Temperature	68 F	90 F
% Cloud Cover	6	50

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		R2
Average Diameter		2.5 FT

(TRB19 SOYBEAN 02)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02	Location:Newport, AR	Trial Year:2019
Protocol ID:Tavuim	Investigator:Thomas R. Butts	
Project ID:Tavium Syngenta	Study Director:Dr. Thomas Butts	
	Sponsor Contact:David Black	

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Height Average		4 IN
Density Average		7 FT2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Height Average		5 IN

Application Equipment

	A	B
Appl. Equipment	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	110015	110015
Nozzle Spacing	20 IN	20 IN
Nozzles/Row	6	6
Boom Length	5 FT	5 FT
Boom Height	10 IN	10 IN
Ground Speed	2 MPH	2 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL
Propellant	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Mar-21-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Aug-7-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 02)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID: TRB19 SOYBEAN 02	Location: Newport, AR	Trial Year: 2019
Protocol ID: Tavium	Investigator: Thomas R. Butts	
Project ID: Tavium Syngenta	Study Director: Dr. Thomas Butts	
Sponsor Contact: David Black		

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code			AMAPA	CYPES	IPOSS	AMAPA	CYPES
Pest Scientific Name			Amaranthus pal>	Cyperus escul>	Ipomoea sp.	Amaranthus pal>	Cyperus escul>
Pest Name			Palmer amaranth	Yellow nutsedge	Morning glory	Palmer amaranth	Yellow nutsedge
Crop Scientific Name			Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name			Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date			Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-20-2019	Jun-20-2019
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit			%	%	%	%	%
Days After First/Last Applic.			7 7	7 7	7 7	14 14	14 14
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	1*	2*	3*	4*	5*
1Untreated Check		A	0.0	0.0	0.0	0.0	0.0
2Boundary 6.5 EC	2pt/a	A	100.0	100.0	100.0	100.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
3Broadax XC	22oz/a	A	100.0	100.0	100.0	100.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
4Prefix	2.33pt/a	A	100.0	100.0	100.0	100.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
5Fierce	3oz/a	A	100.0	100.0	100.0	100.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Xtendimax	22oz/a	B					
Roundup Powermax	28.4oz/a	B					
6Zidua Pro	4.5oz/a	A	100.0	100.0	100.0	100.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Engenia	12.8oz/a	B					
Roundup Powermax	28.4oz/a	B					
7Fierce MTZ	1pt/a	A	100.0	100.0	100.0	100.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Engenia	12.8oz/a	B					
Roundup Powermax	28.4oz/a	B					
LSD P=.05							
Replicate F			0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)			1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F			0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)			1.0000	1.0000	1.0000	1.0000	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Excluded replicate 3 in column 10

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,9,12,15,18,20,22 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02 Location:Newport, AR Trial Year:2019
 Protocol ID:Taviuim Investigator:Thomas R. Butts
 Project ID:Tavium Syngenta Study Director:Dr. Thomas Butts
 Sponsor Contact:David Black

Pest Type			W Weed	W Weed		W Weed	
Pest Code			AMAPA	CYPES		AMAPA	
Pest Scientific Name			Amaranthus pal>	Cyperus escul>		Amaranthus pal>	
Pest Name			Palmer amaranth	Yellow nutsedge		Palmer amaranth	
Crop Scientific Name		Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	
Crop Name		Soybean	Soybean	Soybean	Soybean	Soybean	
Rating Date		Jun-20-2019	Jun-27-2019	Jun-27-2019	Jun-27-2019	Jul-3-2019	
Rating Type		PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO	
Rating Unit		%	%	%	%	%	
Days After First/Last Applic.		14 14	21 21	21 21	21 21	27 27	
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	6*	7*	8*	9*	10*
1Untreated Check		A	0.0	0.0	0.0	0.0	0.0
2Boundary 6.5 EC	2pt/a	A	0.0	98.5	100.0	5.0	99.3
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
3Broadax XC	22oz/a	A	0.0	98.8	100.0	5.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
4Prefix	2.33pt/a	A	0.0	99.5	100.0	5.0	99.5
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
5Fierce	3oz/a	A	0.0	100.0	99.3	5.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Xtendimax	22oz/a	B					
Roundup Powermax	28.4oz/a	B					
6Zidua Pro	4.5oz/a	A	0.0	99.0	100.0	5.0	99.3
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Engenia	12.8oz/a	B					
Roundup Powermax	28.4oz/a	B					
7Fierce MTZ	1pt/a	A	0.0	99.8	97.5	5.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Engenia	12.8oz/a	B					
Roundup Powermax	28.4oz/a	B					
LSD P=.05			.	1.76	1.68	.	0.97
Replicate F			0.000	0.980	1.217	0.000	0.673
Replicate Prob(F)			1.0000	0.4240	0.3323	1.0000	0.5797
Treatment F			0.000	3996.550	4412.666	0.000	13369.487
Treatment Prob(F)			1.0000	0.0001	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Excluded replicate 3 in column 10

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,9,12,15,18,20,22 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02 Location:Newport, AR Trial Year:2019
 Protocol ID:Taviuim Investigator:Thomas R. Butts
 Project ID:Tavium Syngenta Study Director:Dr. Thomas Butts
 Sponsor Contact:David Black

Pest Type		W Weed		W Weed		W Weed
Pest Code		CYPES		AMAPA		AMAPA
Pest Scientific Name		Cyperus esculentus		Amaranthus palmeri		Amaranthus palmeri
Pest Name		Yellow nutsedge		Palmer amaranth		Palmer amaranth
Crop Scientific Name		Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name		Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date		Jul-3-2019	Jul-3-2019	Aug-13-2019	Aug-13-2019	Aug-21-2019
Rating Type		CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Rating Unit		%	%	%	%	%
Days After First/Last Applic.		27 27	27 27	68 8	68 8	76 16
Trt Treatment	Rate Appl					
No. Name	Rate Unit Code	11*	12*	13*	14*	15*
1Untreated Check		0.0	0.0	0.0	0.0	0.0
2Boundary 6.5 EC	2pt/a A	99.5	0.0	99.3	5.0	100.0
Intact	0.5% v/v B					
Class Act Ridion	1% v/v B					
Tavium Plus Vaporgrit Tech	56.5oz/a B					
Roundup Powermax	28.4oz/a B					
3Broadax XC	22oz/a A	100.0	0.0	99.3	6.3	100.0
Intact	0.5% v/v B					
Class Act Ridion	1% v/v B					
Tavium Plus Vaporgrit Tech	56.5oz/a B					
Roundup Powermax	28.4oz/a B					
4Prefix	2.33pt/a A	100.0	0.0	100.0	7.5	100.0
Intact	0.5% v/v B					
Class Act Ridion	1% v/v B					
Tavium Plus Vaporgrit Tech	56.5oz/a B					
Roundup Powermax	28.4oz/a B					
5Fierce	3oz/a A	98.0	0.0	100.0	5.0	100.0
Intact	0.5% v/v B					
Class Act Ridion	1% v/v B					
Xtendimax	22oz/a B					
Roundup Powermax	28.4oz/a B					
6Zidua Pro	4.5oz/a A	99.5	0.0	99.8	2.5	100.0
Intact	0.5% v/v B					
Class Act Ridion	1% v/v B					
Engenia	12.8oz/a B					
Roundup Powermax	28.4oz/a B					
7Fierce MTZ	1pt/a A	99.8	0.0	100.0	3.8	100.0
Intact	0.5% v/v B					
Class Act Ridion	1% v/v B					
Engenia	12.8oz/a B					
Roundup Powermax	28.4oz/a B					
LSD P=.05		1.42	.	0.66	2.52	.
Replicate F		1.611	0.000	1.140	4.138	0.000
Replicate Prob(F)		0.2218	1.0000	0.3597	0.0214	1.0000
Treatment F		6222.328	0.000	28634.523	8.586	0.000
Treatment Prob(F)		0.0001	1.0000	0.0001	0.0002	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Excluded replicate 3 in column 10

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,9,12,15,18,20,22 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02				Location:Newport, AR		Trial Year:2019	
Protocol ID:Tavium				Investigator:Thomas R. Butts			
Project ID:Tavium Syngenta				Study Director:Dr. Thomas Butts			
				Sponsor Contact:David Black			
Pest Type				W Weed		W Weed	
Pest Code				AMAPA		AMAPA	
Pest Scientific Name				Amaranthus pal>		Amaranthus pal>	
Pest Name				Palmer amaranth		Palmer amaranth	
Crop Scientific Name				Glycine max		Glycine max	
Crop Name				Soybean		Soybean	
Rating Date				Aug-21-2019		Aug-26-2019	
Rating Type				PHYGEN		PHYGEN	
Rating Unit				%		%	
Days After First/Last Applic.				76 16		81 21	
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code		16*	17*	18*	19*
1Untreated Check		A		0.0	0.0	0.0	0.0
2Boundary 6.5 EC	2pt/a	A		0.6	99.5	0.0	99.5
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
3Broadax XC	22oz/a	A		2.8	100.0	0.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
4Prefix	2.33pt/a	A		1.9	100.0	0.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Tavium Plus Vaporgrip Tech	56.5oz/a	B					
Roundup Powermax	28.4oz/a	B					
5Fierce	3oz/a	A		0.6	100.0	0.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Xtendimax	22oz/a	B					
Roundup Powermax	28.4oz/a	B					
6Zidua Pro	4.5oz/a	A		0.6	100.0	0.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Engenia	12.8oz/a	B					
Roundup Powermax	28.4oz/a	B					
7Fierce MTZ	1pt/a	A		0.6	100.0	0.0	100.0
Intact	0.5% v/v	B					
Class Act Ridion	1% v/v	B					
Engenia	12.8oz/a	B					
Roundup Powermax	28.4oz/a	B					
LSD P=.05				2.85 - 4.53	0.32		0.32
Replicate F				0.610	1.000	0.000	1.000
Replicate Prob(F)				0.6171	0.4155	1.0000	0.4155
Treatment F				0.960	119803.012	0.000	119803.012
Treatment Prob(F)				0.4790	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Excluded replicate 3 in column 10

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,9,12,15,18,20,22 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02 Location:Newport, AR Trial Year:2019
 Protocol ID:Tavium Investigator:Thomas R. Butts
 Project ID:Tavium Syngenta Study Director:Dr. Thomas Butts
 Sponsor Contact:David Black

Pest Type	W Weed				
Pest Code	AMAPA				
Pest Scientific Name	Amaranthus pal>				
Pest Name	Palmer amaranth				
Crop Scientific Name	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	
Rating Date	Oct-14-2019	Oct-14-2019	Oct-16-2019	Oct-16-2019	
Rating Type	CONTRO	PHYGEN	WEIGHT	YIELD	
Rating Unit	%	%	lb/plot	BU	
Days After First/Last Applic.	130 70	130 70	132 72	132 72	
Trt Treatment	Rate	Appl			
No. Name	Rate Unit Code	21*	22*	23*	24*
1Untreated Check		0.0	0.0	4.73	23.1
2Boundary 6.5 EC	2pt/a A	99.5	0.0	10.55	51.6
Intact	0.5% v/v B				
Class Act Ridion	1% v/v B				
Tavium Plus Vaporgrip Tech	56.5oz/a B				
Roundup Powermax	28.4oz/a B				
3Broadax XC	22oz/a A	100.0	0.0	9.20	45.0
Intact	0.5% v/v B				
Class Act Ridion	1% v/v B				
Tavium Plus Vaporgrip Tech	56.5oz/a B				
Roundup Powermax	28.4oz/a B				
4Prefix	2.33pt/a A	99.8	0.0	11.30	55.3
Intact	0.5% v/v B				
Class Act Ridion	1% v/v B				
Tavium Plus Vaporgrip Tech	56.5oz/a B				
Roundup Powermax	28.4oz/a B				
5Fierce	3oz/a A	99.8	0.0	12.65	61.9
Intact	0.5% v/v B				
Class Act Ridion	1% v/v B				
Xtendimax	22oz/a B				
Roundup Powermax	28.4oz/a B				
6Zidua Pro	4.5oz/a A	99.8	0.0	10.15	49.7
Intact	0.5% v/v B				
Class Act Ridion	1% v/v B				
Engenia	12.8oz/a B				
Roundup Powermax	28.4oz/a B				
7Fierce MTZ	1pt/a A	99.8	0.0	10.93	53.5
Intact	0.5% v/v B				
Class Act Ridion	1% v/v B				
Engenia	12.8oz/a B				
Roundup Powermax	28.4oz/a B				
LSD P=.05		0.69	.	2.887	14.13
Replicate F		0.222	0.000	2.078	2.078
Replicate Prob(F)		0.8797	1.0000	0.1389	0.1389
Treatment F		26533.892	0.000	6.764	6.764
Treatment Prob(F)		0.0001	1.0000	0.0007	0.0007

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Excluded replicate 3 in column 10

Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,9,12,15,18,20,22 because error mean square = 0.

(TRB19 SOYBEAN 02)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of Tavium herbicide in RR2 Xtend soybean

Trial ID:TRB19 SOYBEAN 02	Location:Newport, AR	Trial Year:2019
Protocol ID:Tavuim	Investigator:Thomas R. Butts	
Project ID:Tavium Syngenta	Study Director:Dr. Thomas Butts	
	Sponsor Contact:David Black	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

IPOSS, Ipomoea sp., Morning glory = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY2 = 4.895314*[23]

(TRB19 SOYBEAN 03)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Carrier volume and adjuvant (AMS and NIS) effect on Liberty efficacy

Trial ID:TRB19 SOYBEAN 03 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 03 Investigator:Thomas R. Butts
 Project ID: Study Director:Ashley McCormick
 Sponsor Contact:

General Trial Information

Study Director:Ashley McCormick
 Investigator:Thomas R. Butts

Trial Status:E established
 ARM Trial Created On:Mar-21-2019

Conducted Under GLP:No
 Conducted Under GEP:No

Contacts

Study Director:Ashley McCormick

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
 Entry Date:Nov-14-2019
 Variety:CZ4539 GTLL
 Planting Date:Jun-5-2019 Planting Rate:200000 S/A
 Harvested Width:7.5 FT
 % Standard Moisture:12.5 Harvested Length:25 FT

Pest Description

Pest 1 Type:W Code:AMAPA Amaranthus palmeri
 Common Name:Palmer amaranth Entry Date:Nov-14-2019

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT2 Treatments:9
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A
Application Date	Jul-11-2019
Appl. Start Time	4:00 PM
Appl. Stop Time	4:20 PM
Application Method	SPRAY
Application Placement	BROADC
Applied By	A. McCormick
Appl. Entry Date	Nov-14-2019
Air Temperature Start, Stop	90 F
% Relative Humidity Start, Stop	52
Wind Velocity+Dir. Start	8 MPH NNW
Wet Leaves (Y/N)	N no
Soil Temperature	97 F
% Cloud Cover	30

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Stage Majority, Percent	V8
Height Average	1.5 FT

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	AMAPA W
Stage Majority, Percent	Veg
Height Average	1.5 FT

(TRB19 SOYBEAN 03)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Carrier volume and adjuvant (AMS and NIS) effect on Liberty efficacy

Trial ID:TRB19 SOYBEAN 03 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 03 Investigator:Thomas R. Butts
 Project ID: Study Director:Ashley McCormick
 Sponsor Contact:

Application Equipment

	A
Appl. Equipment	Newport-A
Equipment Type	SPRAYE
Operation Pressure	35 PSI
Nozzle Type	AIXR
Nozzle Size	11002
Nozzle Spacing	20 IN
Nozzles/Row	6
Boom Length	5 FT
Boom Height	10 IN
Ground Speed	2 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	3 GAL
Propellant	COMAIR

Context	Date	By	Notes
STATUS	Mar-21-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-14-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 03)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Carrier volume and adjuvant (AMS and NIS) effect on Liberty efficacy

Trial ID:TRB19 SOYBEAN 03				Location:Newport				Trial Year:2019			
Protocol ID:TRB19 SOYBEAN 03				Investigator:Thomas R. Butts							
Project ID:				Study Director:Ashley McCormick							
Sponsor Contact:											
Pest Type	W Weed										
Pest Code	AMAPA										
Pest Scientific Name	Amaranthus pal>										
Pest Name	Palmer amaranth										
Crop Scientific Name	Glycine max										
Crop Name	Soybean										
Rating Date	Jul-18-2019			Jul-18-2019		Jul-25-2019	Jul-25-2019		Aug-1-2019	Aug-1-2019	
Rating Type	CONTRO			PHYGEN		CONTRO	PHYGEN		CONTRO	PHYGEN	
Rating Unit	%			%		%	%		%	%	
Crop Stage Majority	R2			R2		R2	R2				
Days After First/Last Applic.	7 7			7 7		14 14	14 14		21 21	21 21	
Trt Treatment	Rate	Appl									
No. Name	Rate	Unit	Code	1*	2*	3*	4*	5*	6*		
1Nontreated control				0.0	0.0	0.0	0.0	0.0	0.0		
2Liberty	29fl oz/a	A		96.3	0.0	98.8	0.0	97.5	0.0		
3Liberty	29fl oz/a	A		96.3	0.0	100.0	0.0	100.0	0.0		
AMS	3lb/a	A									
4Liberty	29fl oz/a	A		96.3	0.0	100.0	0.0	100.0	0.0		
NIS	0.25% v/v	A									
5Liberty	29fl oz/a	A		97.5	0.0	100.0	0.0	100.0	0.0		
AMS	1.5lb/a	A									
NIS	0.25% v/v	A									
6Liberty	29fl oz/a	A		97.5	0.0	100.0	0.0	100.0	0.0		
7Liberty	29fl oz/a	A		98.8	0.0	99.8	0.0	100.0	0.0		
AMS	3lb/a	A									
8Liberty	29fl oz/a	A		96.3	0.0	100.0	0.0	99.8	0.0		
NIS	0.25% v/v	A									
9Liberty	29fl oz/a	A		97.5	0.0	100.0	0.0	100.0	0.0		
AMS	1.5lb/a	A									
NIS	0.25% v/v	A									
LSD P=.05				4.50	.	1.25	.	1.41	.		
Replicate F				1.439	0.000	0.858	0.000	1.224	0.000		
Replicate Prob(F)				0.2561	1.0000	0.4762	1.0000	0.3226	1.0000		
Treatment F				441.220	0.000	6035.007	0.000	4746.224	0.000		
Treatment Prob(F)				0.0001	1.0000	0.0001	1.0000	0.0001	1.0000		

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 2,4,6,8 because error mean square = 0.

U of A Cooperative Extension Service

Carrier volume and adjuvant (AMS and NIS) effect on Liberty efficacy

Trial ID:TRB19 SOYBEAN 03				Location:Newport				Trial Year:2019			
Protocol ID:TRB19 SOYBEAN 03				Investigator:Thomas R. Butts							
Project ID:				Study Director:Ashley McCormick							
Sponsor Contact:											
Pest Type				W Weed				W Weed			
Pest Code				AMAPA				AMAPA			
Pest Scientific Name				Amaranthus pal>				Amaranthus pal>			
Pest Name				Palmer amaranth				Palmer amaranth			
Crop Scientific Name				Glycine max				Glycine max			
Crop Name				Soybean				Soybean			
Rating Date				Aug-9-2019		Aug-9-2019		Oct-14-2019		Oct-14-2019	
Rating Type				CONTRO		PHYGEN		CONTRO		WEIGHT	
Rating Unit				%		%		%		lb/plot	
Crop Stage Majority											
Days After First/Last Applic.				29 29		29 29		95 95		95 95	
Trt Treatment											
No. Name				7*		8*		9*		10*	
Rate											
Unit											
Appl Code											
1Nontreated control				0.0		0.0		0.0		12.50	
2Liberty	29fl oz/a			97.3		0.0		98.8		9.23	
3Liberty	29fl oz/a			100.0		0.0		99.8		13.60	
AMS	3lb/a										
4Liberty	29fl oz/a			100.0		0.0		100.0		12.78	
NIS	0.25% v/v										
5Liberty	29fl oz/a			100.0		0.0		100.0		13.45	
AMS	1.5lb/a										
NIS	0.25% v/v										
6Liberty	29fl oz/a			100.0		0.0		100.0		13.43	
7Liberty	29fl oz/a			100.0		0.0		100.0		12.23	
AMS	3lb/a										
8Liberty	29fl oz/a			98.8		0.0		99.8		13.20	
NIS	0.25% v/v										
9Liberty	29fl oz/a			100.0		0.0		100.0		12.60	
AMS	1.5lb/a										
NIS	0.25% v/v										
LSD P=.05				1.70		.		0.59		3.055	
Replicate F				1.690		0.000		0.620		8.306	
Replicate Prob(F)				0.1958		1.0000		0.6091		0.0006	
Treatment F				3240.864		0.000		26928.045		1.633	
Treatment Prob(F)				0.0001		1.0000		0.0001		0.1675	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 2,4,6,8 because error mean square = 0.

(TRB19 SOYBEAN 03)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Carrier volume and adjuvant (AMS and NIS) effect on Liberty efficacy

Trial ID:TRB19 SOYBEAN 03	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 03	Investigator:Thomas R. Butts	
Project ID:	Study Director:Ashley McCormick	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.770222*[10]

(TRB19 SOYBEAN 05)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of Enlist E3 weed control programs in soybean

Trial ID:TRB19 SOYBEAN 05 Location:Newport, AR Trial Year:2019
 Protocol ID:Enlist Mid South Investigator:Thomas R. Butts
 Project ID:NA19P2E001H Study Director:Dr. Thomas Butts
 Sponsor Contact:Andrew Ellis

General Trial Information

Study Director:Dr. Thomas Butts
Investigator:Thomas R. Butts

Trial Status:E established
ARM Trial Created On:Apr-10-2019

Conducted Under GLP:No
Conducted Under GEP:No

Contacts

Study Director:Dr. Thomas Butts

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
Entry Date:Sep-25-2019
Variety:Delta Grow 47E25
Planting Date:Jun-4-2019 **Planting Rate:**200000 S/A
Harvested Width:7.5 FT
Harvested Length:25 FT
% Standard Moisture:12.5

Pest Description

Pest 1 Type:W **Code:**AMAPA **Amaranthus palmeri**
Common Name:Palmer amaranth **Entry Date:**Sep-25-2019

Pest 2 Type:W **Code:**CYPES **Cyperus esculentus**
Common Name:Yellow nutsedge **Entry Date:**Sep-25-2019

Site and Design

Treated Plot Width:7.5 FT
Treated Plot Length:25 FT
Treated Plot Area:187.5 FT² **Treatments:**7
Replications:4 **Study Design:**RACOB Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jun-4-2019	Jul-10-2019
Appl. Start Time	1:50 PM	2:40 PM
Appl. Stop Time	2:02 PM	3:00 PM
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Appl. Entry Date	Sep-25-2019	Sep-25-2019
Air Temperature Start, Stop	90 F	95 F
% Relative Humidity Start, Stop	58	51.6
Wind Velocity+Dir. Start	10 MPH S	3 MPH E
Wet Leaves (Y/N)	N no	N no
Soil Temperature	78 F	105 F
% Cloud Cover	0	50

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		V5
Height Average		12 IN

(TRB19 SOYBEAN 05)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of Enlist E3 weed control programs in soybean

Trial ID:TRB19 SOYBEAN 05	Location:Newport, AR	Trial Year:2019
Protocol ID:Enlist Mid South	Investigator:Thomas R. Butts	
Project ID:NA19P2E001H	Study Director:Dr. Thomas Butts	
	Sponsor Contact:Andrew Ellis	

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		veg
Height Average		3 IN
Density Average		6 FT2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		8 lf
Height Average		3 IN
Density Average		3 FT2

Application Equipment

	A	B
Appl. Equipment	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	110015	110015
Nozzle Spacing	20 IN	20 IN
Nozzles/Row	6	6
Boom Length	5 FT	5 FT
Boom Height	10 IN	10 IN
Ground Speed	2 MPH	2 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL
Propellant	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Apr-10-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Sep-25-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 05)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of Enlist E3 weed control programs in soybean

Trial ID: TRB19 SOYBEAN 05 Location: Newport, AR Trial Year: 2019
 Protocol ID: Enlist Mid South Investigator: Thomas R. Butts
 Project ID: NA19P2E001H Study Director: Dr. Thomas Butts
 Sponsor Contact: Andrew Ellis

Pest Type				W Weed	W Weed		W Weed	W Weed
Pest Code				AMAPA	CYPES		AMAPA	CYPES
Pest Scientific Name				Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>
Pest Name				Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge
Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date				Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-25-2019	Jul-25-2019
Rating Type				CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit				%	%	%	%	%
Days After First/Last Applic.				44 8	44 8	44 8	51 15	51 15
Trt Treatment	Rate	Appl						
No. Name	Rate	Unit	Code	1*	2*	3*	4*	5*
1UNTREATED			A	0.0	0.0	0.0	0.0	0.0
2CLASSIC	0.0195lb ai/a	A		100.0	96.0	5.0	92.0	94.5
VALOR	0.064lb ai/a	A						
METRIBUZIN 75	0.225lb ai/a	A						
DURANGO DMA	1lb ai/a	B						
3CLASSIC	0.0195lb ai/a	A		100.0	95.0	5.0	96.3	90.0
VALOR	0.064lb ai/a	A						
METRIBUZIN 75	0.225lb ai/a	A						
ENLIST DUO	1.46lb ai/a	B						
4CLASSIC	0.0195lb ai/a	A		100.0	96.7	5.0	93.4	93.9
VALOR	0.064lb ai/a	A						
METRIBUZIN 75	0.225lb ai/a	A						
ENLIST DUO	1.95lb ai/a	B						
5CLASSIC	0.0195lb ai/a	A		100.0	96.0	5.0	95.0	96.3
VALOR	0.064lb ai/a	A						
METRIBUZIN 75	0.225lb ai/a	A						
Enlist	0.95lb ai/a	B						
GLUFOSINATE-AMMONIUM	0.345lb ai/a	B						
6CLASSIC	0.0195lb ai/a	A		100.0	93.8	5.0	93.8	95.8
VALOR	0.064lb ai/a	A						
METRIBUZIN 75	0.225lb ai/a	A						
GLUFOSINATE-AMMONIUM	0.483lb ai/a	B						
7CLASSIC	0.0195lb ai/a	A		100.0	97.0	5.0	100.0	98.5
VALOR	0.064lb ai/a	A						
METRIBUZIN 75	0.225lb ai/a	A						
Enlist	0.95lb ai/a	B						
GLUFOSINATE-AMMONIUM	0.345lb ai/a	B						
EverpreX	0.95lb ai/a	B						
LSD P=.05				.	3.79	.	7.12	5.01
Replicate F				0.000	0.492	0.000	0.943	1.504
Replicate Prob(F)				1.0000	0.6926	1.0000	0.4418	0.2494
Treatment F				0.000	804.556	0.000	226.521	455.663
Treatment Prob(F)				1.0000	0.0001	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,6,9,12 because error mean square = 0.

U of A Cooperative Extension Service

Trial ID:TRB19 SOYBEAN 05			Location:Newport, AR		Trial Year:2019			
Protocol ID:Enlist Mid South			Investigator:Thomas R. Butts					
Project ID:NA19P2E001H			Study Director:Dr. Thomas Butts					
			Sponsor Contact:Andrew Ellis					
Pest Type					W Weed	W Weed		W Weed
Pest Code					AMAPA	CYPES		AMAPA
Pest Scientific Name					Amaranthus pal>	Cyperus escul>		Amaranthus pal>
Pest Name					Palmer amaranth	Yellow nutsedge		Palmer amaranth
Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date				Jul-25-2019	Aug-1-2019	Aug-1-2019	Aug-1-2019	Aug-8-2019
Rating Type				PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO
Rating Unit				%	%	%	%	%
Days After First/Last Applic.				51 15	58 22	58 22	58 22	65 29
Trt	Treatment	Rate	Appl					
No.	Name	Rate	Unit Code	6*	7*	8*	9*	10*
1	UNTREATED		A	0.0	0.0	0.0	0.0	0.0
2	CLASSIC	0.0195lb ai/a	A	0.0	82.5	90.0	0.0	57.5
	VALOR	0.064lb ai/a	A					
	METRIBUZIN 75	0.225lb ai/a	A					
	DURANGO DMA	1lb ai/a	B					
3	CLASSIC	0.0195lb ai/a	A	0.0	87.5	87.5	0.0	80.0
	VALOR	0.064lb ai/a	A					
	METRIBUZIN 75	0.225lb ai/a	A					
	ENLIST DUO	1.46lb ai/a	B					
4	CLASSIC	0.0195lb ai/a	A	0.0	78.3	83.8	0.0	63.3
	VALOR	0.064lb ai/a	A					
	METRIBUZIN 75	0.225lb ai/a	A					
	ENLIST DUO	1.95lb ai/a	B					
5	CLASSIC	0.0195lb ai/a	A	0.0	76.3	82.5	0.0	73.8
	VALOR	0.064lb ai/a	A					
	METRIBUZIN 75	0.225lb ai/a	A					
	Enlist	0.95lb ai/a	B					
	GLUFOSINATE-AMMONIUM	0.345lb ai/a	B					
6	CLASSIC	0.0195lb ai/a	A	0.0	76.3	85.0	0.0	66.3
	VALOR	0.064lb ai/a	A					
	METRIBUZIN 75	0.225lb ai/a	A					
	GLUFOSINATE-AMMONIUM	0.483lb ai/a	B					
7	CLASSIC	0.0195lb ai/a	A	0.0	93.8	96.0	0.0	82.5
	VALOR	0.064lb ai/a	A					
	METRIBUZIN 75	0.225lb ai/a	A					
	Enlist	0.95lb ai/a	B					
	GLUFOSINATE-AMMONIUM	0.345lb ai/a	B					
	EverpreX	0.95lb ai/a	B					
LSD P=.05				.	15.23	17.59	.	19.08
Replicate F				0.000	1.706	0.400	0.000	5.517
Replicate Prob(F)				1.0000	0.2036	0.7549	1.0000	0.0078
Treatment F				0.000	38.859	31.929	0.000	19.392
Treatment Prob(F)				1.0000	0.0001	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) for columns 1,3,6,9,12 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of Enlist E3 weed control programs in soybean

Trial ID:TRB19 SOYBEAN 05				Location:Newport, AR		Trial Year:2019	
Protocol ID:Enlist Mid South				Investigator:Thomas R. Butts			
Project ID:NA19P2E001H				Study Director:Dr. Thomas Butts			
Sponsor Contact:Andrew Ellis							
Pest Type				W Weed			
Pest Code				CYPES			
Pest Scientific Name				Cyperus esculentus			
Pest Name				Yellow nutsedge			
Crop Scientific Name				Glycine max			
Crop Name				Soybean			
Rating Date				Aug-8-2019	Aug-8-2019	Oct-18-2019	Oct-18-2019
Rating Type				CONTRO	PHYGEN	WEIGHT	YIELD
Rating Unit				%	%	lb/plot	BU
Days After First/Last Applic.				65 29	65 29	136 100	136 100
Trt Treatment	Rate	Appl					
No. Name	Rate	Unit	Code	11*	12*	13*	14*
1UNTREATED			A	0.0	0.0	3.23	12.6
2CLASSIC	0.0195lb ai/a	A		70.0	0.0	2.60	10.1
VALOR	0.064lb ai/a	A					
METRIBUZIN 75	0.225lb ai/a	A					
DURANGO DMA	1lb ai/a	B					
3CLASSIC	0.0195lb ai/a	A		75.0	0.0	3.78	14.7
VALOR	0.064lb ai/a	A					
METRIBUZIN 75	0.225lb ai/a	A					
ENLIST DUO	1.46lb ai/a	B					
4CLASSIC	0.0195lb ai/a	A		62.9	0.0	3.63	14.1
VALOR	0.064lb ai/a	A					
METRIBUZIN 75	0.225lb ai/a	A					
ENLIST DUO	1.95lb ai/a	B					
5CLASSIC	0.0195lb ai/a	A		73.8	0.0	2.85	11.1
VALOR	0.064lb ai/a	A					
METRIBUZIN 75	0.225lb ai/a	A					
Enlist	0.95lb ai/a	B					
GLUFOSINATE-AMMONIUM	0.345lb ai/a	B					
6CLASSIC	0.0195lb ai/a	A		65.0	0.0	2.45	9.5
VALOR	0.064lb ai/a	A					
METRIBUZIN 75	0.225lb ai/a	A					
GLUFOSINATE-AMMONIUM	0.483lb ai/a	B					
7CLASSIC	0.0195lb ai/a	A		83.8	0.0	1.75	6.8
VALOR	0.064lb ai/a	A					
METRIBUZIN 75	0.225lb ai/a	A					
Enlist	0.95lb ai/a	B					
GLUFOSINATE-AMMONIUM	0.345lb ai/a	B					
EverpreX	0.95lb ai/a	B					
LSD P=.05				13.73	.	1.789	6.96
Replicate F				7.670	0.000	10.321	10.321
Replicate Prob(F)				0.0019	1.0000	0.0004	0.0004
Treatment F				37.034	0.000	1.386	1.386
Treatment Prob(F)				0.0001	1.0000	0.2731	0.2731

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,6,9,12 because error mean square = 0.

(TRB19 SOYBEAN 05)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of Enlist E3 weed control programs in soybean

Trial ID:TRB19 SOYBEAN 05	Location:Newport, AR	Trial Year:2019
Protocol ID:Enlist Mid South	Investigator:Thomas R. Butts	
Project ID:NA19P2E001H	Study Director:Dr. Thomas Butts	
	Sponsor Contact:Andrew Ellis	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.894126*[13]

(TRB19 SOYBEAN 06)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of low chlorimuron-ethyl soybean pre-mix concepts

Trial ID:TRB19 SOYBEAN 06 Location:Newport, AR Trial Year:2019
 Protocol ID:Soybean Premix Investigator:Thomas R. Butts
 Project ID: Study Director:Dr. Thomas Butts
 Sponsor Contact:Andrew Ellis

General Trial Information

Study Director:Dr. Thomas Butts
Investigator:Thomas R. Butts

Trial Status:E established
ARM Trial Created On:Apr-10-2019

Conducted Under GLP:No
Conducted Under GEP:No

Contacts

Study Director:Dr. Thomas Butts

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
Entry Date:Sep-25-2019
Variety:Delta Grow
Planting Date:Jun-4-2019 **Planting Rate:**200000 S/A
Soil Temperature:80 F
Harvested Width:7.5 FT
Harvested Length:25 FT
% Standard Moisture:12.5

Site and Design

Treated Plot Width:7.5 FT
Treated Plot Length:25 FT
Treated Plot Area:187.5 FT² **Treatments:**7
Replications:4 **Study Design:**RACOB L Randomized Complete Block (RCB)

Application Description

	A
Application Date	Jun-4-2019
Appl. Start Time	2:10 PM
Appl. Stop Time	2:25 PM
Application Method	SPRAY
Application Placement	BROADC
Applied By	A. McCormick
Appl. Entry Date	Sep-25-2019
Air Temperature Start, Stop	90 F
% Relative Humidity Start, Stop	57
Wind Velocity+Dir. Start	10 MPH SSW
Wet Leaves (Y/N)	N no
Soil Temperature	80 F
Soil Moisture	SLIWET
% Cloud Cover	0

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY

(TRB19 SOYBEAN 06)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of low chlorimuron-ethyl soybean pre-mix concepts

Trial ID:TRB19 SOYBEAN 06 Location:Newport, AR Trial Year:2019
 Protocol ID:Soybean Premix Investigator:Thomas R. Butts
 Project ID: Study Director:Dr. Thomas Butts
 Sponsor Contact:Andrew Ellis

Application Equipment

	A
Appl. Equipment	Newport-A
Equipment Type	SPRAYE
Operation Pressure	35 PSI
Nozzle Type	AIXR
Nozzle Size	110015
Nozzle Spacing	20 IN
Nozzles/Row	6
Boom Length	5 FT
Boom Height	10 IN
Ground Speed	2 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	3 GAL
Propellant	COMAIR

Context	Date	By	Notes
STATUS	Apr-10-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Sep-25-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 06)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of low chlorimuron-ethyl soybean pre-mix concepts

Trial ID:TRB19 SOYBEAN 06				Location:Newport, AR		Trial Year:2019			
Protocol ID:Soybean Premix				Investigator:Thomas R. Butts					
Project ID:				Study Director:Dr. Thomas Butts					
				Sponsor Contact:Andrew Ellis					
Pest Type	W Weed			W Weed		W Weed		W Weed	
Pest Code	AMAPA			CYPES		AMAPA		CYPES	
Pest Scientific Name	Amaranthus pal>			Cyperus escul>		Amaranthus pal>		Cyperus escul>	
Pest Name	Palmer amaranth			Yellow nutsedge		Palmer amaranth		Yellow nutsedge	
Crop Scientific Name	Glycine max			Glycine max		Glycine max		Glycine max	
Crop Name	Soybean			Soybean		Soybean		Soybean	
Rating Date	Jun-11-2019			Jun-11-2019		Jun-11-2019		Jun-19-2019	
Rating Type	CONTRO			CONTRO		CONTRO		CONTRO	
Rating Unit	%			%		%		%	
Days After First/Last Applic.	7 7			7 7		7 7		15 15	
Trt Treatment	Rate	Appl							
No. Name	Rate	Unit	Code	1*	2*	3*	4*	5*	6*
1Untreated Check				0.0	0.0	0.0	0.0	0.0	0.0
2Classic	1.28oz/a	A		100.0	100.0	0.0	100.0	96.3	5.0
Valor	2oz/a	A							
Metribuzin	4.75oz/a	A							
3Surveil	2.8oz/a	A		100.0	100.0	0.0	100.0	96.3	5.0
Metribuzin	5oz/a	A							
4FirstRate	0.4oz/a	A		100.0	100.0	0.0	100.0	95.0	5.0
Valor	1.98oz/a	A							
5Classic	1.28oz/a	A		100.0	100.0	0.0	100.0	95.0	5.0
Valor	2oz/a	A							
Harmony SG	0.5oz/a	A							
Metribuzin	5oz/a	A							
6Sonic	4oz/a	A		100.0	100.0	0.0	100.0	95.8	5.0
Metribuzin	5oz/a	A							
7Authority MTZ	16oz/a	A		100.0	100.0	0.0	100.0	95.0	5.0
LSD P=.05				.	.	.	.	1.79	.
Replicate F				0.000	0.000	0.000	0.000	4.156	0.000
Replicate Prob(F)				1.0000	1.0000	1.0000	1.0000	0.0211	1.0000
Treatment F				0.000	0.000	0.000	0.000	3592.312	0.000
Treatment Prob(F)				1.0000	1.0000	1.0000	1.0000	0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,6,7,9,12 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of low chlorimuron-ethyl soybean pre-mix concepts

Trial ID:TRB19 SOYBEAN 06				Location:Newport, AR				Trial Year:2019					
Protocol ID:Soybean Premix				Investigator:Thomas R. Butts									
Project ID:				Study Director:Dr. Thomas Butts									
				Sponsor Contact:Andrew Ellis									
Pest Type	W Weed			W Weed				W Weed			W Weed		
Pest Code	AMAPA			CYPES				AMAPA			CYPES		
Pest Scientific Name	Amaranthus pal>			Cyperus escul>				Amaranthus pal>			Cyperus escul>		
Pest Name	Palmer amaranth			Yellow nutsedge				Palmer amaranth			Yellow nutsedge		
Crop Scientific Name	Glycine max			Glycine max			Glycine max	Glycine max			Glycine max		
Crop Name	Soybean			Soybean			Soybean	Soybean			Soybean		
Rating Date	Jun-26-2019			Jun-26-2019			Jun-26-2019	Jul-3-2019			Jul-3-2019		
Rating Type	CONTRO			CONTRO			PHYGEN	CONTRO			CONTRO		
Rating Unit	%			%			%	%			%		
Days After First/Last Applic.	22 22			22 22			22 22	29 29			29 29		
Trt	Treatment			Rate			Appl						
No.	Name			Rate			Unit	Code					
				7*				8*			9*		
	1Untreated Check			0.0				0.0			0.0		
	2Classic			1.28oz/a			A	100.0			98.3		
	Valor			2oz/a			A	0.0			0.0		
	Metribuzin			4.75oz/a			A	100.0			96.5		
	3Surveil			2.8oz/a			A	100.0			93.8		
	Metribuzin			5oz/a			A	0.0			0.0		
	4FirstRate			0.4oz/a			A	100.0			94.8		
	Valor			1.98oz/a			A	0.0			0.0		
	5Classic			1.28oz/a			A	100.0			99.5		
	Valor			2oz/a			A	0.0			0.0		
	Harmony SG			0.5oz/a			A	100.0			97.0		
	Metribuzin			5oz/a			A	0.0			0.0		
	6Sonic			4oz/a			A	100.0			96.3		
	Metribuzin			5oz/a			A	0.0			0.0		
	7Authority MTZ			16oz/a			A	100.0			96.5		
	LSD P=.05			.				4.11			.		
	Replicate F			0.000				2.106			0.000		
	Replicate Prob(F)			1.0000				0.1352			1.0000		
	Treatment F			0.000				706.293			0.000		
	Treatment Prob(F)			1.0000				0.0001			1.0000		

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,6,7,9,12 because error mean square = 0.

(TRB19 SOYBEAN 06)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of low chlorimuron-ethyl soybean pre-mix concepts

Trial ID: TRB19 SOYBEAN 06	Location: Newport, AR	Trial Year: 2019
Protocol ID: Soybean Premix	Investigator: Thomas R. Butts	
Project ID:	Study Director: Dr. Thomas Butts	
	Sponsor Contact: Andrew Ellis	

Pest Type	W Weed		
Pest Code	AMAPA		
Pest Scientific Name	Amaranthus pal>		
Pest Name	Palmer amaranth		
Crop Scientific Name			
Crop Name	Soybean		
Rating Date	Oct-15-2019	Oct-18-2019	Oct-18-2019
Rating Type	CONTRO	WEIGHT	YIELD
Rating Unit	%	lb/plot	BU
Days After First/Last Applic.	133 133	136 136	136 136
Trt Treatment	Rate Appl		
No. Name	Rate Unit Code		
	13*	14*	15*
1Untreated Check	0.0	6.03	23.5
2Classic	1.28oz/a A	98.8	4.93
Valor	2oz/a A		19.2
Metribuzin	4.75oz/a A		
3Surveil	2.8oz/a A	98.5	5.78
Metribuzin	5oz/a A		22.5
4FirstRate	0.4oz/a A	99.8	4.38
Valor	1.98oz/a A		17.0
5Classic	1.28oz/a A	98.5	5.50
Valor	2oz/a A		21.4
Harmony SG	0.5oz/a A		
Metribuzin	5oz/a A		
6Sonic	4oz/a A	99.3	4.98
Metribuzin	5oz/a A		19.4
7Authority MTZ	16oz/a A	98.8	5.85
			22.8
LSD P=.05	2.44	1.984	7.73
Replicate F	3.265	26.696	26.696
Replicate Prob(F)	0.0455	0.0001	0.0001
Treatment F	2072.312	0.815	0.815
Treatment Prob(F)	0.0001	0.5724	0.5724

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) for columns 1,2,3,4,6,7,9,12 because error mean square = 0.

(TRB19 SOYBEAN 06)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of low chlorimuron-ethyl soybean pre-mix concepts

Trial ID:TRB19 SOYBEAN 06	Location:Newport, AR	Trial Year:2019
Protocol ID:Soybean Premix	Investigator:Thomas R. Butts	
Project ID:	Study Director:Dr. Thomas Butts	
	Sponsor Contact:Andrew Ellis	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.894126*[14]

(TRB19 SOYBEAN 07)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07 Location:Newport, AR Trial Year:2019
 Protocol ID:Valent Actives LL System Investigator:Thomas R. Butts
 Project ID:VUSA2019MEVER017 Study Director:Dr. Thomas Butts
 Sponsor Contact:

General Trial Information

Study Director:Dr. Thomas Butts
 Investigator:Thomas R. Butts

Trial Status:E established
 ARM Trial Created On:Apr-10-2019

Conducted Under GLP:No
 Conducted Under GEP:No

Contacts

Study Director:Dr. Thomas Butts

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
 Entry Date:Oct-28-2019
 Variety:CZ4539GTLL
 Planting Date:Jun-5-2019 Planting Rate:170000 LB/A
 Row Spacing:30 IN
 Harvested Width:5.625 FT
 % Standard Moisture:12.5 Harvested Length:25 FT

Pest Description

Pest 1 Type:W Code:AMAPA Amaranthus palmeri
 Common Name:Palmer amaranth Entry Date:Oct-28-2019

Pest 2 Type:W Code:CYPES Cyperus esculentus
 Common Name:Yellow nutsedge Entry Date:Oct-28-2019

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT2 Treatments:11
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A	B	C
Application Date	Jun-5-2019	Jul-11-2019	Aug-1-2019
Appl. Start Time	5:00 PM	2:50 PM	3:30 PM
Appl. Stop Time	6:15 PM	3:30 PM	3:45 PM
Application Method	SPRAY	SPRAY	SPRAY
Application Placement	BROADC	BROADC	BROADC
Applied By	A. McCormick	A. McCormick	A. McCormick
Appl. Entry Date	Oct-28-2019	Oct-28-2019	Oct-28-2019
Air Temperature Start, Stop	82 F	90 F	85 F
% Relative Humidity Start, Stop	75	51	55
Wind Velocity+Dir. Start	10 MPH SSW	6 MPH NNW	3 MPH N
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	79 F	97 F	82 F
Soil Moisture	SLIWET	DRY	SLIWET
% Cloud Cover	0	30	60

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		V8	R2
Height Average		1.5 ft	2.5 ft

(TRB19 SOYBEAN 07)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07 Location:Newport, AR Trial Year:2019
 Protocol ID:Valent Actives LL System Investigator:Thomas R. Butts
 Project ID:VUSA2019MEVER017 Study Director:Dr. Thomas Butts
 Sponsor Contact:

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent		veg	veg
Height Average		2 ft	3 ft
Height Minimum, Maximum		1 3	2 5
Density Average		1 FT2	3 FT2
Pest 2 Code, Type, Scale	CYPES W	CYPES W	CYPES W
Stage Majority, Percent		4 lf	8 lf
Height Average		4 in	12 in
Density Average		1 FT2	2 FT2

Application Equipment

	A	B	C
Appl. Equipment	Newport-A	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR	AIXR
Nozzle Size	110015	110015	110015
Nozzle Spacing	20 IN	20 IN	20 IN
Nozzles/Row	6	6	6
Boom Length	5 FT	5 FT	5 FT
Boom Height	10 IN	10 IN	10 IN
Ground Speed	2 MPH	2 MPH	2 MPH
Carrier	WATER	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL	3 GAL
Propellant	COMAIR	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Apr-10-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Oct-28-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 07)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07 Location:Newport, AR Trial Year:2019
 Protocol ID:Valent Actives LL System Investigator:Thomas R. Butts
 Project ID:VUSA2019MEVER017 Study Director:Dr. Thomas Butts
 Sponsor Contact:

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code			AMAPA	CYPES	AMAPA	CYPES	AMAPA
Pest Scientific Name			Amaranthus pal>	Cyperus escul>	Amaranthus pal>	Cyperus escul>	Amaranthus pal>
Pest Name			Palmer amaranth	Yellow nutsedge	Palmer amaranth	Yellow nutsedge	Palmer amaranth
Crop Scientific Name			Glycine max		Glycine max		Glycine max
Crop Name			Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date			Jun-13-2019	Jun-13-2019	Jun-19-2019	Jun-19-2019	Jun-26-2019
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit			%	%	%	%	%
Crop Stage Majority			VE	VE	VC	VC	V2
Days After First/Last Applic.			8 8	8 8	14 14	14 14	21 21
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	1*	2*	3*	4*	5*
1			0.0	0.0	0.0	0.0	0.0
2SCOUT (GLUFOSINATE)	32fl oz/a	B	0.0	0.0	0.0	0.0	0.0
DRY AMMONIUM SULFATE	3lb/a	B					
SCOUT (GLUFOSINATE)	32fl oz/a	C					
SELECT MAX	9fl oz/a	C					
INDUCE	0.25% v/v	C					
DRY AMMONIUM SULFATE	3lb/a	C					
4FIERCE EZ	6fl oz/a	A	100.0	99.5	100.0	99.5	100.0
SCOUT (GLUFOSINATE)	32fl oz/a	B					
SELECT MAX	9fl oz/a	B					
INDUCE	0.25% v/v	B					
DRY AMMONIUM SULFATE	3lb/a	B					
5FIERCE MTZ SC (2030)	16fl oz/a	A	100.0	100.0	100.0	100.0	100.0
SCOUT (GLUFOSINATE)	32fl oz/a	B					
SELECT MAX	9fl oz/a	B					
INDUCE	0.25% v/v	B					
DRY AMMONIUM SULFATE	3lb/a	B					
8AUTHORITY MTZ	11oz wt/a	A	100.0	99.8	100.0	99.8	91.3
SCOUT (GLUFOSINATE)	32fl oz/a	B					
ANTHEM MAXX	2.5fl oz/a	B					
SELECT MAX	9fl oz/a	B					
INDUCE	0.25% v/v	B					
DRY AMMONIUM SULFATE	3lb/a	B					
10FIERCE EZ	6fl oz/a	A	100.0	99.8	100.0	99.8	100.0
SCOUT (GLUFOSINATE)	32fl oz/a	B					
SELECT MAX	9fl oz/a	B					
DRY AMMONIUM SULFATE	2.5lb/a	B					
NIS	0.25% v/v	B					
11FIERCE EZ	6fl oz/a	A	100.0	99.8	100.0	99.8	100.0
SCOUT (GLUFOSINATE)	32fl oz/a	B					
SELECT MAX	9fl oz/a	B					
COBRA	12.5fl oz/a	B					
DRY AMMONIUM SULFATE	2.5lb/a	B					
NIS	0.25% v/v	B					
LSD P=.05			.	0.61	.	0.61	1.09
Replicate F			0.000	1.379	0.000	1.379	1.000
Replicate Prob(F)			1.0000	0.2681	1.0000	0.2681	0.4064
Treatment F			0.000	49284.315	0.000	49284.315	15073.002
Treatment Prob(F)			1.0000	0.0001	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,9 because error mean square = 0.

(TRB19 SOYBEAN 07)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07			Location:Newport, AR		Trial Year:2019	
Protocol ID:Valent Actives LL System			Investigator:Thomas R. Butts			
Project ID:VUSA2019MEVER017			Study Director:Dr. Thomas Butts			
Sponsor Contact:						
Pest Type	W Weed		W Weed		W Weed	
Pest Code	CYPES		AMAPA		CYPES	
Pest Scientific Name	Cyperus escul>		Amaranthus pal>		Cyperus escul>	
Pest Name	Yellow nutsedge		Palmer amaranth		Yellow nutsedge	
Crop Scientific Name			Glycine max			
Crop Name	Soybean		Soybean		Soybean	
Rating Date	Jun-26-2019		Jul-3-2019		Jul-3-2019	
Rating Type	CONTRO		CONTRO		CONTRO	
Rating Unit	%		%		%	
Crop Stage Majority	V2		V5		V5	
Days After First/Last Applic.	21 21		28 28		28 28	
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	6*	7*	8*	9*
1			0.0	0.0	0.0	0.0
2SCOUT (GLUFOSINATE)	32fl oz/a B		0.0	0.0	0.0	0.0
DRY AMMONIUM SULFATE	3lb/a B					73.8
SCOUT (GLUFOSINATE)	32fl oz/a C					
SELECT MAX	9fl oz/a C					
INDUCE	0.25% v/v C					
DRY AMMONIUM SULFATE	3lb/a C					
4FIERCE EZ	6fl oz/a A		97.5	99.3	91.3	0.0
SCOUT (GLUFOSINATE)	32fl oz/a B					
SELECT MAX	9fl oz/a B					
INDUCE	0.25% v/v B					
DRY AMMONIUM SULFATE	3lb/a B					
5FIERCE MTZ SC (2030)	16fl oz/a A		96.3	100.0	93.5	0.0
SCOUT (GLUFOSINATE)	32fl oz/a B					
SELECT MAX	9fl oz/a B					
INDUCE	0.25% v/v B					
DRY AMMONIUM SULFATE	3lb/a B					
8AUTHORITY MTZ	11oz wt/a A		95.0	83.8	81.3	0.0
SCOUT (GLUFOSINATE)	32fl oz/a B					
ANTHEM MAXX	2.5fl oz/a B					
SELECT MAX	9fl oz/a B					
INDUCE	0.25% v/v B					
DRY AMMONIUM SULFATE	3lb/a B					
10FIERCE EZ	6fl oz/a A		95.0	99.8	90.0	0.0
SCOUT (GLUFOSINATE)	32fl oz/a B					
SELECT MAX	9fl oz/a B					
DRY AMMONIUM SULFATE	2.5lb/a B					
NIS	0.25% v/v B					
11FIERCE EZ	6fl oz/a A		95.0	99.8	94.8	0.0
SCOUT (GLUFOSINATE)	32fl oz/a B					
SELECT MAX	9fl oz/a B					
COBRA	12.5fl oz/a B					
DRY AMMONIUM SULFATE	2.5lb/a B					
NIS	0.25% v/v B					
LSD P=.05			2.30	2.27	6.11	.
Replicate F			1.493	0.327	1.650	0.000
Replicate Prob(F)			0.2366	0.8057	0.1988	1.0000
Treatment F			3166.433	3386.468	406.132	0.000
Treatment Prob(F)			0.0001	0.0001	0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,9 because error mean square = 0.

(TRB19 SOYBEAN 07)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07			Location:Newport, AR		Trial Year:2019	
Protocol ID:Valent Actives LL System			Investigator:Thomas R. Butts			
Project ID:VUSA2019MEVER017			Study Director:Dr. Thomas Butts			
Sponsor Contact:						
Pest Type			W Weed		W Weed	
Pest Code			CYPES		AMAPA	
Pest Scientific Name			Cyperus escul>		Amaranthus pal>	
Pest Name			Yellow nutsedge		Palmer amaranth	
Crop Scientific Name						
Crop Name			Soybean	Soybean	Soybean	Soybean
Rating Date			Jul-18-2019	Jul-18-2019	Jul-25-2019	Jul-25-2019
Rating Type			CONTRO	PHYGEN	CONTRO	PHYGEN
Rating Unit			%	%	%	%
Crop Stage Majority			R2	R2	R2	R2
Days After First/Last Applic.			43 7	43 7	50 14	50 14
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	11*	12*	13*	14*
1			0.0	0.0	0.0	0.0
2SCOUT (GLUFOSINATE)	32fl oz/a	B	65.0	6.3	57.5	57.5
DRY AMMONIUM SULFATE	3lb/a	B				5.0
SCOUT (GLUFOSINATE)	32fl oz/a	C				
SELECT MAX	9fl oz/a	C				
INDUCE	0.25% v/v	C				
DRY AMMONIUM SULFATE	3lb/a	C				
4FIERCE EZ	6fl oz/a	A	93.8	5.0	100.0	95.8
SCOUT (GLUFOSINATE)	32fl oz/a	B				
SELECT MAX	9fl oz/a	B				
INDUCE	0.25% v/v	B				
DRY AMMONIUM SULFATE	3lb/a	B				
5FIERCE MTZ SC (2030)	16fl oz/a	A	93.8	5.0	100.0	94.8
SCOUT (GLUFOSINATE)	32fl oz/a	B				
SELECT MAX	9fl oz/a	B				
INDUCE	0.25% v/v	B				
DRY AMMONIUM SULFATE	3lb/a	B				
8AUTHORITY MTZ	11oz wt/a	A	91.3	6.3	92.3	91.3
SCOUT (GLUFOSINATE)	32fl oz/a	B				
ANTHEM MAXX	2.5fl oz/a	B				
SELECT MAX	9fl oz/a	B				
INDUCE	0.25% v/v	B				
DRY AMMONIUM SULFATE	3lb/a	B				
10FIERCE EZ	6fl oz/a	A	85.0	6.3	97.5	92.5
SCOUT (GLUFOSINATE)	32fl oz/a	B				
SELECT MAX	9fl oz/a	B				
DRY AMMONIUM SULFATE	2.5lb/a	B				
NIS	0.25% v/v	B				
11FIERCE EZ	6fl oz/a	A	93.8	21.3	99.8	93.8
SCOUT (GLUFOSINATE)	32fl oz/a	B				
SELECT MAX	9fl oz/a	B				
COBRA	12.5fl oz/a	B				
DRY AMMONIUM SULFATE	2.5lb/a	B				
NIS	0.25% v/v	B				
LSD P=.05			6.59	5.22	6.77	7.02
Replicate F			0.900	3.072	1.930	3.186
Replicate Prob(F)			0.4527	0.0427	0.1461	0.0379
Treatment F			151.429	9.765	181.319	150.862
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,9 because error mean square = 0.

(TRB19 SOYBEAN 07)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07			Location:Newport, AR		Trial Year:2019	
Protocol ID:Valent Actives LL System			Investigator:Thomas R. Butts			
Project ID:VUSA2019MEVER017			Study Director:Dr. Thomas Butts			
Sponsor Contact:						
Pest Type			W Weed		W Weed	
Pest Code			AMAPA		AMAPA	
Pest Scientific Name			Amaranthus pal>		Amaranthus pal>	
Pest Name			Palmer amaranth		Palmer amaranth	
Crop Scientific Name						
Crop Name			Soybean	Soybean	Soybean	Soybean
Rating Date			Aug-9-2019	Aug-9-2019	Aug-15-2019	Aug-15-2019
Rating Type			CONTRO	PHYGEN	CONTRO	PHYGEN
Rating Unit			%	%	%	%
Crop Stage Majority					R5	R5
Days After First/Last Applic.			65 8	65 8	71 14	71 14
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	16*	17*	18*	19*
1						20*
2SCOUT (GLUFOSINATE)	32fl oz/a	B	0.0	0.0	0.0	0.0
DRY AMMONIUM SULFATE	3lb/a	B	96.3	16.3	92.5	5.0
SCOUT (GLUFOSINATE)	32fl oz/a	C				91.3
SELECT MAX	9fl oz/a	C				
INDUCE	0.25% v/v	C				
DRY AMMONIUM SULFATE	3lb/a	C				
4FIERCE EZ	6fl oz/a	A	100.0	0.0	100.0	0.0
SCOUT (GLUFOSINATE)	32fl oz/a	B				100.0
SELECT MAX	9fl oz/a	B				
INDUCE	0.25% v/v	B				
DRY AMMONIUM SULFATE	3lb/a	B				
5FIERCE MTZ SC (2030)	16fl oz/a	A	100.0	1.3	100.0	0.0
SCOUT (GLUFOSINATE)	32fl oz/a	B				98.8
SELECT MAX	9fl oz/a	B				
INDUCE	0.25% v/v	B				
DRY AMMONIUM SULFATE	3lb/a	B				
8AUTHORITY MTZ	11oz wt/a	A	87.3	0.0	85.8	0.0
SCOUT (GLUFOSINATE)	32fl oz/a	B				89.5
ANTHEM MAXX	2.5fl oz/a	B				
SELECT MAX	9fl oz/a	B				
INDUCE	0.25% v/v	B				
DRY AMMONIUM SULFATE	3lb/a	B				
10FIERCE EZ	6fl oz/a	A	100.0	1.3	100.0	0.0
SCOUT (GLUFOSINATE)	32fl oz/a	B				100.0
SELECT MAX	9fl oz/a	B				
DRY AMMONIUM SULFATE	2.5lb/a	B				
NIS	0.25% v/v	B				
11FIERCE EZ	6fl oz/a	A	99.8	0.0	99.8	0.0
SCOUT (GLUFOSINATE)	32fl oz/a	B				99.8
SELECT MAX	9fl oz/a	B				
COBRA	12.5fl oz/a	B				
DRY AMMONIUM SULFATE	2.5lb/a	B				
NIS	0.25% v/v	B				
LSD P=.05			5.45	3.57	5.84	3.12
Replicate F			1.462	3.323	0.917	2.073
Replicate Prob(F)			0.2448	0.0329	0.4443	0.1248
Treatment F			248.302	17.720	214.213	2.756
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0154
						0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,9 because error mean square = 0.

(TRB19 SOYBEAN 07)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07			Location:Newport, AR		Trial Year:2019	
Protocol ID:Valent Actives LL System			Investigator:Thomas R. Butts			
Project ID:VUSA2019MEVER017			Study Director:Dr. Thomas Butts			
Sponsor Contact:						
Pest Type			W Weed		W Weed	
Pest Code			AMAPA		AMAPA	
Pest Scientific Name			Amaranthus pal>		Amaranthus pal>	
Pest Name			Palmer amaranth		Palmer amaranth	
Crop Scientific Name						
Crop Name	Soybean		Soybean	Soybean	Soybean	Soybean
Rating Date	Aug-22-2019		Aug-29-2019	Aug-29-2019	Oct-15-2019	Oct-15-2019
Rating Type	PHYGEN		CONTRO	PHYGEN	CONTRO	WEIGHT
Rating Unit	%		%	%	%	lb/plot
Crop Stage Majority	R5		R6	R6	harvest	
Days After First/Last Applic.	78 21		85 28	85 28	132 75	132 75
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	21*	22*	23*	24*
1			0.0	0.0	0.0	0.0
2SCOUT (GLUFOSINATE)	32fl oz/a B		5.0	90.0	6.3	92.5
DRY AMMONIUM SULFATE	3lb/a B					10.75
SCOUT (GLUFOSINATE)	32fl oz/a C					
SELECT MAX	9fl oz/a C					
INDUCE	0.25% v/v C					
DRY AMMONIUM SULFATE	3lb/a C					
4FIERCE EZ	6fl oz/a A		0.0	100.0	0.0	100.0
SCOUT (GLUFOSINATE)	32fl oz/a B					13.70
SELECT MAX	9fl oz/a B					
INDUCE	0.25% v/v B					
DRY AMMONIUM SULFATE	3lb/a B					
5FIERCE MTZ SC (2030)	16fl oz/a A		0.0	97.5	1.3	99.8
SCOUT (GLUFOSINATE)	32fl oz/a B					14.08
SELECT MAX	9fl oz/a B					
INDUCE	0.25% v/v B					
DRY AMMONIUM SULFATE	3lb/a B					
8AUTHORITY MTZ	11oz wt/a A		0.0	89.5	0.0	90.0
SCOUT (GLUFOSINATE)	32fl oz/a B					11.90
ANTHEM MAXX	2.5fl oz/a B					
SELECT MAX	9fl oz/a B					
INDUCE	0.25% v/v B					
DRY AMMONIUM SULFATE	3lb/a B					
10FIERCE EZ	6fl oz/a A		0.0	100.0	0.0	100.0
SCOUT (GLUFOSINATE)	32fl oz/a B					15.55
SELECT MAX	9fl oz/a B					
DRY AMMONIUM SULFATE	2.5lb/a B					
NIS	0.25% v/v B					
11FIERCE EZ	6fl oz/a A		0.0	100.0	0.0	100.0
SCOUT (GLUFOSINATE)	32fl oz/a B					16.06
SELECT MAX	9fl oz/a B					
COBRA	12.5fl oz/a B					
DRY AMMONIUM SULFATE	2.5lb/a B					
NIS	0.25% v/v B					
LSD P=.05			2.08	7.32	2.80	5.35
Replicate F			1.000	0.907	2.222	1.571
Replicate Prob(F)			0.4064	0.4491	0.1060	0.2169
Treatment F			6.164	135.777	5.485	256.042
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,3,9 because error mean square = 0.

(TRB19 SOYBEAN 07)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Efficacy of Valent herbicides in a LLGT27 soybean system

Trial ID:TRB19 SOYBEAN 07	Location:Newport, AR	Trial Year:2019
Protocol ID:Valent Actives LL System	Investigator:Thomas R. Butts	
Project ID:VUSA2019MEVER017	Study Director:Dr. Thomas Butts	
Sponsor Contact:		

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 5.080064*[C25]

(TRB19 SOYBEAN 08)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08	Location: Newport, AR	Trial Year: 2019
Protocol ID: E3 Soybean Efficacy	Investigator: Thomas R. Butts	
Project ID:	Study Director: Dr. Thomas Butts	
	Sponsor Contact: John Schultz	

General Trial Information

Study Director: Dr. Thomas Butts
Investigator: Thomas R. Butts

Trial Status: E established
ARM Trial Created On: Apr-10-2019

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Dr. Thomas Butts

Investigator: Thomas R. Butts

Crop Description

Crop 1: C GLXMA Glycine max	Soybean	
Entry Date: Oct-10-2019		
Variety: Delta Grow 47E25		
Planting Date: Jun-4-2019	Planting Rate: 200000 S/A	
	Harvested Width: 7.5 FT	
% Standard Moisture: 12.5	Harvested Length: 25 FT	

Pest Description

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

Pest 2 Type: W **Code:** CYPES **Cyperus esculentus**
Common Name: Yellow nutsedge **Entry Date:** Oct-10-2019

Site and Design

Treated Plot Width: 7.5 FT		
Treated Plot Length: 25 FT		
Treated Plot Area: 187.5 FT ²	Treatments: 14	
Replications: 4	Study Design: RACOB	Randomized Complete Block (RCB)

Application Description

	A	B	C
Application Date	Jun-4-2019	Jul-10-2019	Jul-31-2019
Appl. Start Time	2:15 PM	1:30 PM	10:15 AM
Appl. Stop Time	2:50 PM	2:00 PM	10:35 AM
Application Method	SPRAY	SPRAY	SPRAY
Application Placement	BROADC	BROADC	BROADC
Applied By	A. McCormick	A. McCormick	A. McCormick
Appl. Entry Date	Oct-10-2019	Oct-10-2019	Oct-10-2019
Air Temperature Start, Stop	91 F	93 F	87 F
% Relative Humidity Start, Stop	56	51.5	72
Wind Velocity+Dir. Start	10 MPH SSW	7 MPH E	2 MPH E
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	80 F	104 F	82 F
Soil Moisture	SLIWET	DRY	SLIWET
% Cloud Cover	0	50	50

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		V5-V6	R2

(TRB19 SOYBEAN 08)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID:TRB19 SOYBEAN 08 Location:Newport, AR Trial Year:2019
 Protocol ID:E3 Soybean Efficacy Investigator:Thomas R. Butts
 Project ID: Study Director:Dr. Thomas Butts
 Sponsor Contact:John Schultz

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent		4 lf	12 lf
Height Average		3 IN	38 IN
Density Average		6 FT2	6 FT2
Pest 2 Code, Type, Scale	CYPES W	CYPES W	CYPES W
Stage Majority, Percent		8 lf	10 lf
Height Average		10 IN	16 IN
Density Average		3 FT2	5 FT2

Application Equipment

	A	B	C
Appl. Equipment	Newport-A	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR	AIXR
Nozzle Size	110015	110015	110015
Nozzle Spacing	20 IN	20 IN	20 IN
Nozzles/Row	6	6	6
Boom Length	5 FT	5 FT	5 FT
Boom Height	10 IN	10 IN	10 IN
Ground Speed	2 MPH	2 MPH	2 MPH
Carrier	WATER	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL	3 GAL
Propellant	COMAIR	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Apr-10-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Oct-10-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMAPA	CYPES		AMAPA	CYPES
Pest Scientific Name	Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>
Pest Name	Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge
Crop Scientific Name	Glycine max			Glycine max	
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-24-2019	Jul-24-2019
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Crop Stage Majority	R2	R2	R2	R2	R2
Days After First/Last Applic.	43 7	43 7	43 7	50 14	50 14
Trt Treatment	Rate	Rate	Rate	Rate	Rate
No. Name	Rate Unit Code	Rate Unit Code	Rate Unit Code	Rate Unit Code	Rate Unit Code
1CHECK	0.0	0.0	0.0	0.0	0.0
2VERDICT	5.0fl oz/a A	93.8	68.8	1.3	90.0
ENLIST DUO	56.0fl oz/a B				92.5
3VERDICT	5.0fl oz/a A	97.5	87.5	1.3	87.5
LIBERTY 280 SL	32.0fl oz/a B				
ROUNDUP POWERMAX	32.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
4VERDICT	5.0fl oz/a A	98.8	90.0	0.0	87.5
ENLIST ONE	24.0fl oz/a B				
LIBERTY 280 SL	32.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
5VERDICT	5.0fl oz/a A	100.0	91.3	2.5	87.5
ENLIST ONE	24.0fl oz/a B				
LIBERTY 280 SL	32.0fl oz/a B				
ROUNDUP POWERMAX	32.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
6VERDICT	5.0fl oz/a A	96.3	93.8	0.0	86.3
LIBERTY 280 SL	32.0fl oz/a B				
ROUNDUP POWERMAX	32.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
ENLIST DUO	56.0fl oz/a C				
7VERDICT	5.0fl oz/a A	100.0	87.5	0.0	90.0
ENLIST DUO	56.0fl oz/a B				
LIBERTY 280 SL	32.0fl oz/a C				
ROUNDUP POWERMAX	32.0fl oz/a C				
AMMONIUM SULFATE (21% N)	3.0lb/a C				
8VERDICT	5.0fl oz/a A	100.0	91.3	0.0	80.0
LIBERTY 280 SL	32.0fl oz/a B				
ROUNDUP POWERMAX	32.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
LIBERTY 280 SL	32.0fl oz/a C				
ROUNDUP POWERMAX	32.0fl oz/a C				
AMMONIUM SULFATE (21% N)	3.0lb/a C				
9VERDICT	5.0fl oz/a A	95.0	88.8	0.0	88.8
LIBERTY 280 SL	32.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
10VERDICT	5.0fl oz/a A	97.5	92.5	0.0	76.3
LIBERTY 280 SL	32.0fl oz/a B				
SELECT MAX	6.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
11VERDICT	5.0fl oz/a A	96.3	91.3	0.0	87.5
LIBERTY 280 SL	32.0fl oz/a B				
OUTLOOK	10.0fl oz/a B				
AMMONIUM SULFATE (21% N)	3.0lb/a B				
12VERDICT	5.0fl oz/a A	98.8	87.5	1.3	92.5
LIBERTY 280 SL	32.0fl oz/a B				

OUTLOOK	10.0fl oz/a	B					
ROUNDUP POWERMAX	32.0fl oz/a	B					
AMMONIUM SULFATE (21% N)	3.0lb/a	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 9,11,13,15,17 because error mean square = 0.

(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type		W Weed	W Weed		W Weed	W Weed
Pest Code		AMAPA	CYPES		AMAPA	CYPES
Pest Scientific Name		Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>
Pest Name		Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge
Crop Scientific Name		Glycine max			Glycine max	
Crop Name		Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date		Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-24-2019	Jul-24-2019
Rating Type		CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit		%	%	%	%	%
Crop Stage Majority		R2	R2	R2	R2	R2
Days After First/Last Applic.		43 7	43 7	43 7	50 14	50 14
Trt Treatment	Rate Appl					
No. Name	Rate Unit Code	1*	2*	3*	4*	5*
13 VERDICT	5.0 fl oz/a A	100.0	92.5	1.3	95.0	96.3
ENLIST ONE	24.0 fl oz/a B					
LIBERTY 280 SL	32.0 fl oz/a B					
ROUNDUP POWERMAX	32.0 fl oz/a B					
OUTLOOK	10.0 fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0 lb/a B					
14 VERDICT	5.0 fl oz/a A	100.0	91.3	1.3	96.3	93.8
LIBERTY 280 SL	32.0 fl oz/a B					
SELECT MAX	6.0 fl oz/a B					
OUTLOOK	10.0 fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0 lb/a B					
LSD P=.05		2.66	18.31	2.44	14.41	11.44
Replicate F		0.815	1.143	0.561	1.783	2.539
Replicate Prob(F)		0.4933	0.3439	0.6441	0.1663	0.0705
Treatment F		795.693	14.635	0.906	22.912	37.399
Treatment Prob(F)		0.0001	0.0001	0.5549	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 9,11,13,15,17 because error mean square = 0.

(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type			W Weed	W Weed		W Weed
Pest Code			AMAPA	CYPES		AMAPA
Pest Scientific Name			Amaranthus pal>	Cyperus escul>		Amaranthus pal>
Pest Name			Palmer amaranth	Yellow nutsedge		Palmer amaranth
Crop Scientific Name						
Crop Name		Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date		Jul-24-2019	Jul-31-2019	Jul-31-2019	Jul-31-2019	Aug-7-2019
Rating Type		PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO
Rating Unit			%	%	%	%
Crop Stage Majority		R2	R2	R2	R2	R3
Days After First/Last Applic.		50 14	57 21	57 21	57 21	64 7
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	6*	7*	8*	9*
1CHECK			0.0	0.0	0.0	0.0
2VERDICT	5.0fl oz/a A		0.0	87.5	86.3	92.5
ENLIST DUO	56.0fl oz/a B					
3VERDICT	5.0fl oz/a A		0.0	81.3	81.3	90.0
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
4VERDICT	5.0fl oz/a A		0.0	75.0	81.3	82.5
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
5VERDICT	5.0fl oz/a A		1.3	77.5	80.0	88.8
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
6VERDICT	5.0fl oz/a A		0.0	76.3	82.5	96.0
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
ENLIST DUO	56.0fl oz/a C					
7VERDICT	5.0fl oz/a A		0.0	75.0	77.5	96.3
ENLIST DUO	56.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a C					
ROUNDUP POWERMAX	32.0fl oz/a C					
AMMONIUM SULFATE (21% N)	3.0lb/a C					
8VERDICT	5.0fl oz/a A		0.0	75.0	75.0	96.3
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
LIBERTY 280 SL	32.0fl oz/a C					
ROUNDUP POWERMAX	32.0fl oz/a C					
AMMONIUM SULFATE (21% N)	3.0lb/a C					
9VERDICT	5.0fl oz/a A		0.0	83.8	83.8	90.0
LIBERTY 280 SL	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
10VERDICT	5.0fl oz/a A		0.0	73.8	73.8	77.5
LIBERTY 280 SL	32.0fl oz/a B					
SELECT MAX	6.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
11VERDICT	5.0fl oz/a A		0.0	80.0	80.0	88.8
LIBERTY 280 SL	32.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
12VERDICT	5.0fl oz/a A		0.0	86.3	88.8	92.5
LIBERTY 280 SL	32.0fl oz/a B					

OUTLOOK	10.0fl oz/a	B					
ROUNDUP POWERMAX	32.0fl oz/a	B					
AMMONIUM SULFATE (21% N)	3.0lb/a	B					

Means followed by same letter or symbol do not significantly differ ($P \leq .05$, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

* Adjusted means

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(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type			W Weed	W Weed		W Weed
Pest Code			AMAPA	CYPES		AMAPA
Pest Scientific Name			Amaranthus pal>	Cyperus escul>		Amaranthus pal>
Pest Name			Palmer amaranth	Yellow nutsedge		Palmer amaranth
Crop Scientific Name						
Crop Name	Soybean		Soybean	Soybean	Soybean	Soybean
Rating Date	Jul-24-2019		Jul-31-2019	Jul-31-2019	Jul-31-2019	Aug-7-2019
Rating Type	PHYGEN		CONTRO	CONTRO	PHYGEN	CONTRO
Rating Unit			%	%	%	%
Crop Stage Majority	R2		R2	R2	R2	R3
Days After First/Last Applic.	50 14		57 21	57 21	57 21	64 7
Trt Treatment	Rate Appl					
No. Name	Rate Unit Code	6*	7*	8*	9*	10*
13 VERDICT	5.0fl oz/a A	0.0	85.0	85.0	0.0	92.5
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
14 VERDICT	5.0fl oz/a A	0.0	93.8	93.8	0.0	91.3
LIBERTY 280 SL	32.0fl oz/a B					
SELECT MAX	6.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
LSD P=.05		0.96	15.95	16.51	.	10.21
Replicate F		1.000	0.699	1.720	0.000	1.599
Replicate Prob(F)		0.4031	0.5586	0.1788	1.0000	0.2052
Treatment F		1.000	16.100	15.331	0.000	47.911
Treatment Prob(F)		0.4697	0.0001	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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* Adjusted means

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(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type			W Weed		W Weed	
Pest Code			AMAPA		AMAPA	
Pest Scientific Name			Amaranthus pal>		Amaranthus pal>	
Pest Name			Palmer amaranth		Palmer amaranth	
Crop Scientific Name						
Crop Name		Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date		Aug-7-2019	Aug-15-2019	Aug-15-2019	Aug-22-2019	Aug-22-2019
Rating Type		PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN
Rating Unit		%	%	%	%	%
Crop Stage Majority		R3	R4	R3	R5	R5
Days After First/Last Applic.		64 7	72 15	72 15	79 22	79 22
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	11*	12*	13*	14*
1CHECK			0.0	0.0	0.0	0.0
2VERDICT	5.0fl oz/a A		0.0	98.5	0.0	98.5
ENLIST DUO	56.0fl oz/a B					
3VERDICT	5.0fl oz/a A		0.0	95.0	0.0	93.8
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
4VERDICT	5.0fl oz/a A		0.0	88.8	0.0	87.5
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
5VERDICT	5.0fl oz/a A		0.0	95.0	0.0	97.5
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
6VERDICT	5.0fl oz/a A		0.0	100.0	0.0	98.8
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
ENLIST DUO	56.0fl oz/a C					
7VERDICT	5.0fl oz/a A		0.0	75.0	0.0	95.0
ENLIST DUO	56.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a C					
ROUNDUP POWERMAX	32.0fl oz/a C					
AMMONIUM SULFATE (21% N)	3.0lb/a C					
8VERDICT	5.0fl oz/a A		0.0	100.0	0.0	97.0
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
LIBERTY 280 SL	32.0fl oz/a C					
ROUNDUP POWERMAX	32.0fl oz/a C					
AMMONIUM SULFATE (21% N)	3.0lb/a C					
9VERDICT	5.0fl oz/a A		0.0	92.5	0.0	95.0
LIBERTY 280 SL	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
10VERDICT	5.0fl oz/a A		0.0	69.8	0.0	88.5
LIBERTY 280 SL	32.0fl oz/a B					
SELECT MAX	6.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
11VERDICT	5.0fl oz/a A		0.0	90.0	0.0	91.0
LIBERTY 280 SL	32.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
12VERDICT	5.0fl oz/a A		0.0	94.5	0.0	94.3
LIBERTY 280 SL	32.0fl oz/a B					

OUTLOOK	10.0fl oz/a	B					
ROUNDUP POWERMAX	32.0fl oz/a	B					
AMMONIUM SULFATE (21% N)	3.0lb/a	B					

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

* Adjusted means

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(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type			W Weed		W Weed	
Pest Code			AMAPA		AMAPA	
Pest Scientific Name			Amaranthus pal>		Amaranthus pal>	
Pest Name			Palmer amaranth		Palmer amaranth	
Crop Scientific Name						
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date	Aug-7-2019	Aug-15-2019	Aug-15-2019	Aug-22-2019	Aug-22-2019	Aug-22-2019
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	PHYGEN
Rating Unit	%	%	%	%	%	%
Crop Stage Majority	R3	R4	R3	R5	R5	R5
Days After First/Last Applic.	64 7	72 15	72 15	79 22	79 22	79 22
Trt Treatment	Rate Appl					
No. Name	Rate Unit Code	11*	12*	13*	14*	15*
13VERDICT	5.0fl oz/a A	0.0	96.3	0.0	95.0	0.0
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
14VERDICT	5.0fl oz/a A	0.0	93.8	0.0	92.5	0.0
LIBERTY 280 SL	32.0fl oz/a B					
SELECT MAX	6.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
LSD P=.05		.	26.86	.	8.35	.
Replicate F	0.000	0.727	0.000	1.866	0.000	
Replicate Prob(F)	1.0000	0.5421	1.0000	0.1514	1.0000	
Treatment F	0.000	7.660	0.000	75.641	0.000	
Treatment Prob(F)	1.0000	0.0001	1.0000	0.0001	1.0000	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

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(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID:TRB19 SOYBEAN 08			Location:Newport, AR		Trial Year:2019	
Protocol ID:E3 Soybean Efficacy			Investigator:Thomas R. Butts			
Project ID:			Study Director:Dr. Thomas Butts			
			Sponsor Contact:John Schultz			
Pest Type			W Weed		W Weed	
Pest Code			AMAPA		AMAPA	
Pest Scientific Name			Amaranthus pal>		Amaranthus pal>	
Pest Name			Palmer amaranth		Palmer amaranth	
Crop Scientific Name						
Crop Name			Soybean	Soybean	Soybean	Soybean
Rating Date			Aug-28-2019	Aug-28-2019	Oct-18-2019	Oct-19-2019
Rating Type			CONTRO	PHYGEN	CONTRO	YIELD
Rating Unit			%	%	%	BU
Crop Stage Majority			R6	R6		
Days After First/Last Applic.			85 28	85 28	136 79	137 80
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	16*	17*	18*	19*
1CHECK			0.0	0.0	0.0	4.90
2VERDICT	5.0fl oz/a A		98.3	0.0	99.0	11.60
ENLIST DUO	56.0fl oz/a B					44.9
3VERDICT	5.0fl oz/a A		92.5	0.0	95.8	9.25
LIBERTY 280 SL	32.0fl oz/a B					35.8
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
4VERDICT	5.0fl oz/a A		87.5	0.0	85.0	6.30
ENLIST ONE	24.0fl oz/a B					24.4
LIBERTY 280 SL	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
5VERDICT	5.0fl oz/a A		94.8	0.0	96.8	8.63
ENLIST ONE	24.0fl oz/a B					33.4
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
6VERDICT	5.0fl oz/a A		98.8	0.0	98.3	4.95
LIBERTY 280 SL	32.0fl oz/a B					19.2
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
ENLIST DUO	56.0fl oz/a C					
7VERDICT	5.0fl oz/a A		95.0	0.0	94.5	6.25
ENLIST DUO	56.0fl oz/a B					24.2
LIBERTY 280 SL	32.0fl oz/a C					
ROUNDUP POWERMAX	32.0fl oz/a C					
AMMONIUM SULFATE (21% N)	3.0lb/a C					
8VERDICT	5.0fl oz/a A		95.0	0.0	97.8	8.05
LIBERTY 280 SL	32.0fl oz/a B					31.2
ROUNDUP POWERMAX	32.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
LIBERTY 280 SL	32.0fl oz/a C					
ROUNDUP POWERMAX	32.0fl oz/a C					
AMMONIUM SULFATE (21% N)	3.0lb/a C					
9VERDICT	5.0fl oz/a A		95.0	0.0	95.8	8.90
LIBERTY 280 SL	32.0fl oz/a B					34.5
AMMONIUM SULFATE (21% N)	3.0lb/a B					
10VERDICT	5.0fl oz/a A		87.5	0.0	82.5	6.45
LIBERTY 280 SL	32.0fl oz/a B					25.0
SELECT MAX	6.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
11VERDICT	5.0fl oz/a A		90.0	0.0	94.5	6.93
LIBERTY 280 SL	32.0fl oz/a B					26.8
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
12VERDICT	5.0fl oz/a A		93.8	0.0	96.8	8.33
LIBERTY 280 SL	32.0fl oz/a B					32.2

OUTLOOK	10.0fl oz/a	B					
ROUNDUP POWERMAX	32.0fl oz/a	B					
AMMONIUM SULFATE (21% N)	3.0lb/a	B					

Means followed by same letter or symbol do not significantly differ ($P \geq .05$, Student-Newman-Keuls).

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

* Adjusted means

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(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID: TRB19 SOYBEAN 08 Location: Newport, AR Trial Year: 2019
 Protocol ID: E3 Soybean Efficacy Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact: John Schultz

Pest Type	W Weed		W Weed			
Pest Code	AMAPA		AMAPA			
Pest Scientific Name	Amaranthus pal>		Amaranthus pal>			
Pest Name	Palmer amaranth		Palmer amaranth			
Crop Scientific Name						
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	
Rating Date	Aug-28-2019	Aug-28-2019	Oct-18-2019	Oct-19-2019	Oct-19-2019	
Rating Type	CONTRO	PHYGEN	CONTRO	WEIGHT	YIELD	
Rating Unit	%	%	%	lb/plot	BU	
Crop Stage Majority	R6	R6				
Days After First/Last Applic.	85 28	85 28	136 79	137 80	137 80	
Trt Treatment	Rate Appl					
No. Name	Rate Unit Code					
13VERDICT	5.0fl oz/a A	95.0	0.0	96.3	7.88	30.5
ENLIST ONE	24.0fl oz/a B					
LIBERTY 280 SL	32.0fl oz/a B					
ROUNDUP POWERMAX	32.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
14VERDICT	5.0fl oz/a A	91.3	0.0	88.8	6.53	25.3
LIBERTY 280 SL	32.0fl oz/a B					
SELECT MAX	6.0fl oz/a B					
OUTLOOK	10.0fl oz/a B					
AMMONIUM SULFATE (21% N)	3.0lb/a B					
LSD P=.05		7.90	.	11.63	3.682	14.26
Replicate F		2.139	0.000	0.843	0.178	0.178
Replicate Prob(F)		0.1109	1.0000	0.4789	0.9107	0.9107
Treatment F		83.155	0.000	39.673	1.990	1.990
Treatment Prob(F)		0.0001	1.0000	0.0001	0.0488	0.0488

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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* Adjusted means

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(TRB19 SOYBEAN 08)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

WEED CONTROL AND CROP TOLERANCE OF THE ENLIST E3 SOYBEAN SYSTEM

Trial ID:TRB19 SOYBEAN 08	Location:Newport, AR	Trial Year:2019
Protocol ID:E3 Soybean Efficacy	Investigator:Thomas R. Butts	
Project ID:	Study Director:Dr. Thomas Butts	
	Sponsor Contact:John Schultz	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.872*[19]

(TRB19 SOYBEAN 09)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of TOUGH SEC for weed control in LLGT27 soybeans

Trial ID:TRB19 SOYBEAN 09 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 09 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

ARM Trial Created On:Apr-16-2019

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean BBCH Scale:BSOY
 Entry Date:Sep-5-2019
 Variety:CZ4539 GTLL
 Planting Date:Jun-5-2019 Planting Rate:200000 S/A

Pest Description

Pest 1 Type:W Code:AMAPA Amaranthus palmeri
 Common Name:Palmer amaranth Entry Date:Sep-5-2019

Pest 2 Type:W Code:CYPES Cyperus esculentus
 Common Name:Yellow nutsedge Entry Date:Sep-5-2019

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT2 Treatments:9
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jul-1-2019	Jul-31-2019
Appl. Start Time	10:50 AM	10:00 AM
Appl. Stop Time	11:05 AM	10:30 AM
Interval to Prev. Appl.		30 DAYS
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Appl. Entry Date	Sep-5-2019	Sep-5-2019
Air Temperature Start, Stop	87 F	
% Relative Humidity Start, Stop	64	
Wind Velocity+Dir. Start	4 MPH	
Wet Leaves (Y/N)	N no	
Soil Temperature	78 F	
Soil Moisture	GOOD	
% Cloud Cover	50	

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent	V4	
Height Average	9 IN	

(TRB19 SOYBEAN 09)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of TOUGH 5EC for weed control in LLGT27 soybeane

Trial ID:TRB19 SOYBEAN 09	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 09	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent	2 lf	
Height Average	1 IN	
Density Average	25 FT2	
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent	7lf	
Height Average	1 IN	
Density Average	6 FT2	

Application Equipment

	A	B
Appl. Equipment	Newport-A	
Equipment Type	SPRAYE	
Operation Pressure	35 PSI	
Nozzle Type	AIXR	
Nozzle Size	110015	
Nozzle Spacing	20 IN	
Nozzles/Row	6	
Boom Length	5 FT	
Boom Height	10 IN	
Ground Speed	2 MPH	
Carrier	WATER	
Application Amount	15 GAL/AC	
Mix Size	3 GAL	
Propellant	COMAIR	

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Sep-5-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 09)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of TOUGH SEC for weed control in LLGT27 soybeans

Trial ID: TRB19 SOYBEAN 09 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 09 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type		W Weed	W Weed		W Weed	W Weed	
Pest Code		AMAPA	CYPES		AMAPA	CYPES	
Pest Scientific Name		Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>	
Pest Name		Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge	
Rating Date		Jul-8-2019	Jul-8-2019	Jul-8-2019	Jul-17-2019	Jul-17-2019	Jul-17-2019
Rating Type		CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN
Rating Unit		%	%	%	%	%	%
Days After First/Last Applic.		7 7	7 7	7 7	16 16	16 16	16 16
Trt Treatment	Rate Appl						
No. Name	Rate Unit Code	1*	2*	3*	4*	5*	6*
1 Nontreated Control		0.0	0.0	0.0	0.0	0.0	0.0
2 Liberty	29fl oz/a A	80.0	67.5	6.3	70.0	67.5	5.0
AMS	2.5% v/v A						
Liberty	29fl oz/a B						
3 TOUGH	8fl oz/a A	0.0	0.0	0.0	12.5	0.0	15.0
AMS	2.5% v/v A						
COC	1% v/v A						
Liberty	29fl oz/a B						
4 TOUGH	16fl oz/a A	0.0	0.0	0.0	0.0	0.0	26.3
AMS	2.5% v/v A						
COC	1% v/v A						
Liberty	29fl oz/a B						
5 Liberty	29fl oz/a A	72.5	60.0	8.8	55.0	50.0	5.0
TOUGH	8fl oz/a A						
AMS	2.5% v/v A						
COC	1% v/v A						
Liberty	29fl oz/a B						
6 Dual II Magnum	1pt/a A	81.3	72.5	11.3	62.5	52.5	5.0
Liberty	29fl oz/a A						
AMS	2.5% v/v A						
Liberty	29fl oz/a B						
7 Dual II Magnum	1pt/a A	62.5	62.5	11.3	50.0	50.0	6.3
Liberty	29fl oz/a A						
TOUGH	8fl oz/a A						
AMS	2.5% v/v A						
COC	1% v/v A						
Liberty	29fl oz/a B						
8 Liberty	29fl oz/a A	60.0	55.0	10.0	47.5	42.5	6.3
Prefix	2pt/a A						
AMS	2.5% v/v A						
Liberty	29fl oz/a B						
9 Liberty	29fl oz/a A	65.0	65.0	11.3	35.0	35.0	6.3
Prefix	2pt/a A						
TOUGH	8fl oz/a A						
AMS	2.5% v/v A						
COC	1% v/v A						
Liberty	29fl oz/a B						
LSD P=.05		15.12	12.85	2.58	20.53	15.40	17.46
Replicate F		3.075	0.704	2.000	0.800	0.757	1.255
Replicate Prob(F)		0.0468	0.5587	0.1409	0.5061	0.5293	0.3122
Treatment F		47.819	53.597	33.889	14.361	24.742	1.681
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.1548

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

* Adjusted means

Excluded replicate 3 in column 2

Could not calculate LSD (% mean diff) for columns 8,11 because error mean square = 0.

(TRB19 SOYBEAN 09)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of TOUGH SEC for weed control in LLGT27 soybeans

Trial ID:TRB19 SOYBEAN 09				Location:Newport				Trial Year:2019							
Protocol ID:TRB19 SOYBEAN 09				Investigator:Thomas R. Butts											
Project ID:				Study Director:											
Sponsor Contact:															
Pest Type				W Weed		W Weed				W Weed		W Weed			
Pest Code				AMAPA		CYPES				AMAPA		CYPES			
Pest Scientific Name				Amaranthus pal>		Cyperus escul>				Amaranthus pal>		Cyperus escul>			
Pest Name				Palmer amaranth		Yellow nutsedge				Palmer amaranth		Yellow nutsedge			
Rating Date				Jul-23-2019		Jul-23-2019		Jul-23-2019		Jul-30-2019		Jul-30-2019		Jul-30-2019	
Rating Type				CONTRO		CONTRO		PHYGEN		CONTRO		CONTRO		PHYGEN	
Rating Unit				%		%		%		%		%		%	
Days After First/Last Applic.				22 22		22 22		22 22		29 29		29 29		29 29	
Trt	Treatment	Rate	Appl												
No.	Name	Rate Unit	Code	7*		8*		9*		10*		11*		12*	
1	Nontreated Control			0.0		0.0		0.0		0.0		0.0		0.0	
2	Liberty	29fl oz/a A		75.0		0.0		1.3		62.5		0.0		0.0	
	AMS	2.5% v/v A													
	Liberty	29fl oz/a B													
3	TOUGH	8fl oz/a A		0.0		0.0		1.3		12.5		0.0		0.0	
	AMS	2.5% v/v A													
	COC	1% v/v A													
	Liberty	29fl oz/a B													
4	TOUGH	16fl oz/a A		0.0		0.0		1.3		0.0		0.0		0.0	
	AMS	2.5% v/v A													
	COC	1% v/v A													
	Liberty	29fl oz/a B													
5	Liberty	29fl oz/a A		42.5		0.0		2.5		55.0		0.0		0.0	
	TOUGH	8fl oz/a A													
	AMS	2.5% v/v A													
	COC	1% v/v A													
	Liberty	29fl oz/a B													
6	Dual II Magnum	1pt/a A		65.0		0.0		1.3		62.5		0.0		1.3	
	Liberty	29fl oz/a A													
	AMS	2.5% v/v A													
	Liberty	29fl oz/a B													
7	Dual II Magnum	1pt/a A		35.0		0.0		3.8		55.0		0.0		0.0	
	Liberty	29fl oz/a A													
	TOUGH	8fl oz/a A													
	AMS	2.5% v/v A													
	COC	1% v/v A													
	Liberty	29fl oz/a B													
8	Liberty	29fl oz/a A		52.5		0.0		1.3		57.5		0.0		0.0	
	Prefix	2pt/a A													
	AMS	2.5% v/v A													
	Liberty	29fl oz/a B													
9	Liberty	29fl oz/a A		30.0		0.0		1.3		52.5		0.0		0.0	
	Prefix	2pt/a A													
	TOUGH	8fl oz/a A													
	AMS	2.5% v/v A													
	COC	1% v/v A													
	Liberty	29fl oz/a B													
LSD P=.05				26.06		.		3.63		16.88		.		1.22	
Replicate F				1.046		0.000		0.411		0.907		0.000		1.000	
Replicate Prob(F)				0.3904		1.0000		0.7464		0.4525		1.0000		0.4098	
Treatment F				10.255		0.000		0.701		21.976		0.000		1.000	
Treatment Prob(F)				0.0001		1.0000		0.6876		0.0001		1.0000		0.4613	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Excluded replicate 3 in column 2

Could not calculate LSD (% mean diff) for columns 8,11 because error mean square = 0.

(TRB19 SOYBEAN 09)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of TOUGH 5EC for weed control in LLGT27 soybeane

Trial ID:TRB19 SOYBEAN 09	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 09	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

Rating Unit

% = percent

(TRB19 SOYBEAN 10)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of TOUGH 5EC for weed control in Xtend soybean

Trial ID:TRB19 SOYBEAN 10 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 10 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
 Variety:P48A60X
 Planting Date:Jun-6-2019 Planting Rate:200000 S/A

Pest Description

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

Pest 2 Type:W Code:CYPES Cyperus esculentus
 Common Name:Yellow nutsedge

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT2 Treatments:10
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jul-1-2019	Aug-7-2019
Appl. Start Time	1:55 PM	9:25 AM
Appl. Stop Time	2:40 PM	10:00 AM
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Air Temperature Start, Stop	93 F	94 F
% Relative Humidity Start, Stop	65	59
Wind Velocity+Dir. Start	3 MPH ESE	6 MPH WSW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	86 F	95 F
% Cloud Cover	50	30

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent	V3	R2
Height Average	8 IN	2.5 FT

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent	2lf	10 lf
Height Average	8 IN	3 FT
Density Average	20 FT2	4 FT2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent	6 lf	12 lf
Height Average	7 IN	1 FT
Density Average	5 FT2	7 FT2

(TRB19 SOYBEAN 10)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of TOUGH 5EC for weed control in Xtend soybean

Trial ID:TRB19 SOYBEAN 10 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 10 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Application Equipment

	A	B
Appl. Equipment	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	110015	110015
Nozzle Spacing	20 IN	20 IN
Nozzles/Row	6	6
Boom Length	5 FT	5 FT
Boom Height	10 IN	10 IN
Ground Speed	2 MPH	2 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL
Propellant	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Sep-6-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 5,8,9 because error mean square = 0.

U of A Cooperative Extension Service

Evaluation of TOUGH 5EC for weed control in Xtend soybean

Trial ID: TRB19 SOYBEAN 10 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 10 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	
Pest Code	AMAPA	CYPES	
Pest Scientific Name	Amaranthus pal>	Cyperus escul>	
Pest Name	Palmer amaranth	Yellow nutsedge	
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Rating Date	Jul-30-2019	Jul-30-2019	Jul-30-2019
Rating Type	CONTRO	CONTRO	PHYGEN
Rating Unit	%	%	%
Crop Stage Majority	R2	R2	R2
Days After First/Last Applic.	29 29	29 29	29 29
Trt Treatment	Rate	Appl	
No. Name	Rate Unit Code	7*	8* 9*
1Nontreated Control		0.0	0.0
2XtendiMax	22fl oz/a A	92.5	0.0
XtendiMax	22fl oz/a B		0.0
3TOUGH	8fl oz/a A	25.0	0.0
COC	1% v/v A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
4TOUGH	16fl oz/a A	37.5	0.0
COC	1% v/v A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
5TOUGH	16fl oz/a A	12.5	0.0
COC	1% v/v A		
XtendiMax	22fl oz/a B		
6XtendiMax	22fl oz/a A	83.8	0.0
TOUGH	8fl oz/a A		
COC	1% v/v A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
7Dual Magnum	1pt/a A	86.3	0.0
XtendiMax	22fl oz/a A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
8Dual Magnum	1pt/a A	83.5	0.0
XtendiMax	22fl oz/a A		
TOUGH	8fl oz/a A		
COC	1% v/v A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
9XtendiMax	22fl oz/a A	92.5	0.0
Prefix	2pt/a A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
10XtendiMax	22fl oz/a A	85.0	0.0
Prefix	2pt/a A		
TOUGH	8fl oz/a A		
COC	1% v/v A		
Intact (DRA)	0.5% v/v A		
XtendiMax	22fl oz/a B		
LSD P=.05		23.54	.
Replicate F		1.925	0.000
Replicate Prob(F)		0.1493	1.0000
Treatment F		20.488	0.000
Treatment Prob(F)		0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 5,8,9 because error mean square = 0.

(TRB19 SOYBEAN 10)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of TOUGH 5EC for weed control in Xtend soybean

Trial ID:TRB19 SOYBEAN 10	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 10	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

Rating Unit

% = percent

(TRB19 SOYBEAN 11)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of soybean crop tolerance to TOUGH 5EC applied EPOST

Trial ID:TRB19 SOYBEAN 11 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 11 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
Variety:P48A60
Planting Date:Jun-6-2019 **Planting Rate:**200000 S/A
Harvested Width:7.5 FT
% Standard Moisture:12.5 **Harvested Length:**25 FT

Site and Design

Treated Plot Width:7.5 FT
Treated Plot Length:25 FT
Treated Plot Area:187.5 FT2 **Treatments:**6
Replications:4 **Study Design:**RACOB L Randomized Complete Block (RCB)

Application Description

	A
Application Date	Jul-11-2019
Appl. Start Time	10:30 AM
Appl. Stop Time	11:00 AM
Application Method	SPRAY
Application Placement	BROADC
Applied By	A. McCormick
Air Temperature Start, Stop	87 F
% Relative Humidity Start, Stop	67
Wind Velocity+Dir. Start	4 MPH N
Wet Leaves (Y/N)	N no
Soil Temperature	82 F
% Cloud Cover	30

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Stage Majority, Percent	V6-R1

(TRB19 SOYBEAN 11)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of soybean crop tolerance to TOUGH 5EC applied EPOST

Trial ID:TRB19 SOYBEAN 11 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 11 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Application Equipment

	A
Appl. Equipment	Newport-A
Equipment Type	SPRAYE
Operation Pressure	35 PSI
Nozzle Type	AIXR
Nozzle Size	110015
Nozzle Spacing	20 IN
Nozzles/Row	6
Boom Length	5 FT
Boom Height	10 IN
Ground Speed	2 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	3 GAL
Propellant	COMAIR

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-14-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 11)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of soybean crop tolerance to TOUGH 5EC applied EPOST

Trial ID: TRB19 SOYBEAN 11 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 11 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Rating Date	Jul-18-2019	Jul-25-2019	Aug-1-2019	Aug-9-2019	Oct-16-2019	Oct-16-2019
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	WEIGHT	YIELD
Rating Unit	%	%	%	%	lb/plot	BU
Crop Stage Majority	R2	R2				
Days After First/Last Applic.	7 7	14 14	21 21	29 29	97 97	97 97
Trt Treatment	Rate	Rate	Rate	Rate	Rate	Rate
No. Name	Rate Unit	Rate Unit	Rate Unit	Rate Unit	Rate Unit	Rate Unit
1 Roundup	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a
AMS	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal
COC	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
2 Roundup	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a
TOUGH 5EC	8fl oz/a	8fl oz/a	8fl oz/a	8fl oz/a	8fl oz/a	8fl oz/a
AMS	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal
COC	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
3 Roundup	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a
TOUGH 5EC	12fl oz/a	12fl oz/a	12fl oz/a	12fl oz/a	12fl oz/a	12fl oz/a
AMS	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal
COC	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
4 Roundup	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a
TOUGH 5EC	16fl oz/a	16fl oz/a	16fl oz/a	16fl oz/a	16fl oz/a	16fl oz/a
AMS	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal
COC	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
5 Roundup	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a
Cobra	12.5fl oz/a	12.5fl oz/a	12.5fl oz/a	12.5fl oz/a	12.5fl oz/a	12.5fl oz/a
AMS	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal
COC	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
6 Roundup	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a	32fl oz/a
Flexstar	1.6pt/a	1.6pt/a	1.6pt/a	1.6pt/a	1.6pt/a	1.6pt/a
AMS	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal	17lb/100 gal
COC	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v	1% v/v
LSD P=.05	8.32	5.50	3.97	4.03	2.438	9.44
Replicate F	2.585	1.250	1.000	1.699	3.300	3.300
Replicate Prob(F)	0.0918	0.3268	0.4199	0.2099	0.0518	0.0518
Treatment F	27.260	9.500	2.040	2.243	0.311	0.311
Treatment Prob(F)	0.0001	0.0003	0.1308	0.1035	0.8984	0.8984

Rating Type
 PHYGEN = phytotoxicity - general / injury
 WEIGHT = weight
 YIELD = yield
Rating Unit
 % = percent
 lb/plot = pounds per plot
 BU = bushel
ARM Action Codes
 TY1 = 3.872*[5]

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

(TRB19 SOYBEAN 12)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 12 Location:Newport, AR Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 12 NEW Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

ARM Trial Created On:May-13-2019

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
 Entry Date:Nov-15-2019
 Variety:CZ4539GTLL
 Planting Date:Jun-5-2019 Planting Rate:200000 S/A
 Harvested Width:7.5 FT
 % Standard Moisture:12.5 Harvested Length:20 FT

Pest Description

Pest 1 Type:W Code:CYPES Cyperus esculentus
 Common Name:Yellow nutsedge Entry Date:Nov-15-2019

Pest 2 Type:W Code:AMAPA Amaranthus palmeri
 Common Name:Palmer amaranth Entry Date:Nov-15-2019

Site and Design

Treated Plot Width:6 FT
 Treated Plot Length:20 FT
 Treated Plot Area:120 FT2 Treatments:13
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jun-5-2019	Jul-11-2019
Appl. Start Time	4:20 PM	11:53 AM
Appl. Stop Time	4:30 PM	1:30 PM
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Appl. Entry Date	Nov-15-2019	Nov-15-2019
Air Temperature Start, Stop	88 F	94 F
% Relative Humidity Start, Stop	73	56
Wind Velocity+Dir. Start	14 MPH SSW	8.8 MPH N
Wet Leaves (Y/N)	N no	N no
Soil Temperature	80 F	97 F
Soil Moisture	SLIWET	DRY
% Cloud Cover	0	10

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		19"

(TRB19 SOYBEAN 12)

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Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 12 Location:Newport, AR Trial Year:2019
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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		veg
Height Average		11 in
Pest 2 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		veg
Height Average		24 in

Application Equipment

	A	B
Appl. Equipment	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	110015	110015
Nozzle Spacing	20 IN	20 IN
Nozzles/Row	6	6
Boom Length	5 FT	5 FT
Boom Height	10 IN	10 IN
Ground Speed	2 MPH	2 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL
Propellant	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	May-13-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-15-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 12)

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Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed	W Weed	W Weed	W Weed	
Pest Code			AMAPA	CYPES	AMAPA	CYPES	
Pest Scientific Name			Amaranthus pal>	Cyperus escul>	Amaranthus pal>	Cyperus escul>	
Pest Name			Palmer amaranth	Yellow nutsedge	Palmer amaranth	Yellow nutsedge	
Crop Scientific Name			Glycine max		Glycine max		
Crop Name			Soybean	Soybean	Soybean	Soybean	
Rating Date			Jun-13-2019	Jun-13-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN
Rating Unit			%	%	%	%	%
Crop Stage Majority			VE	VE	VC	VC	VC
Days After First/Last Applic.			8 8	8 8	14 14	14 14	14 14
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	1*	2*	3*	4*	5*
1UNTREATED			0.0	0.0	0.0	0.0	0.0
2LIBERTY 280 SL	32fl oz/a	B	24.8	24.8	0.0	0.0	0.0
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
3Balance Flexx	6fl oz/a	A	99.5	99.5	98.8	97.5	0.0
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
4Balance Flexx	6fl oz/a	A	99.8	99.8	100.0	98.8	0.0
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
5Balance Flexx	6fl oz/a	A	99.3	99.3	96.3	98.8	0.0
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
6Balance Flexx	6fl oz/a	A	99.5	99.5	100.0	100.0	0.0
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
7Balance Flexx	6fl oz/a	A	99.8	99.8	100.0	100.0	0.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
8Balance Flexx	6fl oz/a	A	99.5	99.5	97.5	98.8	0.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
9Balance Flexx	6fl oz/a	A	99.8	99.8	100.0	98.8	0.0
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
10Balance Flexx	6fl oz/a	A	99.8	99.8	100.0	98.8	0.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
11Balance Flexx	6fl oz/a	A	100.0	100.0	99.5	98.8	0.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
12Balance Flexx	6fl oz/a	A	100.0	100.0	100.0	97.5	0.0
Boundary	1.5pt/a	A					
LIBERTY 280 SL	32oz/a	B					

Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed		W Weed		W Weed		W Weed		
Pest Code			AMAPA		CYPES		AMAPA		CYPES		
Pest Scientific Name			Amaranthus pal>		Cyperus escul>		Amaranthus pal>		Cyperus escul>		
Pest Name			Palmer amaranth		Yellow nutsedge		Palmer amaranth		Yellow nutsedge		
Crop Scientific Name			Glycine max				Glycine max				
Crop Name			Soybean		Soybean		Soybean		Soybean		
Rating Date			Jun-13-2019		Jun-13-2019		Jun-19-2019		Jun-19-2019		Jun-19-2019
Rating Type			CONTRO		CONTRO		CONTRO		CONTRO		PHYGEN
Rating Unit			%		%		%		%		%
Crop Stage Majority			VE		VE		VC		VC		VC
Days After First/Last Applic.			8 8		8 8		14 14		14 14		14 14
Trt	Treatment	Rate	Appl								
No.	Name	Rate Unit	Code	1*	2*	3*	4*	5*			
13	Balance Flexx	6fl oz/a	A	100.0	100.0	100.0	98.8	0.0			
	Zidua	2oz/a	A								
	LIBERTY 280 SL	32oz/a	B								
	Dual II Magnum	1.3pt/a	B								
	Ammonium Sulfate	6.8lb/100 gal	B								
LSD P=.05				19.67	19.67	3.05	2.92	.			
Replicate F				1.037	1.037	0.216	2.594	0.000			
Replicate Prob(F)				0.3881	0.3881	0.8848	0.0676	1.0000			
Treatment F				23.412	23.412	1232.214	1329.232	0.000			
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	1.0000			

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Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed	W Weed		W Weed	W Weed
Pest Code			AMAPA	CYPES		AMAPA	CYPES
Pest Scientific Name			Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>
Pest Name			Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge
Crop Scientific Name			Glycine max			Glycine max	
Crop Name			Soybean	Soybean		Soybean	Soybean
Rating Date			Jun-26-2019	Jun-26-2019	Jun-26-2019	Jul-3-2019	Jul-3-2019
Rating Type			CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit			%	%	%	%	%
Crop Stage Majority			V2	V2	V2	V4	V4
Days After First/Last Applic.			21 21	21 21	21 21	28 28	28 28
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	6*	7*	8*	9*	10*
1UNTREATED			0.0	0.0	0.0	0.0	0.0
2LIBERTY 280 SL	32fl oz/a	B	0.0	0.0	0.0	50.0	50.0
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
3Balance Flexx	6fl oz/a	A	97.0	93.3	5.0	73.5	57.5
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
4Balance Flexx	6fl oz/a	A	92.0	90.0	5.0	83.5	50.0
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
5Balance Flexx	6fl oz/a	A	90.0	85.0	5.0	77.5	50.0
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
6Balance Flexx	6fl oz/a	A	97.5	91.3	5.0	95.0	50.0
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
7Balance Flexx	6fl oz/a	A	96.0	92.5	5.0	96.0	50.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
8Balance Flexx	6fl oz/a	A	96.3	92.5	5.0	95.0	57.5
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
9Balance Flexx	6fl oz/a	A	97.5	91.3	5.0	88.5	37.5
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
10Balance Flexx	6fl oz/a	A	99.5	93.8	5.0	91.3	50.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
11Balance Flexx	6fl oz/a	A	96.3	92.5	5.0	92.3	50.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
12Balance Flexx	6fl oz/a	A	100.0	98.8	5.0	98.5	98.5
Boundary	1.5pt/a	A					
LIBERTY 280 SL	32oz/a	B					

Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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* Adjusted means

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(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed	W Weed		W Weed	W Weed
Pest Code			AMAPA	CYPES		AMAPA	CYPES
Pest Scientific Name			Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>
Pest Name			Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge
Crop Scientific Name			Glycine max			Glycine max	
Crop Name			Soybean	Soybean		Soybean	Soybean
Rating Date			Jun-26-2019	Jun-26-2019	Jun-26-2019	Jul-3-2019	Jul-3-2019
Rating Type			CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit			%	%	%	%	%
Crop Stage Majority			V2	V2	V2	V4	V4
Days After First/Last Applic.			21 21	21 21	21 21	28 28	28 28
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	6*	7*	8*	9*	10*
13Balance Flexx	6fl oz/a	A	99.5	97.0	5.0	97.0	90.8
Zidua	2oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
LSD P=.05			7.63	5.41	.	16.79	14.27
Replicate F			0.026	0.059	0.000	0.398	0.889
Replicate Prob(F)			0.9941	0.9809	1.0000	0.7556	0.4559
Treatment F			186.658	342.361	0.000	21.989	22.390
Treatment Prob(F)			0.0001	0.0001	1.0000	0.0001	0.0001

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 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed		W Weed		W Weed	
Pest Code			AMAPA		CYPES		AMAPA	
Pest Scientific Name			Amaranthus pal>		Cyperus escul>		Amaranthus pal>	
Pest Name			Palmer amaranth		Yellow nutsedge		Palmer amaranth	
Crop Scientific Name			Glycine max				Glycine max	
Crop Name			Soybean		Soybean		Soybean	
Rating Date			Jul-18-2019		Jul-18-2019		Jul-25-2019	
Rating Type			CONTRO		CONTRO		CONTRO	
Rating Unit			%		%		%	
Crop Stage Majority			R2		R2		R2	
Days After First/Last Applic.			43 7		43 7		50 14	
Trt Treatment			11*		12*		13*	
Rate			12*		13*		14*	
Appl			15*					
No. Name			Rate Unit		Code			
1UNTREATED			0.0		0.0		0.0	
2LIBERTY 280 SL			32fl oz/a		B		75.0	
ROUNDUP WEATHERMAX			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
3Balance Flexx			6fl oz/a		A		97.5	
ROUNDUP WEATHERMAX			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
4Balance Flexx			6fl oz/a		A		100.0	
LIBERTY 280 SL			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
5Balance Flexx			6fl oz/a		A		100.0	
LIBERTY 280 SL			32oz/a		B			
ROUNDUP WEATHERMAX			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
6Balance Flexx			6fl oz/a		A		97.3	
SENCOR DF			5.33oz/a		A			
ROUNDUP WEATHERMAX			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
7Balance Flexx			6fl oz/a		A		100.0	
SENCOR DF			5.33oz/a		A			
LIBERTY 280 SL			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
8Balance Flexx			6fl oz/a		A		100.0	
SENCOR DF			5.33oz/a		A			
LIBERTY 280 SL			32oz/a		B			
ROUNDUP WEATHERMAX			32oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
9Balance Flexx			6fl oz/a		A		98.5	
SENCOR DF			5.33oz/a		A			
ROUNDUP WEATHERMAX			32oz/a		B			
OUTLOOK			12oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
10Balance Flexx			6fl oz/a		A		100.0	
SENCOR DF			5.33oz/a		A			
LIBERTY 280 SL			32oz/a		B			
OUTLOOK			12oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
11Balance Flexx			6fl oz/a		A		100.0	
SENCOR DF			5.33oz/a		A			
LIBERTY 280 SL			32oz/a		B			
ROUNDUP WEATHERMAX			32oz/a		B			
OUTLOOK			12oz/a		B			
Ammonium Sulfate			6.8lb/100 gal		B			
12Balance Flexx			6fl oz/a		A		100.0	
Boundary			1.5pt/a		A			
LIBERTY 280 SL			32oz/a		B			

Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Sponsor Contact:					W Weed	W Weed		W Weed
Pest Type					AMAPA	CYPES		AMAPA
Pest Code					Amaranthus pal>	Cyperus escul>		Amaranthus pal>
Pest Scientific Name					Palmer amaranth	Yellow nutsedge		Palmer amaranth
Pest Name					Glycine max			Glycine max
Crop Scientific Name					Soybean	Soybean		Soybean
Crop Name								
Rating Date	Jul-3-2019				Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-25-2019
Rating Type	PHYGEN				CONTRO	CONTRO	PHYGEN	CONTRO
Rating Unit	%				%	%	%	%
Crop Stage Majority	V4				R2	R2	R2	R2
Days After First/Last Applic.	28 28				43 7	43 7	43 7	50 14
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	11*		12*	13*	14*	15*
13Balance Flexx	6fl oz/a	A	5.0		100.0	90.0	20.0	100.0
Zidua	2oz/a	A						
LIBERTY 280 SL	32oz/a	B						
Dual II Magnum	1.3pt/a	B						
Ammonium Sulfate	6.8lb/100 gal	B						
LSD P=.05					8.58	14.47	2.11	8.53
Replicate F			0.000		0.708	0.239	1.481	0.854
Replicate Prob(F)			1.0000		0.5534	0.8683	0.2359	0.4738
Treatment F			0.000		87.396	22.461	65.000	87.775
Treatment Prob(F)			1.0000		0.0001	0.0001	0.0001	0.0001

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(TRB19 SOYBEAN 12)

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Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed		W Weed		W Weed
Pest Code			CYPES		AMAPA		AMAPA
Pest Scientific Name			Cyperus escul>		Amaranthus pal>		Amaranthus pal>
Pest Name			Yellow nutsedge		Palmer amaranth		Palmer amaranth
Crop Scientific Name					Glycine max		Glycine max
Crop Name			Soybean		Soybean		Soybean
Rating Date			Jul-25-2019	Jul-25-2019	Aug-1-2019	Aug-1-2019	Aug-9-2019
Rating Type			CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Rating Unit			%	%	%	%	%
Crop Stage Majority			R2	R2	R2	R2	R3
Days After First/Last Applic.			50 14	50 14	57 21	57 21	65 29
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	16*	17*	18*	19*	20*
1UNTREATED			0.0	0.0	0.0	0.0	0.0
2LIBERTY 280 SL	32fl oz/a	B	80.0	0.0	75.0	0.0	73.8
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
3Balance Flexx	6fl oz/a	A	97.5	0.0	98.3	0.0	98.3
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
4Balance Flexx	6fl oz/a	A	100.0	0.0	99.5	0.0	98.5
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
5Balance Flexx	6fl oz/a	A	100.0	0.0	100.0	0.0	99.8
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
6Balance Flexx	6fl oz/a	A	95.0	0.0	97.3	0.0	96.3
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
7Balance Flexx	6fl oz/a	A	100.0	0.0	99.8	0.0	100.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
8Balance Flexx	6fl oz/a	A	100.0	0.0	100.0	0.0	100.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
9Balance Flexx	6fl oz/a	A	97.5	0.0	100.0	0.0	99.8
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
10Balance Flexx	6fl oz/a	A	100.0	0.0	100.0	0.0	100.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
11Balance Flexx	6fl oz/a	A	100.0	0.0	100.0	0.0	99.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
12Balance Flexx	6fl oz/a	A	100.0	0.0	100.0	0.0	100.0
Boundary	1.5pt/a	A					
LIBERTY 280 SL	32oz/a	B					

Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 5,8,11,19,21 because error mean square = 0.

(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 12 Location:Newport, AR Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 12 NEW Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed			W Weed			W Weed
Pest Code			CYPES			AMAPA			AMAPA
Pest Scientific Name			Cyperus escul>			Amaranthus pal>			Amaranthus pal>
Pest Name			Yellow nutsedge			Palmer amaranth			Palmer amaranth
Crop Scientific Name						Glycine max			Glycine max
Crop Name			Soybean			Soybean			Soybean
Rating Date			Jul-25-2019	Jul-25-2019		Aug-1-2019	Aug-1-2019		Aug-9-2019
Rating Type			CONTRO	PHYGEN		CONTRO	PHYGEN		CONTRO
Rating Unit			%	%		%	%		%
Crop Stage Majority			R2	R2		R2	R2		R3
Days After First/Last Applic.			50 14	50 14		57 21	57 21		65 29
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	16*	17*	18*	19*	20*		
13Balance Flexx	6fl oz/a	A	100.0	1.3	99.8	0.0	99.8		
Zidua	2oz/a	A							
LIBERTY 280 SL	32oz/a	B							
Dual II Magnum	1.3pt/a	B							
Ammonium Sulfate	6.8lb/100 gal	B							
LSD P=.05			10.28	0.99	8.48	.	11.15		
Replicate F			1.297	1.000	0.793	0.000	0.813		
Replicate Prob(F)			0.2902	0.4040	0.5060	1.0000	0.4952		
Treatment F			59.270	1.000	88.900	0.000	51.391		
Treatment Prob(F)			0.0001	0.4685	0.0001	1.0000	0.0001		

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(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed		
Pest Code				AMAPA		
Pest Scientific Name				Amaranthus pal>		
Pest Name				Palmer amaranth		
Crop Scientific Name				Glycine max		
Crop Name				Soybean		
Rating Date		Aug-9-2019		Oct-15-2019	Oct-17-2019	Oct-17-2019
Rating Type		PHYGEN		CONTRO	WEIGHT	YIELD
Rating Unit		%		%	lb/plot	BU
Crop Stage Majority		R3				
Days After First/Last Applic.		65 29		132 96	134 98	134 98
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	21*	22*	23*	24*
1UNTREATED			0.0	0.0	4.98	24.1
2LIBERTY 280 SL	32fl oz/a	B	0.0	47.3	10.83	52.4
ROUNDUP WEATHERMAX	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
3Balance Flexx	6fl oz/a	A	0.0	99.5	10.88	52.6
ROUNDUP WEATHERMAX	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
4Balance Flexx	6fl oz/a	A	0.0	99.8	13.68	66.2
LIBERTY 280 SL	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
5Balance Flexx	6fl oz/a	A	0.0	100.0	12.45	60.3
LIBERTY 280 SL	32oz/a	B				
ROUNDUP WEATHERMAX	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
6Balance Flexx	6fl oz/a	A	0.0	98.3	12.23	59.2
SENCOR DF	5.33oz/a	A				
ROUNDUP WEATHERMAX	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
7Balance Flexx	6fl oz/a	A	0.0	100.0	13.93	67.4
SENCOR DF	5.33oz/a	A				
LIBERTY 280 SL	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
8Balance Flexx	6fl oz/a	A	0.0	100.0	11.85	57.4
SENCOR DF	5.33oz/a	A				
LIBERTY 280 SL	32oz/a	B				
ROUNDUP WEATHERMAX	32oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
9Balance Flexx	6fl oz/a	A	0.0	99.5	13.43	65.0
SENCOR DF	5.33oz/a	A				
ROUNDUP WEATHERMAX	32oz/a	B				
OUTLOOK	12oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
10Balance Flexx	6fl oz/a	A	0.0	100.0	11.80	57.1
SENCOR DF	5.33oz/a	A				
LIBERTY 280 SL	32oz/a	B				
OUTLOOK	12oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
11Balance Flexx	6fl oz/a	A	0.0	100.0	12.45	60.3
SENCOR DF	5.33oz/a	A				
LIBERTY 280 SL	32oz/a	B				
ROUNDUP WEATHERMAX	32oz/a	B				
OUTLOOK	12oz/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				
12Balance Flexx	6fl oz/a	A	0.0	100.0	13.08	63.3
Boundary	1.5pt/a	A				
LIBERTY 280 SL	32oz/a	B				

Dual II Magnum	1.3pt/a	B				
Ammonium Sulfate	6.8lb/100 gal	B				

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 12 Location: Newport, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			W Weed		
Pest Code			AMAPA		
Pest Scientific Name			Amaranthus pal>		
Pest Name			Palmer amaranth		
Crop Scientific Name			Glycine max		
Crop Name			Soybean		
Rating Date	Aug-9-2019		Oct-15-2019	Oct-17-2019	Oct-17-2019
Rating Type	PHYGEN		CONTRO	WEIGHT	YIELD
Rating Unit	%		%	lb/plot	BU
Crop Stage Majority	R3				
Days After First/Last Applic.	65 29		132 96	134 98	134 98
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	21*	22*	23*
13Balance Flexx	6fl oz/a	A	0.0	100.0	12.95
Zidua	2oz/a	A			62.7
LIBERTY 280 SL	32oz/a	B			
Dual II Magnum	1.3pt/a	B			
Ammonium Sulfate	6.8lb/100 gal	B			
LSD P=.05	.		14.98	2.400	11.62
Replicate F	0.000		0.813	0.273	0.273
Replicate Prob(F)	1.0000		0.4953	0.8447	0.8447
Treatment F	0.000		33.375	7.491	7.491
Treatment Prob(F)	1.0000		0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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* Adjusted means

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(TRB19 SOYBEAN 12)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 12	Location:Newport, AR	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 12 NEW	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 4.84*[23]

(TRB19 SOYBEAN 13)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
 Variety:CZ 4539 GTLL
 Planting Date:Jun-4-2019 Planting Rate:200000 S/A
 Harvested Width:7.5 FT
 % Standard Moisture:12.5 Harvested Length:25 FT

Pest Description

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

Pest 2 Type:W Code:CYPES Cyperus esculentus
 Common Name:Yellow nutsedge

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT² Treatments:18
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A	B	C
Application Date	Jun-4-2019	Jul-1-2019	Jul-11-2019
Appl. Start Time	5:00 PM	9:45 AM	11:20 AM
Appl. Stop Time	5:20 PM	9:55 AM	11:30 AM
Application Method	SPRAY	SPRAY	SPRAY
Application Placement	BROADC	BROADC	BROADC
Applied By	A. McCormick	A. McCormick	A. McCormick
Air Temperature Start, Stop	86 F	86 F	88 F
% Relative Humidity Start, Stop	65	64	88
Wind Velocity+Dir. Start	11 MPH SW	2 MPH ESE	9 MPH N
Soil Temperature	75 F	76 F	90 F
Soil Moisture	SLIWET		
% Cloud Cover	75	40	10

Crop Stage At Each Application

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

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent		veg	veg
Height Average		4 in	20 in
Height Minimum, Maximum		2 6	
Pest 2 Code, Type, Scale	CYPES W	CYPES W	CYPES W
Stage Majority, Percent		6 lf	8 lf
Height Average		8 in	9 in

(TRB19 SOYBEAN 13)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID: TRB19 SOYBEAN 13	Location: Newport	Trial Year: 2019
Protocol ID: TRB19 SOYBEAN 13	Investigator: Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Application Equipment

	A	B	C
Appl. Equipment	Newport-A	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR	AIXR
Nozzle Size	110015	110015	110015
Nozzle Spacing	20 IN	20 IN	20 IN
Nozzles/Row	6	6	6
Boom Length	5 FT	5 FT	5 FT
Boom Height	10 IN	10 IN	10 IN
Ground Speed	2 MPH	2 MPH	2 MPH
Carrier	WATER	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL	3 GAL
Propellant	COMAIR	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-15-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMAPA	CYPES	AMAPA	CYPES	AMAPA
Pest Scientific Name	Amaranthus pal>	Cyperus escul>	Amaranthus pal>	Cyperus escul>	Amaranthus pal>
Pest Name	Palmer amaranth	Yellow nutsedge	Palmer amaranth	Yellow nutsedge	Palmer amaranth
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date	Jun-13-2019	Jun-13-2019	Jun-19-2019	Jun-19-2019	Jun-26-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Crop Stage Majority	VE	VE	VC	VC	V2
Days After First/Last Applic.	9 9	9 9	15 15	15 15	22 22
Trt Treatment	Rate	Appl			
No. Name	Rate	Unit	Code		
1UTC		A		1*	5*
2Trivence	0.0194lb ai/a	A		0.0	0.0
CLASSIC	0.223lb ai/a	A		100.0	100.0
Tricor	0.064lb ai/a	A			
Valor	0.081lb ai/a	A			
Zidua SC	0.53lb ai/a	C			
LIBERTY	0.95lb ai/a	C			
EverpreX					
3Canopy	0.105lb ai/a	A		100.0	100.0
Boundary	1.22lb ai/a	A			
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
4Classic	0.0195lb ai/a	A		100.0	100.0
Valor	0.0625lb ai/a	A			
Tricor	0.223lb ai/a	A			
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
5Zidua SC	0.081lb ai/a	A		100.0	100.0
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
6Verdict	0.218lb ai/a	A		100.0	100.0
Zidua SC	0.081lb ai/a	A			
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
7Verdict	0.218lb ai/a	A		100.0	100.0
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
8Fierce	0.143lb ai/a	A		100.0	100.0
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
9Boundary	1.63lb ai/a	A		100.0	100.0
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
10Authority MTZ	0.394lb ai/a	A		100.0	100.0
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
11Broadaxe XC	1.2lb ai/a	A		100.0	100.0
Tricor	0.28lb ai/a	A			
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
12Valor	0.064lb ai/a	A		100.0	100.0
Liberty	0.585lb ai/a	C			
Prefix	1.32lb ai/a	C			
13Prefix	1.32lb ai/a	B		0.0	0.0
Liberty	0.585lb ai/a	B			
Storm	0.75lb ai/a	C			

Liberty	0.585lb ai/a C					
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U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 13	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMAPA	CYPES	AMAPA	CYPES	AMAPA
Pest Scientific Name	Amaranthus pal>	Cyperus escul>	Amaranthus pal>	Cyperus escul>	Amaranthus pal>
Pest Name	Palmer amaranth	Yellow nutsedge	Palmer amaranth	Yellow nutsedge	Palmer amaranth
Crop Scientific Name	Glycine max		Glycine max		Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date	Jun-13-2019	Jun-13-2019	Jun-19-2019	Jun-19-2019	Jun-26-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Crop Stage Majority	VE	VE	VC	VC	V2
Days After First/Last Applic.	9 9	9 9	15 15	15 15	22 22

Trt No.	Treatment Name	Rate	Unit	Appl Code	1*	2*	3*	4*	5*
14	Dual Magnum	1.24lb ai/a	A		100.0	100.0	100.0	100.0	92.3
	Liberty	0.585lb ai/a	C						
	Prefix	1.32lb ai/a	C						
15	Surveil	0.084lb ai/a	A		100.0	100.0	100.0	100.0	100.0
	Liberty	0.585lb ai/a	C						
	Prefix	1.32lb ai/a	C						
16	Surveil	0.105lb ai/a	A		100.0	100.0	100.0	100.0	99.0
	Liberty	0.585lb ai/a	C						
	Prefix	1.32lb ai/a	C						
17	Intimidator	1.2lb ai/a	A		100.0	100.0	100.0	100.0	98.3
	Dual Magnum	0.95lb ai/a	C						
	Liberty	0.585lb ai/a	C						
18	Verdict	0.218lb ai/a	A		100.0	100.0	100.0	100.0	95.5
	Tricor	0.28lb ai/a	A						
	Liberty	0.585lb ai/a	C						
	Prefix	1.32lb ai/a	C						
LSD P=.05					.	.	.	.	5.35
Replicate F					0.000	0.000	0.000	0.000	1.793
Replicate Prob(F)					1.0000	1.0000	1.0000	1.0000	0.1603
Treatment F					0.000	0.000	0.000	0.000	285.364
Treatment Prob(F)					1.0000	1.0000	1.0000	1.0000	0.0001

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U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed
Pest Code	CYPES	AMAPA	CYPES		AMAPA	CYPES
Pest Scientific Name	Cyperus escul>	Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>
Pest Name	Yellow nutsedge	Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge
Crop Scientific Name		Glycine max			Glycine max	
Crop Name	Soybean	Soybean	Soybean		Soybean	Soybean
Rating Date	Jun-26-2019	Jul-3-2019	Jul-3-2019	Jul-3-2019	Jul-8-2019	Jul-8-2019
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Crop Stage Majority	V2	V4	V4	V4	V6	V6
Days After First/Last Applic.	22 22	29 2	29 2	29 2	34 7	34 7
Trt Treatment	Rate	Appl				
No. Name	Rate	Unit	Code	6*	7*	8*
1UTC		A		0.0	0.0	0.0
2Trivence				100.0	100.0	98.5
CLASSIC	0.0194lb ai/a	A				5.0
Tricor	0.223lb ai/a	A				99.3
Valor	0.064lb ai/a	A				
Zidua SC	0.081lb ai/a	A				
LIBERTY	0.53lb ai/a	C				
EverpreX	0.95lb ai/a	C				
3Canopy	0.105lb ai/a	A		100.0	95.8	98.3
Boundary	1.22lb ai/a	A				2.5
Liberty	0.585lb ai/a	C				87.5
Prefix	1.32lb ai/a	C				96.3
4Classic	0.0195lb ai/a	A		97.8	99.8	97.3
Valor	0.0625lb ai/a	A				2.5
Tricor	0.223lb ai/a	A				95.0
Liberty	0.585lb ai/a	C				
Prefix	1.32lb ai/a	C				95.0
5Zidua SC	0.081lb ai/a	A		97.5	99.3	93.3
Liberty	0.585lb ai/a	C				2.5
Prefix	1.32lb ai/a	C				94.3
6Verdict	0.218lb ai/a	A		99.3	99.8	99.5
Zidua SC	0.081lb ai/a	A				3.8
Liberty	0.585lb ai/a	C				95.8
Prefix	1.32lb ai/a	C				96.8
7Verdict	0.218lb ai/a	A		92.5	50.0	50.0
Liberty	0.585lb ai/a	C				5.0
Prefix	1.32lb ai/a	C				17.5
8Fierce	0.143lb ai/a	A		95.8	100.0	96.0
Liberty	0.585lb ai/a	C				3.8
Prefix	1.32lb ai/a	C				98.5
9Boundary	1.63lb ai/a	A		99.3	97.3	98.5
Liberty	0.585lb ai/a	C				2.5
Prefix	1.32lb ai/a	C				90.0
10Authority MTZ	0.394lb ai/a	A		96.3	85.0	83.8
Liberty	0.585lb ai/a	C				5.0
Prefix	1.32lb ai/a	C				81.3
11Broadaxe XC	1.2lb ai/a	A		99.5	99.0	99.3
Tricor	0.28lb ai/a	A				3.8
Liberty	0.585lb ai/a	C				97.0
Prefix	1.32lb ai/a	C				98.8
12Valor	0.064lb ai/a	A		93.3	98.5	56.3
Liberty	0.585lb ai/a	C				2.5
Prefix	1.32lb ai/a	C				84.8
13Prefix	1.32lb ai/a	B		0.0	50.0	50.0
Liberty	0.585lb ai/a	B				15.0
Storm	0.75lb ai/a	C				86.0
						89.8

Liberty	0.585lb ai/a C						
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Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed	
Pest Code	CYPES	AMAPA	CYPES		AMAPA	CYPES	
Pest Scientific Name	Cyperus escul>	Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>	
Pest Name	Yellow nutsedge	Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge	
Crop Scientific Name		Glycine max			Glycine max		
Crop Name	Soybean	Soybean	Soybean		Soybean	Soybean	
Rating Date	Jun-26-2019	Jul-3-2019	Jul-3-2019	Jul-3-2019	Jul-8-2019	Jul-8-2019	
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	
Rating Unit	%	%	%	%	%	%	
Crop Stage Majority	V2	V4	V4	V4	V6	V6	
Days After First/Last Applic.	22 22	29 2	29 2	29 2	34 7	34 7	
Trt Treatment	Rate						
No. Name	Unit Code						
	6*	7*	8*	9*	10*	11*	
14Dual Magnum	1.24lb ai/a A	99.5	83.8	86.3	3.8	75.0	86.3
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
15Surveil	0.084lb ai/a A	93.5	99.8	74.8	2.5	89.5	70.0
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
16Surveil	0.105lb ai/a A	93.5	100.0	72.5	2.5	91.3	81.3
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
17Intimidator	1.2lb ai/a A	98.3	91.3	91.3	3.8	77.5	85.0
Dual Magnum	0.95lb ai/a C						
Liberty	0.585lb ai/a C						
18Verdict	0.218lb ai/a A	97.0	92.3	91.3	5.0	55.0	35.0
Tricor	0.28lb ai/a A						
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
LSD P=.05		3.49	13.19	29.67	3.17	20.52	29.52
Replicate F		0.338	0.563	1.843	1.000	3.271	1.957
Replicate Prob(F)		0.7976	0.6419	0.1511	0.4005	0.0285	0.1321
Treatment F		654.054	32.552	6.274	7.424	14.685	8.939
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed	W Weed		W Weed	W Weed	
Pest Code				AMAPA	CYPES		AMAPA	CYPES	
Pest Scientific Name				Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>	
Pest Name				Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge	
Crop Scientific Name				Glycine max			Glycine max		
Crop Name				Soybean	Soybean		Soybean	Soybean	
Rating Date	Jul-8-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-25-2019	Jul-25-2019	
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	
Rating Unit	%	%	%	%	%	%	%	%	
Crop Stage Majority	V6	R2	R2	R2	R2	R2	R2	R2	
Days After First/Last Applic.	34 7	44 7	44 7	44 7	44 7	44 7	51 14	51 14	
Trt Treatment	Rate	Appl							
No. Name	Rate	Unit	Code	12*	13*	14*	15*	16*	17*
1UTC		A		0.0	0.0	0.0	0.0	75.0	0.0
2Trivence				0.0	100.0	95.0	12.5	100.0	100.0
CLASSIC	0.0194lb ai/a	A							
Tricor	0.223lb ai/a	A							
Valor	0.064lb ai/a	A							
Zidua SC	0.081lb ai/a	A							
LIBERTY	0.53lb ai/a	C							
EverpreX	0.95lb ai/a	C							
3Canopy	0.105lb ai/a	A		0.0	100.0	98.8	12.5	100.0	98.8
Boundary	1.22lb ai/a	A							
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
4Classic	0.0195lb ai/a	A		0.0	100.0	92.5	13.8	100.0	100.0
Valor	0.0625lb ai/a	A							
Tricor	0.223lb ai/a	A							
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
5Zidua SC	0.081lb ai/a	A		0.0	100.0	91.3	15.0	100.0	97.5
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
6Verdict	0.218lb ai/a	A		0.0	100.0	94.8	13.8	100.0	98.8
Zidua SC	0.081lb ai/a	A							
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
7Verdict	0.218lb ai/a	A		0.0	100.0	82.5	15.0	92.5	91.3
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
8Fierce	0.143lb ai/a	A		0.0	100.0	87.5	15.0	100.0	98.8
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
9Boundary	1.63lb ai/a	A		0.0	100.0	98.8	13.8	100.0	100.0
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
10Authority MTZ	0.394lb ai/a	A		0.0	100.0	90.0	12.5	97.3	97.3
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
11Broadaxe XC	1.2lb ai/a	A		0.0	100.0	100.0	13.8	100.0	100.0
Tricor	0.28lb ai/a	A							
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
12Valor	0.064lb ai/a	A		0.0	100.0	57.5	8.8	100.0	88.8
Liberty	0.585lb ai/a	C							
Prefix	1.32lb ai/a	C							
13Prefix	1.32lb ai/a	B		15.0	100.0	95.0	20.0	100.0	100.0
Liberty	0.585lb ai/a	B							
Storm	0.75lb ai/a	C							

Liberty	0.585lb ai/a C						
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Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type		W Weed	W Weed		W Weed	W Weed	
Pest Code		AMAPA	CYPES		AMAPA	CYPES	
Pest Scientific Name		Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>	
Pest Name		Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge	
Crop Scientific Name		Glycine max			Glycine max		
Crop Name		Soybean	Soybean		Soybean	Soybean	
Rating Date	Jul-8-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-25-2019	Jul-25-2019	
Rating Type	PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	
Rating Unit	%	%	%	%	%	%	
Crop Stage Majority	V6	R2	R2	R2	R2	R2	
Days After First/Last Applic.	34 7	44 7	44 7	44 7	51 14	51 14	
Trt Treatment	Rate Appl						
No. Name	Rate Unit Code	12*	13*	14*	15*	16*	17*
14Dual Magnum	1.24lb ai/a A	0.0	98.8	100.0	12.5	98.8	100.0
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
15Surveil	0.084lb ai/a A	0.0	100.0	83.8	12.5	100.0	93.8
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
16Surveil	0.105lb ai/a A	0.0	100.0	80.0	15.0	100.0	87.5
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
17Intimidator	1.2lb ai/a A	0.0	100.0	95.0	16.3	99.8	98.8
Dual Magnum	0.95lb ai/a C						
Liberty	0.585lb ai/a C						
18Verdict	0.218lb ai/a A	0.0	100.0	80.0	16.3	98.3	95.0
Tricor	0.28lb ai/a A						
Liberty	0.585lb ai/a C						
Prefix	1.32lb ai/a C						
LSD P=.05	.	0.84	16.68	6.76	16.88	6.85	
Replicate F	0.000	1.000	1.141	1.443	1.466	0.216	
Replicate Prob(F)	1.0000	0.4005	0.3413	0.2413	0.2349	0.8846	
Treatment F	0.000	6391.589	15.991	2.854	1.017	92.268	
Treatment Prob(F)	1.0000	0.0001	0.0001	0.0020	0.4566	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type		W Weed	W Weed		W Weed					
Pest Code		AMAPA	CYPES		AMAPA					
Pest Scientific Name		Amaranthus pal>	Cyperus escul>		Amaranthus pal>					
Pest Name		Palmer amaranth	Yellow nutsedge		Palmer amaranth					
Crop Scientific Name		Glycine max			Glycine max					
Crop Name		Soybean	Soybean		Soybean					
Rating Date	Jul-25-2019	Aug-1-2019	Aug-1-2019	Aug-1-2019	Aug-8-2019	Aug-8-2019	Oct-17-2019			
Rating Type	PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO	PHYGEN	WEIGHT			
Rating Unit	%	%	%	%	%	%	lb/plot			
Crop Stage Majority	R2	R2	R2	R2	R3	R3				
Days After First/Last Applic.	51 14	58 21	58 21	58 21	65 28	65 28	135 98			
Trt Treatment	Rate	Appl								
No. Name	Rate	Unit	Code	18*	19*	20*	21*	22*	23*	24*
1UTC		A		0.0	0.0	0.0	0.0	0.0	0.0	4.18
2Trivence				8.8	98.8	100.0	0.0	97.5	0.0	7.16
CLASSIC	0.0194lb ai/a	A								
Tricor	0.223lb ai/a	A								
Valor	0.064lb ai/a	A								
Zidua SC	0.081lb ai/a	A								
LIBERTY	0.53lb ai/a	C								
EverpreX	0.95lb ai/a	C								
3Canopy	0.105lb ai/a	A		11.3	98.8	100.0	0.0	100.0	0.0	8.63
Boundary	1.22lb ai/a	A								
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
4Classic	0.0195lb ai/a	A		10.0	98.8	100.0	0.0	100.0	0.0	7.20
Valor	0.0625lb ai/a	A								
Tricor	0.223lb ai/a	A								
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
5Zidua SC	0.081lb ai/a	A		8.8	100.0	97.5	0.0	98.8	0.0	8.48
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
6Verdict	0.218lb ai/a	A		11.3	98.8	98.8	0.0	98.8	0.0	6.70
Zidua SC	0.081lb ai/a	A								
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
7Verdict	0.218lb ai/a	A		8.8	71.3	72.5	0.0	75.0	0.0	5.96
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
8Fierce	0.143lb ai/a	A		12.5	100.0	98.8	0.0	95.0	0.0	7.08
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
9Boundary	1.63lb ai/a	A		8.8	100.0	100.0	0.0	98.8	0.0	7.80
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
10Authority MTZ	0.394lb ai/a	A		7.5	95.8	96.3	0.0	95.0	0.0	7.63
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
11Broadaxe XC	1.2lb ai/a	A		10.0	100.0	100.0	0.0	100.0	0.0	7.48
Tricor	0.28lb ai/a	A								
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
12Valor	0.064lb ai/a	A		10.0	96.3	92.5	0.0	98.8	0.0	6.90
Liberty	0.585lb ai/a	C								
Prefix	1.32lb ai/a	C								
13Prefix	1.32lb ai/a	B		17.5	97.5	100.0	0.0	91.3	0.0	4.48
Liberty	0.585lb ai/a	B								
Storm	0.75lb ai/a	C								

Liberty	0.585lb ai/a C							
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Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13				Location:Newport				Trial Year:2019			
Protocol ID:TRB19 SOYBEAN 13				Investigator:Thomas R. Butts							
Project ID:				Study Director:							
Sponsor Contact:											
Pest Type				W Weed		W Weed		W Weed			
Pest Code				AMAPA		CYPES		AMAPA			
Pest Scientific Name				Amaranthus pal>		Cyperus escul>		Amaranthus pal>			
Pest Name				Palmer amaranth		Yellow nutsedge		Palmer amaranth			
Crop Scientific Name				Glycine max				Glycine max			
Crop Name				Soybean		Soybean		Soybean			
Rating Date				Jul-25-2019		Aug-1-2019		Aug-1-2019		Aug-8-2019	Aug-8-2019
Rating Type				PHYGEN		CONTRO		PHYGEN		CONTRO	PHYGEN
Rating Unit				%		%		%		%	%
Crop Stage Majority				R2		R2		R2		R3	R3
Days After First/Last Applic.				51 14		58 21		58 21		65 28	65 28
Trt Treatment	Rate	Appl									
No. Name	Rate	Unit	Code	18*	19*	20*	21*	22*	23*	24*	
14Dual Magnum	1.24lb ai/a	A		12.5	97.5	98.8	0.0	91.3	0.0	7.10	
Liberty	0.585lb ai/a	C									
Prefix	1.32lb ai/a	C									
15Surveil	0.084lb ai/a	A		10.0	98.8	96.3	0.0	98.8	0.0	7.63	
Liberty	0.585lb ai/a	C									
Prefix	1.32lb ai/a	C									
16Surveil	0.105lb ai/a	A		8.8	100.0	98.8	0.0	99.6	0.0	7.30	
Liberty	0.585lb ai/a	C									
Prefix	1.32lb ai/a	C									
17Intimidator	1.2lb ai/a	A		8.8	96.3	98.8	0.0	96.3	0.0	5.98	
Dual Magnum	0.95lb ai/a	C									
Liberty	0.585lb ai/a	C									
18Verdict	0.218lb ai/a	A		11.3	95.0	91.3	0.0	97.5	0.0	3.10	
Tricor	0.28lb ai/a	A									
Liberty	0.585lb ai/a	C									
Prefix	1.32lb ai/a	C									
LSD P=.05				6.10	9.12	9.66	.	8.70	.	3.537	
Replicate F				0.470	1.243	1.518	0.000	2.424	0.000	1.576	
Replicate Prob(F)				0.7048	0.3040	0.2209	1.0000	0.0766	1.0000	0.2084	
Treatment F				2.397	54.510	48.271	0.000	58.178	0.000	1.226	
Treatment Prob(F)				0.0084	0.0001	0.0001	1.0000	0.0001	1.0000	0.2840	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 13 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Scientific Name				
Crop Name				
Rating Date				Oct-17-2019
Rating Type				YIELD
Rating Unit				BU
Crop Stage Majority				
Days After First/Last Applic.				135 98
Trt Treatment	Rate	Appl		
No. Name	Rate	Unit	Code	25*
1UTC		A		16.2
2Trivence				27.7
CLASSIC	0.0194lb ai/a	A		
Tricor	0.223lb ai/a	A		
Valor	0.064lb ai/a	A		
Zidua SC	0.081lb ai/a	A		
LIBERTY	0.53lb ai/a	C		
EverpreX	0.95lb ai/a	C		
3Canopy	0.105lb ai/a	A		33.4
Boundary	1.22lb ai/a	A		
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
4Classic	0.0195lb ai/a	A		27.9
Valor	0.0625lb ai/a	A		
Tricor	0.223lb ai/a	A		
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
5Zidua SC	0.081lb ai/a	A		32.8
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
6Verdict	0.218lb ai/a	A		25.9
Zidua SC	0.081lb ai/a	A		
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
7Verdict	0.218lb ai/a	A		23.1
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
8Fierce	0.143lb ai/a	A		27.4
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
9Boundary	1.63lb ai/a	A		30.2
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
10Authority MTZ	0.394lb ai/a	A		29.5
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
11Broadaxe XC	1.2lb ai/a	A		28.9
Tricor	0.28lb ai/a	A		
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
12Valor	0.064lb ai/a	A		26.7
Liberty	0.585lb ai/a	C		
Prefix	1.32lb ai/a	C		
13Prefix	1.32lb ai/a	B		17.3
Liberty	0.585lb ai/a	B		
Storm	0.75lb ai/a	C		

Liberty	0.585lb ai/a C	
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Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID: TRB19 SOYBEAN 13	Location: Newport	Trial Year: 2019
Protocol ID: TRB19 SOYBEAN 13	Investigator: Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type	
Pest Code	
Pest Scientific Name	
Pest Name	
Crop Scientific Name	
Crop Name	
Rating Date	Oct-17-2019
Rating Type	YIELD
Rating Unit	BU
Crop Stage Majority	
Days After First/Last Applic.	135 98
Trt Treatment	Rate Appl
No. Name	Rate Unit Code
14Dual Magnum	1.24lb ai/a A
Liberty	0.585lb ai/a C
Prefix	1.32lb ai/a C
15Surveil	0.084lb ai/a A
Liberty	0.585lb ai/a C
Prefix	1.32lb ai/a C
16Surveil	0.105lb ai/a A
Liberty	0.585lb ai/a C
Prefix	1.32lb ai/a C
17Intimidator	1.2lb ai/a A
Dual Magnum	0.95lb ai/a C
Liberty	0.585lb ai/a C
18Verdict	0.218lb ai/a A
Tricor	0.28lb ai/a A
Liberty	0.585lb ai/a C
Prefix	1.32lb ai/a C
LSD P=.05	13.70
Replicate F	1.576
Replicate Prob(F)	0.2084
Treatment F	1.226
Treatment Prob(F)	0.2840

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) for columns 1,2,3,4,12,21,23 because error mean square = 0.

(TRB19 SOYBEAN 13)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

PRE herbicide evaluation in Arkansas soybean

Trial ID:TRB19 SOYBEAN 13	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 13	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.872*[24]

(TRB19 SOYBEAN 14)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID: TRB19 SOYBEAN 14	Location: Newport	Trial Year: 2019
Protocol ID: TRB19 SOYBEAN 14	Investigator: Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

General Trial Information

Investigator: Thomas R. Butts

Trial Status: E established

Conducted Under GLP: No

Conducted Under GEP: No

Investigator: Thomas R. Butts

Crop Description

Crop 1: C GLXMA Glycine max	Soybean	
Variety: DG		
Planting Date: Jun-4-2019	Planting Rate: 200000 S/A	
	Harvested Width: 7.5 FT	
% Standard Moisture: 12.5	Harvested Length: 25 FT	

Pest Description

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

Pest 2 Type: W Code: CYPES Cyperus esculentus
Common Name: Yellow nutsedge

Site and Design

Treated Plot Width: 7.5 FT		
Treated Plot Length: 25 FT		
Treated Plot Area: 187.5 FT ²	Treatments: 14	
Replications: 4	Study Design: RACOB	Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jul-10-2019	Jul-31-2019
Appl. Start Time	12:30 PM	10:30 AM
Appl. Stop Time	1:10 PM	11:10 AM
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Air Temperature Start, Stop	98 F	88 F
% Relative Humidity Start, Stop	54	70
Wind Velocity+Dir. Start	2 MPH SE	3 MPH E
Wet Leaves (Y/N)	N no	N no
Soil Temperature	100 F	82 F
Soil Moisture	DRY	SLIWET
% Cloud Cover	40	50

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		R2
Height Average		2 FT

(TRB19 SOYBEAN 14)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID: TRB19 SOYBEAN 14	Location: Newport	Trial Year: 2019
Protocol ID: TRB19 SOYBEAN 14	Investigator: Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		veg
Height Average		3 FT
Density Average		4 FT ²
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		veg
Height Average		3 FT
Density Average		1 FT ²

Application Equipment

	A	B
Appl. Equipment	Newport-A	Newport-A
Equipment Type	SPRAYE	SPRAYE
Operation Pressure	35 PSI	35 PSI
Nozzle Type	AIXR	AIXR
Nozzle Size	110015	110015
Nozzle Spacing	20 IN	20 IN
Nozzles/Row	6	6
Boom Length	5 FT	5 FT
Boom Height	10 IN	10 IN
Ground Speed	2 MPH	2 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL
Propellant	COMAIR	COMAIR

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-18-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 14)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID: TRB19 SOYBEAN 14 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 14 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed		W Weed	W Weed			
Pest Code	AMAPA	CYPES		AMAPA	CYPES			
Pest Scientific Name	Amaranthus pal>	Cyperus escul>		Amaranthus pal>	Cyperus escul>			
Pest Name	Palmer amaranth	Yellow nutsedge		Palmer amaranth	Yellow nutsedge			
Crop Scientific Name	Glycine max			Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean			
Rating Date	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-24-2019	Jul-24-2019	Jul-24-2019		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN		
Rating Unit	%	%	%	%	%	%		
Crop Stage Majority	R2	R2	R2	R2	R2	R2		
Days After First/Last Applic.	7 7	7 7	7 7	14 14	14 14	14 14		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	1*	2*	3*	4*	5*	6*
1Nontreated Control			0.0	0.0	0.0	0.0	0.0	0.0
2Enlist One	2pt/a A		98.8	100.0	5.0	92.5	98.8	2.5
3Enlist One	2pt/a A		98.8	100.0	5.0	93.8	98.8	1.3
Roundup Powermax	32fl oz/a A							
4Enlist One	2pt/a A		98.3	100.0	5.0	97.0	98.3	2.5
Roundup Powermax	32fl oz/a A							
Moccasin	1pt/a A							
5Enlist One	2pt/a A		100.0	100.0	5.0	98.8	98.8	3.8
Moccasin	1pt/a A							
6Enlist One	2pt/a A		100.0	100.0	5.0	100.0	100.0	1.3
Roundup PowerMAX II	32fl oz/a A							
Moccasin	1pt/a A							
7Enlist One	2pt/a A		98.8	100.0	3.8	90.0	98.8	1.3
Liberty	29fl oz/a A							
8Enlist One	2pt/a A		98.8	100.0	6.3	98.8	98.8	16.5
Liberty	29fl oz/a A							
Moccasin	1pt/a A							
9Enlist One	2pt/a A		100.0	100.0	5.0	97.5	98.8	12.5
Reflex	1.5pt/a A							
COC	0.5% v/v A							
10COC	0.5% v/v A		100.0	100.0	7.5	100.0	100.0	17.5
Enlist One	2pt/a A							
Reflex	1.5pt/a A							
Moccasin	1pt/a A							
11Enlist One	2pt/a A		100.0	100.0	5.0	93.8	100.0	0.0
Roundup PowerMAX II	32fl oz/a A							
Liberty	29fl oz/a A							
12Enlist One	2pt/a A		100.0	100.0	3.8	98.8	98.8	0.0
Roundup Powermax	32fl oz/a A							
Enlist One	2pt/a B							
13Enlist One	2pt/a A		100.0	100.0	5.0	92.5	98.8	0.0
Roundup Powermax	32fl oz/a A							
Liberty	29fl oz/a B							
14Enlist One	2pt/a A		99.5	100.0	3.8	83.8	97.3	1.3
Roundup Powermax	32fl oz/a A							
Reflex	1.5pt/a B							
COC	0.5% v/v B							
LSD P=.05			2.12	.	2.80	10.98	3.08	10.52
Replicate F			1.023	0.000	0.000	0.897	0.456	2.654
Replicate Prob(F)			0.3928	1.0000	1.0000	0.4516	0.7144	0.0619
Treatment F			1282.306	0.000	2.857	45.328	601.957	2.891
Treatment Prob(F)			0.0001	1.0000	0.0056	0.0001	0.0001	0.0052

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 2,10,13,15,17 because error mean square = 0.

(TRB19 SOYBEAN 14)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID: TRB19 SOYBEAN 14 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 14 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed			W Weed			W Weed			W Weed		
Pest Code	AMAPA			CYPES			AMAPA			AMAPA		
Pest Scientific Name	Amaranthus pal>			Cyperus escul>			Amaranthus pal>			Amaranthus pal>		
Pest Name	Palmer amaranth			Yellow nutsedge			Palmer amaranth			Palmer amaranth		
Crop Scientific Name	Glycine max						Glycine max			Glycine max		
Crop Name	Soybean			Soybean			Soybean			Soybean		
Rating Date	Jul-31-2019			Jul-31-2019			Jul-31-2019			Aug-7-2019		
Rating Type	CONTRO			CONTRO			PHYGEN			PHYGEN		
Rating Unit	%			%			%			%		
Crop Stage Majority	R2			R2			R2			R3		
Days After First/Last Applic.	21 21			21 21			21 21			28 7		
Trt	Treatment			Rate			Appl					
No.	Name			Rate Unit			Code			7* 8* 9* 10* 11* 12*		
1	Nontreated Control			0.0			0.0			0.0		
2	Enlist One			2pt/a A			93.8			100.0		
3	Enlist One			2pt/a A			93.8			95.0		
	Roundup Powermax			32fl oz/a A						0.0		
4	Enlist One			2pt/a A			98.8			98.8		
	Roundup Powermax			32fl oz/a A						1.3		
	Moccasin			1pt/a A						100.0		
5	Enlist One			2pt/a A			100.0			100.0		
	Moccasin			1pt/a A						3.8		
6	Enlist One			2pt/a A			98.8			98.8		
	Roundup PowerMAX II			32fl oz/a A						0.0		
	Moccasin			1pt/a A						100.0		
7	Enlist One			2pt/a A			88.8			97.5		
	Liberty			29fl oz/a A						0.0		
8	Enlist One			2pt/a A			100.0			100.0		
	Liberty			29fl oz/a A						0.0		
	Moccasin			1pt/a A						100.0		
9	Enlist One			2pt/a A			98.8			76.3		
	Reflex			1.5pt/a A						7.5		
	COC			0.5% v/v A						100.0		
10	COC			0.5% v/v A			100.0			98.8		
	Enlist One			2pt/a A						12.5		
	Reflex			1.5pt/a A						100.0		
	Moccasin			1pt/a A						10.0		
11	Enlist One			2pt/a A			93.8			98.8		
	Roundup PowerMAX II			32fl oz/a A						0.0		
	Liberty			29fl oz/a A						100.0		
12	Enlist One			2pt/a A			97.5			97.5		
	Roundup Powermax			32fl oz/a A						0.0		
	Enlist One			2pt/a B						100.0		
13	Enlist One			2pt/a A			92.5			98.8		
	Roundup Powermax			32fl oz/a A						0.0		
	Liberty			29fl oz/a B						100.0		
14	Enlist One			2pt/a A			90.0			92.5		
	Roundup Powermax			32fl oz/a A						0.0		
	Reflex			1.5pt/a B						100.0		
	COC			0.5% v/v B						7.5		
LSD P=.05				7.60			18.49			5.36		
Replicate F				1.533			0.630			3.303		
Replicate Prob(F)				0.2211			0.6000			0.0301		
Treatment F				95.038			16.766			4.016		
Treatment Prob(F)				0.0001			0.0001			0.0004		

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 2,10,13,15,17 because error mean square = 0.

(TRB19 SOYBEAN 14)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID: TRB19 SOYBEAN 14 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 14 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed		W Weed		W Weed
Pest Code				AMAPA		AMAPA		AMAPA
Pest Scientific Name				Amaranthus pal>		Amaranthus pal>		Amaranthus pal>
Pest Name				Palmer amaranth		Palmer amaranth		Palmer amaranth
Crop Scientific Name				Glycine max		Glycine max		Glycine max
Crop Name				Soybean		Soybean		Soybean
Rating Date	Aug-15-2019			Aug-21-2019	Aug-21-2019	Aug-28-2019	Aug-28-2019	Oct-18-2019
Rating Type	PHYGEN			CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Rating Unit	%			%	%	%	%	%
Crop Stage Majority	R5			R5	R5	R5	R5	
Days After First/Last Applic.	36 15			42 21	42 21	49 28	49 28	100 79
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	13*	14*	15*	16*	17*	18*
1Nontreated Control			0.0	0.0	0.0	0.0	0.0	0.0
2Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	100.0
3Enlist One	2pt/a A		0.0	97.5	0.0	97.5	0.0	100.0
Roundup Powermax	32fl oz/a A							
4Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	100.0
Roundup Powermax	32fl oz/a A							
Moccasin	1pt/a A							
5Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	99.8
Moccasin	1pt/a A							
6Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	100.0
Roundup PowerMAX II	32fl oz/a A							
Moccasin	1pt/a A							
7Enlist One	2pt/a A		0.0	98.8	0.0	98.8	0.0	98.8
Liberty	29fl oz/a A							
8Enlist One	2pt/a A		0.0	98.8	0.0	98.8	0.0	100.0
Liberty	29fl oz/a A							
Moccasin	1pt/a A							
9Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	100.0
Reflex	1.5pt/a A							
COC	0.5% v/v A							
10COC	0.5% v/v A		0.0	100.0	0.0	100.0	0.0	100.0
Enlist One	2pt/a A							
Reflex	1.5pt/a A							
Moccasin	1pt/a A							
11Enlist One	2pt/a A		0.0	97.5	0.0	97.5	0.0	100.0
Roundup PowerMAX II	32fl oz/a A							
Liberty	29fl oz/a A							
12Enlist One	2pt/a A		0.0	98.8	0.0	97.5	0.0	99.5
Roundup Powermax	32fl oz/a A							
Enlist One	2pt/a B							
13Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	100.0
Roundup Powermax	32fl oz/a A							
Liberty	29fl oz/a B							
14Enlist One	2pt/a A		0.0	100.0	0.0	100.0	0.0	100.0
Roundup Powermax	32fl oz/a A							
Reflex	1.5pt/a B							
COC	0.5% v/v B							
LSD P=.05				3.22		3.61		1.00
Replicate F			0.000	0.558	0.000	0.748	0.000	2.337
Replicate Prob(F)			1.0000	0.6462	1.0000	0.5300	1.0000	0.0886
Treatment F			0.000	556.558	0.000	442.727	0.000	5825.720
Treatment Prob(F)			1.0000	0.0001	1.0000	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 2,10,13,15,17 because error mean square = 0.

(TRB19 SOYBEAN 14)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID: TRB19 SOYBEAN 14 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 14 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type			
Pest Code			
Pest Scientific Name			
Pest Name			
Crop Scientific Name			
Crop Name			
Rating Date	Oct-19-2019	Oct-19-2019	
Rating Type	WEIGHT	YIELD	
Rating Unit	lb/plot	BU	
Crop Stage Majority			
Days After First/Last Applic.	101 80	101 80	
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	
1 Nontreated Control			19* 20*
2 Enlist One	2pt/a A		6.73 26.2
3 Enlist One	2pt/a A		8.93 34.8
Roundup Powermax	32fl oz/a A		9.50 37.0
4 Enlist One	2pt/a A		11.93 46.4
Roundup Powermax	32fl oz/a A		
Moccasin	1pt/a A		
5 Enlist One	2pt/a A		9.63 37.5
Moccasin	1pt/a A		
6 Enlist One	2pt/a A		9.23 35.9
Roundup PowerMAX II	32fl oz/a A		
Moccasin	1pt/a A		
7 Enlist One	2pt/a A		10.90 42.4
Liberty	29fl oz/a A		
8 Enlist One	2pt/a A		7.98 31.1
Liberty	29fl oz/a A		
Moccasin	1pt/a A		
9 Enlist One	2pt/a A		8.78 34.2
Reflex	1.5pt/a A		
COC	0.5% v/v A		
10 COC	0.5% v/v A		8.11 31.6
Enlist One	2pt/a A		
Reflex	1.5pt/a A		
Moccasin	1pt/a A		
11 Enlist One	2pt/a A		11.58 45.1
Roundup PowerMAX II	32fl oz/a A		
Liberty	29fl oz/a A		
12 Enlist One	2pt/a A		13.44 52.3
Roundup Powermax	32fl oz/a A		
Enlist One	2pt/a B		
13 Enlist One	2pt/a A		8.28 32.2
Roundup Powermax	32fl oz/a A		
Liberty	29fl oz/a B		
14 Enlist One	2pt/a A		10.05 39.1
Roundup Powermax	32fl oz/a A		
Reflex	1.5pt/a B		
COC	0.5% v/v B		
LSD P=.05			3.591 13.98
Replicate F			0.033 0.033
Replicate Prob(F)			0.9920 0.9920
Treatment F			1.815 1.815
Treatment Prob(F)			0.0786 0.0786

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 2,10,13,15,17 because error mean square = 0.

(TRB19 SOYBEAN 14)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Enlist E3 soybean system

Trial ID:TRB19 SOYBEAN 14	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 14	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.894126*[19]

(TRB19 SOYBEAN 15)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Xtend soybean system

Trial ID:TRB19 SOYBEAN 15 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 15 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean BBCH Scale:BSOY
 Variety:P48A60X
 Planting Date:Jun-6-2019 Planting Rate:200000 S/A
 Harvested Width:7.5 FT
 % Standard Moisture:12.5 Harvested Length:25 FT

Pest Description

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

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT² Treatments:13
 Replications:4 Study Design:RACOB L Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Aug-7-2019	Aug-14-2019
Appl. Start Time	9:10 AM	11:00 AM
Appl. Stop Time	10:30 AM	
Interval to Prev. Appl.		7 DAYS
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Air Temperature Start, Stop	94 F	84 F
% Relative Humidity Start, Stop	57	70
Wind Velocity+Dir. Start	5 MPH WSW	2 MPH NE
Wet Leaves (Y/N)	N no	N no
Soil Temperature	96 F	77 F
Soil Moisture	DRY	
% Cloud Cover	30	20

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent	R3	R5

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent	Veg	Veg
Height Average	3 FT	3.5 FT

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-19-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Xtend soybean system

Trial ID:TRB19 SOYBEAN 15	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 15	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

SE Definitions

	1.	
Crop Type, Code	C	

(TRB19 SOYBEAN 15)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Xtend soybean system

Trial ID: TRB19 SOYBEAN 15 Location: Newport Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 15 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed		W Weed		W Weed			
Pest Code	AMAPA		AMAPA		AMAPA			
Pest Scientific Name	Amaranthus pal>		Amaranthus pal>		Amaranthus pal>			
Pest Name	Palmer amaranth		Palmer amaranth		Palmer amaranth			
Crop Scientific Name	Glycine max		Glycine max		Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	
Rating Date	Aug-14-2019	Aug-14-2019	Aug-21-2019	Aug-21-2019	Aug-28-2019	Aug-28-2019	Aug-28-2019	
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	PHYGEN	
Rating Unit	%	%	%	%	%	%	%	
Days After First/Last Applic.	7 7	7 7	14 7	14 7	21 14	21 14	21 14	
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	1*	2*	3*	4*	5*	6*
1Nontreated Control			0.0	0.0	0.0	0.0	46.3	1.3
2XtendiMax	22fl oz/a A		93.8	2.5	96.3	1.3	97.5	0.0
3XtendiMax	22fl oz/a A		90.0	1.3	92.5	3.8	96.8	5.0
Roundup PowerMAX II	32fl oz/a A							
Intact	0.5% v/v A							
4XtendiMax	22fl oz/a A		94.2	4.9	90.7	6.3	98.0	5.0
Dual Magnum	1pt/a A							
Intact	0.5% v/v A							
5XtendiMax	22fl oz/a A		88.8	3.8	87.5	3.8	72.3	2.5
Roundup PowerMAX II	32fl oz/a A							
Dual Magnum	1pt/a A							
Intact	0.5% v/v A							
6XtendiMax	22fl oz/a A		95.0	3.8	95.0	2.5	98.3	2.5
Reflex	1.5pt/a A							
COC	0.5% v/v A							
Intact	0.5% v/v A							
7XtendiMax	22fl oz/a A		91.3	1.3	88.8	5.0	93.5	5.0
Roundup PowerMAX II	32fl oz/a A							
Reflex	1.5pt/a A							
COC	0.5% v/v A							
Intact	0.5% v/v A							
8XtendiMax	22fl oz/a A		95.0	5.0	93.8	3.8	97.5	3.8
Prefix	2pt/a A							
Intact	0.5% v/v A							
9XtendiMax	22fl oz/a A		92.5	6.3	93.8	7.5	97.0	3.8
Roundup PowerMAX II	32fl oz/a A							
Prefix	2pt/a A							
Intact	0.5% v/v A							
10XtendiMax	22fl oz/a A		87.5	0.0	92.5	0.0	94.8	2.5
XtendiMax	22fl oz/a B							
11XtendiMax	22fl oz/a A		95.0	0.0	93.8	6.3	96.0	5.0
Roundup PowerMAX II	32fl oz/a B							
Dual Magnum	1pt/a B							
12XtendiMax	22fl oz/a A		93.8	0.0	91.3	8.8	98.5	7.5
Roundup PowerMAX II	32fl oz/a B							
Reflex	1.5pt/a B							
COC	0.5% v/v B							
13XtendiMax	22fl oz/a A		90.0	0.0	93.8	6.3	95.8	5.0
Roundup PowerMAX II	32fl oz/a B							
Prefix	2pt/a B							
LSD P=.05			7.97	2.58	5.94	4.31	28.19	2.94
Replicate F			5.917	0.557	11.181	1.204	2.060	0.726
Replicate Prob(F)			0.0022	0.6471	0.0001	0.3226	0.1233	0.5436
Treatment F			85.689	6.279	155.095	3.428	2.338	3.686
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0022	0.0252	0.0012

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Xtend soybean system

Trial ID:TRB19 SOYBEAN 15				Location:Newport				Trial Year:2019			
Protocol ID:TRB19 SOYBEAN 15				Investigator:Thomas R. Butts							
Project ID:				Study Director:							
Sponsor Contact:											
Pest Type				W Weed				W Weed			
Pest Code				AMAPA				AMAPA			
Pest Scientific Name				Amaranthus pal>				Amaranthus pal>			
Pest Name				Palmer amaranth				Palmer amaranth			
Crop Scientific Name				Glycine max							
Crop Name				Soybean	Soybean			Soybean	Soybean		
Rating Date				Sep-4-2019	Sep-4-2019			Sep-11-2019	Oct-14-2019	Oct-16-2019	
Rating Type				CONTRO	PHYGEN			CONTRO	PHYGEN	WEIGHT	
Rating Unit				%	%			%	%	lb/plot	
Days After First/Last Applic.				28 21	28 21			35 28	68 61	70 63	
Trt Treatment	Rate Appl										
No. Name	Rate	Unit	Code	7*	8*	9*	10*	11*	12*		
1Nontreated Control				0.0	0.0	0.0	0.0	0.0	10.33		
2XtendiMax	22fl oz/a	A		97.3	1.3	97.0	0.0	97.5	13.05		
3XtendiMax	22fl oz/a	A		98.3	2.5	98.8	1.3	97.5	11.65		
Roundup PowerMAX II	32fl oz/a	A									
Intact	0.5% v/v	A									
4XtendiMax	22fl oz/a	A		96.3	1.7	97.7	1.2	96.0	12.31		
Dual Magnum	1pt/a	A									
Intact	0.5% v/v	A									
5XtendiMax	22fl oz/a	A		97.0	1.3	96.6	1.3	96.8	10.63		
Roundup PowerMAX II	32fl oz/a	A									
Dual Magnum	1pt/a	A									
Intact	0.5% v/v	A									
6XtendiMax	22fl oz/a	A		98.0	0.0	98.3	0.0	98.3	12.28		
Reflex	1.5pt/a	A									
COC	0.5% v/v	A									
Intact	0.5% v/v	A									
7XtendiMax	22fl oz/a	A		96.5	0.0	97.5	3.8	98.5	12.45		
Roundup PowerMAX II	32fl oz/a	A									
Reflex	1.5pt/a	A									
COC	0.5% v/v	A									
Intact	0.5% v/v	A									
8XtendiMax	22fl oz/a	A		96.3	1.3	97.5	1.3	97.0	12.50		
Prefix	2pt/a	A									
Intact	0.5% v/v	A									
9XtendiMax	22fl oz/a	A		96.5	8.8	98.0	5.0	97.5	11.73		
Roundup PowerMAX II	32fl oz/a	A									
Prefix	2pt/a	A									
Intact	0.5% v/v	A									
10XtendiMax	22fl oz/a	A		97.3	1.3	97.8	1.3	93.0	7.98		
XtendiMax	22fl oz/a	B									
11XtendiMax	22fl oz/a	A		98.3	3.8	98.5	5.0	97.8	10.25		
Roundup PowerMAX II	32fl oz/a	B									
Dual Magnum	1pt/a	B									
12XtendiMax	22fl oz/a	A		98.0	8.8	98.8	8.8	99.3	12.30		
Roundup PowerMAX II	32fl oz/a	B									
Reflex	1.5pt/a	B									
COC	0.5% v/v	B									
13XtendiMax	22fl oz/a	A		98.5	11.3	98.8	10.0	97.3	9.10		
Roundup PowerMAX II	32fl oz/a	B									
Prefix	2pt/a	B									
LSD P=.05				4.05	4.32	2.89	3.32	4.28	2.951		
Replicate F				5.365	0.896	5.590	8.821	4.718	1.392		
Replicate Prob(F)				0.0039	0.4531	0.0032	0.0002	0.0072	0.2613		
Treatment F				366.493	6.430	730.641	8.165	328.098	2.182		
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0360		

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

(TRB19 SOYBEAN 15)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Xtend soybean system

Trial ID: TRB19 SOYBEAN 15	Location: Newport	Trial Year: 2019
Protocol ID: TRB19 SOYBEAN 15	Investigator: Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type	
Pest Code	
Pest Scientific Name	
Pest Name	
Crop Scientific Name	
Crop Name	
Rating Date	Oct-16-2019
Rating Type	YIELD
Rating Unit	BU
Days After First/Last Applic.	70 63
Trt Treatment	Rate Appl
No. Name	Rate Unit Code
1 Nontreated Control	39.5
2 XtendiMax	22 fl oz/a A 49.9
3 XtendiMax	22 fl oz/a A 44.5
Roundup PowerMAX II	32 fl oz/a A
Intact	0.5% v/v A
4 XtendiMax	22 fl oz/a A 47.1
Dual Magnum	1 pt/a A
Intact	0.5% v/v A
5 XtendiMax	22 fl oz/a A 40.6
Roundup PowerMAX II	32 fl oz/a A
Dual Magnum	1 pt/a A
Intact	0.5% v/v A
6 XtendiMax	22 fl oz/a A 46.9
Reflex	1.5 pt/a A
COC	0.5% v/v A
Intact	0.5% v/v A
7 XtendiMax	22 fl oz/a A 47.6
Roundup PowerMAX II	32 fl oz/a A
Reflex	1.5 pt/a A
COC	0.5% v/v A
Intact	0.5% v/v A
8 XtendiMax	22 fl oz/a A 47.8
Prefix	2 pt/a A
Intact	0.5% v/v A
9 XtendiMax	22 fl oz/a A 44.8
Roundup PowerMAX II	32 fl oz/a A
Prefix	2 pt/a A
Intact	0.5% v/v A
10 XtendiMax	22 fl oz/a A 30.5
XtendiMax	22 fl oz/a B
11 XtendiMax	22 fl oz/a A 39.2
Roundup PowerMAX II	32 fl oz/a B
Dual Magnum	1 pt/a B
12 XtendiMax	22 fl oz/a A 47.0
Roundup PowerMAX II	32 fl oz/a B
Reflex	1.5 pt/a B
COC	0.5% v/v B
13 XtendiMax	22 fl oz/a A 34.8
Roundup PowerMAX II	32 fl oz/a B
Prefix	2 pt/a B
LSD P=.05	11.28
Replicate F	1.392
Replicate Prob(F)	0.2613
Treatment F	2.182
Treatment Prob(F)	0.0360

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

(TRB19 SOYBEAN 15)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST herbicide mixtures in an Xtend soybean system

Trial ID:TRB19 SOYBEAN 15	Location:Newport	Trial Year:2019
Protocol ID:TRB19 SOYBEAN 15	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.823323*[12]

(TRB19 SOYBEAN 16)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID:TRB19 SOYBEAN 16 Location:Newport, AR Trial Year:2019
 Protocol ID:Interline Moccasin PH Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:Scott Rushing

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

ARM Trial Created On:Apr-16-2019

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
 Entry Date:Nov-20-2019
 Variety:CZ 4539 GTLL
 Planting Date:Jun-5-2019 Planting Rate:200000 S/A
 Harvested Width:7.5 FT
 % Standard Moisture:12.5 Harvested Length:25 FT

Pest Description

Pest 1 Type:W Code:AMAPA Amaranthus palmeri
 Common Name:Palmer amaranth Entry Date:Nov-20-2019

Pest 2 Type:W Code:CYPES Cyperus esculentus
 Common Name:Yellow nutsedge Entry Date:Nov-20-2019

Site and Design

Treated Plot Width:7.5 FT
 Treated Plot Length:25 FT
 Treated Plot Area:187.5 FT² Treatments:15
 Replications:4 Study Design:RACOB Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	Jun-5-2019	Jul-5-2019
Appl. Start Time	11:30 AM	11:45 AM
Appl. Stop Time	12:32 PM	12:00 PM
Application Method	SPRAY	SPRAY
Application Placement	BROADC	BROADC
Applied By	A. McCormick	A. McCormick
Appl. Entry Date	Nov-20-2019	Nov-20-2019
Air Temperature Start, Stop	88 F	88 F
% Relative Humidity Start, Stop	62	65
Wind Velocity+Dir. Start	12 MPH SSW	8 MPH SSW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	79 F	82 F
% Cloud Cover	0	25

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Majority, Percent		V5
Height Average		12 IN

(TRB19 SOYBEAN 16)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID:TRB19 SOYBEAN 16 Location:Newport, AR Trial Year:2019
 Protocol ID:Interline Moccasin PH Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:Scott Rushing

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMAPA W	AMAPA W
Stage Majority, Percent		Veg
Height Average		6 in
Height Minimum, Maximum		2 10
Density Average		3 FT2
Pest 2 Code, Type, Scale	CYPES W	CYPES W
Stage Majority, Percent		Veg
Height Average		6 in
Height Minimum, Maximum		4 6
Density Average		8 FT2

Context	Date	By	Notes
STATUS	Apr-16-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-20-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.	
Crop Type, Code	C	

(TRB19 SOYBEAN 16)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID: TRB19 SOYBEAN 16 Location: Newport, AR Trial Year: 2019
 Protocol ID: Interline Moccasin PH Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact: Scott Rushing

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMAPA	CYPES	AMAPA	CYPES	AMAPA
Pest Scientific Name	Amaranthus pal>	Cyperus escul>	Amaranthus pal>	Cyperus escul>	Amaranthus pal>
Pest Name	Palmer amaranth	Yellow nutsedge	Palmer amaranth	Yellow nutsedge	Palmer amaranth
Crop Scientific Name	Glycine max		Glycine max		Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date	Jun-13-2019	Jun-13-2019	Jun-19-2019	Jun-19-2019	Jun-26-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Days After First/Last Applic.	8 8	8 8	14 14	14 14	21 21
Trt Treatment	Rate	Rate	Rate	Rate	Rate
No. Name	Rate Unit Code	Rate Unit Code	Rate Unit Code	Rate Unit Code	Rate Unit Code
1UNTREATED	0.0	0.0	0.0	0.0	0.0
2Moccasin II	1.25lb ai/a A	100.0	100.0	100.0	97.5
3Satellite HydroCap	0.95lb ai/a A	100.0	100.0	57.5	61.3
4Tripzin ZC	1lb ai/a A	100.0	100.0	92.5	92.5
5Tripzin ZC	1.09lb ai/a A	100.0	100.0	97.5	96.3
6Moccasin MTZ	1.12lb ai/a A	100.0	100.0	100.0	97.3
7Moccasin MTZ	1.26lb ai/a A	100.0	100.0	100.0	95.0
8Moccasin MTZ	1.47lb ai/a A	100.0	100.0	100.0	100.0
9Moccasin MTZ	1.74lb ai/a A	100.0	100.0	100.0	100.0
10Motif	0.094lb ai/a A	100.0	100.0	93.8	93.8
11Tripzin ZC	1lb ai/a A	100.0	100.0	97.5	96.3
Interline	0.64lb ai/a B				
Moccasin II	0.955lb ai/a B				
12Tripzin ZC	1.09lb ai/a A	100.0	100.0	96.3	96.3
Interline	0.64lb ai/a B				
Moccasin II	0.955lb ai/a B				
13Moccasin MTZ	1.12lb ai/a A	100.0	100.0	100.0	98.8
Interline	0.64lb ai/a B				
Moccasin II	0.955lb ai/a B				
14Moccasin MTZ	1.12lb ai/a A	100.0	100.0	100.0	100.0
Interline	0.64lb ai/a B				
Moccasin II	0.955lb ai/a B				
15Moccasin MTZ	1.12lb ai/a A	100.0	100.0	100.0	100.0
Motif	0.094lb ai/a B				
Interline	0.64lb ai/a B				
Moccasin II	0.955lb ai/a B				
LSD P=.05			6.05	8.80	8.33
Replicate F	0.000	0.000	3.403	1.665	3.030
Replicate Prob(F)	1.0000	1.0000	0.0262	0.1890	0.0398
Treatment F	0.000	0.000	160.916	73.808	77.864
Treatment Prob(F)	1.0000	1.0000	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,7 because error mean square = 0.

(TRB19 SOYBEAN 16)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID: TRB19 SOYBEAN 16 Location: Newport, AR Trial Year: 2019
 Protocol ID: Interline Moccasin PH Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact: Scott Rushing

Pest Type	W Weed		W Weed	W Weed	W Weed	W Weed
Pest Code	CYPES		AMAPA	CYPES	AMAPA	CYPES
Pest Scientific Name	Cyperus escul>		Amaranthus pal>	Cyperus escul>	Amaranthus pal>	Cyperus escul>
Pest Name	Yellow nutsedge		Palmer amaranth	Yellow nutsedge	Palmer amaranth	Yellow nutsedge
Crop Scientific Name			Glycine max		Glycine max	
Crop Name	Soybean		Soybean	Soybean	Soybean	Soybean
Rating Date	Jun-26-2019	Jun-26-2019	Jul-3-2019	Jul-3-2019	Jul-12-2019	Jul-12-2019
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Days After First/Last Applic.	21 21	21 21	28 28	28 28	37 7	37 7
Trt Treatment	Rate	Appl				
No. Name	Rate Unit Code					
1UNTREATED			6*	7*	8*	9*
						10*
						11*
2Moccasin II	1.25lb ai/a A		0.0	0.0	0.0	0.0
3Satellite HydroCap	0.95lb ai/a A		100.0	5.0	93.3	99.3
4Tripzin ZC	1lb ai/a A		65.0	5.0	12.5	92.5
5Tripzin ZC	1.09lb ai/a A		72.5	5.0	30.0	50.0
6Moccasin MTZ	1.12lb ai/a A		87.5	5.0	81.3	70.0
7Moccasin MTZ	1.26lb ai/a A		100.0	5.0	95.8	99.5
8Moccasin MTZ	1.47lb ai/a A		97.5	5.0	91.3	98.8
9Moccasin MTZ	1.74lb ai/a A		100.0	5.0	99.0	100.0
10Motif	0.094lb ai/a A		72.5	5.0	72.5	72.5
11Tripzin ZC	1lb ai/a A		77.5	5.0	67.5	62.5
Interline	0.64lb ai/a B					81.3
Moccasin II	0.955lb ai/a B					88.8
12Tripzin ZC	1.09lb ai/a A		82.5	5.0	67.5	50.0
Interline	0.64lb ai/a B					82.5
Moccasin II	0.955lb ai/a B					70.0
13Moccasin MTZ	1.12lb ai/a A		100.0	5.0	91.0	100.0
Interline	0.64lb ai/a B					95.0
Moccasin II	0.955lb ai/a B					100.0
14Moccasin MTZ	1.12lb ai/a A		77.5	5.0	91.8	99.8
Interline	0.64lb ai/a B					94.5
Moccasin II	0.955lb ai/a B					100.0
15Moccasin MTZ	1.12lb ai/a A		98.8	5.0	95.3	99.0
Motif	0.094lb ai/a B					97.3
Interline	0.64lb ai/a B					100.0
Moccasin II	0.955lb ai/a B					
LSD P=.05			20.16	.	16.76	28.39
Replicate F			0.359	0.000	5.045	0.456
Replicate Prob(F)			0.7832	1.0000	0.0045	0.7144
Treatment F			13.469	0.000	30.339	12.392
Treatment Prob(F)			0.0001	1.0000	0.0001	0.0001
						85.820
						19.116
						0.0001
						0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,7 because error mean square = 0.

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID:TRB19 SOYBEAN 16				Location:Newport, AR		Trial Year:2019	
Protocol ID:Interline Moccasin PH				Investigator:Thomas R. Butts			
Project ID:				Study Director:			
				Sponsor Contact:Scott Rushing			
Pest Type				W Weed	W Weed		W Weed
Pest Code				AMAPA	CYPES		AMAPA
Pest Scientific Name				Amaranthus pal>	Cyperus escul>		Amaranthus pal>
Pest Name				Palmer amaranth	Yellow nutsedge		Palmer amaranth
Crop Scientific Name				Glycine max			Glycine max
Crop Name				Soybean	Soybean		Soybean
Rating Date	Jul-12-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-26-2019	Jul-26-2019
Rating Type	PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Rating Unit	%	%	%	%	%	%	%
Days After First/Last Applic.	37 7	43 13	43 13	43 13	43 13	51 21	51 21
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	12*	13*	14*	15*	16*
1UNTREATED			0.0	0.0	0.0	0.0	0.0
2Moccasin II	1.25lb ai/a A		0.0	87.5	97.5	0.0	87.5
3Satellite HydroCap	0.95lb ai/a A		0.0	40.0	35.0	0.0	22.5
4Tripzin ZC	1lb ai/a A		0.0	50.0	48.8	0.0	32.5
5Tripzin ZC	1.09lb ai/a A		0.0	67.5	73.8	0.0	62.5
6Moccasin MTZ	1.12lb ai/a A		0.0	90.0	100.0	0.0	87.5
7Moccasin MTZ	1.26lb ai/a A		0.0	87.5	92.5	0.0	91.0
8Moccasin MTZ	1.47lb ai/a A		0.0	90.0	97.5	0.0	95.3
9Moccasin MTZ	1.74lb ai/a A		0.0	92.0	100.0	0.0	95.8
10Motif	0.094lb ai/a A		0.0	55.0	55.0	0.0	55.0
11Tripzin ZC	1lb ai/a A		1.3	77.5	82.5	2.5	80.0
Interline	0.64lb ai/a B						
Moccasin II	0.955lb ai/a B						
12Tripzin ZC	1.09lb ai/a A		3.8	77.5	85.0	0.0	72.5
Interline	0.64lb ai/a B						
Moccasin II	0.955lb ai/a B						
13Moccasin MTZ	1.12lb ai/a A		3.8	93.8	100.0	2.5	95.8
Interline	0.64lb ai/a B						
Moccasin II	0.955lb ai/a B						
14Moccasin MTZ	1.12lb ai/a A		3.8	91.3	100.0	5.0	93.5
Interline	0.64lb ai/a B						
Moccasin II	0.955lb ai/a B						
15Moccasin MTZ	1.12lb ai/a A		15.0	96.3	100.0	7.5	97.0
Motif	0.094lb ai/a B						
Interline	0.64lb ai/a B						
Moccasin II	0.955lb ai/a B						
LSD P=.05			2.38	12.64	13.79	2.31	15.29
Replicate F			1.000	4.608	1.303	1.909	2.497
Replicate Prob(F)			0.4023	0.0071	0.2861	0.1428	0.0728
Treatment F			22.457	36.441	39.144	8.000	32.907
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,7 because error mean square = 0.

(TRB19 SOYBEAN 16)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID: TRB19 SOYBEAN 16 Location: Newport, AR Trial Year: 2019
 Protocol ID: Interline Moccasin PH Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact: Scott Rushing

Pest Type	W Weed			
Pest Code	AMAPA			
Pest Scientific Name	Amaranthus pal>			
Pest Name	Palmer amaranth			
Crop Scientific Name	Glycine max			
Crop Name	Soybean			
Rating Date	Aug-1-2019	Aug-1-2019	Oct-17-2019	Oct-17-2019
Rating Type	CONTRO	PHYGEN	WEIGHT	YIELD
Rating Unit	%	%	lb/plot	BU
Days After First/Last Applic.	57 27	57 27	134 104	134 104
Trt Treatment	Rate Appl			
No. Name	Rate Unit Code	18*	19*	20*
1UNTREATED		0.0	0.0	5.35
2Moccasin II	1.25lb ai/a A	85.0	0.0	7.65
3Satellite HydroCap	0.95lb ai/a A	17.5	0.0	4.73
4Tripzin ZC	1lb ai/a A	40.0	0.0	5.73
5Tripzin ZC	1.09lb ai/a A	50.0	0.0	7.53
6Moccasin MTZ	1.12lb ai/a A	86.3	0.0	8.15
7Moccasin MTZ	1.26lb ai/a A	83.8	0.0	10.15
8Moccasin MTZ	1.47lb ai/a A	92.5	0.0	10.73
9Moccasin MTZ	1.74lb ai/a A	92.5	0.0	11.68
10Motif	0.094lb ai/a A	42.5	0.0	7.73
11Tripzin ZC	1lb ai/a A	75.0	0.0	10.33
Interline	0.64lb ai/a B			
Moccasin II	0.955lb ai/a B			
12Tripzin ZC	1.09lb ai/a A	72.5	0.0	8.68
Interline	0.64lb ai/a B			
Moccasin II	0.955lb ai/a B			
13Moccasin MTZ	1.12lb ai/a A	92.5	0.0	7.75
Interline	0.64lb ai/a B			
Moccasin II	0.955lb ai/a B			
14Moccasin MTZ	1.12lb ai/a A	90.0	1.3	9.58
Interline	0.64lb ai/a B			
Moccasin II	0.955lb ai/a B			
15Moccasin MTZ	1.12lb ai/a A	93.8	1.3	10.40
Motif	0.094lb ai/a B			
Interline	0.64lb ai/a B			
Moccasin II	0.955lb ai/a B			
LSD P=.05		15.57	1.26	2.991
Replicate F		4.071	2.154	2.604
Replicate Prob(F)		0.0126	0.1078	0.0648
Treatment F		30.751	1.000	3.856
Treatment Prob(F)		0.0001	0.4708	0.0004

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,2,7 because error mean square = 0.

(TRB19 SOYBEAN 16)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

EVALUATION OF UPL-NA HERBICIDES FOR WEED CONTROL IN LLGT27 SOYBEAN

Trial ID:TRB19 SOYBEAN 16	Location:Newport, AR	Trial Year:2019
Protocol ID:Interline Moccasin PH	Investigator:Thomas R. Butts	
Project ID:	Study Director:	
	Sponsor Contact:Scott Rushing	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.964928*[C20]

(TRB19 SOYBEAN 17)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Nutritional/pH modifier effect on dicamba and dicamba plus glyphosate efficacy

Trial ID:TRB19 SOYBEAN 17 Location: Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 17 Investigator:Tom Barber
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Tom Barber

Trial Status:E established

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Tom Barber

Crop Description

Crop 1:C GLXMA Glycine max Soybean
Variety:P48A60X
Planting Date:Jun-6-2019 **Planting Rate:**200000 S/A

Site and Design

Treated Plot Width:7.5 FT
Treated Plot Length:25 FT
Treated Plot Area:187.5 FT2 **Treatments:**29
Replications:4 **Study Design:**FACTOR Factorial

Application Description

	A
Application Date	Jun-6-2019
Appl. Start Time	7:00 AM
Appl. Stop Time	8:45 AM
Application Method	SPRAY
Application Placement	BROADC

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY

Context	Date	By	Notes
STATUS	Apr-19-2019	Tom Barber	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Nov-21-2019	Tom Barber	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 17)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Nutritional/pH modifier effect on dicamba and dicamba plus glyphosate efficacy

Trial ID: TRB19 SOYBEAN 17 Location: Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 17 Investigator: Tom Barber
 Project ID: Study Director:
 Sponsor Contact:

Pest Type		W Weed	W Weed	W Weed
Pest Code		AMAPA	AMAPA	AMAPA
Pest Scientific Name		Amaranthus pal>	Amaranthus pal>	Amaranthus pal>
Pest Name		Palmer amaranth	Palmer amaranth	Palmer amaranth
Crop Scientific Name		Glycine max	Glycine max	Glycine max
Crop Name		Soybean	Soybean	Soybean
Rating Date		Aug-21-2019	Aug-28-2019	Sep-4-2019
Rating Type		CONTRO	CONTRO	CONTRO
Rating Unit		%	%	%
Days After First/Last Applic.		76 76	83 83	90 90
Trt Treatment	Rate Appl			
No. Name	Rate Unit Code	1*	2*	3*
1Engenia	12.8fl oz/a A	90.0	95.0	93.8
None				
2Engenia	12.8fl oz/a A	90.8	91.3	91.3
Coron Full Bor	20fl oz/a A			
3Engenia	12.8fl oz/a A	93.8	94.8	86.0
Ele-Max K-Leaf 0-0-30	5qt/a A			
4Engenia	12.8fl oz/a A	91.3	87.5	56.3
Brandt Smart Fe	1qt/a A			
5Engenia	12.8fl oz/a A	88.3	92.0	85.8
Hydri-Gro Mn	2pt/a A			
6Engenia	12.8fl oz/a A	85.0	91.0	73.5
Hydri-Gro Mg	2pt/a A			
7Engenia	12.8fl oz/a A	91.3	88.3	66.8
Hydri-Gro Ca	2pt/a A			
8XtendiMax	22fl oz/a A	87.5	65.0	55.0
None				
9XtendiMax	22fl oz/a A	94.8	73.0	72.8
Coron Full Bor	20fl oz/a A			
10XtendiMax	22fl oz/a A	91.3	94.5	80.0
Ele-Max K-Leaf 0-0-30	5qt/a A			
11XtendiMax	22fl oz/a A	71.3	95.0	88.8
Brandt Smart Fe	1qt/a A			
12XtendiMax	22fl oz/a A	88.5	89.3	74.3
Hydri-Gro Mn	2pt/a A			
13XtendiMax	22fl oz/a A	92.3	93.3	77.5
Hydri-Gro Mg	2pt/a A			
14XtendiMax	22fl oz/a A	87.0	69.5	69.8
Hydri-Gro Ca	2pt/a A			
15Engenia	12.8fl oz/a A	93.3	95.0	72.5
Roundup PowerMax II	32fl oz/a A			
None				
16Engenia	12.8fl oz/a A	93.8	96.0	97.8
Roundup PowerMax II	32fl oz/a A			
Coron Full Bor	20fl oz/a A			
17Engenia	12.8fl oz/a A	92.5	93.5	93.3
Roundup PowerMax II	32fl oz/a A			
Ele-Max K-Leaf 0-0-30	5qt/a A			
18Engenia	12.8fl oz/a A	96.0	98.0	98.3
Roundup PowerMax II	32fl oz/a A			
Brandt Smart Fe	1qt/a A			
19Engenia	12.8fl oz/a A	96.0	96.0	96.5
Roundup PowerMax II	32fl oz/a A			
Hydri-Gro Mn	2pt/a A			
20Engenia	12.8fl oz/a A	94.5	95.3	96.8
Roundup PowerMax II	32fl oz/a A			
Hydri-Gro Mg	2pt/a A			
21Engenia	12.8fl oz/a A	97.0	97.8	97.8
Roundup PowerMax II	32fl oz/a A			

Hydri-Gro Ca	2pt/a	A		
(TRB19 SOYBEAN 17) ARM 2019.8 Standardized Summary				

U of A Cooperative Extension Service

Nutritional/pH modifier effect on dicamba and dicamba plus glyphosate efficacy

Trial ID: TRB19 SOYBEAN 17 Location: Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 17 Investigator: Tom Barber
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed
Pest Code	AMAPA	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>	Amaranthus pal>
Pest Name	Palmer amaranth	Palmer amaranth	Palmer amaranth
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Rating Date	Aug-21-2019	Aug-28-2019	Sep-4-2019
Rating Type	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%
Days After First/Last Applic.	76 76	83 83	90 90
Trt Treatment	Rate	Rate	Rate
No. Name	Unit Code	Unit Code	Unit Code
22XtendiMax	22fl oz/a A	97.5	98.3
Roundup PowerMax II	32fl oz/a A		98.5
None			
23XtendiMax	22fl oz/a A	93.5	95.8
Roundup PowerMax II	32fl oz/a A		97.5
Coron Full Bor	20fl oz/a A		
24XtendiMax	22fl oz/a A	93.8	96.8
Roundup PowerMax II	32fl oz/a A		97.0
Ele-Max K-Leaf 0-0-30	5qt/a A		
25XtendiMax	22fl oz/a A	96.0	98.5
Roundup PowerMax II	32fl oz/a A		98.0
Brandt Smart Fe	1qt/a A		
26XtendiMax	22fl oz/a A	95.8	95.8
Roundup PowerMax II	32fl oz/a A		97.8
Hydri-Gro Mn	2pt/a A		
27XtendiMax	22fl oz/a A	98.5	98.3
Roundup PowerMax II	32fl oz/a A		99.3
Hydri-Gro Mg	2pt/a A		
28XtendiMax	22fl oz/a A	97.0	97.8
Roundup PowerMax II	32fl oz/a A		98.5
Hydri-Gro Ca	2pt/a A		
29Nontreated Control		56.3	43.8
LSD P=.05		18.07	26.04
			35.95
Analyzed as	RCB	RCB	RCB
Replicate F	1.642	1.502	3.472
Replicate Prob(F)	0.1858	0.2200	0.0196
Treatment F	1.737	1.763	1.960
Treatment Prob(F)	0.0282	0.0251	0.0099

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

Rating Type

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

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

* Adjusted means

(TRB19 SOYBEAN 19)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of POST and residual performance of Engenia PRO and BAS 872 in Xtend soybean

Trial ID:TRB19 SOYBEAN 19 Location:Newport, AR Trial Year:2019
 Protocol ID:Engenia Pro BAS 872 Investigator:Thomas R. Butts
 Project ID: Study Director:Dr. Thomas Butts
 Sponsor Contact:

General Trial Information

Study Director:Dr. Thomas Butts
Investigator:Thomas R. Butts

Trial Status:E established
ARM Trial Created On:Apr-19-2019

Conducted Under GLP:No
Conducted Under GEP:No

Contacts

Study Director:Dr. Thomas Butts

Investigator:Thomas R. Butts

Crop Description

Crop 1:C GLXMA Glycine max Soybean
Entry Date:Oct-10-2019
Variety:P48A60X
Planting Date:Jun-6-2019 **Planting Rate:**200000 S/A
Harvested Width:7.5 FT
Harvested Length:25 FT
% Standard Moisture:12.5

Pest Description

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

Pest 2 Type:W **Code:**CYPES Cyperus esculentus
Common Name:Yellow nutsedge **Entry Date:**Oct-10-2019

Site and Design

Treated Plot Width:7.5 FT
Treated Plot Length:25 FT
Treated Plot Area:187.5 FT2 **Treatments:**7
Replications:4 **Study Design:**RACOB L Randomized Complete Block (RCB)

Application Description

	A
Application Date	Jul-1-2019
Appl. Start Time	2:30 PM
Appl. Stop Time	3:50 PM
Application Method	SPRAY
Application Placement	BROADC
Applied By	A. McCormick
Appl. Entry Date	Oct-10-2019
Air Temperature Start, Stop	91 F
% Relative Humidity Start, Stop	60
Wind Velocity+Dir. Start	4 MPH SSE
Wet Leaves (Y/N)	N no
Soil Temperature	88 F
Soil Moisture	SLIWET
% Cloud Cover	70

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GLXMA BSOY
Stage Majority, Percent	V2

(TRB19 SOYBEAN 19)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Evaluation of POST and residual performance of Engenia PRO and BAS 872 in Xtend soybean

Trial ID:TRB19 SOYBEAN 19 Location:Newport, AR Trial Year:2019
 Protocol ID:Engenia Pro BAS 872 Investigator:Thomas R. Butts
 Project ID: Study Director:Dr. Thomas Butts
 Sponsor Contact:

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	AMAPA W
Stage Majority, Percent	4 lf
Height Average	5 IN
Height Minimum, Maximum	4 6
Density Average	3 FT2
Pest 2 Code, Type, Scale	CYPES W
Stage Majority, Percent	5 lf
Height Average	10 IN
Density Average	5 FT2

Application Equipment

	A
Appl. Equipment	Newport-A
Equipment Type	SPRAYE
Operation Pressure	35 PSI
Nozzle Type	AIXR
Nozzle Size	110015
Nozzle Spacing	20 IN
Nozzles/Row	6
Boom Length	5 FT
Boom Height	10 IN
Ground Speed	2 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	3 GAL
Propellant	COMAIR

Context	Date	By	Notes
STATUS	Apr-19-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Oct-10-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 19)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST and residual performance of Engenia PRO and BAS 872 in Xtend soybean

Trial ID: TRB19 SOYBEAN 19 Location: Newport, AR Trial Year: 2019
 Protocol ID: Engenia Pro BAS 872 Investigator: Thomas R. Butts
 Project ID: Study Director: Dr. Thomas Butts
 Sponsor Contact:

Pest Type		W Weed	W Weed		W Weed
Pest Code		AMAPA	CYPES		AMAPA
Pest Scientific Name		Amaranthus pal>	Cyperus escul>		Amaranthus pal>
Pest Name		Palmer amaranth	Yellow nutsedge		Palmer amaranth
Crop Scientific Name		Glycine max			Glycine max
Crop Name		Soybean	Soybean	Soybean	Soybean
Rating Date		Jul-7-2019	Jul-7-2019	Jul-7-2019	Jul-23-2019
Rating Type		CONTRO	CONTRO	PHYGEN	CONTRO
Rating Unit		%	%	%	%
Crop Stage Majority		R2	R2	R2	R3
Days After First/Last Applic.		6 6	6 6	6 6	22 22
Trt Treatment	Rate Appl				
No. Name	Rate Unit Code	1*	2*	3*	4*
1CHECK		0.0	0.0	0.0	0.0
2BAS 872UAH	16.0fl oz/a A	75.0	67.5	7.5	100.0
ROUNDUP POWERMAX	32.0fl oz/a A				
INDUCE	0.25% v/v A				
3ENGENIA PRO	16.0fl oz/a A	75.0	70.0	7.5	97.5
ROUNDUP POWERMAX	32.0fl oz/a A				
INDUCE	0.25% v/v A				
4XTENDIMAX WITH VAPORGRIP TECHN	22.0fl oz/a A	75.0	75.0	7.5	91.3
WARRANT	48.0fl oz/a A				
ROUNDUP POWERMAX	32.0fl oz/a A				
INDUCE	0.25% v/v A				
5XTENDIMAX WITH VAPORGRIP TECHN	22.0fl oz/a A	70.0	70.0	7.5	96.3
DUAL MAGNUM	16.0fl oz/a A				
ROUNDUP POWERMAX	32.0fl oz/a A				
INDUCE	0.25% v/v A				
6PREFIX	32.0fl oz/a A	50.0	60.0	8.8	57.5
ROUNDUP POWERMAX	32.0fl oz/a A				
ADJUVANT-COC	1.0% v/v A				
7ANTHEM MAXX	3.25fl oz/a A	55.0	65.0	7.5	65.0
ROUNDUP POWERMAX	32.0fl oz/a A				
ADJUVANT-COC	16.0fl oz/a A				
LSD P=.05		12.13	22.32	5.10	12.79
Replicate F		1.000	0.311	0.882	1.815
Replicate Prob(F)		0.4155	0.8171	0.4688	0.1805
Treatment F		44.429	12.058	2.950	70.478
Treatment Prob(F)		0.0001	0.0001	0.0348	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

(TRB19 SOYBEAN 19)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST and residual performance of Engenia PRO and BAS 872 in Xtend soybean

Trial ID:TRB19 SOYBEAN 19 Location:Newport, AR Trial Year:2019
 Protocol ID:Engenia Pro BAS 872 Investigator:Thomas R. Butts
 Project ID: Study Director:Dr. Thomas Butts
 Sponsor Contact:

Pest Type			W Weed		W Weed		W Weed
Pest Code			CYPES		AMAPA		AMAPA
Pest Scientific Name			Cyperus esculentus		Amaranthus palmeri		Amaranthus palmeri
Pest Name			Yellow nutsedge		Palmer amaranth		Palmer amaranth
Crop Scientific Name			Soybean	Soybean	Soybean	Soybean	Soybean
Crop Name			Jul-23-2019	Jul-23-2019	Jul-30-2019	Jul-30-2019	
Rating Date			CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Rating Type			%	%	%	%	%
Rating Unit			R3	R3	R3	R3	
Crop Stage Majority			22	22	29	29	
Days After First/Last Applic.							
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	5*	6*	7*	8*	9*
1CHECK			0.0	0.0	0.0	0.0	0.0
2BAS 872UAH	16.0fl oz/a A		85.0	0.0	91.3	0.0	79.5
ROUNDUP POWERMAX	32.0fl oz/a A						
INDUCE	0.25% v/v A						
3ENGENIA PRO	16.0fl oz/a A		87.5	1.3	93.8	0.0	99.5
ROUNDUP POWERMAX	32.0fl oz/a A						
INDUCE	0.25% v/v A						
4XTENDIMAX WITH VAPORGRIP TECHN	22.0fl oz/a A		90.0	1.3	88.8	0.0	99.5
WARRANT	48.0fl oz/a A						
ROUNDUP POWERMAX	32.0fl oz/a A						
INDUCE	0.25% v/v A						
5XTENDIMAX WITH VAPORGRIP TECHN	22.0fl oz/a A		82.5	0.0	91.3	0.0	98.8
DUAL MAGNUM	16.0fl oz/a A						
ROUNDUP POWERMAX	32.0fl oz/a A						
INDUCE	0.25% v/v A						
6PREFIX	32.0fl oz/a A		67.5	1.3	67.5	0.0	79.5
ROUNDUP POWERMAX	32.0fl oz/a A						
ADJUVANT-COC	1.0% v/v A						
7ANTHEM MAXX	3.25fl oz/a A		80.0	0.0	72.5	1.3	62.5
ROUNDUP POWERMAX	32.0fl oz/a A						
ADJUVANT-COC	16.0fl oz/a A						
LSD P=.05			26.80	2.39	14.63	1.40	21.36
Replicate F			0.274	1.269	1.301	1.000	0.034
Replicate Prob(F)			0.8431	0.3148	0.3048	0.4155	0.9914
Treatment F			12.483	0.692	46.031	1.000	24.452
Treatment Prob(F)			0.0001	0.6589	0.0001	0.4552	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

(TRB19 SOYBEAN 19)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST and residual performance of Engenia PRO and BAS 872 in Xtend soybean

Trial ID:TRB19 SOYBEAN 19			Location:Newport, AR		Trial Year:2019	
Protocol ID:Engenia Pro BAS 872			Investigator:Thomas R. Butts			
Project ID:			Study Director:Dr. Thomas Butts			
			Sponsor Contact:			
Pest Type						
Pest Code						
Pest Scientific Name						
Pest Name						
Crop Scientific Name						
Crop Name						
Rating Date			Oct-17-2019		Oct-17-2019	
Rating Type			WEIGHT		YIELD	
Rating Unit			lb/plot		BU	
Crop Stage Majority						
Days After First/Last Applic.			108 108		108 108	
Trt	Treatment	Rate	Appl			
No.	Name	Rate Unit	Code	10*	11*	
1	CHECK			6.25	23.9	
2	BAS 872UAH	16.0fl oz/a A		10.18	38.9	
	ROUNDUP POWERMAX	32.0fl oz/a A				
	INDUCE	0.25% v/v A				
3	ENGENIA PRO	16.0fl oz/a A		11.60	44.4	
	ROUNDUP POWERMAX	32.0fl oz/a A				
	INDUCE	0.25% v/v A				
4	XTENDIMAX WITH VAPORGRIP TECHN	22.0fl oz/a A		11.03	42.2	
	WARRANT	48.0fl oz/a A				
	ROUNDUP POWERMAX	32.0fl oz/a A				
	INDUCE	0.25% v/v A				
5	XTENDIMAX WITH VAPORGRIP TECHN	22.0fl oz/a A		11.10	42.4	
	DUAL MAGNUM	16.0fl oz/a A				
	ROUNDUP POWERMAX	32.0fl oz/a A				
	INDUCE	0.25% v/v A				
6	PREFIX	32.0fl oz/a A		7.35	28.1	
	ROUNDUP POWERMAX	32.0fl oz/a A				
	ADJUVANT-COC	1.0% v/v A				
7	ANTHEM MAXX	3.25fl oz/a A		8.35	31.9	
	ROUNDUP POWERMAX	32.0fl oz/a A				
	ADJUVANT-COC	16.0fl oz/a A				
LSD P=.05				2.889	11.05	
Replicate F				2.662	2.662	
Replicate Prob(F)				0.0791	0.0791	
Treatment F				4.617	4.617	
Treatment Prob(F)				0.0052	0.0052	

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

(TRB19 SOYBEAN 19)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Evaluation of POST and residual performance of Engenia PRO and BAS 872 in Xtend soybean

Trial ID:TRB19 SOYBEAN 19	Location:Newport, AR	Trial Year:2019
Protocol ID:Engenia Pro BAS 872	Investigator:Thomas R. Butts	
Project ID:	Study Director:Dr. Thomas Butts	
	Sponsor Contact:	

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, Palmer amaranth = US

CYPES, Cyperus esculentus, Yellow nutsedge = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

WEIGHT = weight

YIELD = yield

Rating Unit

% = percent

lb/plot = pounds per plot

BU = bushel

ARM Action Codes

TY1 = 3.823323*[10]

(TRB19 SOYBEAN 20)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 20 Location:Rohwer, AR Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 12 NEW Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

ARM Trial Created On:May-13-2019

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

C

Entry Date:Dec-11-2019

Planting Date:May-16-2019

Site and Design

Treated Plot Width:6 FT

Treated Plot Length:20 FT

Treated Plot Area:120 FT2 **Treatments:**13

Replications:4

Study Design:RACOB Randomized Complete Block (RCB)

Application Description

	A	B
Application Date	May-17-2019	
Appl. Start Time	11:00 AM	
Appl. Stop Time	1:00 PM	
Application Method	SPRAY	
Application Placement	BROADC	
Appl. Entry Date	Dec-11-2019	
Air Temperature Start, Stop	86 F	
% Relative Humidity Start, Stop	52	
Wind Velocity+Dir. Start	9 MPH SSE	
Wet Leaves (Y/N)	N no	

Context	Date	By	Notes
STATUS	May-13-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Dec-11-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 20)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 20 Location: Rohwer, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed	W Weed	W Weed	W Weed
Pest Code				AMAPA	ECHCG	AMAPA	ECHCG
Pest Scientific Name				Amaranthus pal>	Echinochloa cr>	Amaranthus pal>	Echinochloa cr>
Pest Name				Palmer amaranth	Common barnyar>	Palmer amaranth	Common barnyar>
Rating Date				May-30-2019	May-30-2019	Jun-7-2019	Jun-7-2019
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%
Days After First/Last Applic.				13 13	13 13	21 21	21 21
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code		1*	2*	3*	4*
1UNTREATED				0.0	0.0	0.0	0.0
2LIBERTY 280 SL	32fl oz/a	B		0.0	0.0	0.0	0.0
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
3Balance Flexx	6fl oz/a	A		93.0	86.3	76.3	67.5
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
4Balance Flexx	6fl oz/a	A		94.5	89.5	78.8	80.0
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
5Balance Flexx	6fl oz/a	A		83.3	84.3	60.0	62.5
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
6Balance Flexx	6fl oz/a	A		99.5	96.3	86.3	80.8
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
7Balance Flexx	6fl oz/a	A		97.0	95.8	88.0	83.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
8Balance Flexx	6fl oz/a	A		98.3	94.5	88.0	85.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
9Balance Flexx	6fl oz/a	A		99.0	98.8	87.3	87.5
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
10Balance Flexx	6fl oz/a	A		99.0	95.0	92.0	88.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
11Balance Flexx	6fl oz/a	A		99.5	95.5	94.5	86.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
12Balance Flexx	6fl oz/a	A		100.0	99.0	95.0	97.0
Boundary	1.5pt/a	A					
LIBERTY 280 SL	32oz/a	B					
Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).

(TRB19 SOYBEAN 20)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 20 Location: Rohwer, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed	W Weed	W Weed	W Weed
Pest Code				AMAPA	ECHCG	AMAPA	ECHCG
Pest Scientific Name				Amaranthus pal>	Echinochloa cr>	Amaranthus pal>	Echinochloa cr>
Pest Name				Palmer amaranth	Common barnyar>	Palmer amaranth	Common barnyar>
Rating Date				May-30-2019	May-30-2019	Jun-7-2019	Jun-7-2019
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%
Days After First/Last Applic.				13 13	13 13	21 21	21 21
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code		1*	2*	3*	4*
13Balance Flexx	6fl oz/a	A		100.0	98.0	89.3	90.8
Zidua	2oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
LSD P=.05				4.44	6.72	5.56	8.11
Replicate F				1.768	1.483	8.633	3.099
Replicate Prob(F)				0.1706	0.2355	0.0002	0.0388
Treatment F				557.457	230.101	293.867	131.566
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

(TRB19 SOYBEAN 20)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID: TRB19 SOYBEAN 20 Location: Rohwer, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 12 NEW Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed	W Weed	W Weed	W Weed
Pest Code				AMAPA	ECHCG	AMAPA	ECHCG
Pest Scientific Name				Amaranthus pal>	Echinochloa cr>	Amaranthus pal>	Echinochloa cr>
Pest Name				Palmer amaranth	Common barnyar>	Palmer amaranth	Common barnyar>
Rating Date				Jun-13-2019	Jun-13-2019	Jul-17-2019	Jul-17-2019
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%
Days After First/Last Applic.				27 27	27 27	61 61	61 61
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code		5*	6*	7*	8*
1UNTREATED				0.0	0.0	0.0	0.0
2LIBERTY 280 SL	32fl oz/a	B		91.3	87.5	45.0	20.0
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
3Balance Flexx	6fl oz/a	A		51.3	45.0	0.0	30.0
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
4Balance Flexx	6fl oz/a	A		58.8	61.3	82.5	20.0
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
5Balance Flexx	6fl oz/a	A		36.3	38.8	25.0	0.0
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
6Balance Flexx	6fl oz/a	A		72.5	60.0	58.8	20.0
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
7Balance Flexx	6fl oz/a	A		71.3	53.8	61.3	0.0
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
8Balance Flexx	6fl oz/a	A		73.8	57.5	83.8	12.5
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
9Balance Flexx	6fl oz/a	A		78.8	66.3	70.0	92.5
SENCOR DF	5.33oz/a	A					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
10Balance Flexx	6fl oz/a	A		78.8	71.3	91.3	93.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
11Balance Flexx	6fl oz/a	A		81.3	58.8	97.5	93.8
SENCOR DF	5.33oz/a	A					
LIBERTY 280 SL	32oz/a	B					
ROUNDUP WEATHERMAX	32oz/a	B					
OUTLOOK	12oz/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
12Balance Flexx	6fl oz/a	A		87.5	91.3	95.0	96.3
Boundary	1.5pt/a	A					
LIBERTY 280 SL	32oz/a	B					
Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					

Means followed by same letter or symbol do not significantly differ ($P=.05$, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means

(TRB19 SOYBEAN 20)

ARM 2019.8 Standardized Summary

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 20 Location:Rohwer, AR Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 12 NEW Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Pest Type				W Weed	W Weed	W Weed	W Weed
Pest Code				AMAPA	ECHCG	AMAPA	ECHCG
Pest Scientific Name				Amaranthus pal>	Echinochloa cr>	Amaranthus pal>	Echinochloa cr>
Pest Name				Palmer amaranth	Common barnyar>	Palmer amaranth	Common barnyar>
Rating Date				Jun-13-2019	Jun-13-2019	Jul-17-2019	Jul-17-2019
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%
Days After First/Last Applic.				27 27	27 27	61 61	61 61
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code		5*	6*	7*	8*
13Balance Flexx	6fl oz/a	A		82.5	82.5	95.0	98.8
Zidua	2oz/a	A					
LIBERTY 280 SL	32oz/a	B					
Dual II Magnum	1.3pt/a	B					
Ammonium Sulfate	6.8lb/100 gal	B					
LSD P=.05				9.53	15.79	28.41	33.17
Replicate F				1.689	0.395	2.846	0.629
Replicate Prob(F)				0.1865	0.7571	0.0511	0.6011
Treatment F				57.185	18.503	12.410	13.549
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

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

* Adjusted means

U of A Cooperative Extension Service

Herbicide program effect on efficacy and tolerance in LLGT27 soybean

Trial ID:TRB19 SOYBEAN 20 Location:Rohwer, AR Trial Year:2019
Protocol ID:TRB19 SOYBEAN 12 NEW Investigator:Thomas R. Butts
Project ID: Study Director:
Sponsor Contact:

Pest Type
W, Weed = Weed or volunteer crop
Pest Code
AMAPA, Amaranthus palmeri, Palmer amaranth = US
ECHCG, Echinochloa crus-galli, Common barnyard grass = US
Rating Type
CONTRO = control / burndown or knockdown
Rating Unit
% = percent

(TRB19 SOYBEAN 21)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Nozzle arrangement effect on coverage and weed control using Liberty in soybean

Trial ID:TRB19 SOYBEAN 21 Location:Rohwer, AR Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 21 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:S setup
ARM Trial Created On:Apr-29-2019

Conducted Under GLP:No
Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

C

Site and Design

Treated Plot Width:6 FT
Treated Plot Length:20 FT
Treated Plot Area:120 FT² **Treatments:**9
Replications:4 **Study Design:**RACOB L Randomized Complete Block (RCB)

Context	Date	By	Notes
STATUS	Apr-29-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.

SE Definitions

	1.
Crop Type, Code	C

Application Description

	A
Application Date	Jul-2-2019
Appl. Start Time	10:00 AM
Appl. Stop Time	10:40 AM
Application Method	SPRAY
Appl. Entry Date	Mar-26-2020
Air Temperature Start, Stop	98 F
% Relative Humidity Start, Stop	65
Wind Velocity+Dir. Start	4 MPH SW
Wet Leaves (Y/N)	N no
Soil Temperature	89 F

Context	Date	By	Notes
STATUS	Apr-29-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Mar-26-2020	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

SE Definitions

	1.
Crop Type, Code	C

(TRB19 SOYBEAN 21)

ARM 2019.8 Spray/Seeding Plan

U of A Cooperative Extension Service

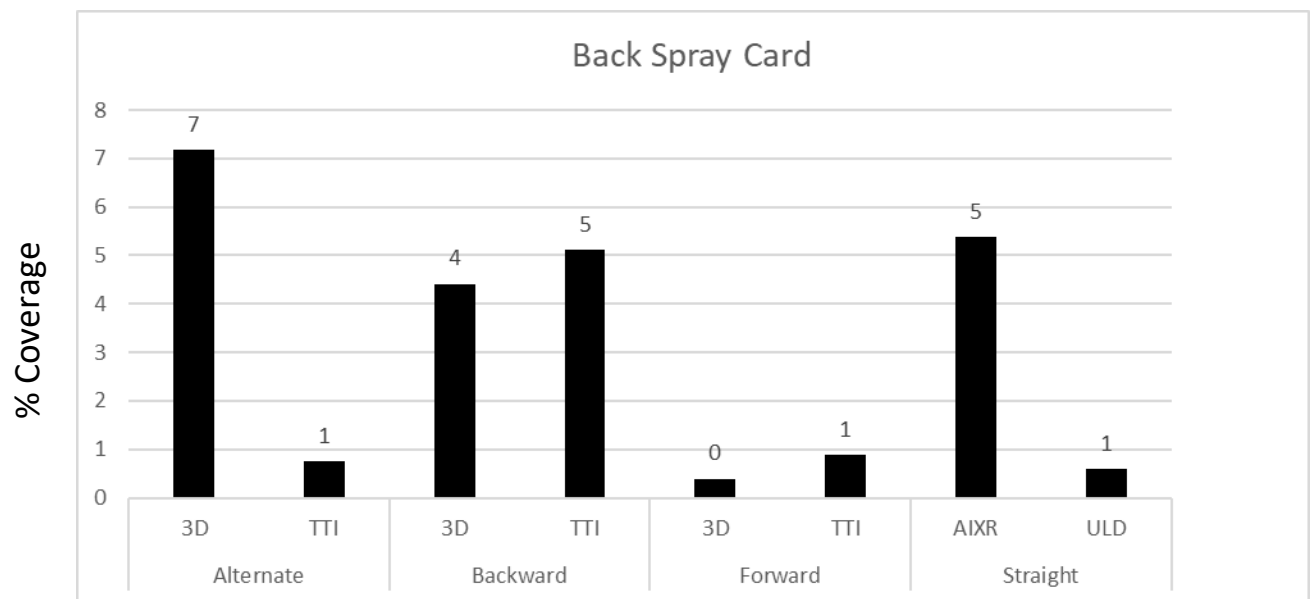
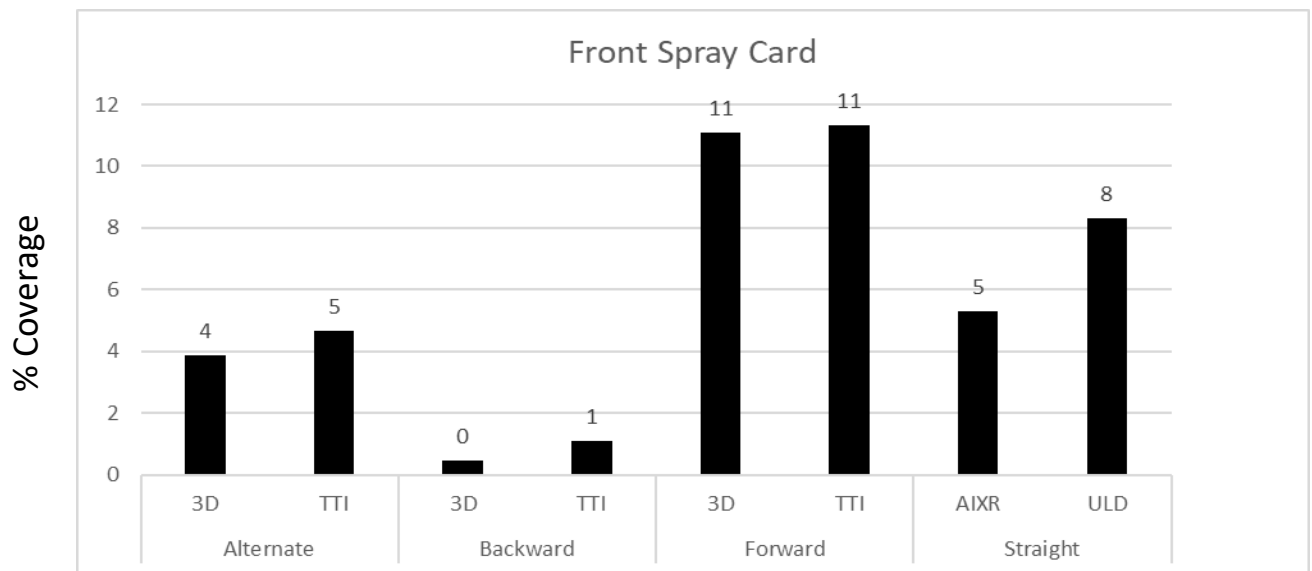
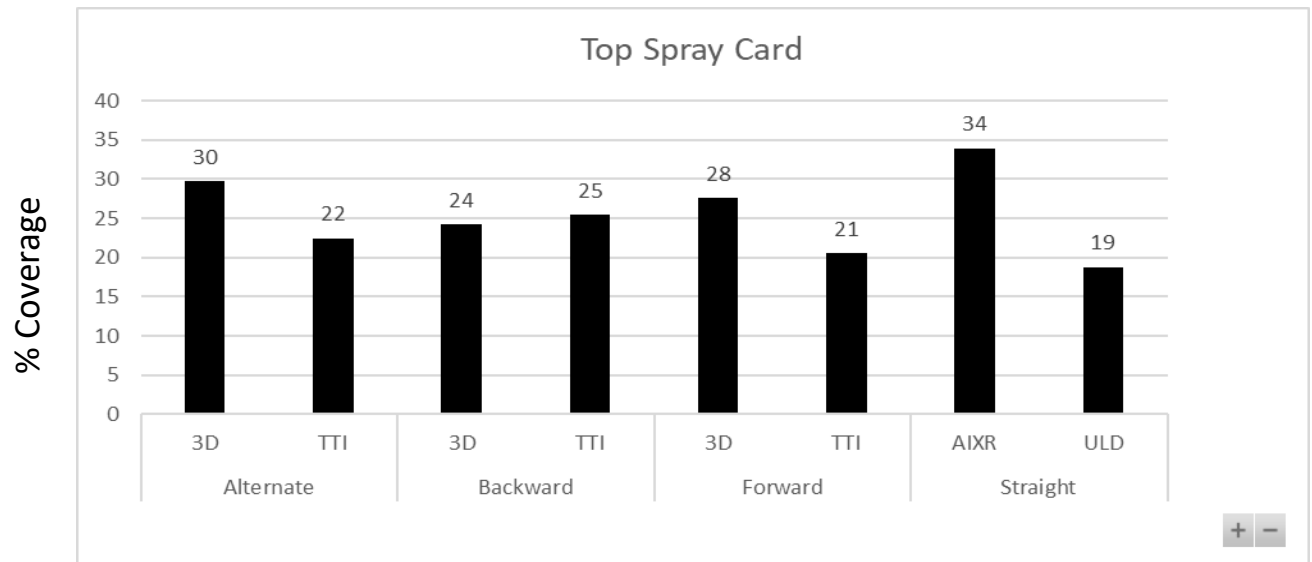
Nozzle arrangement effect on coverage and weed control using Liberty in soybean

Trial ID: TRB19 SOYBEAN 21 Location: Rohwer, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 21 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Reps: 4 Appl Code: A Plots: 6 by 20 feet
 Appl. Amount: 15 GAL/AC Mix Size: 3 L (total for 4 plots; minimum=0.6257 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Appl Unit	Appl Timing	Appl Code	Appl Amount	Amount Unit	Amt Product to Measure	Rep 1	2	3	4
2	AI XR110-02 Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	102	205	303	401
3	UL D120-04 Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	103	204	308	402
4	3D100-04 (FORWARD) Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	104	206	302	409
5	3D100-04 (BACKWARD) Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	105	208	307	406
6	3D100-04 (ALTERNATING) Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	106	207	309	404
7	TTI110-02 (FORWARD) Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	107	201	304	408
8	TTI110-02 (BACKWARD) Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	108	209	305	407
9	TTI110-02 (ALTERNATING) Liberty	2.34	LB/GAL	SL	32 fl oz/a	6 inch		A	15	GAL/AC	50.0 mL/mx	109	202	301	405

Notes for Graphs: Forwards, Backwards, and Alternating denote the directional arrangement of emitted spray across the boom.



(TRB19 SOYBEAN 25)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Rohwer- Nozzle Type Effect on Enlist One and Liberty Coverage, Canopy Penetration, and Weed Control in E3 Soybean

Trial ID:TRB19 SOYBEAN 25 Location:Rohwer, AR Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 25 Investigator:Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Thomas R. Butts

Trial Status:E established

ARM Trial Created On:Apr-29-2019

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Thomas R. Butts

Crop Description

C

Site and Design

Treated Plot Width:6 FT

Treated Plot Length:20 FT

Treated Plot Area:120 FT2 Treatments:13

Replications:4

Study Design:RACOB Randomized Complete Block (RCB)

Application Description

	A
Application Date	Jul-2-2019
Appl. Start Time	2:30 PM
Appl. Stop Time	3:00 PM
Application Method	SPRAY
Appl. Entry Date	Mar-27-2020
Air Temperature Start, Stop	94 F
% Relative Humidity Start, Stop	60
Wind Velocity+Dir. Start	5 MPH S
Wet Leaves (Y/N)	N no
Soil Temperature	89

Context	Date	By	Notes
STATUS	Apr-29-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Mar-27-2020	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

SE Definitions

	1.	
Crop Type, Code	C	

U of A Cooperative Extension Service

Rohwer- Nozzle Type Effect on Enlist One and Liberty Coverage, Canopy Penetration, and Weed Control in E3 Soybean

Trial ID: TRB19 SOYBEAN 25 Location: Rohwer, AR Trial Year: 2019
 Protocol ID: TRB19 SOYBEAN 25 Investigator: Thomas R. Butts
 Project ID: Study Director:
 Sponsor Contact:

Reps: 4 Appl Code: A Plots: 6 by 20 feet
 Appl. Amount: 10 GAL/AC Mix Size: 3 L (total for 4 plots; minimum=0.4171 L)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	Appl Timing	Appl Code	Appl Amount	Unit	Amt Product to Measure	Rep 1	2	3	4
1	AIXR						POST	A	10GAL/AC			101	210	307	406
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
2	AIXR						POST	A	10GAL/AC			102	213	310	412
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
3	AIXR						POST	A	10GAL/AC			103	204	309	401
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
4	AITTJ60						POST	A	10GAL/AC			104	212	306	408
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
5	AITTJ60						POST	A	10GAL/AC			105	203	301	403
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
6	AITTJ60						POST	A	10GAL/AC			106	211	304	402
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
7	TTI						POST	A	10GAL/AC			107	205	313	405
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
8	TTI						POST	A	10GAL/AC			108	201	308	407
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
9	TTI						POST	A	10GAL/AC			109	202	305	410
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
10	TTI60						POST	A	10GAL/AC			110	207	302	411
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
11	TTI60						POST	A	10GAL/AC			111	209	311	409
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				
12	TTI60						POST	A	10GAL/AC			112	208	312	413
	Enlist One	3.8LB/GAL	SL		2pt/a		POST	A	10GAL/AC		75.0 mL/mx				
	Liberty	2.34LB/GAL	SL		29fl oz/a		POST	A	10GAL/AC		67.97 mL/mx				

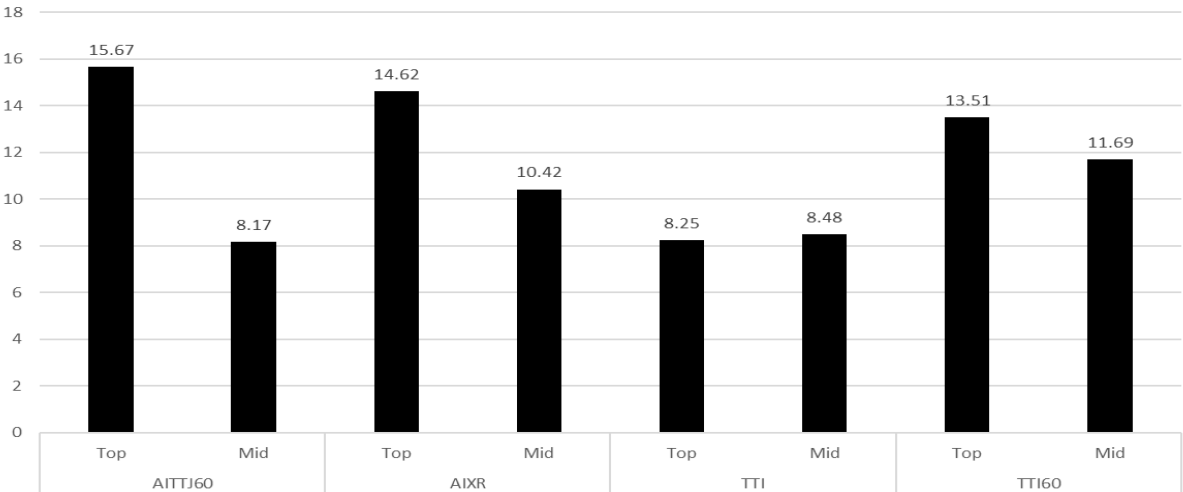
This study was located in Rohwer, AR.

Treatments include: 4 nozzles (AIXR, AITTJ60, TTI, and TTI60), of which the AIXR and TTI are single fan nozzles, and the AITTJ60 and TTI60 are dual-fan nozzles.

The “Top card,” “Front card,” and “Back card,” refers to the location of the water sensitive card. Finally, “TOP” and “MID” refers to the location within the soybean canopy.

% Coverage

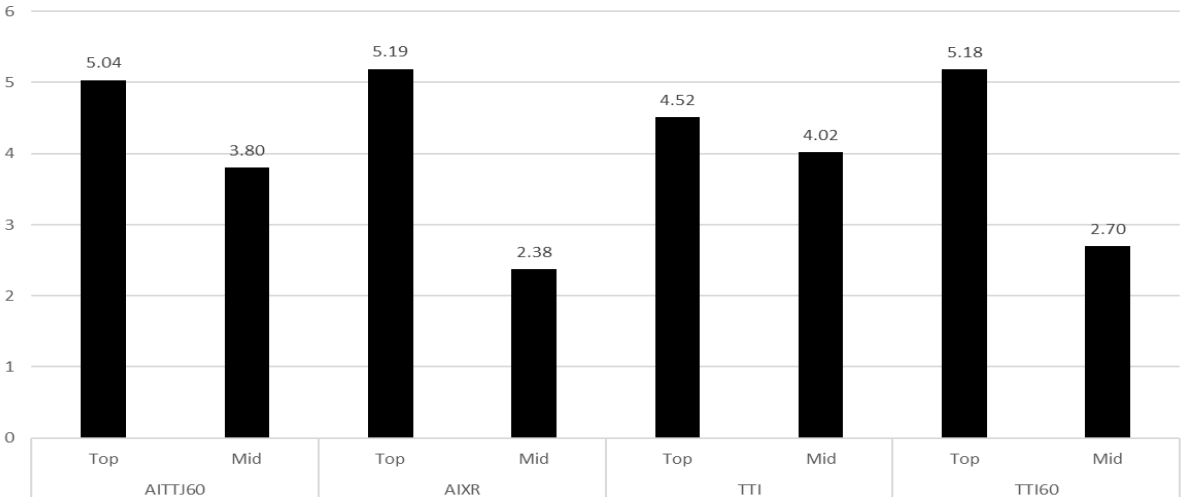
Enlist One- Top Card



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% Coverage

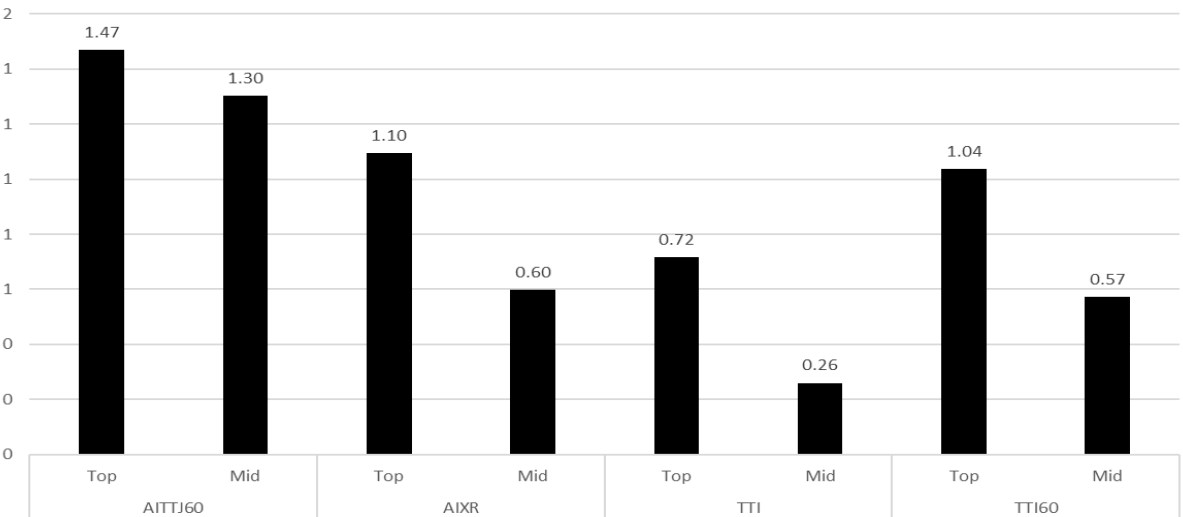
Enlist One- Front Card



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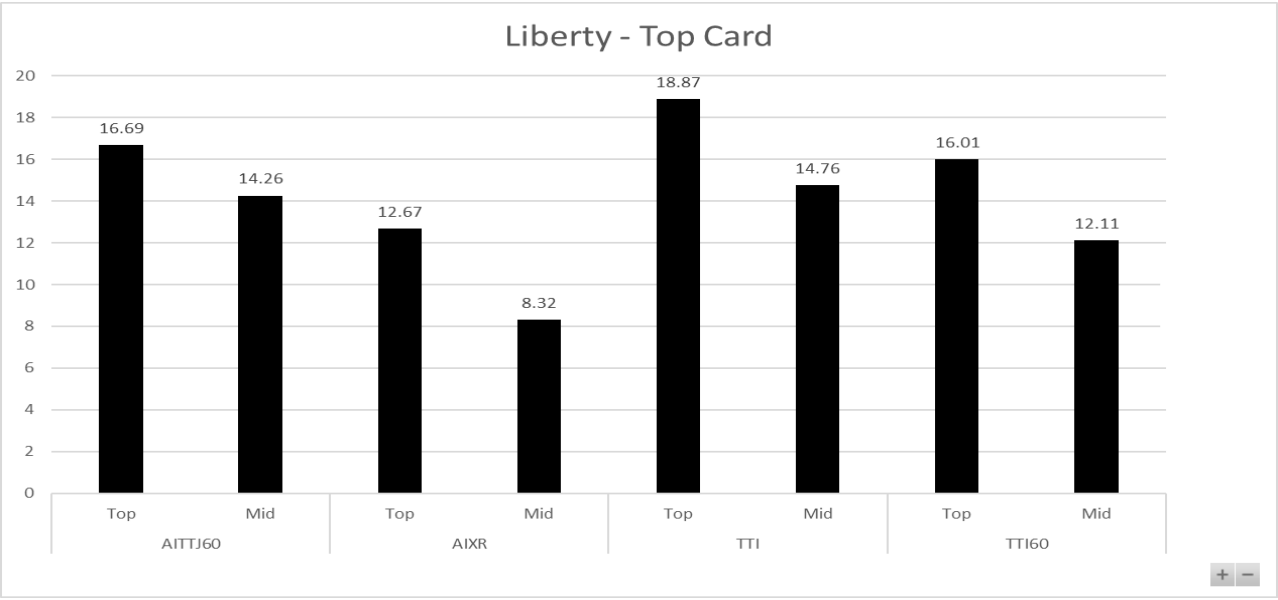
% Coverage

Enlist One- Back Card

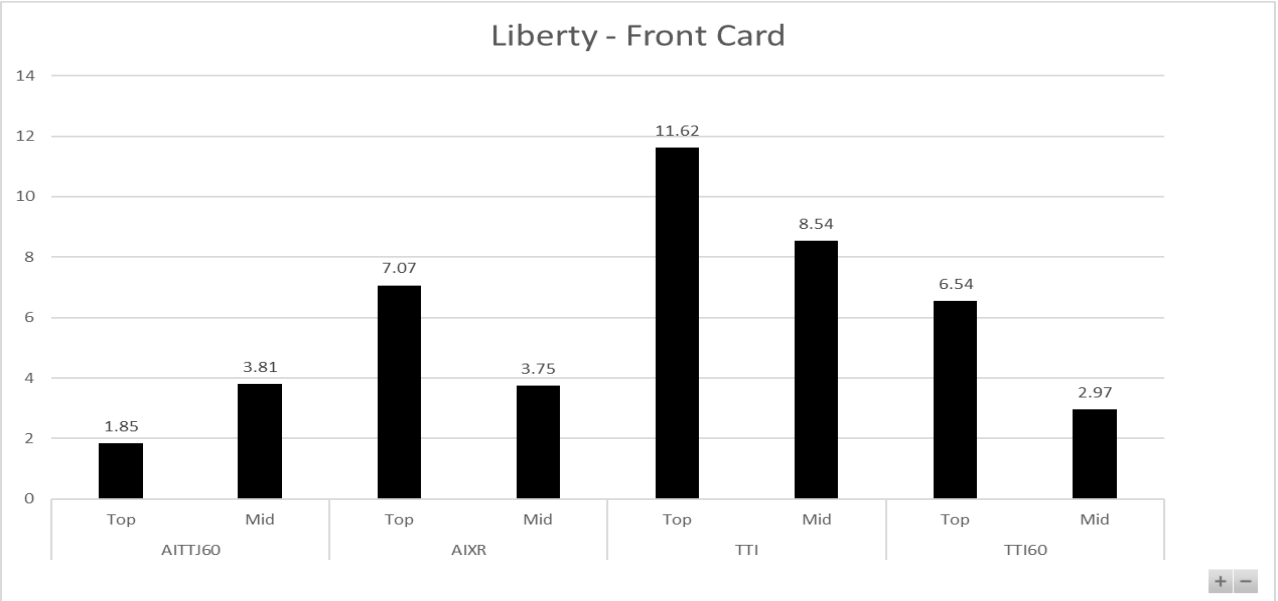


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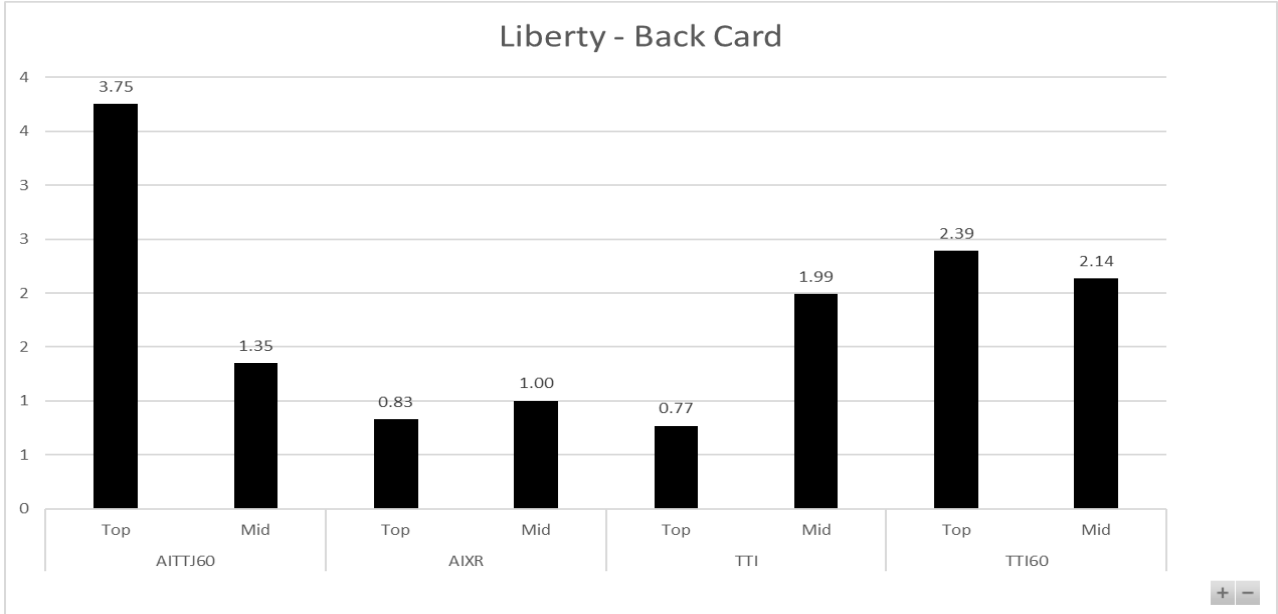
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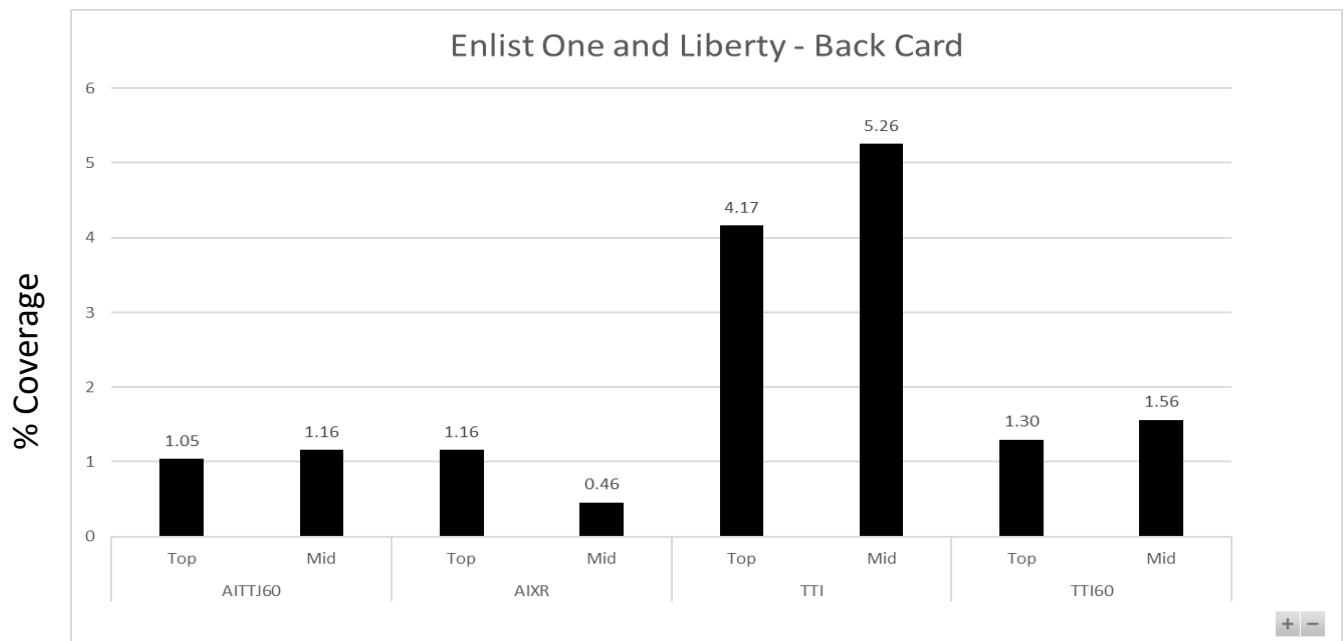
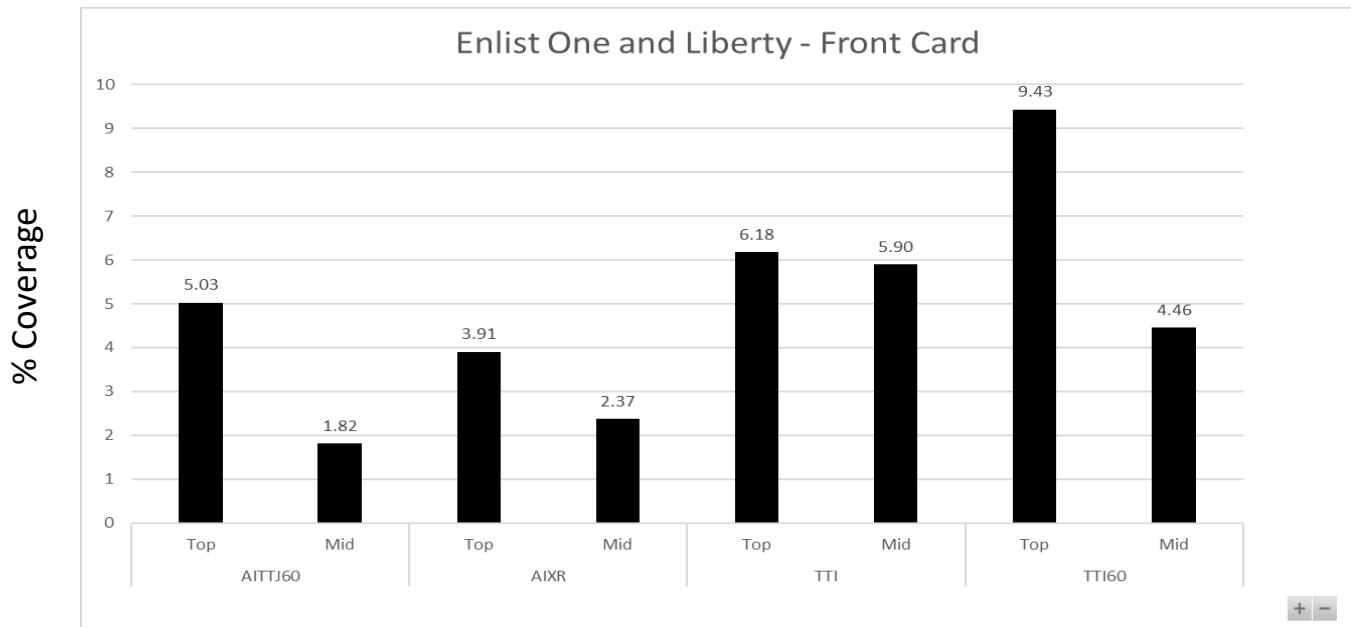
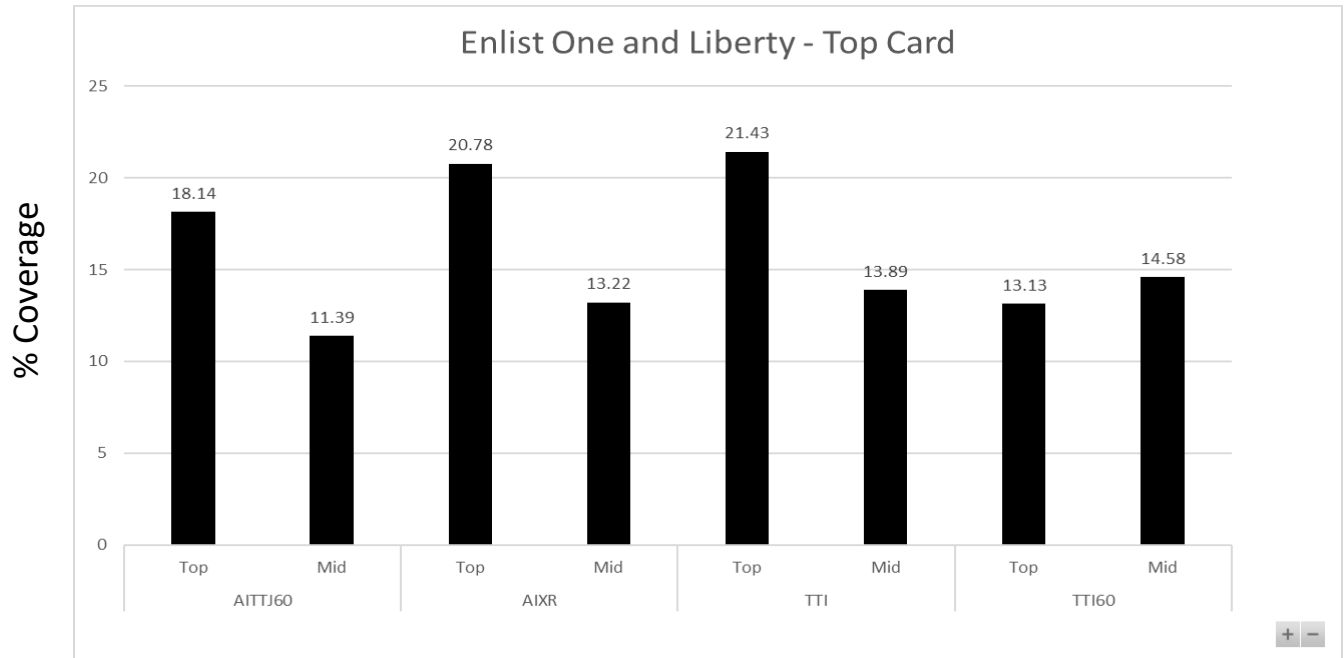


% Coverage



% Coverage





(TRB19 SOYBEAN 25 NEWPORT)

ARM 2019.8 Site Description

U of A Cooperative Extension Service

Nozzle Type Effect on Enlist One and Liberty Coverage, Canopy Penetration, and Weed Control in E3 Soybean

Trial ID:TRB19 SOYBEAN 18 Location:Newport Trial Year:2019
 Protocol ID:TRB19 SOYBEAN 18 Investigator:Tom Barber
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator:Tom Barber

Trial Status:E established

Conducted Under GLP:No

Conducted Under GEP:No

Investigator:Tom Barber

Crop Description

C

Variety:Delta Grow

Planting Date:Jun-4-2019 Planting Rate:200000 S/A

Site and Design

Treated Plot Width:7.5 FT

Treated Plot Length:25 FT

Treated Plot Area:187.5 FT2 Treatments:13

Replications:4

Study Design:FACTOR Factorial

Application Description

	A
Application Date	Jul-29-2019
Appl. Start Time	10:30 AM
Appl. Stop Time	11:00 AM
Application Method	SPRAY
Application Placement	BROADC
Air Temperature Start, Stop	87 F
% Relative Humidity Start, Stop	70
Wind Velocity+Dir. Start	5 MPH SSW
Soil Temperature	82 F

Application Equipment

	A
Appl. Equipment	Newport-A
Equipment Type	SPRAYE
Operation Pressure	35 PSI
Nozzle Type	AIXR
Nozzle Size	110015
Nozzle Spacing	20 IN
Nozzles/Row	6
Boom Length	5 FT
Boom Height	10 IN
Ground Speed	2 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	3 GAL
Propellant	COMAIR

Context	Date	By	Notes
STATUS	Apr-19-2019	Tom Barber	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Dec-11-2019	Thomas R. Butts	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

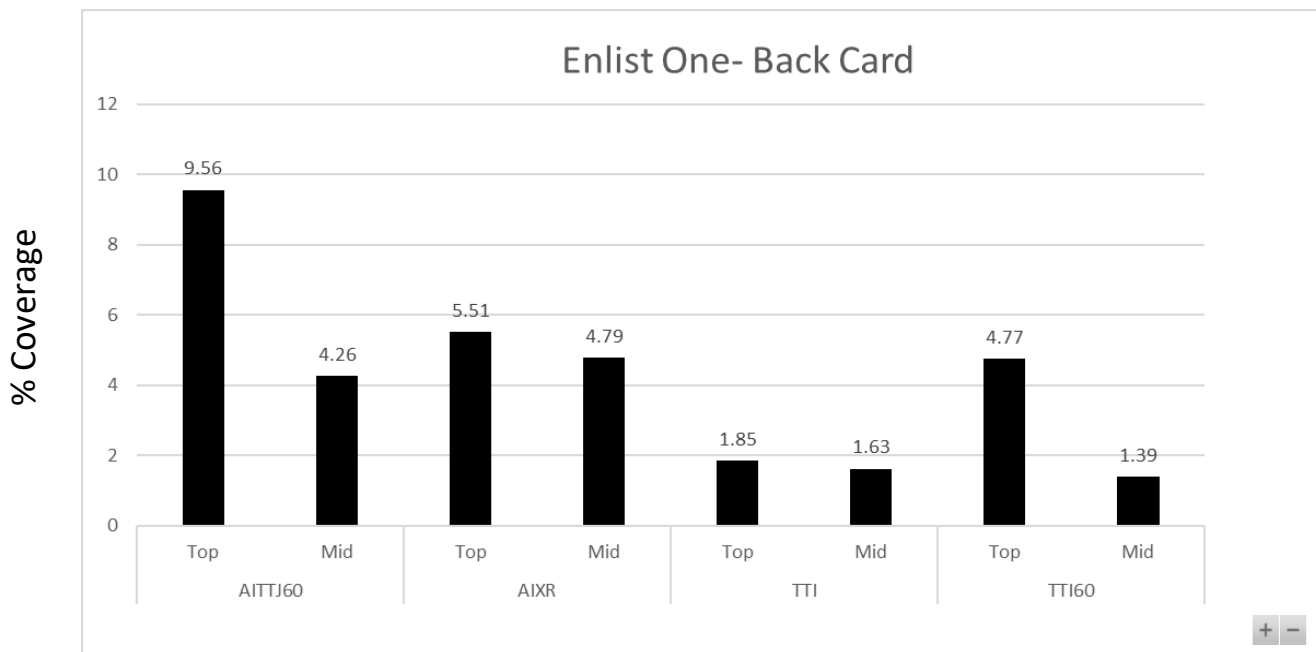
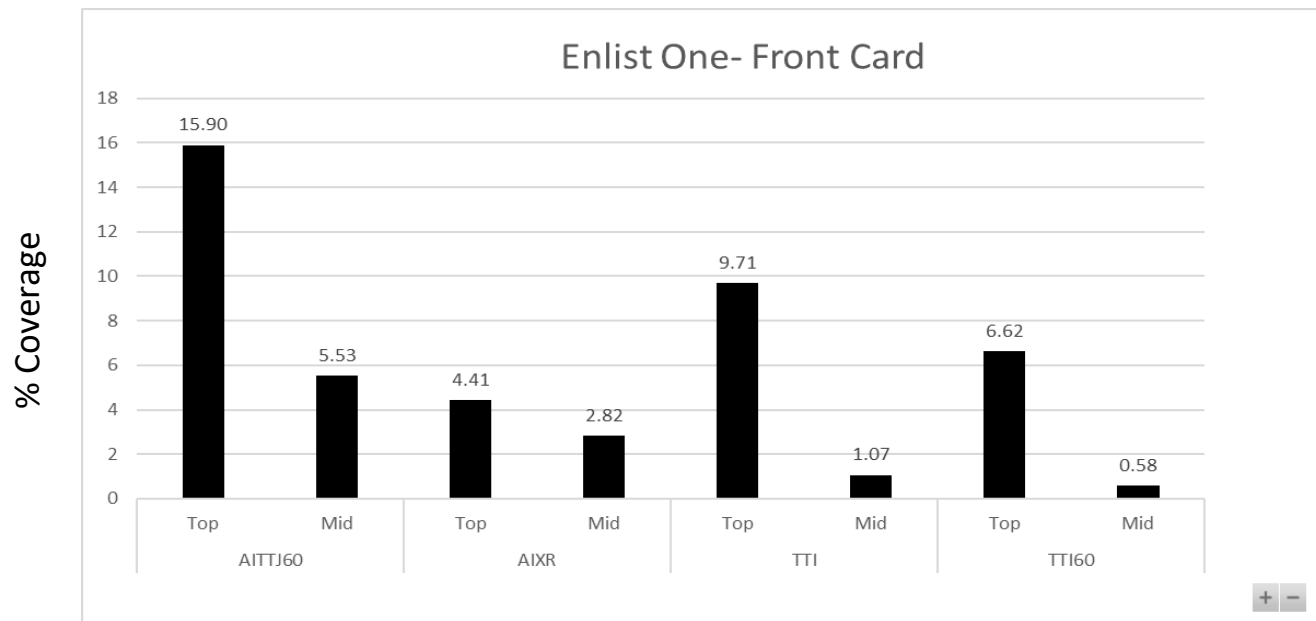
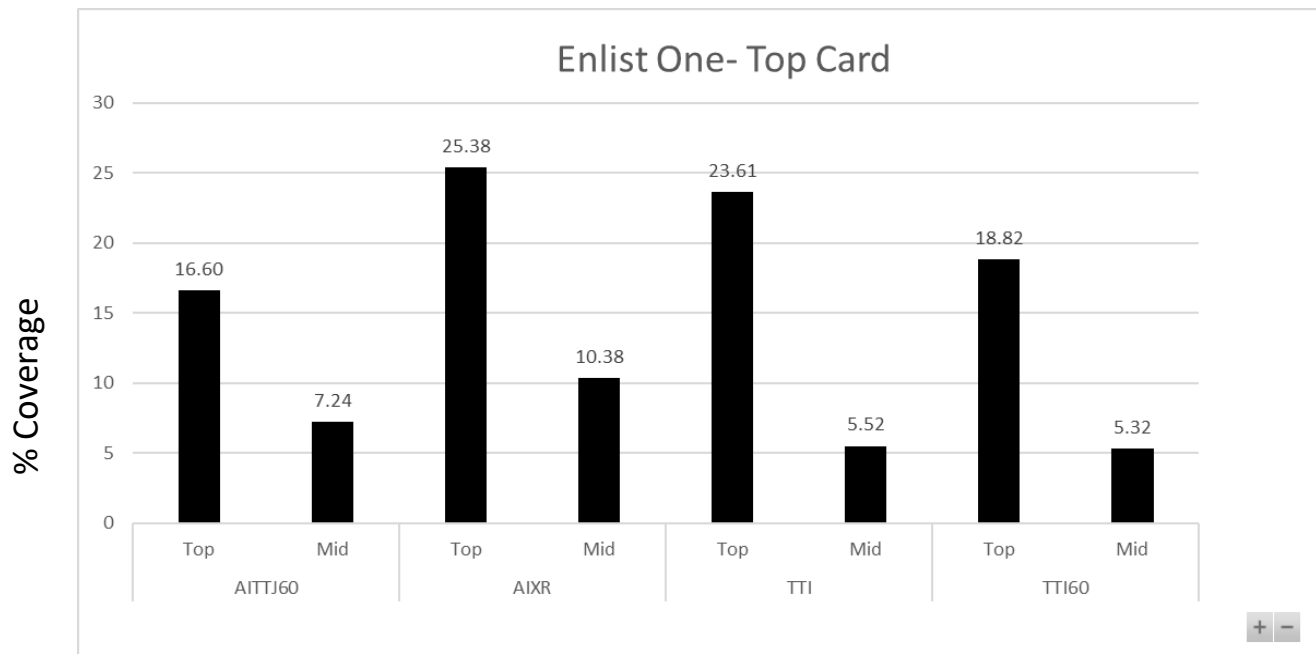
SE Definitions

	1.	
Crop Type, Code	C	

This study was located in Newport, AR.

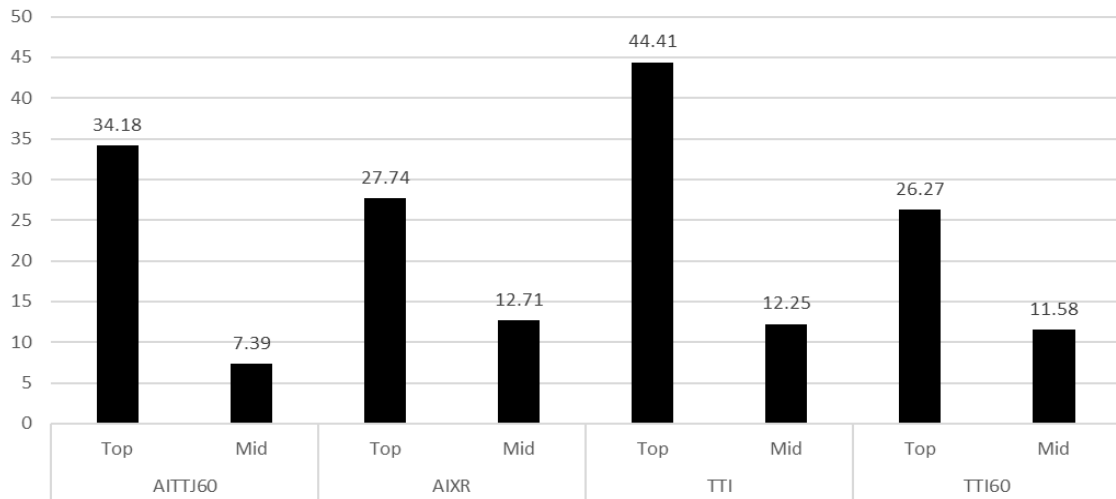
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The “Top card,” “Front card,” and “Back card,” refers to the location of the water sensitive card. Finally, “TOP” and “MID” refers to the location within the soybean canopy.



% Coverage

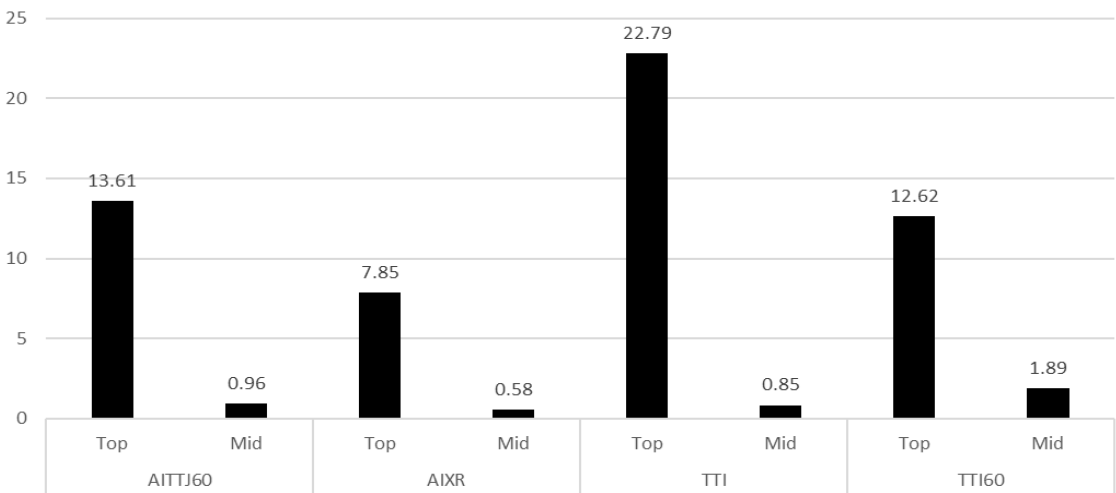
Liberty - Top Card



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% Coverage

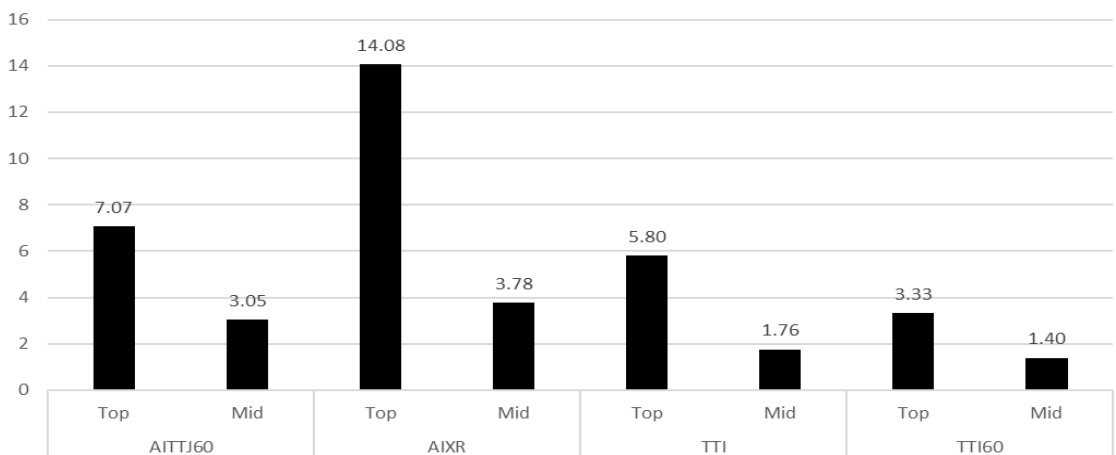
Liberty - Front Card



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% Coverage

Liberty - Back Card



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