Mar-02-04 (C32-03) Site Description Page 1 of 8

University of Georgia

Staple PRE and mixed with glyphosate POST.

Trial ID: C32-03 Study Dir.:

Location: Ponder farm Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper Title: ext.weed science Affiliation: University of Georgia Postal Code: 31794 Investigator: Stanley Culpepper Title: ext.weed science Affiliation: University of Georgia Postal Code: 31794

Trial Status: completed Initiation Date: May-05-03 Country: U.S.A.

City: TyTy State/Prov.: Ga

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND PEST DESCRIPTION

Weed 3.IPOLA pitted morningglory 4.IAQTA smallflower moved 5.RCHSC Florida pusley 4.IAQTA smallflower morningglory

Row Spacing: 36 inch Seed Bed: strip till

F

Soil Temperature: 81 F Soil Moisture: moist Emergence Date: May-11-03

Plot Width, Unit: 12 FT Plot Length, Unit: 25 FT Reps: 4

Site Type: research station

Tillage Type: strip tillage Study Design: RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

Texture: sand % OM: 1.3 % Sand: 94 % Silt: 2 % Clay: 4

pH: 5.4 Soil Name: Tifton sandy loa

APPLICATION DESCRIPTION

A B C

 Application Date:
 May-05-03
 May-17-03
 May-30-03
 Jun-05-03

 Time of Day:
 7:00pm
 11:00am
 7:30pm
 6:00pm

 Application Method: Broadcast Broadcast Broadcast Application Timing: PRE 1-leaf 4-leaf 6-leaf Applic. Placement: on soil overtop overtop Air Temp., Unit: 82 F 84 F 74 F 85 F % Relative Humidity: 55 63 60 55 Wind Velocity, Unit: 7 mph 2 mph 0 mph 2 mph У Dew Presence (Y/N): n n

Soil Temp., Unit: 84 F 85 F 77 F 87 F Soil Moisture: perfect moist
% Cloud Cover: 28 0 moist moist 100

CROP STAGE AT EACH APPLICATION

B C D

Crop 1 GOSHI Stage: PRE 1-leaf 4-leaf 6-leaf Stage Scale: cot-V1 V4 V7 0. . 2 in 4.5 " 9 " Height, Unit:

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University of Georgia

	WEED	STAGE AT EA	CH APPLIC	ATION		
	A	В	С	D	E	F
Weed 1 AMAPA Stage:						
Stage Scale:		2-4"	<2"	none		
Density, Unit:		4 ydsq				
Weed 2 DTTAE Stage:	PRE	1-leaf	4-leaf	6-leaf		
Stage Scale:	•	<0.5"	<2"	<3"		
Density, Unit:		12 ydsq				
Weed 3 IPOLA Stage:	PRE	1-leaf	4-leaf	6-leaf		
Stage Scale:	•	2-4"	<2"	<3"		
Density, Unit:		2 ydsq				
Weed 4 IAQTA Stage:	PRE	1-leaf	4-leaf	6-leaf		
Stage Scale:	•	1-3"	<2"	<3"		
Density, Unit:		5 ydsq				
Weed 5 RCHSC Stage:		PRE				
Stage Scale:		1"	<1"	<3"		
Density, Unit:		12 ydsq				

		AP	PLICA!	CION I	EQUIP	MENT				
	A		1	3	(C	I)	E	
Appl. Equipment:	backp	ack	backı	pack	backı	pack	backı	pack		
Operating Pressure:	22		22		22		22			
Nozzle Type:	flat	fan	flat	fan	flat	fan	flat	fan		
Nozzle Size:	11002		11002	2	1100	2	11002	2		
Nozzle Spacing, Unit	:18	in	18	in	18	in	18	in		
Nozzles/Row:	2		2		2		2			
Boom Length, Unit:	4.5	feet	4.5	feet	4.5	feet	4.5	feet		
Boom Height, Unit:	15	inch	15	inch	15	inch	15	inch		
Ground Speed, Unit:	3	mph	3	mph	3	mph	3	mph		
Carrier:	water		wate	_	wate:	r	wate	_		
Spray Volume, Unit:	14.8	GPA	14.8	GPA	14.8	GPA	14.8	GPA		
Propellant:	CO2		CO2		CO2		CO2			
Tank Mix (Y/N):	Y		Y		Y		Y			

University of Georgia Staple PRE and mixed with glyphosate POST.

Trial ID: C32-03

Study Dir.:
Investigator: Stanley Culpepper Location: Ponder farm

Loca	ation: Ponder farm		Inv	restigator	: Stanley	Culpepper				
	ed Code								RCHSC	RCHSC
Cro	p Code			GOSHI	GOSHI	GOSHI	GOSHI	GOSHI		
Rati	ng Data Type			injury	injury	injury	injury	injury	control	control
Rati	ng Unit			percent	percent	percent	percent	percent	percent	percent
	ng Date			May-16-03	May-19-03	Jun-08-03	Jun-15-03	Jun-25-03	May-25-03	Jun-08-03
Trt-E	Eval Interval			14 DA-A	14 DA-A	34 DA-A	41 DA-A	41 DA-A	•	
PRN	И Data Type									
	ubsamples, Dec.									
	Treatment		Rate							
No.	Name	Rate	Unit	1	2	3	4	5	6	7
	Staple	0.04	lb ai/a	0.0	11.8	0.0	0.0	0.0	99.0	99.0
	Staple	0.03	lb ai/a							
	Glyphosate	1.5	pt/a							
	NIS		% v/v							
2	Staple		lb ai/a	0.0	14.0	0.0	0.0	0.0	99.0	99.0
-	Cotoran		lb ai/a	0.0		0.0	0.0	0.0	33.3	33.3
	Staple		lb ai/a							
	Glyphosate		pt/a							
	NIS		% v/v							
3	Staple		lb ai/a	0.0	13.0	0.0	0.0	0.0	99.0	99.0
	Staple		lb ai/a	0.0	10.0	0.0	0.0	0.0	00.0	00.0
	Roundup UltraMax		pt/a							
4	Staple		lb ai/a	0.0	11.0	0.0	0.0	0.0	99.0	99.0
	Cotoran		lb ai/a	0.0	11.0	0.0	0.0	0.0	55.0	33.0
	Staple	_	lb ai/a							
	Roundup UltraMax		pt/a							
5	Staple		lb ai/a	0.0	11.8	0.0	0.0	0.0	99.0	98.0
	Staple		lb ai/a	0.0	11.0	0.0	0.0	0.0	55.0	30.0
	Roundup WeatherMax		pt/a							
6	Staple Staple		lb ai/a	0.0	10.3	0.0	0.0	0.0	99.0	99.3
0	Cotoran		lb ai/a	0.0	10.5	0.0	0.0	0.0	33.0	33.5
	Staple		lb ai/a							
	Roundup WeatherMax		pt/a							
7	Dual Magnum		pt/a	0.0	1.0	8.3	13.5	0.0	99.0	97.8
'	Touchdown		pt/a	0.0	1.0	0.5	13.3	0.0	99.0	31.0
	Envoke		lb ai/a							
	NIS		% v/v							
Q	Roundup WeatherMax		oz/a	0.0	1.0	0.0	0.0	0.0	99.0	81.0
0	Roundup WeatherMax		oz/a	0.0	1.0	0.0	0.0	0.0	99.0	01.0
0	Roundup WeatherMax		oz/a	0.0	10.0	8.3	1.0	0.0	99.0	99.0
9	Staple		lb ai/a	0.0	10.0	0.3	1.0	0.0	99.0	99.0
	Roundup WeatherMax		oz/a							
10	Staple Non-treated	0.03	lb ai/a	0.0	0.0	0.0	0.0	0.0	0.0	0.0
) (P=.05)			0.00	4.77	1.69	1.68	0.0	0.00	3.24
									0.00	2.23
CV	ndard Deviation			0.00	3.29	1.16	1.16	0.00		
_	lattle VO			0.0	39.27	70.56	79.97	0.0	0.0	2.56
	lett's X2			0.0	4.687	0.023	0.472	0.0	0.0	16.988
P(B)	artlett's X2)				0.79	0.88	0.492			0.001*

						Geor				
	d Code			RCHSC	RCHSC	RCHSC	IAQTA	IAQTA	IAQTA	IAQTA
	Code									
	ng Data Type			control						
	ng Unit			percent						
	ng Date			Jun-15-03	Jul-05-03	Sep-06-03	May-25-03	Jun-08-03	Jun-15-03	Jul-05-03
	val Interval									
	1 Data Type									
	bsamples, Dec.									
	Treatment		Rate	_	_					
	Name		Unit	8	9	10	11	12	13	14
1	Staple		lb ai/a	98.5	94.0	83.8	99.0	97.3	98.3	97.5
	Staple		lb ai/a							
	Glyphosate		pt/a							
	NIS		% v/v							
2	Staple		lb ai/a	97.0	98.5	91.5	99.0	99.0	99.0	98.0
	Cotoran	_	lb ai/a							
	Staple		lb ai/a							
	Glyphosate		pt/a							
	NIS		% v/v							
3	Staple		lb ai/a	97.5	95.0	83.5	99.0	99.0	98.5	96.8
	Staple		lb ai/a							
	Roundup UltraMax	1.5	pt/a							
4	Staple		lb ai/a	99.0	97.0	93.5	99.0	98.5	99.0	97.0
	Cotoran		lb ai/a							
	Staple		lb ai/a							
_	Roundup UltraMax		pt/a	00.0	04.0	05.0	00.0	00.0	07.0	00.0
5	Staple		lb ai/a	98.3	94.8	85.8	99.0	99.3	97.8	98.0
	Staple		lb ai/a							
6	Roundup WeatherMax		pt/a	99.0	97.5	07.0	99.0	00.3	00.0	07.0
0	Staple		lb ai/a lb ai/a	99.0	97.5	97.0	99.0	99.3	99.0	97.0
	Cotoran Staple		lb ai/a							
	Roundup WeatherMax		pt/a							
7	Dual Magnum		pt/a	97.0	95.0	90.3	99.0	86.0	89.5	84.5
′	Touchdown	1 5	pt/a pt/a	91.0	90.0	90.3	99.0	00.0	09.0	04.0
	Envoke		lb ai/a							
	NIS		% v/v							
Ω	Roundup WeatherMax	21.3		80.0	70.0	55.0	99.0	97.0	95.0	83.0
0	Roundup WeatherMax	21.3		50.0	70.0	55.0	33.0	91.0	95.0	03.0
0	Roundup WeatherMax	21.3		98.8	92.8	77.3	99.0	99.0	98.8	98.5
9	Staple Staple	_	lb ai/a	30.0	32.0	11.5	33.0	33.0	90.0	90.0
	Roundup WeatherMax	21.3								
	Staple		lb ai/a							
10	Non-treated	0.00	ui/u	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	(P=.05)			2.89	8.73	10.68	0.00	2.21	3.19	8.96
	dard Deviation			1.99	6.02	7.36	0.00	1.52	2.20	6.18
CV	Idai d Deviation			2.3	7.21	9.72	0.00	1.74	2.51	7.26
_	lett's X2			21.672	25.908	14.243	0.0	15.856	25.534	52.825
	artlett's X2)			0.001*	0.001*	0.076	3.0	0.007*	0.001*	0.001*
ັ້ງ	~ · · · · · · · · · · · · · · · · ·			3.001	0.001	0.070	•	5.557	3.001	0.001

				71114613						
	ed Code			IAQTA	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA	DTTAE
	Code									
	ng Data Type			control						
	ng Unit			percent						
Rati	ng Date			Sep-06-03	May-25-03	Jun-08-03	Jun-15-03	Jul-05-03	Sep-06-03	May-25-03
	Eval Interval									
PRN	1 Data Type									
#Su	ıbsamples, Dec.									
Trt	Treatment		Rate							
	Name	Rate	Unit	15	16	17	18	19	20	21
1	Staple	0.04	lb ai/a	94.5	99.0	99.0	99.0	96.5	86.8	99.0
	Staple	0.03	lb ai/a							
	Glyphosate	1.5	pt/a							
	NIS	0.25	% v/v							
2	Staple	0.04	lb ai/a	97.8	99.0	99.0	99.0	99.0	87.8	99.0
	Cotoran	1.25	lb ai/a							
	Staple	0.03	lb ai/a							
	Glyphosate	1.5	pt/a							
	NIS		% v/v							
3	Staple	0.04	lb ai/a	98.0	99.0	99.0	99.0	97.3	89.0	99.0
	Staple	0.03	lb ai/a							
	Roundup UltraMax		pt/a							
4	Staple		lb ai/a	98.0	99.0	99.0	99.0	97.0	95.8	99.0
	Cotoran		lb ai/a							
	Staple	0.03	lb ai/a							
	Roundup UltraMax		pt/a							
5	Staple		lb ai/a	98.5	99.0	99.0	99.0	98.0	87.0	99.0
	Staple		lb ai/a							
	Roundup WeatherMax		pt/a							
6	Staple		lb ai/a	98.3	99.0	99.0	99.0	98.0	97.0	99.0
_	Cotoran		lb ai/a							
	Staple		lb ai/a							
	Roundup WeatherMax		pt/a							
7	Dual Magnum		pt/a	75.8	99.0	99.0	99.0	99.0	97.5	99.0
	Touchdown		pt/a							
	Envoke		lb ai/a							
	NIS		% v/v							
8	Roundup WeatherMax	21.3		87.3	99.0	99.0	99.0	94.5	90.5	99.0
	Roundup WeatherMax	21.3		07.0	00.0	00.0	00.0	0 1.0	00.0	00.0
9	Roundup WeatherMax		oz/a	97.8	99.0	99.0	99.0	98.5	97.0	99.0
	Staple	_	lb ai/a	07.0	00.0	00.0	00.0	00.0	01.0	00.0
	Roundup WeatherMax		oz/a							
	Staple		lb ai/a							
10	Non-treated	0.00	ib dira	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	(P=.05)			10.27	0.00	0.00	0.00	2.77	7.24	0.00
	idard Deviation			7.07	0.00	0.00	0.00	1.91	4.99	0.00
CV	idaid Deviation			8.37	0.00	0.00	0.00	2.17	6.02	0.00
	lett's X2			59.707	0.0	0.0	0.0	9.056	26.847	0.0
	artlett's X2)			0.001*	0.0	0.0	0.0	0.17	0.001*	0.0
I (D	artictes AZ)			0.001	•	•	•	0.17	0.001	

			_	11114614			gia			
	ed Code			DTTAE	DTTAE	DTTAE	DTTAE	IPOLA	IPOLA	
	o Code									GOSHI
Rati	ng Data Type			control	control	control	control	control	control	yield
	ng Unit			percent	percent	percent	percent	percent	percent	lb/plot
Rati	ng Date			Jun-08-03	Jun-15-03	Jul-05-03	Sep-06-03	Jul-05-03	Sep-06-03	Sep-24-03
Trt-E	Eval Interval					61 DA-A				
PRN	/I Data Type									
# St	ıbsamples, Dec.									
Trt	Treatment		Rate							
	Name	Rate	Unit	22	23	24	25	26	27	28
1	Staple	0.04	lb ai/a	96.8	88.5	79.8	60.0	94.8	95.5	7.5
	Staple	0.03	lb ai/a							
	Glyphosate		pt/a							
	NIS	0.25	% v/v							
2	Staple	0.04	lb ai/a	99.0	97.3	95.5	82.3	95.8	97.0	8.7
	Cotoran	1.25	lb ai/a							
	Staple	0.03	lb ai/a							
	Glyphosate	1.5	pt/a							
	NIS	0.25	% v/v							
3	Staple	0.04	lb ai/a	98.0	91.3	84.3	65.3	92.5	97.5	8.8
	Staple	0.03	lb ai/a							
	Roundup UltraMax	1.5	pt/a							
4	Staple	0.04	İb ai/a	99.0	95.5	90.8	88.3	97.3	95.0	9.0
	Cotoran	1.25	lb ai/a							
	Staple	0.03	lb ai/a							
	Roundup UltraMax	1.5	pt/a							
5	Staple		İb ai/a	96.5	90.3	83.0	63.5	91.5	94.3	8.6
	Staple	0.03	lb ai/a							
	Roundup WeatherMax	1	pt/a							
6	Staple	0.04	lb ai/a	99.0	96.0	94.5	92.0	94.3	97.0	8.4
	Cotoran	1.25	lb ai/a							
	Staple	0.03	lb ai/a							
	Roundup WeatherMax	1	pt/a							
7	Dual Magnum	1	pt/a	96.8	96.5	90.0	87.0	97.8	97.5	8.7
	Touchdown		pt/a							
	Envoke	0.007	lb ai/a							
	NIS	0.25	% v/v							
8	Roundup WeatherMax	21.3	oz/a	99.0	96.0	77.0	77.5	77.5	71.3	7.5
	Roundup WeatherMax	21.3	oz/a							
9	Roundup WeatherMax	21.3	oz/a	99.0	98.8	85.0	77.3	92.8	97.0	8.6
	Staple		lb ai/a							
	Roundup WeatherMax	21.3	oz/a							
	Staple		lb ai/a							
10	Non-treated			0.0	0.0	0.0	0.0	0.0	0.0	0.9
	(P=.05)			2.72	4.38	5.43	9.08	6.39	4.18	1.32
	ndard Deviation			1.87	3.02	3.74	6.26	4.40	2.88	0.77
CV	-			2.12	3.55	4.8	9.03	5.28	3.42	10.04
Bart	lett's X2			1.772	14.403	16.836	5.706	6.566	24.885	12.285
	artlett's X2)			0.621	0.072	0.032*	0.68	0.584	0.002*	0.198
	,			l .	1	1			ı I	

				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	d Code			
	Code			GOSHI
Ratii	ng Data Type			yield
Ratii	ng Unit			lb/A
Ratii	ng Date			Sep-24-03
	Eval Interval			-
PRM	1 Data Type			TY1
	bsamples, Dec.			1
Trt	Treatment		Rate	
No.	Name	Rate	Unit	29
1	Staple	0.04	lb ai/a	1089.5
	Staple	0.03	lb ai/a	
	Glyphosate	1.5	pt/a	
	NIS	0.25	% v/v	
2	Staple	0.04	lb ai/a	1265.2
	Cotoran	1.25	lb ai/a	
	Staple	0.03	lb ai/a	
	Glyphosate	1.5	pt/a	
	NIS		% v/v	
3	Staple	0.04	lb ai/a	1272.0
	Staple		lb ai/a	
	Roundup UltraMax	1.5	pt/a	
4	Staple		lb ai/a	1300.0
	Cotoran	1.25	lb ai/a	
	Staple	0.03	lb ai/a	
	Roundup UltraMax	1.5	pt/a	
5	Staple		lb ai/a	1243.9
	Staple	0.03	lb ai/a	
	Roundup WeatherMax	1	pt/a	
6	Staple		lb ai/a	1220.6
	Cotoran	1.25	lb ai/a	
	Staple	0.03	lb ai/a	
	Roundup WeatherMax	1	pt/a	
7	Dual Magnum	1	pt/a	1264.2
	Touchdown	1.5	pt/a	
	Envoke		lb ai/a	
	NIS	0.25	% v/v	
8	Roundup WeatherMax	21.3		1082.2
	Roundup WeatherMax	21.3		
9	Roundup WeatherMax		oz/a	1254.5
	Staple	_	lb ai/a	1 - 0 - 110
	Roundup WeatherMax	21.3		
	Staple	0.03	lb ai/a	
10	Non-treated			137.5
	(P=.05)			191.72
	dard Deviation			111.76
CV	5 501100011			10.04
	lett's X2			12.284
	artlett's X2)			0.198
. (50				0.100

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
Column 29: TY1 = 145.2*[C28]

Trial Comments

OBJECTIVE: Evaluate early season control with Staple applied PRE and or early POST.

Cotton Injury:

- 1) Soil applied treatments did not affect cotton development.
- 2) At 2 DAT, Dual + Touchdown or Roundup WeatherMax onlycaused 1% visual injury when applied to 1 leaf cotton. Staple plus glyphosate was more injurious ranging from 10 to 14%. Formulation of glyphosate applied with Staple at this timing did not impact injury.
- 3) Injury quickly recovered from Staple plus glyphosate applied POT.
- 4) Envoke caused 8% chlorosis at 3 DAT and 14% chlorosis with minor stunting at 10 DAT. No injury was detectable by 20 DAT.

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University of Georgia

Weed Control:

Florida pusley:

- 1) All systems provided excellent control for at least 1 month after the last POT treatments were applied except for glyphosate applied alone.
- 2) Glyphosate applied alone was the least effective system throughout the season.
- 3) By late-season without a layby treatment, 90% or greater control was noted when Cotoran or Dual were used in the system. Greater control in Dual and Cotoran systems was because of residual activity. A trend for residual control from Staple was less than that of Dual or Cotoran.

Smallflower morningglory:

- 1) All programs provided excellent season long control except the system utilizing Envoke.
- 2) All 1-leaf applications provided excellent control but a small amount of smallflower emerged after the 1-leaf applications in all plots without Staple in the system.
- 3) Less than 90% late-season control was noted with glyphosate only (no residual) and Touchdown + Dual fb Envoke (no residual and poor POST control with Envoke).

Palmer amaranth:

- 1) Greater than 90% control was noted at least 1 month after the last POT application was made.
- 2) Little to no Palmer emerged doing late-season.
- 3) At harvest, control was at least 87% with all treatments even without a layby application.

Crowfootgrass:

- 1) Excellent control by 1-leaf applications was noted. Crowfootgrass continued to emerge. 4-leaf applications also provided excellent control.
- 2) Excellent mid- and late-season control was noted in only systems with Cotoran or Dual. Residual activity from these two herbicides was clearly beneficial.

Pitted morningglory:

1) Pitted morningglory control was excellent in all systems except when a glyphosate only system was utilized.

Cotton Yields:

1) As expected with excellent early season weed control, yields were statistically similar among most herbicide treatments.