

University of Georgia

Length of residual control by cotton herbicides applied PRE.

Trial ID: C10-14
Location: Macon County

Study Dir.: Stanley Culpepper
Investigator: Stanley Culpepper

Use 1 liters(s) per treatment mixture to spray 14.8 gal/ac
Plots: 6 by 30 feet

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	Amt Product to Measure	Plot No.	By Rep	1	2	3	4
1	Valor	51	WDG	2	oz/a	PRE	A	1.012 g/mx	101	215	316	407		
2	Reflex	2	L	12	oz/a	PRE	A	6.334 ml/mx	102	201	313	416		
3	Reflex	2	L	8	oz/a	PRE	A	4.223 ml/mx	103	207	308	413		
4	Warrant	3	L	48	oz/a	PRE	A	25.34 ml/mx	104	212	302	401		
5	Warrant	3	L	32	oz/a	PRE	A	16.89 ml/mx	105	211	307	411		
6	Dual Magnum	7.64	L	16	oz/a	PRE	A	8.445 ml/mx	106	205	303	412		
7	Staple	3.2	L	2	oz/a	PRE	A	1.056 ml/mx	107	210	315	404		
8	Staple	3.2	L	2.7	oz/a	PRE	A	1.425 ml/mx	108	214	309	403		
9	Direx	4	L	16	oz/a	PRE	A	8.445 ml/mx	109	203	311	405		
10	Direx	4	L	24	oz/a	PRE	A	12.67 ml/mx	110	204	306	414		
11	Direx Warrant	4 3	L L	16 48	oz/a oz/a	PRE PRE	A A	8.445 ml/mx 25.34 ml/mx	111	206	314	402		
12	Direx Reflex	4 2	L L	16 12	oz/a oz/a	PRE PRE	A A	8.445 ml/mx 6.334 ml/mx	112	208	312	406		
13	Direx Reflex	4 2	L L	16 8	oz/a oz/a	PRE PRE	A A	8.445 ml/mx 4.223 ml/mx	113	216	310	415		
14	Warrant Reflex	3 2	L L	48 12	oz/a oz/a	PRE PRE	A A	25.34 ml/mx 6.334 ml/mx	114	202	301	408		
15	Warrant Reflex	3 2	L L	48 8	oz/a oz/a	PRE PRE	A A	25.34 ml/mx 4.223 ml/mx	115	209	305	409		
16	Non-treated								116	213	304	410		

Sort Order: Treatment

Trial Comments

OBJECTIVE: Determine the most effective residual herbicide option for the control of Palmer amaranth in cotton.

VISUAL INJURY:

1. The only herbicide in the study that significantly injured cotton was Valor PRE as expected.

PALMER CONTROL:

1. At 14 DAT, control was complete with Valor 2 oz, Reflex 12 oz + Warrant 3 pt, Direx 16 oz + Reflex 48 oz, and Direx alone at 24 oz/A.
2. By 21 DAT, the most effective systems included Valor, Reflex + Warrant, Reflex + Direx, Direx + Warrant.
3. Tank mixtures were more effective than products applied alone except with Valor.

PALMER COUNTS:

1. The number of Palmer amaranth in the entire plot was counted at 21 and 32 DAT.
2. Valor eliminated Palmer emergence completely; combinations of Warrant + Direx, Warrant + Reflex or Reflex + Direx were the next most effective systems.

LARGE CRABGRASS CONTROL:

1. At 14 DAT, all treatments except Staple and Reflex at 8 oz/A provided at least 90% control.

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2. At 21 DAT, Reflex 12 oz/A, Warrant, Dual Magnum and any of the tank mixtures including Direx + Reflex, Direx + Warrant, or Reflex + Warrant provided at least 93% control.

GENERAL COMMENTS:

1. Cotton planted April 25 with PRE applied April 26.
2. Rainfall during the experiment:

Rainfall Dates	Rainfall Amount (inches)
April 18	3.06
April 22	0.12
April 29	2.1
May 3	0.3
May 14	1.5
May 21	0.3
May 27	0.5
May 30	0.5

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Weed Code								
Crop Code	GOSHI	GOSHI	AMAPA	AMAPA	DIGSA	DIGSA	AMAPA	
Rating Data Type	INJURY	INJURY	CONTROL	CONTROL	CONTROL	CONTROL	COUNTS	
Rating Unit	%	%	%	%	%	%	#/6 foot	
Rating Date	5/10/2014	5/17/2014	5/10/2014	5/17/2014	5/10/2014	5/17/2014	5/17/2014	
Assessed By	SC	SC	SC	SC	SC	SC		
Trt-Eval Interval	14 DA-A	21 DA-A	14 DA-A	21 DA-A	14 DA-A	21 DA-A	21 DA-A	
ARM Action Codes								

Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7	8	9	10				
1	Valor	2	oz/a	42.0	a	40.0	a	100.0	a	99.5	a	100.0	a	84.5	bc	0.0	h
2	Reflex	12	oz/a	3.5	bc	0.0	b	97.5	ab	78.8	bc	93.0	a	92.8	abc	32.5	ef
3	Reflex	8	oz/a	0.0	c	0.0	b	96.5	abc	76.3	bc	80.3	bc	71.8	e	56.8	c
4	Warrant	48	oz/a	0.0	c	0.0	b	86.5	cd	70.5	cd	94.3	a	95.5	a	45.5	cde
5	Warrant	32	oz/a	0.0	c	0.0	b	89.0	bc	58.8	e	96.3	a	97.3	a	108.3	b
6	Dual Magnum	16	oz/a	7.3	b	0.0	b	94.0	abc	71.0	bcd	95.8	a	93.5	abc	36.5	def
7	Staple	2	oz/a	0.0	c	0.0	b	78.0	d	29.5	f	67.3	d	60.0	f	117.3	b
8	Staple	2.7	oz/a	0.0	c	0.0	b	93.8	abc	63.5	de	76.5	cd	73.8	de	52.8	cd
9	Direx	16	oz/a	0.0	c	0.0	b	95.5	abc	80.0	b	90.3	ab	83.5	cd	22.0	fg
10	Direx	24	oz/a	1.0	c	0.0	b	100.0	a	76.3	bc	93.8	a	89.0	abc	21.3	fg
11	Direx	16	oz/a	0.8	c	0.0	b	100.0	a	93.3	a	99.3	a	94.5	ab	3.8	h
	Warrant	48	oz/a														
12	Direx	16	oz/a	4.5	bc	2.0	b	100.0	a	97.0	a	90.0	ab	95.0	ab	3.5	h
	Reflex	12	oz/a														
13	Direx	16	oz/a	2.8	bc	0.0	b	98.0	ab	90.3	a	92.3	a	93.0	abc	6.0	gh
	Reflex	8	oz/a														
14	Warrant	48	oz/a	2.8	bc	0.0	b	100.0	a	98.3	a	100.0	a	95.5	a	2.0	h
	Reflex	12	oz/a														
15	Warrant	48	oz/a	0.0	c	0.0	b	100.0	a	91.3	a	98.0	a	99.0	a	11.0	gh
	Reflex	8	oz/a														
16	Non-treated			0.0	c	0.0	b	0.0	e	0.0	g	0.0	e	0.0	g	1200.0	a
LSD (P=.05)				5.37		4.31	.	10.68		9.26	.	11.90		10.71	.	17.33	
Standard Deviation				3.76		3.02	.	7.48		6.48	.	8.33		7.50	.	12.13	
CV				93.24		114.99	.	8.37		8.83	.	9.75		9.1	.	11.29	
Bartlett's X2				16.113		2.852	.	12.898		24.631	.	32.148		30.337	.	46.285	
P(Bartlett's X2)				0.024*		0.091	.	0.115		0.038*	.	0.001*		0.007*	.	0.001*	
Replicate F				0.264		1.390		0.583		0.298		3.509		7.397		1.622	
Replicate Prob(F)				0.8510		0.2580		0.6296		0.8270		0.0227		0.0004		0.1976	
Treatment F				30.306		43.720		43.285		67.171		34.723		42.795		2343.055	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

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

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Weed Code	AMAPA	AMAPA	AMAPA
Crop Code			
Rating Data Type	COUNTS	COUNTS	COUNTS
Rating Unit	#/sq m	#/A	#/A
Rating Date	5/28/2014	5/17/2014	5/28/2014
Assessed By			
Trt-Eval Interval	32 DA-A	21 DA-A	32 DA-A
ARM Action Codes		T1	T2

Trt No.	Treatment Name	Rate	Unit	11	12	13	14		
1	Valor	2	oz/a	0.0	i	0.0	h	0.0	i
2	Reflex	12	oz/a	22.8	de	39650.0	ef	55055.0	de
3	Reflex	8	oz/a	22.5	de	69235.0	c	54450.0	de
4	Warrant	48	oz/a	18.5	efg	55510.0	cde	44770.0	efg
5	Warrant	32	oz/a	35.0	c	132065.0	b	84700.0	c
6	Dual Magnum	16	oz/a	19.8	ef	44530.0	def	47795.0	ef
7	Staple	2	oz/a	57.0	b	143045.0	b	137940.0	b
8	Staple	2.7	oz/a	32.5	cd	64355.0	cd	78650.0	cd
9	Direx	16	oz/a	15.3	efg	26840.0	fg	36905.0	efg
10	Direx	24	oz/a	21.0	ef	25925.0	fg	50820.0	ef
11	Direx	16	oz/a	4.3	hi	4575.0	h	10285.0	hi
12	Warrant	48	oz/a						
	Direx	16	oz/a	2.0	hi	4270.0	h	4840.0	hi
13	Reflex	12	oz/a						
	Direx	16	oz/a	11.0	fgh	7320.0	gh	26620.0	fgh
14	Reflex	8	oz/a						
	Warrant	48	oz/a	1.8	hi	2440.0	h	4235.0	hi
15	Reflex	12	oz/a						
	Warrant	48	oz/a	8.3	ghi	13420.0	gh	19965.0	ghi
16	Reflex	8	oz/a						
	Non-treated			1200.0	a	1464000.1	a	2904000.3	a
LSD (P=.05)				10.48	.	21144.48		25371.25	
Standard Deviation				7.34	.	14796.05		17753.77	
CV				7.98	.	11.29		7.98	
Bartlett's X2				32.784	.	46.285		32.784	
P(Bartlett's X2)				0.002*	.	0.001*		0.002*	
Replicate F				2.363		1.622		2.363	
Replicate Prob(F)				0.0837		0.1976		0.0837	
Treatment F				6504.754		2343.055		6504.754	
Treatment Prob(F)				0.0001		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

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

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Study Dir.: Stanley Culpepper

Location: Macon County

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 LOCATION

City: Ideal

Trial Status: COMPLETED

State/Prov.: GA

Trial Reliability: GOOD

Postal Code: 31041

Initiation Date: 4/25/2014

Country: USA

Conducted Under GLP (Y/N): N

Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed Code Common Name Scientific Name

1. AMAPA Palmer amaranth

Crop 1: GOSHI COTTON, SHORT STAPLE

Variety: ST 6448 GLB2

Planting Date: 4/25/2014

Planting Method: HILL DROP

Rate: 2 SEED/8.25"

Depth: 0.75 IN

Row Spacing: 36 IN

Spacing Within Row: 8.25 IN

Seed Bed: flat

Soil Temperature: 78 F

Soil Moisture: MOIST

Emergence Date: 4/30/2014

SITE AND DESIGN

Plot Width, Unit: 6 FT

Plot Length, Unit: 30 FT

Reps: 4

Site Type: Macon County

Tillage Type: CONVENTIONAL

Study Design: RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 82

% OM: 1.9

Texture: SANDY LOAM

% Silt: 14

pH: 6.3

% Clay: 4

Overall Moisture Conditions: see comments

Closest Weather Station: rainfall taken on site

Distance: 25

Unit: yd

APPLICATION DESCRIPTION

A

Application Date: 4/26/2014

Time of Day: 11:30am

Application Method: BROADCAST

Application Timing: PRE

Applic. Placement: ON SOIL

Air Temp., Unit: 80 F

% Relative Humidity: 52

Wind Velocity, Unit: 2 MPH

Dew Presence (Y/N): N

Soil Temp., Unit: 74 F

Soil Moisture: MOIST

% Cloud Cover: 0

CROP STAGE AT EACH APPLICATION

A

Crop 1 Code, Stage: GOSHI

Stage Scale: PRE

Height, Unit: 0 inch

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code, Stage: AMAPA

Stage Scale: PRE
Density, Unit: 0 inch

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APPLICATION EQUIPMENT

A

Appl. Equipment:	BACKPACK
Operating Pressure:	26
Nozzle Type:	AIXR
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 IN
Boom Length, Unit:	4.5 FT
Boom Height, Unit:	16 IN
Ground Speed, Unit:	3 MPH
Carrier:	WATER
Spray Volume, Unit:	15 GPA
Propellant:	CO2
Tank Mix (Y/N) :	Y