

University of Georgia

GR Palmer response to directed applicatons of Layby Pro, Diuron, MSMA, and ET.

Trial ID: C14-11
Location: Macon Co.

Study Dir.: Stanley Culpepper
Investigator: Stanley Culpepper

Use 1.5 liters(s) per treatment mixture to spray 14.8 gal/ac

Plots: 9 by 25 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	None								101	203	301	408
2	Layby Pro COC	4	L	2	pt/a	PD	A	25.34 ml/mx	102	207	309	402
			L	1	% v/v	PD	A	15.0 ml/mx				
3	Layby Pro COC ET	4	L	2	pt/a	PD	A	25.34 ml/mx	103	208	307	403
			L	1	% v/v	PD	A	15.0 ml/mx				
			L	1	oz/a	PD	A	0.7917 ml/mx				
4	Layby Pro COC MSMA	4	L	2	pt/a	PD	A	25.34 ml/mx	104	201	305	401
			L	1	% v/v	PD	A	15.0 ml/mx				
			L	2	lb ai/a	PD	A	33.78 ml/mx				
5	Layby Pro COC MSMA ET	4	L	2	pt/a	PD	A	25.34 ml/mx	105	206	308	405
			L	1	% v/v	PD	A	15.0 ml/mx				
			L	2	lb ai/a	PD	A	33.78 ml/mx				
			L	1	oz/a	PD	A	0.7917 ml/mx				
6	Direx COC	4	L	2	pt/a	PD	A	25.34 ml/mx	106	209	306	407
			L	1	% v/v	PD	A	15.0 ml/mx				
7	Direx COC ET	4	L	2	pt/a	PD	A	25.34 ml/mx	107	202	304	406
			L	1	% v/v	PD	A	15.0 ml/mx				
			L	1	oz/a	PD	A	0.7917 ml/mx				
8	Direx COC MSMA	4	L	2	pt/a	PD	A	25.34 ml/mx	108	204	302	409
			L	1	% v/v	PD	A	15.0 ml/mx				
			L	2	lb ai/a	PD	A	33.78 ml/mx				
9	Direx COC MSMA ET	4	L	2	pt/a	PD	A	25.34 ml/mx	109	205	303	404
			L	1	% v/v	PD	A	15.0 ml/mx				
			L	2	lb ai/a	PD	A	33.78 ml/mx				
			L	1	oz/a	PD	A	0.7917 ml/mx				

Sort Order: Treatment

Trial Comments

OBJECTIVE: Compare layby herbicide options for the control of glyphosate-resistant Palmer amaranth.

Visual Cotton Injury:

1. Cotton was only 12 inches when treatments were applied. Applications had to go out at this stage as Palmer was already 4 to 6 inches in height.
2. As expected with cotton being only 12 inches, injury from Layby Pro alone or mixed with MSMA reached 16%. Injury was 8 to 14% greater when ET was added.
3. Diuron alone or mixed with MSMA caused as much as 9 to 14% injury. The addition of ET increased injury 5 to 10%.
4. By 28 DAT, injury was 4% or less except with ET/Layby Pro mixtures (8 to 9%).

Palmer Control:

1. Although Palmer was up to six inches in height, Layby Pro and diuron provided complete control. The addition of ET could not improve control.

Texas Panicum Control:

1. Good to excellent control was noted with all mixtures for the first 28 DAT.
2. By 63 DAT, the addition of ET to diuron alone or diuron plus MSMA reduced control (9 to 10%).

GENERAL COMMENTS

1. On July 10, Ignite was applied over the study to control the early season flush of weeds.

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Weed Code																			
Crop Code																			
Rating Data Type																			
Rating Unit																			
Rating Date																			
Trt-Eval Interval																			
Trt	Treatment	Rate	Unit	1	2	3	4	5	6	7	8	9	10	11					
1	None			0.0	e	0.0	e	0.0	c	0.0	a	0.0	b	0.0	b	0.0	c	0.0	b
2	Layby Pro	2	pt/a	12.8	cd	12.3	bc	3.5	b	0.0	a	99.0	a	99.0	a	99.0	a	99.0	a
	COC	1	% v/v																
3	Layby Pro	2	pt/a	20.8	b	18.0	a	8.5	a	0.0	a	99.0	a	99.0	a	99.0	a	99.0	a
	COC	1	% v/v																
	ET	1	oz/a																
4	Layby Pro	2	pt/a	16.0	bc	13.0	bc	1.0	c	0.0	a	99.0	a	99.0	a	99.0	a	99.0	a
	COC	1	% v/v																
	MSMA	2	lb ai/a																
5	Layby Pro	2	pt/a	30.0	a	18.8	a	7.8	a	0.0	a	99.0	a	99.0	a	98.5	ab	99.0	a
	COC	1	% v/v																
	MSMA	2	lb ai/a																
	ET	1	oz/a																
6	Direx	2	pt/a	9.3	d	7.5	d	0.0	c	0.0	a	99.0	a	99.0	a	98.3	ab	99.0	a
	COC	1	% v/v																
7	Direx	2	pt/a	19.0	b	14.5	ab	0.0	c	0.0	a	99.0	a	99.0	a	98.8	ab	99.0	a
	COC	1	% v/v																
	ET	1	oz/a																
8	Direx	2	pt/a	13.8	cd	12.5	bc	0.0	c	0.0	a	99.0	a	99.0	a	99.0	a	99.0	a
	COC	1	% v/v																
	MSMA	2	lb ai/a																
9	Direx	2	pt/a	19.3	b	10.0	cd	1.0	c	0.0	a	99.0	a	99.0	a	96.3	b	99.0	a
	COC	1	% v/v																
	MSMA	2	lb ai/a																
	ET	1	oz/a																
LSD (P=.05)				5.15		4.36		2.02		0.00		0.00		0.00		2.75		0.00	
Standard Deviation				3.53		2.99		1.38		0.00		0.00		0.00		1.88		0.00	
CV				22.54		25.23		57.29		0.0		0.0		0.0		2.15		0.0	
Bartlett's X2				11.87		4.921		3.155		0.0		0.0		0.0		19.255		0.0	
P(Bartlett's X2)				0.105		0.67		0.532		.		.		.		0.001*		.	
Replicate F				0.413		0.619		0.478		0.000		0.000		0.000		1.323		0.000	
Replicate Prob(F)				0.7449		0.6095		0.7004		1.0000		1.0000		1.0000		0.2901		1.0000	
Treatment F				22.289		14.422		24.522		0.000		0.000		0.000		1215.255		0.000	
Treatment Prob(F)				0.0001		0.0001		0.0001		1.0000		1.0000		1.0000		0.0001		1.0000	

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	PANTE	PANTE	AMAPA
Crop Code	SC	SC	SC
Rating Data Type	control	control	control
Rating Unit	%	%	%
Rating Date	8/9/2011	8/23/2011	9/27/2011
Trt-Eval Interval	14 DA-A	28 DA-A	63 DA-A

Trt No.	Treatment Name	Rate	Unit	12	13	14
1	None			0.0	b 0.0	c 0.0 f
2	Layby Pro	2	pt/a	97.3	a 94.8	b 94.0 bc
	COC	1	% v/v			
3	Layby Pro	2	pt/a	97.3	a 94.8	b 91.8 cd
	COC	1	% v/v			
	ET	1	oz/a			
4	Layby Pro	2	pt/a	97.0	a 96.5	ab 96.3 ab
	COC	1	% v/v			
	MSMA	2	lb ai/a			
5	Layby Pro	2	pt/a	97.3	a 98.3	ab 98.8 a
	COC	1	% v/v			
	MSMA	2	lb ai/a			
	ET	1	oz/a			
6	Direx	2	pt/a	97.3	a 97.8	ab 98.8 a
	COC	1	% v/v			
7	Direx	2	pt/a	97.3	a 98.0	ab 88.8 de
	COC	1	% v/v			
	ET	1	oz/a			
8	Direx	2	pt/a	97.3	a 99.0	a 97.0 ab
	COC	1	% v/v			
	MSMA	2	lb ai/a			
9	Direx	2	pt/a	97.3	a 96.5	ab 88.0 e
	COC	1	% v/v			
	MSMA	2	lb ai/a			
	ET	1	oz/a			

LSD (P=.05)	0.65	3.61	3.24
Standard Deviation	0.44	2.47	2.22
CV	0.51	2.87	2.65
Bartlett's X2	0.0	6.901	17.814
P(Bartlett's X2)	1.00	0.33	0.013*

Replicate F	0.894	0.467	4.558
Replicate Prob(F)	0.4585	0.7078	0.0115
Treatment F	21349.379	685.898	812.076
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
Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper	Title: Ext. Weed Science
Affiliation: University of Georgia	
Postal Code: 31793	
Investigator: Stanley Culpepper	Title: Ext. Weed Science
Affiliation: University of Georgia	
Postal Code: 31793	

TRIAL LOCATION

City: Macon Co.	Trial Status: completed
State/Prov.: Georgia	Trial Reliability: good
	Initiation Date: 6/17/2011
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	Amaranthus palmeri
2. PANTE	Texas panicum	Panicum texanum

Crop 1: GOSHI COTTON, SHORT STAPLE	Variety: PHY 499 WRF
Planting Date: 6/17/2011	Planting Method: hill drop
Rate: 2 8 inch	Depth: 0.75 in
Row Spacing: 36 inch	Seed Bed: strip tillage
Soil Temperature: 94 F	Soil Moisture: moist
	Emergence Date: 6/21/2011

SITE AND DESIGN

Plot Width, Unit: 9 FT	Plot Length, Unit: 25 FT	Reps: 4
Site Type: On Farm		
Tillage Type: Conservation tillage	Study Design: RANDOMIZED COMPLETE BLOCK	

SOIL DESCRIPTION

% Sand: 82	% OM: 2.0	Texture: Loamy sand
% Silt: 14	pH: 6.3	
% Clay: 4		

Overall Moisture Conditions: dry

Closest Weather Station: rainfall taken on site

Distance: 25 **Unit:** yd

APPLICATION DESCRIPTION

Application Date:	7/26/2011
Time of Day:	8:00 am
Application Method:	band
Application Timing:	post dire
Applic. Placement:	directed
Air Temp., Unit:	77 F
% Relative Humidity:	82
Wind Velocity, Unit:	3 mph
Dew Presence (Y/N):	N
Soil Temp., Unit:	85 F
Soil Moisture:	fair
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

Crop 1 Code, Stage:	GOSHI PD
Stage Scale:	9 lf
Height, Unit:	12 in

WEED STAGE AT EACH APPLICATION

Weed 1 Code, Stage:	AMAPA PD
Stage Scale:	4-6 in
Density, Unit:	35 ydsq
Weed 2 Code, Stage:	PANTE PD
Stage Scale:	4.5 in
Density, Unit:	4 ydsq

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APPLICATION EQUIPMENT

A
Appl. Equipment: backpack
Operating Pressure: 26
Nozzle Type: flood jet
Nozzle Size: TK 2
Nozzle Spacing, Unit: 36 in
Nozzles/Row: 1
Boom Height, Unit: 12 in
Ground Speed, Unit: 3 mph
Carrier: water
Spray Volume, Unit: 15 GPA
Propellant: CO2
Tank Mix (Y/N): Y