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GR Palmer amaranth and Roundup Ready cotton response to burndown herbicides.

Prot (Mak1)

Trial ID: C18-08

Study Dir.: Culpepper, Davis

Location: Macon County

Investigator: Stanley Culpepper

Reps: 3

Plots: 6 by 25 feet

Spray vol: 14.8 gal/ac

Mix size: 1 liters (min .57876)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Rate	Rate Unit	Grow Stg	Appl Code	Amt Product to Measure	Plot No. By Rep		
										1	2	3
1	WeatherMax	4.5	L		22	OZ/A	BD	A	11.61 ml/mx	101	205	310
2	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	102	212	308
				COC	1	QT/A	BD	A	16.89 ml/mx			
3	Parazone	3	L		2.67	PT/A	BD	A	22.55 ml/mx	103	202	312
				COC	1	QT/A	BD	A	16.89 ml/mx			
4	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	104	207	303
				COC	1	QT/A	BD	A	16.89 ml/mx			
				Galigan	2	L	8	OZ/A	BD			
5	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	105	216	304
				COC	1	QT/A	BD	A	16.89 ml/mx			
				Galigan	2	L	16	OZ/A	BD			
6	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	106	214	307
				COC	1	QT/A	BD	A	16.89 ml/mx			
				2,4-D	2	L	2	PT/A	BD			
7	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	107	208	306
				COC	1	QT/A	BD	A	16.89 ml/mx			
				Clarity	4	L	8	OZ/A	BD			
8	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	108	215	313
				COC	1	QT/A	BD	A	16.89 ml/mx			
				Diuron	4	L	1.8	PT/A	BD			
9	Galigan	2	L		16	OZ/A	BD	A	8.446 ml/mx	109	204	301
				COC	1	QT/A	BD	A	16.89 ml/mx			
10	2,4-D	2	L		2	PT/A	BD	A	16.89 ml/mx	110	201	305
				COC	1	QT/A	BD	A	16.89 ml/mx			
11	Clarity	4	L		8	OZ/A	BD	A	4.223 ml/mx	111	210	302
				COC	1	QT/A	BD	A	16.89 ml/mx			
12	Diuron	4	L		1.8	PT/A	BD	A	15.2 ml/mx	112	213	315
				COC	1	QT/A	BD	A	16.89 ml/mx			
13	Parazone	3	L		1.33	PT/A	BD	A	11.23 ml/mx	113	211	314
				COC	1	QT/A	BD	A	16.89 ml/mx			
				2,4-D	2	L	1	PT/A	BD			
14	2,4-D	2	L		1	PT/A	BD	A	8.445 ml/mx	114	209	311
				COC	1	QT/A	BD	A	16.89 ml/mx			
15	2,4-D	2	L		1	PT/A	BD	A	8.445 ml/mx	115	203	309
16	Non-treated									116	206	316

Sort Order: Treatment

Product quantities required for listed treatments and applications in one trial:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
14.517	ml	WeatherMax	4.5	L	
126.465	ml	Parazone	3	L	
274.464	ml	COC		L	
26.394	ml	Galigan	2	L	
73.894	ml	2,4-D	2	L	
10.557	ml	Clarity	4	L	
38.003	ml	Diuron	4	L	

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Reps: 3 Plots: 6 by 25 feet
 Spray vol: 14.8 gal/ac Mix size: 1 liters (min .57876)

Trt No.	Tr> N>	Form Conc	Form Unit	Form Type	Rate	Plot No. By Rep
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Product quantities required for listed treatments and applications in one trial:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
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- * 'Per area' calculations based on spray volume= 14.8 gal/ac, mix size= 1 liters (mix size basis).
- * Product amount calculations increased 25 % for overage adjustment.

Trial Comments

OBJECTIVE: Determine the most effective burndown of 4 to 6 inch emerged Palmer amaranth and Roundup Ready cotton.

Palmer Response (glyphosate-resistant):

1. At 4 and 8 DAT, paraquat treatments provided an excellent burn. Goal provided only fair control and the phenoxy materials had minimal impact. Diuron alone provided poor control at 4 DAT but excellent control by 8 DAT.
2. At 20 and 35 DAT, Palmer amaranth had recovered from the initial paraquat burn. Mixing Galigan or 2,4-D with paraquat had little impact. Mixing Clarity or diuron with paraquat did improve control at least 18%. Control by Galigan or the phenoxy herbicides applied alone was poor while control by diuron alone still excellent.
3. The addition of COC with 2,4-D had no impact on control.
4. Clarity at 8 oz/A was more effective than 2 pt/A of 2,4-D.

Cotton Response:

1. Cotton was "tender" when treated.
2. All paraquat or 2,4-D mixtures provided complete control.
3. Galigan provided 83% control while diuron provided 50% control at 33 DAT.

CONCLUSIONS:

1. The most effective treatments were 1) diuron alone, 2) paraquat + diuron, and 3) paraquat + Clarity

GENERAL COMMENTS:

- 1 April 25, 2008 - Firestorm @ 1 qt/A and 1 qt/A Crop Oil applied over trial.
2. Rainfall that occurred while conducting the experiment is as follows:

Apr 28	1 in
May 9	0.4 in
May 11	2.7 in
May 20	0.2 in
May 24	0.3 in
Jun 11	0.9 in
Jun 17	0.6 in
Jun 22	1 in
Jul 5	0.5 in
Jul 21	1 in

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Weed Code		AMAPA	AMAPA	AMAPA	AMAPA	GOSHI	GOSHI	GOSHI	
Crop Code									
Rating Data Type		control	control	control	control	injury	injury	injury	
Rating Unit		%	%	%	%	%	%	%	
Rating Date		May-26-08	May-30-08	Jun-11-08	Jun-26-08	May-26-08	May-30-08	Jun-24-08	
Trt-Eval Interval		4 DA-A	8 DA-A	20 DA-A	35 DA-A	4 DA-A	8 DA-A	33 DA-A	
Trt No.	Treatment Name	Rate							
		Rate Unit	1	2	3	4	5	6	7
1	WeatherMax	22 OZ/A	0 f	0 d	0 i	0 h	0 f	0 d	0 d
2	Parazone COC	1.33 PT/A 1 QT/A	93 a	93 a	73 cde	58 de	96 a	99 a	100 a
3	Parazone COC	2.67 PT/A 1 QT/A	94 a	94 a	75 cde	62 cde	97 a	99 a	100 a
4	Parazone COC Galigan	1.33 PT/A 1 QT/A 8 OZ/A	95 a	95 a	81 bc	64 cde	98 a	99 a	100 a
5	Parazone COC Galigan	1.33 PT/A 1 QT/A 16 OZ/A	95 a	95 a	91 ab	74 b	96 a	99 a	100 a
6	Parazone COC 2,4-D	1.33 PT/A 1 QT/A 2 PT/A	93 a	94 a	78 cd	70 bc	96 a	99 a	100 a
7	Parazone COC Clarity	1.33 PT/A 1 QT/A 8 OZ/A	95 a	95 a	93 ab	88 a	98 a	99 a	100 a
8	Parazone COC Diuron	1.33 PT/A 1 QT/A 1.8 PT/A	95 a	94 a	96 a	94 a	96 a	99 a	100 a
9	Galigan COC	16 OZ/A 1 QT/A	83 b	73 b	48 h	27 g	85 b	60 c	83 b
10	2,4-D COC	2 PT/A 1 QT/A	43 de	50 c	67 def	57 e	77 c	76 b	100 a
11	Clarity COC	8 OZ/A 1 QT/A	43 de	42 c	57 fgh	67 bcd	73 cd	75 b	98 a
12	Diuron COC	1.8 PT/A 1 QT/A	63 c	94 a	96 a	93 a	28 e	67 bc	50 c
13	Parazone COC 2,4-D	1.33 PT/A 1 QT/A 1 PT/A	92 a	93 a	63 efg	42 f	97 a	99 a	100 a
14	2,4-D COC	1 PT/A 1 QT/A	47 d	48 c	53 gh	35 fg	68 d	77 b	100 a
15	2,4-D	1 PT/A	40 e	50 c	53 gh	40 f	67 d	75 b	100 a
16	Non-treated		0 f	0 d	0 i	0 h	0 f	0 d	0 d
LSD (P=.05)			5.5	8.6	10.9	8.5	7.4	12.0	13.0
Standard Deviation			3.3	5.2	6.5	5.1	4.4	7.2	7.8
CV			4.9	7.44	10.21	9.42	6.07	9.43	9.39
Bartlett's X2			16.749	22.357	18.823	9.81	15.103	8.574	7.387
P(Bartlett's X2)			0.053	0.008*	0.129	0.633	0.236	0.127	0.025*

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

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Location: Macon County	Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper	Title: Ext. Weed Science
Affiliation: Univ. of Georgia	
Postal Code: 31794	
Investigator: Stanley Culpepper	Title: Ext. Weed Science
Affiliation: Univ. of Georgia	
Postal Code: 31794	

TRIAL LOCATION

City: Macon Co.	Trial Status: completed
State/Prov.: Georgia	Trial Reliability: excellent
Postal Code: 31068	Initiation Date: Apr-23-08
Country: USA	Planned Completion Date: _____
E-Longitude of LL Corner °: _____	N-Latitude of LL Corner °: _____
Altitude of LL Corner: _____	Unit: _____
	Angle y-axis to North °: _____

Directions:

COOPERATOR/LANDOWNER

Cooperator: _____	Country: _____
Org: _____	Phone No: _____
Address 1: _____	Fax No: _____
Address 2: _____	
City: _____	
State/Prov: _____	
Postal Code: _____	

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

Guidelines: _____ **Guideline Description:** _____

Objective:

Conclusions:

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	AMAPA	Amaranth, Palmer	Amaranthus palmeri

Crop 1: GOSHI COTTON, SHORT STAPLE	Variety: DP 555 BR
Planting Date: Apr-23-08	Planting Method: hill dropped
Rate: 2 8 in	Depth: 0.5 in Perennial Age: _____
Row Spacing: 36 in	Spacing Within Row: 8.5 in Seed Bed: bedded
Soil Temperature: 82 F	Soil Moisture: moist Emergence Date: Apr-29-08

SITE AND DESIGN

Plot Width, Unit: 6 FT	Plot Length, Unit: 25 FT	Reps: 3
Site Type: On Farm		
Tillage Type: Conventional	Study Design: RANDOMIZED COMPLETE BLOCK	

Trial Initiation Comments:

	Previous Crops	Previous Pesticides	Year
1.			

MAINTENANCE

Field Prep./Maintenance:

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No.	Date	Maintenance Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit
1.							

SOIL DESCRIPTION

% Sand: 82	% OM: 2.0	Texture: loamy sand
% Silt: 14	pH: 6.4	Soil Name: _____
% Clay: 4	CEC: _____	Fert. Level: _____

ADDITIONAL MEASURED ELEMENTS

Element	Quantity	Unit

MOISTURE CONDITIONS

No.	Date	Time	Amount	Unit	Type	Interval	Unit
1.							

Overall Moisture Conditions: see comments

Closest Weather Station: _____ Distance: _____ Unit: ____

APPLICATION DESCRIPTION

	A
Application Date:	May-22-08
Time of Day:	10:00 am
Application Method:	broadcast
Application Timing:	BD
Applic. Placement:	overtop
Air Temp., Unit:	80 F
% Relative Humidity:	55
Wind Velocity, Unit:	0 mph
Dew Presence (Y/N):	N
Water Hardness:	
Soil Temp., Unit:	75 F
Soil Moisture:	moist
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GOSHI A
Stage Scale:	4 leaf
Height, Unit:	4 in

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	AMAPA A
Stage Scale:	5 in
Density, Unit:	12 ydsq

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APPLICATION EQUIPMENT

	A
Appl. Equipment:	backpack
Operating Pressure:	24
Nozzle Type:	flat fan
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Nozzles/Row:	2
Band Width, Unit:	
Boom Length, Unit:	4.5 ft
Boom Height, Unit:	15 in
Ground Speed, Unit:	3 mph
Incorporation Equip.:	
Hours to Incorp.:	
Incorp. Depth, Unit:	
Carrier:	water
Spray Volume, Unit:	15 GPA
Spray pH:	
Propellant:	CO2
Tank Mix (Y/N):	y

Trt No	Treatment Application Comment