

University of Georgia

Large GR Palmer amaranth response to burndown herbicides.

Prot (Mak1)

Trial ID: C20-08

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 to Measure	Product	Plot No. By Rep		
											1	2	3
1	WeatherMax	4.5	L		22	OZ/A	BD	A	11.61 ml/mx		101	219	317
2	Parazone COC	3	L		1.33	PT/A	BD	A	11.23 ml/mx		102	220	318
			L		1	QT/A	BD	A	16.89 ml/mx				
3	Parazone COC	3	L		2.67	PT/A	BD	A	22.55 ml/mx		103	213	303
			L		1	QT/A	BD	A	16.89 ml/mx				
4	Parazone COC Galigan	3	L		1.33	PT/A	BD	A	11.23 ml/mx		104	216	320
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		8	OZ/A	BD	A	4.223 ml/mx				
5	Parazone COC Galigan	3	L		1.33	PT/A	BD	A	11.23 ml/mx		105	211	302
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		16	OZ/A	BD	A	8.446 ml/mx				
6	Parazone COC 2,4-D	3	L		1.33	PT/A	BD	A	11.23 ml/mx		106	214	306
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		2	PT/A	BD	A	16.89 ml/mx				
7	Parazone COC Clarity	3	L		1.33	PT/A	BD	A	11.23 ml/mx		107	218	307
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		8	OZ/A	BD	A	4.223 ml/mx				
8	Parazone COC Diuron	3	L		1.33	PT/A	BD	A	11.23 ml/mx		108	212	308
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		1.8	PT/A	BD	A	15.2 ml/mx				
9	Galigan COC	2	L		16	OZ/A	BD	A	8.446 ml/mx		109	207	304
			L		1	QT/A	BD	A	16.89 ml/mx				
10	2,4-D COC	2	L		2	PT/A	BD	A	16.89 ml/mx		110	215	316
			L		1	QT/A	BD	A	16.89 ml/mx				
11	Clarity COC	4	L		8	OZ/A	BD	A	4.223 ml/mx		111	210	311
			L		1	QT/A	BD	A	16.89 ml/mx				
12	Diuron COC	4	L		1.8	PT/A	BD	A	15.2 ml/mx		112	217	310
			L		1	QT/A	BD	A	16.89 ml/mx				
13	Parazone COC 2,4-D	3	L		1.33	PT/A	BD	A	11.23 ml/mx		113	206	305
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		1	PT/A	BD	A	8.445 ml/mx				
14	2,4-D COC	2	L		1	PT/A	BD	A	8.445 ml/mx		114	208	313
			L		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	205	319
16	Non-treated										116	209	315
17	Valor COC	51	DG		2	OZ/A	BD	A	1.012 g/mx		117	201	312
			L		1	QT/A	BD	A	16.89 ml/mx				
18	Parazone COC Valor	3	L		1.33	PT/A	BD	A	11.23 ml/mx		118	202	301
			L		1	QT/A	BD	A	16.89 ml/mx				
			DG		2	OZ/A	BD	A	1.012 g/mx				
19	Parazone COC Valor	3	L		2.67	PT/A	BD	A	22.55 ml/mx		119	203	314
			L		1	QT/A	BD	A	16.89 ml/mx				
			DG		2	OZ/A	BD	A	1.012 g/mx				
20	Parazone COC Diuron	3	L		2.67	PT/A	BD	A	22.55 ml/mx		120	204	309
			L		1	QT/A	BD	A	16.89 ml/mx				
			L		1.8	PT/A	BD	A	15.2 ml/mx				

Sort Order: Treatment

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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.	Treatment Name	Form Conc	Form Unit	Form Type	Form Rate	Form Unit	Rate Stg	Grow Code	Appl to Measure	Amt Product 1	Plot No. 2	By Rep 3
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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
14.517	ml	WeatherMax	4.5	L	
196.875	ml	Parazone	3	L	
358.915	ml	COC		L	
26.394	ml	Galigan	2	L	
73.894	ml	2,4-D	2	L	
10.557	ml	Clarity	4	L	
57.004	ml	Diuron	4	L	
3.795	g	Valor	51	DG	

* '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 treatment for large glyphosate-resistant Palmer amaranth.

Palmer Response (Glyphosate-resistant Palmer amaranth 12.5 inch at time of application):

1. At 4 DAT, Parazone alone provided 89 to 93% control. Only 2,4-D mixed with Parazone at this timing tended to reduce control. Control by phenoxy herbicides, Galigan, or diuron alone provided poor control.
2. At 8 DAT, control by Parazone alone or in various mixtures provided similar control.
3. By 16 DAT, regrowth from numerous treatments had begun. Control by paraquat was fair. The most effective tank mix partner with Parazone was diuron, Valor, Galigan, or Clarity.
4. By 36 DAT, the only effective treatment was Parazone at 2.67 pt plus Diuron at 1.8 pt.

GENERAL COMMENTS:

1. Rainfall that occurred during the study 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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Prot (Mak1)

Trial ID: C20-08

Study Dir.: Culpepper, Davis

Location: Macon County

Investigator: Stanley Culpepper

Weed Code		AMAPA control	AMAPA control	AMAPA control	AMAPA control	
Rating Data Type		%	%	%	%	
Rating Unit		May-26-08	May-30-08	Jun-07-08	Jun-29-08	
Rating Date		4 DA-A	8 DA-A	16 DA-A	38 DA-A	
Trt-Eval Interval						
Trt No.	Treatment Name	Rate				
		Rate Unit	1	2	3	
			4			
1	WeatherMax	22 OZ/A	7 f	0 e	0 i	3 j
2	Parazone COC	1.33 PT/A 1 QT/A	89 ab	87 a	72 d-g	30 hi
3	Parazone COC	2.67 PT/A 1 QT/A	93 a	88 a	77 b-e	37 gh
4	Parazone COC Galigan	1.33 PT/A 1 QT/A 8 OZ/A	92 a	87 a	85 a-d	65 bcd
5	Parazone COC Galigan	1.33 PT/A 1 QT/A 16 OZ/A	92 a	83 ab	80 a-e	63 bcd
6	Parazone COC 2,4-D	1.33 PT/A 1 QT/A 2 PT/A	84 abc	84 ab	77 b-e	52 def
7	Parazone COC Clarity	1.33 PT/A 1 QT/A 8 OZ/A	86 ab	88 a	91 abc	77 b
8	Parazone COC Diuron	1.33 PT/A 1 QT/A 1.8 PT/A	86 ab	91 a	86 a-d	72 bc
9	Galigan COC	16 OZ/A 1 QT/A	32 e	33 d	23 h	20 i
10	2,4-D COC	2 PT/A 1 QT/A	47 d	57 c	67 efg	64 bcd
11	Clarity COC	8 OZ/A 1 QT/A	47 d	52 c	58 fg	58 cde
12	Diuron COC	1.8 PT/A 1 QT/A	30 e	48 c	65 efg	18 i
13	Parazone COC 2,4-D	1.33 PT/A 1 QT/A 1 PT/A	78 bc	85 ab	75 c-f	47 efg
14	2,4-D COC	1 PT/A 1 QT/A	53 d	53 c	70 d-g	58 cde
15	2,4-D	1 PT/A	50 d	55 c	56 g	68 bc
16	Non-treated		0 f	0 e	0 i	0 j
17	Valor COC	2 OZ/A 1 QT/A	73 c	73 b	63 efg	40 fgh
18	Parazone COC Valor	1.33 PT/A 1 QT/A 2 OZ/A	94 a	95 a	87 a-d	63 bcd
19	Parazone COC Valor	2.67 PT/A 1 QT/A 2 OZ/A	94 a	95 a	93 ab	73 bc

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Weed Code		AMAPA	AMAPA	AMAPA	AMAPA
Rating Data Type		control	control	control	control
Rating Unit		%	%	%	%
Rating Date		May-26-08	May-30-08	Jun-07-08	Jun-29-08
Trt-Eval Interval		4 DA-A	8 DA-A	16 DA-A	38 DA-A
Trt No.	Treatment Name	Rate	Rate	Rate	Rate
		Unit	Unit	Unit	Unit
20	Parazone	2.67 PT/A	90 ab	96 a	95 a
	COC	1 QT/A			
	Diuron	1.8 PT/A			
LSD (P=.05)			11.4	12.9	15.2
Standard Deviation			6.9	7.8	9.2
CV			10.49	11.55	14.01
Bartlett's X2			19.367	22.539	17.144
P(Bartlett's X2)			0.198	0.165	0.445

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

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Trial ID: C20-08 Study Dir.: Culpepper, Davis
 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.: GA	Trial Reliability: good
Postal Code: 31068	Initiation Date: May-22-08
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: _____ **Variety:** _____
Planting Date: _____ **Planting Method:** _____
Rate: _____ **Depth:** _____ **Perennial Age:** _____
Row Spacing: _____ **Spacing Within Row:** _____ **Seed Bed:** _____
Soil Temperature: _____ **Soil Moisture:** _____ **Emergence Date:** _____

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: 6.4 Texture: loamy sand
 % Silt: 14 pH: 2 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:	12:00 pm
Application Method:	broadcast
Application Timing:	BD
Applic. Placement:	overtop
Air Temp., Unit:	88 F
% Relative Humidity:	47
Wind Velocity, Unit:	2 mph
Dew Presence (Y/N):	N
Water Hardness:	
Soil Temp., Unit:	80 F
Soil Moisture:	moist
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	. .
Stage Scale:	.
Height, Unit:	

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	AMAPA A
Stage Scale:	12.5 in
Density, Unit:	4 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