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Glyphosate-resistant Palmer amaranth response to ET directed mixtures.

Trial ID: C7-07

Study Dir.: Culpepper

Location: Macon County

Investigator: Stanley Culpepper

Reps: 4

Plots: 12 by 22 feet

Spray vol: 14.8 gal/ac

Mix size: 2 liters (min 1.3582)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	Amt Product to Measure	Plot No. By Rep			
										1	2	3	4
1	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	101	207	310	402
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
2	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	102	209	306	401
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	ET	0.21	L		1	OZ/A	PD	C	1.056 ml/mx				
	Reflex	2	L		16	OZ/A	PD	C	16.89 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	PD	C	23.23 ml/mx				
3	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	103	206	309	410
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	Reflex	2	L		16	OZ/A	PD	C	16.89 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	PD	C	23.23 ml/mx				
4	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	104	210	305	407
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	ET	0.21	L		1	OZ/A	PD	C	1.056 ml/mx				
	Direx	4	L		32	OZ/A	PD	C	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	PD	C	23.23 ml/mx				
5	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	105	208	307	406
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	Direx	4	L		32	OZ/A	PD	C	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	PD	C	23.23 ml/mx				
6	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	106	202	304	408
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	ET	0.21	L		1	OZ/A	PD	C	1.056 ml/mx				
	Valor	51	DG		1	OZ/A	PD	C	1.012 g/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	PD	C	23.23 ml/mx				
7	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	107	204	301	404
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	Valor	51	DG		1	OZ/A	PD	C	1.012 g/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	PD	C	23.23 ml/mx				
8	Non-treated								108	205	302	409	
9	Prowl H20	3.8	L		2	PT/A	PRE	A	33.78 ml/mx	109	201	303	405
	Direx	4	L		2	PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L		22	OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L		1.7	OZ/A	POST	B	1.795 ml/mx				
	Direx	4	L		32	OZ/A	PD	C	33.78 ml/mx				
	MSMA	6	L		2	LB A/A	PD	C	45.04 ml/mx				

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Reps: 4 Plots: 12 by 22 feet
 Spray vol: 14.8 gal/ac Mix size: 2 liters (min 1.3582)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Grow Stg	Appl Code	Amt Product to Measure	Plot No. By Rep			
									1	2	3	4
10	Prowl H20	3.8	L	L	2 PT/A	PRE	A	33.78 ml/mx	110	203	308	403
	Direx	4	L	L	2 PT/A	PRE	A	33.78 ml/mx				
	Roundup WeatherMax	4.5	L	L	22 OZ/A	POST	B	23.23 ml/mx				
	Staple	3.2	L	L	1.7 OZ/A	POST	B	1.795 ml/mx				
	Direx	4	L	L	32 OZ/A	PD	C	33.78 ml/mx				
	MSMA	6	L	L	2 LB A/A	PD	C	45.04 ml/mx				
	ET	0.21	L	L	1 OZ/A	PD	C	1.056 ml/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
380.027	ml	Prowl H20	3.8	L	
548.947	ml	Direx	4	L	
435.495	ml	Roundup WeatherMax	4.5	L	
20.191	ml	Staple	3.2	L	
5.279	ml	ET	0.21	L	
42.230	ml	Reflex	2	L	
2.530	g	Valor	51	DG	
112.601	ml	MSMA	6	L	

* 'Per area' calculations based on spray volume= 14.8 gal/ac, mix size= 2 liters (mix size basis).
 * Product amount calculations increased 25 % for overage adjustment.

Trial Comments

OBJECTIVE: Determine glyphosate-resistant Palmer amaranth response to ET mixtures.

Cotton Response:

1. At 6 DAT, stem necrosis and leaf burn ranged from 10 to 13% with any mixture that contained ET or Valor.
2. By 23 DAT, no significant injury was detectable.

Glyphosate-resistant Palmer amaranth:

1. At 6 DAT, the addition of ET in mixture with glyphosate + Direx improved control 20%. The addition of ET with the Reflex, Valor, or Direx + MSMA mixtures did not improve control.
2. At 6 DAT, control greater than 80% was noted only with the Direx treatments.
3. By 23 DAT, the benefit from ET mixed with glyphosate + Direx was no longer detectable.
4. By 44 DAT, control of greater than 70% was noted with Direx + MSMA + ET; however, control was no greater than Direx + MSMA.

Pitted morningglory:

1. All PD treatments provided complete control.

CONCLUSIONS:

1. Direx + MSMA + ET with higher rates of ET should be evaluated.

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Glyphosate-resistant Palmer amaranth response to ET directed mixtures.

Trial ID: C7-07

Study Dir.: Culpepper

Location: Macon County

Investigator: Stanley Culpepper

Weed Code		INJURY	INJURY	AMAPA	AMAPA	AMAPA	IPOLA	IPOLA	IPOLA	
Crop Code		cotton	cotton							
Rating Data Type		%	%	%	%	%	%	%	%	
Rating Unit		control	control	control	control	control	control	control	control	
Rating Date		Jun-29-07	Jul-16-07	Jun-29-07	Jul-16-07	Aug-06-07	Jun-29-07	Jul-16-07	Aug-06-07	
Trt-Eval Interval		6 DA-C	23 DA-C	6 DA-C	23 DA-C	44 DA-C	6 DA-C	23 DA-C	44 DA-C	
Trt No.	Treatment Name	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	
		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	
1	Prowl H20	2 PT/A	1 bc	0 a	43 d	28 b	23 e	48 b	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
2	Prowl H20	2 PT/A	11 a	0 a	76 abc	74 a	48 cd	91 a	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
	ET	1 OZ/A								
	Reflex	16 OZ/A								
	Roundup WeatherMax	22 OZ/A								
3	Prowl H20	2 PT/A	5 b	0 a	85 a	76 a	56 bcd	88 a	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
	Reflex	16 OZ/A								
	Roundup WeatherMax	22 OZ/A								
4	Prowl H20	2 PT/A	11 a	0 a	85 a	78 a	61 bc	94 a	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
	ET	1 OZ/A								
	Direx	32 OZ/A								
	Roundup WeatherMax	22 OZ/A								
5	Prowl H20	2 PT/A	5 b	0 a	65 c	68 a	61 bc	91 a	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
	Direx	32 OZ/A								
	Roundup WeatherMax	22 OZ/A								
6	Prowl H20	2 PT/A	12 a	0 a	71 bc	63 a	55 bcd	96 a	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
	ET	1 OZ/A								
	Valor	1 OZ/A								
	Roundup WeatherMax	22 OZ/A								
7	Prowl H20	2 PT/A	12 a	0 a	68 c	59 a	44 d	89 a	99 a	99 a
	Direx	2 PT/A								
	Roundup WeatherMax	22 OZ/A								
	Staple	1.7 OZ/A								
	Valor	1 OZ/A								
	Roundup WeatherMax	22 OZ/A								
8	Non-treated		0 c	0 a	0 e	0 c	0 f	0 c	0 b	0 b

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Weed Code	INJURY	INJURY	AMAPA	AMAPA	AMAPA	IPOLA	IPOLA	IPOLA			
Crop Code	cotton	cotton									
Rating Data Type	%	%	%	%	%	%	%	%			
Rating Unit	control	control	control	control	control	control	control	control			
Rating Date	Jun-29-07	Jul-16-07	Jun-29-07	Jul-16-07	Aug-06-07	Jun-29-07	Jul-16-07	Aug-06-07			
Trt-Eval Interval	6 DA-C	23 DA-C	6 DA-C	23 DA-C	44 DA-C	6 DA-C	23 DA-C	44 DA-C			
Trt No.	Treatment Name	Rate	Unit	1	2	3	4	5	6	7	8
9	Prowl H20	2	PT/A	5 b	0 a	81 ab	73 a	69 ab	96 a	99 a	99 a
	Direx	2	PT/A								
	Roundup WeatherMax	22	OZ/A								
	Staple	1.7	OZ/A								
	Direx	32	OZ/A								
	MSMA	2	LB A/A								
10	Prowl H20	2	PT/A	13 a	0 a	88 a	76 a	79 a	96 a	99 a	99 a
	Direx	2	PT/A								
	Roundup WeatherMax	22	OZ/A								
	Staple	1.7	OZ/A								
	Direx	32	OZ/A								
	MSMA	2	LB A/A								
	ET	1	OZ/A								
LSD (P=.05)				3.9	0.0	11.2	16.9	13.8	11.7	0.0	0.0
Standard Deviation				2.7	0.0	7.7	11.7	9.5	8.1	0.0	0.0
CV				36.41	0.0	11.62	19.67	19.22	10.26	0.0	0.0
Bartlett's X2				21.002	0.0	14.365	4.253	18.244	23.612	0.0	0.0
P(Bartlett's X2)				0.007*	.	0.073	0.834	0.019*	0.003*	.	.

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

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Glyphosate-resistant Palmer amaranth response to ET directed mixtures.

Trial ID: C7-07 Study Dir.: Culpepper
 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 County **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** good
Postal Code: _____ **Initiation Date:** Apr-18-07
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: Determine glyphosate-resistant Palmer amaranth response to directed herbicide options.

Conclusions:

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	AMAPA	Amaranth, Palmer	Amaranthus palmeri
2.	IPOLA	Morningglory, pitted	Ipomoea lacunosa

Crop 1: GOSHI COTTON, SHORT STAPLE **Variety:** DP 555 B RR
Planting Date: Apr-18-07 **Planting Method:** hill drop
Rate: 2 8 inch **Depth:** 0.75 in **Perennial Age:** ____ ____
Row Spacing: 36 in **Spacing Within Row:** 8 in **Seed Bed:** flat
Soil Temperature: 68 F **Soil Moisture:** moist **Emergence Date:** May-23-07

SITE AND DESIGN

Plot Width, Unit: 12 FT **Plot Length, Unit:** 22 FT **Reps:** 4
Site Type: On farm
Tillage Type: Conventional **Study Design:** RANDOMIZED COMPLETE BLOCK

Trial Initiation Comments:

	Previous Crops	Previous Pesticides	Year
1.			

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MAINTENANCE

Field Prep./Maintenance:

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

SOIL DESCRIPTION

% Sand: 82	% OM: 6.3	Texture: loamy sand
% Silt: 14	pH: 2.0	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: fair/dry

Closest Weather Station: _____ Distance: _____ Unit: ____

APPLICATION DESCRIPTION

	A	B	C
Application Date:	Apr-18-07	May-10-07	Jun-23-07
Time of Day:	7:00 pm	4:00 pm	7:00 am
Application Method:	broadcast	broadcast	broadcast
Application Timing:	PRE	POST	PD
Applic. Placement:	on soil	overtop	directed
Air Temp., Unit:	68 F	87 F	78 F
% Relative Humidity:	50	41	49
Wind Velocity, Unit:	3 mph	5 mph	3 mph
Dew Presence (Y/N):	N	N	N
Water Hardness:			
Soil Temp., Unit:	67 F	87 F	84 F
Soil Moisture:	moist	fair	dry
% Cloud Cover:	0	0	0

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	GOSHI PRE	GOSHI POST	GOSHI PD
Stage Scale:	not up	4 leaf	10 leaf
Height, Unit:	0 inch	1.5 in	14 in

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code, Stage:	AMAPA PRE	AMAPA POST	AMAPA PD
Stage Scale:	not up	2 inch	4-6 inch
Density, Unit:	0 ydsq	5 ydsq	12 ydsq
Weed 2 Code, Stage:	IPOLA PRE	IPOLA POST	IPOLA PD
Stage Scale:	not up	2 inch	2-4 inch
Density, Unit:	0 ydsq	7 ydsq	2 ydsq

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APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	backpack	backpack	backpack
Operating Pressure:	24	24	24
Nozzle Type:	flat fan	flat fan	floodjet
Nozzle Size:	11002	11002	TK2
Nozzle Spacing, Unit:	18 in	18 in	36 in
Nozzles/Row:	2	2	
Band Width, Unit:			
Boom Length, Unit:	4.5 ft	4.5 ft	
Boom Height, Unit:	15 in	15 in	15 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Incorporation Equip.:			
Hours to Incorp.:			
Incorp. Depth, Unit:			
Carrier:	water	water	water
Spray Volume, Unit:	15 GPA	15 GPA	15 GPA
Spray pH:			
Propellant:	CO2	CO2	CO2
Tank Mix (Y/N):			

Trt No	Treatment Application Comment