## **University of Georgia**

Glyphosate-resistant Palmer amaranth response to Valor and Cobra mixtures.

Trial ID: C21-06 Study Dir.: Stanley Culpepper
Location: Macon (Paved Rd) Investigator: Stanley Culpepper

Reps: 4 Plots: 9 by 25 feet

Spray vol: 14.8 gal/ac Mix size: 1.5 liters (min 1.1575)

Spira	iy vol: 14.8 gal/ac	IVIIX	size: 1.5	IIICI	5 (111111)	1.1073	)							
	Treatment Name	Form Conc	Form F		Rate	Rate	Grow Stg		Amt Product to Measure	Plot N	lo. By I 2	Rep 3	4	
_			Onit i	ype						1				
1	Cobra	2	L			OZ/A	POST		9.898 ml/mx	101	211	301	411	
	COC					PT/A	POST		12.67 ml/mx					
2	Valor	51	V	VDG		OZ/A	POST		0.759 g/mx	102	210	305	402	
	NIS		L				POST		3.75 ml/mx					
3	Valor	51	V	VDG			POST		1.518 g/mx	103	205	311	405	
	NIS		L		0.25	% V/V	POST	Α	3.75 ml/mx					
4	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	104	209	308	406	
5	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	105	208	304	410	
	Cobra	2	E	С	12.5	OZ/A	POST	Α	9.898 ml/mx					
6	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	106	212	310	407	
	Cobra	2	E	C	8	OZ/A	POST	Α	6.334 ml/mx					
7	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	107	203	302	401	
	Valor	51	V	VDG			POST		0.759 g/mx	_				
	NIS		L		0.25	% V/V	POST	Α	3.75 ml/mx					
8	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	108	206	312	403	
	Valor	51	V	VDG			POST		1.518 g/mx					
	NIS		L		0.25	% V/V	POST	Α	3.75 ml/mx					
9	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	109	204	309	412	
	Valor	51	V	VDG			POST		0.759 g/mx		_			
	Dual Magnum	7.62	L		12	OZ/A	POST	Α	9.502 ml/mx					
10	Roundup WeatherMax	4.5	L		22	OZ/A	POST	Α	17.42 ml/mx	110	201	303	404	
	Valor	51	V	VDG	2	OZ/A	POST	Α	1.518 g/mx		_			
	Dual Magnum	7.62	L		12	OZ/A	POST	Α	9.502 ml/mx					
11	Cobra	2	L		12.5	OZ/A	POST	Α	9.898 ml/mx	111	207	306	408	
	COC	_	L			PT/A	POST		12.67 ml/mx					
	MSMA		L			PT/A	POST		25.34 ml/mx					
12	Valor	51	V	VDG	2	OZ/A	POST	Α	1.518 g/mx	112	202	307	409	
	NIS		Ĺ				POST		3.75 ml/mx					
	MSMA	6	L				POST		25.34 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
24.744	ml	Cobra	2	L	
31.669	ml	COC		L	
10.437	g	Valor	51	WDG	
23.435	ml	NIS		L	
152.423	ml	Roundup WeatherMax	4.5	L	
20.290	ml	Cobra	2	EC	
23.754	ml	Dual Magnum	7.62	L	
31.669	ml	MSMA		L	
31.669	ml	MSMA	6	L	

<sup>\* &#</sup>x27;Per area' calculations based on spray volume= 14.8 gal/ac, mix size= 1.5 liters (mix size basis).

<sup>\*</sup> Product amount calculations increased 25 % for overage adjustment.

<sup>\* &#</sup>x27;Per volume' calculations use spray volume= 14.8 gal/ac, mix size= 1.5 liters.

### Feb-21-07 (C21-06) Trial Comments Page 2 of 6

### **University of Georgia**

Glyphosate-resistant Palmer amaranth response to Valor and Cobra mixtures.

Trial ID: C21-06 Study Dir.: Stanley Culpepper Location: Macon (Paved Rd) Investigator: Stanley Culpepper

Trial Comments

OBJECTIVE: Determine glyphosate-resistant Palmer amaranth response to Valor or Cobra mixtures.

#### Palmer Response:

- 1. In the four row plot, 2 rows had 4 inch tall Palmer and the other 2 rows had 8 inch tall Palmer at time of application because of tractor tracks thus ratings were made for both Palmer sizes through 25 DAT.
- 2. At 16 DAT, excellent control of 4-inch Palmer was visually noted with all Valor mixtures.
- 3. At 25 DAT, regrowth of 4-inch Palmer from Valor and Cobra treatments was in full progress. Greater than 85% control was only noted with Valor/Dual mixtures and MSMA mixtures.
- 4. Control of 8 inch Palmer was much more challenging at either 16 or 25 DAT. At 25 DAT, no treatment provided greater than 65% control which again was a Valor/Dual tank mixture.
- 5. At 47 DAT, control for the entire plot (both 4 and 8 inch Palmer at time of treatment) was poor. However, Valor/Dual mixtures and MSMA mixtures were the most effective.

#### Cotton Response:

- 1. Since the Palmer was as large as the cotton treatments were applied topically.
- 2. By 25 DAT, all Valor treatments provided excellent control and these mixtures were more effective than Cobra mixtures.

### CONCLUSIONS:

- 1. These results suggest that glyphosate/Valor mixtures, one of most effective broad spectrum layby mixtures, will be of little use in fields infested with glyphosate-resistant Palmer amaranth.
- 2. Dual Magnum in mixture with Valor improved postemergence activity of Valor and was more effective than NIS.

#### **GENERAL COMMENTS:**

- 1. Prowl H20 was applied PRE over the entire trial area.
- 2. Roundup was applied early POST when Palmer was 2 inches in height.

### Feb-21-07 (C21-06) AOV Means Table Page 3 of 6

# **University of Georgia**

Glyphosate-resistant Palmer amaranth response to Valor and Cobra mixtures.

Trial ID: C21-06 Study Dir.: Stanley Culpepper Location: Macon (Paved Rd) Investigator: Stanley Culpepper

Loc	ation: Macon (Paved	i Ra)		Inve	estigator	: Stanley	Culpeppe	r		-
We	ed Code					AMAPA	AMAPA	AMAPA	AMAPA	AMAPA
Cro	p Code			GOSHI	GOSHI					
Par	Rated					4 inch	4 inch	8 inch	8 inch	
Rati	ng Data Type			injury	injury	control	control	control	control	control
Rat	ing Unit			%	%	%	%	%	%	%
Rati	ing Date			Jun-08-06	Jun-17-06	Jun-08-06	Jun-17-06	Jun-08-06	Jun-17-06	Jul-09-06
Ass	essed By			SC	SC	SC	SC	SC	SC	SC
Trt-l	Eval Interval			16 DA-A	25 DA-A	16 DA-A	25 DA-A	16 DA-A	25 DA-A	47 DA-A
Trt	Treatment		Rate							
No.	Name	Rate	Unit	1	2	3	4	5	6	7
1	Cobra	12.5	OZ/A	81 b	76 cd	80 cde	80 bc	57 cd	30 b	29 bcd
	COC		PT/A							
2	Valor		OZ/A	97 a	94 ab	83 b-e	66 d	61 cd	19 bc	15 cd
_	NIS		% V/V	57 a	5+ db	00 0 0	00 u	01 00	15 50	10 00
	Valor		OZ/A	97 a	97 a	92 abc	76 cd	68 bc	29 b	29 bcd
3	NIS		% V/V	91 a	91 a	92 abc	76 Cu	99 pc	29 0	29 DCu
<b>—</b>						40. (			4.0	40
	Roundup WeatherMax		OZ/A	0 c	0 e	40 f	28 e	26 e	10 c	13 d
5	Roundup WeatherMax		OZ/A	80 b	72 d	78 de	76 cd	55 cd	29 b	19 bcd
	Cobra	12.5	OZ/A							
6	Roundup WeatherMax	22	OZ/A	74 b	76 cd	76 e	75 cd	51 d	26 b	33 bc
	Cobra	8	OZ/A							
7	Roundup WeatherMax	22	OZ/A	99 a	98 a	89 a-d	72 cd	69 bc	35 b	23 bcd
	Valor	1	OZ/A							
	NIS	0.25	% V/V							
8	Roundup WeatherMax	22	OZ/A	99 a	99 a	90 abc	71 cd	77 ab	28 b	35 b
ľ	Valor		OZ/A	00 0	00 0				_0 0	00 2
	NIS		% V/V							
a	Roundup WeatherMax		OZ/A	99 a	99 a	93 ab	89 ab	79 ab	33 b	55 a
J	Valor		OZ/A	33 a	33 a	30 db	05 ab	75 45	33 B	55 a
	Dual Magnum		OZ/A							
10	Roundup WeatherMax		OZ/A	99 a	99 a	98 a	94 a	88 a	65 a	68 a
10	Valor		OZ/A	99 a	99 a	90 a	94 a	00 a	05 a	00 a
	Dual Magnum		OZ/A							
44		12.5		05.5	04 ha	04 ab	00 -	70 ah	<b>54</b> a	CC -
11	Cobra			95 a	84 bc	94 ab	92 a	79 ab	51 a	66 a
	COC MSMA		PT/A							
<u> </u>			PT/A							
12	Valor		OZ/A	99 a	97 a	97 a	88 ab	76 ab	50 a	57 a
	NIS		% V/V							
	MSMA	2	PT/A							
	) (P=.05)			7.6	11.3		10.6	12.9	14.6	15.7
	ndard Deviation			5.2	7.8		7.3	8.9	10.1	10.9
CV				6.18	9.5		9.69		30.12	29.84
	lett's X2			5.586	44.518		8.276		17.506	24.863
P(B	artlett's X2)			0.349	0.001*	0.131	0.688	0.06	0.064	0.01*

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

Feb-21-07 (C21-06) Site Description Page 4 of 6

# University of Georgia

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Glyphosate-resistant	t Palmer amaranth response to Valor and Cobra mixtures.
Trial ID: C21-06	Study Dir.: Stanley Culpepper
Location: Macon (Paved Rd)	Investigator: Stanley Culpepper
GENERAL	TRIAL INFORMATION
Study Director: Stanley Culpepper	Title: Ext. Weed Science
Affiliation: University of Geor	gia
Postal Code: 31794	
Investigator: Stanley Culpepper	Title: Ext. Weed Science
Affiliation: University of Geor	gia
Postal Code: 31794	
TR	RIAL LOCATION
City: Macon Co.	Trial Status: completed
State/Prov.: GA	Trial Reliability: good Initiation Date: May-01-06
Postal Code:	
Country: USA	Planned Completion Date:
	N-Latitude of LL Corner °:
	nit: Angle y-axis to North °:
Directions:	
g007=	
	ERATOR/LANDOWNER
Cooperator:	
Org: Address 1:	
	Fax No:
Address 2:	
City: State/Prov:	
Postal Code:	
rostal code:	
Conducted Under GLP (Y/N) N	Conducted Under GEP (Y/N): N
• • •	Description:
Guidelines Guideline	
Objective:	
Conclusions:	
CROP AND	WEED DESCRIPTION
Weed Code Common Name	Scientific Name

Weed	Code	Common Name	Scientific Name
1.	AMAPA	Palmer amaranth	

Crop 1: GOSHI cotton Variety: DP555 BRR

Planting Method: seeded Planting Date: May-01-06

Emergence Date: May-06-06

SITE AND DESIGN

Plot Width, Unit: 9 FT Plot Length, Unit: 25 FT Reps: 4

Site Type: Sutton Farm

Tillage Type: Conventional Study Design: RANDOMIZED COMPLETE BLOCK

Trial Initiation Comments:

	Previous Crops	Previous Pesticides	Year
1.			

# **University of Georgia**

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

Fert. Level: \_\_\_\_

### SOIL DESCRIPTION

% Sand: 82 % OM: 2 % Silt: 14 pH: 6.3 % Clay: 4 CEC: \_\_\_\_ Texture: Loamy sand Soil Name:

### ADDITIONAL MEASURED ELEMENTS

Element	Quantity	Unit

### MOISTURE CONDITIONS

	Date	Time	Amount	Unit	Туре	Interval	Unit
1.							

Overall Moisture Conditions: wet right after planting and then dry for rest of s Closest Weather Station: \_\_\_\_\_ Distance: \_\_\_\_ Unit: \_\_

### APPLICATION DESCRIPTION

	A
Application Date:	Jun-01-06
Time of Day:	10:00am
Application Method:	broadcast
Application Timing:	POST
Applic. Placement:	overtop
Air Temp., Unit:	84 F
% Relative Humidity:	55
Wind Velocity, Unit:	3 mph
Dew Presence (Y/N):	
Water Hardness:	
Soil Temp., Unit:	90 F
Soil Moisture:	fair
% Cloud Cover:	45

### CROP STAGE AT EACH APPLICATION

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

### WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	AMAPA POST
Stage Scale:	4-8 in
Density, Unit:	75 ydsq

# **University of Georgia**

### APPLICATION EQUIPMENT

	A	
Appl. Equipment:	backpack	
Operating Pressure:	24	
Nozzle Type:	flat fan	
Nozzle Size:	11002	
Nozzle Spacing, Unit:	18 inch	
Nozzles/Row:	2	
Band Width, Unit:		
Boom Length, Unit:	4.5 ft	
Boom Height, Unit:	15 inch	
Ground Speed, Unit:	3 mph	
Incorporation Equip.:		
Hours to Incorp.:		
Incorp. Depth, Unit:		
Carrier:	water	
Spray Volume, Unit:	14.8 GPA	
Spray pH:		
Propellant:	CO2	
Tank Mix (Y/N):	Y	

Trt No	Treatment Application Comment