

University of Georgia

Cotton and weed response to Valor applied directed.

Trial ID: C17-03
Location: Attapulgus

Study Dir.: Stanley Culpepper
Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper **Title:** Ext. weed science
Affiliation: University of Georgia **Postal Code:** 31794
Investigator: Stanley Culpepper **Title:** Ext. weed science
Affiliation: University of Georgia **Postal Code:** 31794

Trial Status: completed **Initiation Date:** May-28-03 **Country:** USA
City: Attapulgus **State/Prov.:** Ga
Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND PEST DESCRIPTION

Weed 1.AMAPA Palmer amaranth **2.**PANTE Texas panicum
Weed 3.DEDTO Florida beggarweed **4.**CASOB Sicklepod
Weed 5.IAQTA Smallflower morningglory

Crop 1:GOSHI cotton **Variety:** DP 451 B/RR **Planting Date:** May-28-03
Planting Method: conventional **Rate:** 3 seed/ft **Depth:** 0.5 in
Row Spacing: 36 inch **Seed Bed:** bedded
Soil Temperature: 82 F **Soil Moisture:** moist **Emergence Date:** Jun-02-03

Plot Width, Unit: 12 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: Research station
Tillage Type: conventional **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

Texture: loamy sand **% OM:** 1.3 **% Sand:** 84 **% Silt:** 8 **% Clay:** 8
pH: 5.9

Overall Moisture Conditions: wet

APPLICATION DESCRIPTION

	A	B	C	D	E	F
Application Date:	May-28-03	Jun-20-03	Jul-11-03			
Time of Day:	1:00pm	10 am	11 am			
Application Method:	Broadcast	Broadcast	Broadcast			
Application Timing:	PRE	6"PD	16"PD			
Applic. Placement:	on soil	directed	directed			
Air Temp., Unit:	83 F	82 F	85 F			
% Relative Humidity:	40	80	63			
Wind Velocity, Unit:	2 mph	3 mph	2 mph			
Dew Presence (Y/N):	n	n	n			
Soil Temp., Unit:	80 F	84 F	83 F			
Soil Moisture:	moist	moist	moist			
% Cloud Cover:	0	100	40			

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Crop 1 GOSHI Stage:	PRE	6"PD	16"PD			
Stage Scale:	.	V5	V11			
Height, Unit:	0. .	5.5 inch	17 inch			

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WEED STAGE AT EACH APPLICATION						
	A	B	C	D	E	F
Weed 1 AMAPA Stage:	PRE	6"PD	16"PD			
Stage Scale:	.	<2"	<3"			
Density, Unit:	. .	12 ydsq	. .			
Weed 2 PANTE Stage:	PRE	6"PD	16"PD			
Stage Scale:	.	<2"	<3"			
Density, Unit:	. .	13 ydsq	. .			
Weed 3 DEDTO Stage:	PRE	6"PD	16"PD			
Stage Scale:	.	<2"	<3"			
Density, Unit:	. .	2 ydsq	. .			
Weed 4 CASOB Stage:	PRE	6"PD	16"PD			
Stage Scale:	.	<2"	<3"			
Density, Unit:	. .	2 ydsq	. .			
Weed 5 IAQTA Stage:	PRE	6"PD	16"PD			
Stage Scale:	.	<2"	<3"			
Density, Unit:	. .	4 ydsq	. .			

APPLICATION EQUIPMENT						
	A	B	C	D	E	F
Appl. Equipment:	backpack	backpack	backpack			
Operating Pressure:	22	18	18			
Nozzle Type:	flat fan	flat fan	flat fan			
Nozzle Size:	11002	11002	11002			
Nozzle Spacing, Unit:	18 inch	12 inch	12 inch			
Nozzles/Row:	2	3	3			
Boom Length, Unit:	4.5 feet	2 feet	2 feet			
Boom Height, Unit:	15 inch	12 inch	12 inch			
Ground Speed, Unit:	3 mph	3 mph	3 mph			
Carrier:	water	water	water			
Spray Volume, Unit:	14.8 GPA	14.8 GPA	14.8 GPA			
Propellant:	CO2	CO2	CO2			
Tank Mix (Y/N) :	Y	Y	Y			

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Cotton and weed response to Valor applied directed.

Trial ID: C17-03

Study Dir.: Stanley Culpepper

Location: Attapulcus

Investigator: Stanley Culpepper

Weed Code			GOSHI	GOSHI	GOSHI	AMAPA	AMAPA	AMAPA	AMAPA
Crop Code			injury	injury	injury	control	control	control	control
Rating Data Type			percent	percent	percent	percent	percent	percent	percent
Rating Unit			Jun-30-03	Jul-27-03	Aug-11-03	Jun-30-03	Jul-27-03	Aug-11-03	Oct-01-03
Rating Date						60 DA-A	60 DA-A		
Trt-Eval Interval									
PRM Data Type									
# Subsamples, Dec.									
Trt No.	Treatment Name	Rate Unit	1	2	3	4	5	6	7
1	Prowl	1.5 pt/a	0.0	0.0	0.0	99.0	68.5	86.0	90.8
	Roundup WeatherMax	21.3 oz/a							
2	Prowl	1.5 pt/a	31.3	16.3	10.0	99.0	98.0	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Valor	1 oz/a							
3	Prowl	1.5 pt/a	55.0	35.8	35.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Valor	2 oz/a							
4	Prowl	1.5 pt/a	0.0	2.3	3.8	99.0	99.0	96.3	99.0
	Roundup WeatherMax	21.3 oz/a							
	Roundup WeatherMax	21.3 oz/a							
	Valor	1 oz/a							
5	Prowl	1.5 pt/a	0.0	2.5	0.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Roundup WeatherMax	21.3 oz/a							
	Valor	2 oz/a							
6	Prowl	1.5 pt/a	35.0	22.5	15.3	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Valor	1 oz/a							
	Roundup WeatherMax	21.3 oz/a							
	Valor	1 oz/a							
7	Prowl	1.5 pt/a	29.0	17.5	12.5	99.0	98.0	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Valor	1 oz/a							
	Roundup WeatherMax	21.3 oz/a							
	Valor	2 oz/a							
8	Prowl	1.5 pt/a	0.0	0.0	0.0	99.0	97.8	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Roundup WeatherMax	21.3 oz/a							
	Valor	1 oz/a							
9	Prowl	1.5 pt/a	0.0	0.0	0.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3 oz/a							
	Roundup WeatherMax	21.3 oz/a							
10	No herbicide		0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)			12.56	15.76	14.69	0.00	2.10	4.81	4.47
Standard Deviation			8.66	10.86	10.12	0.00	1.45	3.32	3.08
CV			57.63	112.24	132.34	0.0	1.69	3.79	3.49
Bartlett's X2			0.082	15.219	7.13	0.0	0.234	0.683	0.0
P(Bartlett's X2)			0.994	0.009*	0.129	.	0.972	0.409	.

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

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Weed Code		PANTE	PANTE	PANTE	PANTE	CASOB	CASOB	CASOB		
Crop Code										
Rating Data Type		control	control	control	control	control	control	control		
Rating Unit		percent	percent	percent	percent	percent	percent	percent		
Rating Date		Jun-30-03	Jul-27-03	Aug-11-03	Oct-01-03	Jun-30-03	Jul-27-03	Aug-11-03		
Trt-Eval Interval		60 DA-A				60 DA-A				
PRM Data Type										
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Unit	8	9	10	11	12	13	14
1	Prowl	1.5	pt/a	99.0	68.5	51.3	72.3	99.0	68.5	50.0
	Roundup WeatherMax	21.3	oz/a							
2	Prowl	1.5	pt/a	99.0	81.8	72.3	85.8	99.0	80.8	61.3
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
3	Prowl	1.5	pt/a	99.0	84.5	77.3	82.0	99.0	84.5	72.5
	Roundup WeatherMax	21.3	oz/a							
	Valor	2	oz/a							
4	Prowl	1.5	pt/a	99.0	99.0	99.0	94.0	99.0	99.0	97.3
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
5	Prowl	1.5	pt/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	2	oz/a							
6	Prowl	1.5	pt/a	99.0	99.0	99.0	96.8	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
7	Prowl	1.5	pt/a	99.0	98.0	99.0	99.0	99.0	98.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	2	oz/a							
8	Prowl	1.5	pt/a	99.0	98.8	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
9	Prowl	1.5	pt/a	99.0	99.0	99.0	99.0	99.0	99.0	98.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
10	No herbicide			0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)				0.00	2.37	13.75	7.92	0.00	3.32	9.36
Standard Deviation				0.00	1.64	9.47	5.46	0.00	2.29	6.45
CV				0.0	1.98	11.92	6.6	0.0	2.77	8.32
Bartlett's X2				0.0	7.245	0.045	3.375	0.0	3.435	12.295
P(Bartlett's X2)				.	0.123	0.978	0.497	.	0.329	0.015*

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

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Weed Code	CASOB	IAQTA	IAQTA	IAQTA	IAQTA	DEDTO	DEDTO			
Crop Code										
Rating Data Type	control	control	control	control	control	control	control			
Rating Unit	percent	percent	percent	percent	percent	percent	percent			
Rating Date	Oct-01-03	Jun-30-03	Jul-27-03	Aug-11-03	Oct-01-03	Jun-30-03	Jul-27-03			
Trt-Eval Interval		60 DA-A				60 DA-A				
PRM Data Type										
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Unit	15	16	17	18	19	20	21
1	Prowl	1.5	pt/a	51.3	85.0	68.5	74.5	73.8	99.0	68.5
	Roundup WeatherMax	21.3	oz/a							
2	Prowl	1.5	pt/a	61.3	99.0	96.8	95.5	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
3	Prowl	1.5	pt/a	66.3	99.0	99.0	97.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Valor	2	oz/a							
4	Prowl	1.5	pt/a	99.0	83.8	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
5	Prowl	1.5	pt/a	99.0	85.0	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	2	oz/a							
6	Prowl	1.5	pt/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
7	Prowl	1.5	pt/a	99.0	99.0	98.0	99.0	99.0	99.0	98.0
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	2	oz/a							
8	Prowl	1.5	pt/a	99.0	85.0	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
	Valor	1	oz/a							
9	Prowl	1.5	pt/a	99.0	85.0	99.0	99.0	99.0	99.0	99.0
	Roundup WeatherMax	21.3	oz/a							
	Roundup WeatherMax	21.3	oz/a							
10	No herbicide			0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)				10.43	3.98	2.60	4.91	10.49	0.00	1.46
Standard Deviation				7.19	2.74	1.79	3.38	7.23	0.00	1.01
CV				9.3	3.35	2.09	3.93	8.35	0.0	1.17
Bartlett's X2				9.148	1.956	2.245	3.988	0.0	0.0	0.089
P(Bartlett's X2)				0.01*	0.582	0.326	0.136	.	.	0.765

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

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Weed Code	DEDTO	DEDTO	GOSHI	GOSHI
Crop Code	control	control	seed/yld	seed/yld
Rating Data Type	percent	percent	lb/plot	lb/A
Rating Unit	Aug-11-03	Oct-01-03	Nov-17-03	Nov-17-03
Rating Date				
Trt-Eval Interval				
PRM Data Type				TY1
# Subsamples, Dec.				1
Trt Treatment	Rate	Rate	Rate	Rate
No. Name	Rate Unit	22	23	24
25				
1 Prowl	1.5 pt/a	81.3	86.3	9.8
Roundup WeatherMax	21.3 oz/a			3247.2
2 Prowl	1.5 pt/a	99.0	99.0	8.5
Roundup WeatherMax	21.3 oz/a			2798.4
Valor	1 oz/a			
3 Prowl	1.5 pt/a	98.0	98.0	7.1
Roundup WeatherMax	21.3 oz/a			2354.6
Valor	2 oz/a			
4 Prowl	1.5 pt/a	99.0	99.0	11.2
Roundup WeatherMax	21.3 oz/a			3681.2
Roundup WeatherMax	21.3 oz/a			
Valor	1 oz/a			
5 Prowl	1.5 pt/a	99.0	99.0	11.1
Roundup WeatherMax	21.3 oz/a			3654.8
Roundup WeatherMax	21.3 oz/a			
Valor	2 oz/a			
6 Prowl	1.5 pt/a	99.0	99.0	9.1
Roundup WeatherMax	21.3 oz/a			2996.4
Valor	1 oz/a			
Roundup WeatherMax	21.3 oz/a			
Valor	1 oz/a			
7 Prowl	1.5 pt/a	99.0	99.0	9.0
Roundup WeatherMax	21.3 oz/a			2963.4
Valor	1 oz/a			
Roundup WeatherMax	21.3 oz/a			
Valor	2 oz/a			
8 Prowl	1.5 pt/a	99.0	99.0	11.0
Roundup WeatherMax	21.3 oz/a			3623.4
Roundup WeatherMax	21.3 oz/a			
Valor	1 oz/a			
9 Prowl	1.5 pt/a	99.0	99.0	10.3
Roundup WeatherMax	21.3 oz/a			3408.9
Roundup WeatherMax	21.3 oz/a			
10 No herbicide		0.0	0.0	0.1
LSD (P=.05)		1.44	1.44	1.15
Standard Deviation		0.99	0.99	0.79
CV		1.14	1.13	9.1
Bartlett's X2		0.146	0.146	9.954
P(Bartlett's X2)		0.703	0.703	0.354

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

Column 25: TY1 = 330.0*[C24]

Trial Comments

OBJECTIVE: Evaluate crop tolerance, postemergence weed control, and residual weed control responses to Valor directed in cotton.

CROP TOLERANCE:

- 1) Directing 1 oz/A of Valor with glyphosate to 6 inch cotton caused 29 to 35% injury during early season. Plant loss was severe. Cotton did "fill" in over time.
- 2) Directing 2 oz/A of Valor with glyphosate to 6 inch cotton caused 55% injury during early season. Plant loss was severe. Cotton could not recover from the large degree of dead plants.
- 3) Directing Valor to 16" barky cotton caused less than 3% stem necrosis.

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WEED CONTROL:

Palmer amaranth:

- 1) All applications provided excellent control of emerged plants.
- 2) Valor applied with glyphosate at the 6 inch timing improved at least 8% late in the season because of residual activity.
- 3) All applications at the 16 inch timing provided excellent control throughout the season.

Texas panicum:

- 1) All applications provided excellent control of emerged plants.
- 2) Valor applied with glyphosate at the 6 inch timing improved control 10 to 14% late in the season because of residual activity.
- 3) Control in plots treated with a 16" application controlled panicum at least 94% throughout the season.

Smallflower morningglory:

- 1) Mixing Valor with glyphosate at the 6" timing improved postemergence control by at least 13% at 10 day after treatment.
- 2) Mixing Valor with glyphosate at the 6" timing improved late-season control by 25%.
- 3) Control in plots treated with a 16" application controlled morningglory 99% late in the season.

Florida beggarweed:

- 1) All applications provided excellent control of emerged plants.
- 2) Valor applied with glyphosate at the 6" timing improved late-season control by 12 to 13% because of residual activity.
- 3) Control in plots treated with a 16" application controlled beggarweed 99% late in the season.

Sicklepod:

- 1) All applications provided excellent control of emerged plants.
- 2) Mixing Valor with glyphosate at the 6 inch application improved late-season control 10 to 15% because of residual activity (control still less than 66%).
- 3) Control in plots treated with a 16 inch application was 99% late in the season.

COTTON YIELD:

- 1) Yield followed trends in early season injury.
- 2) Yields from cotton plots treated with Valor at the 6 inch timing were 14 to 28% less than the same system without Valor.
- 3) Yields from plots treated with a layby were similar except where Valor was applied at the 6 inch stage and caused severe cotton injury..

CONCLUSIONS:

- 1) Valor should be directed to cotton only after a height of 16 inches and the stem becomes completely barkey.
- 2) Valor will be helpful in controlling emerged morningglory and providing residual control for many weed species.
- 3) Wouldn't even run hoods until cotton was at least 10 inches and probably 12 inches in height.

GENERAL COMMENTS: WeatherMax at 5.5 oz/A applied overtop of emerging cotton except the non-treated control to facilitate directed applications to six inch cotton.