

University of Georgia

Weed management in RR Flex and LL cotton

Trial ID: C50-03
Location: Attapulgus

Study Dir.: Stanley Culpepper
Investigator: Alan C. York

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper
Affiliation: University of Georgia
Investigator: Alan C. York
Affiliation: N. C. State University

Title: Ext. Weed Science
Postal Code: 31794
Title: Ext. Weed Science
Postal Code: 27695

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

CROP AND PEST DESCRIPTION

Weed 1: ACHNI Bristly starbur **2:** DEDTO Florida beggarweed
Weed 3: CASOB sicklepod **4:** IAQTA Smallflower mg
Weed 5: PANTE Texas panicum

Crop 1: GOSHI cotton **Variety:** various **Planting Date:** May-28-03
Planting Method: conventional **Rate:** 3 seed/ft **Depth:** 0.5 in
Row Spacing: 36 inch **Seed Bed:** flat
Soil Temperature: 83 F **Soil Moisture:** fair **Emergence Date:** Jun-02-03

Plot Width, Unit: 12 FT **Plot Length, Unit:** 22 FT **Reps:** 4
Site Type: Research station
Tillage Type: conventional **Study Design:** SPLIT-PLOT

SOIL DESCRIPTION

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

APPLICATION DESCRIPTION

	A	B	C	D	E	F
Application Date:	May-28-03	Jun-16-03	Jul-11-03	Jul-27-03	Aug-11-03	
Time of Day:	2 pm	9 am	9 am	10 am	12 pm	
Application Method:	Broadcast	Broadcast	Broadcast	Broadcast	Broadcast	
Application Timing:	PRE	POST 1	POST 2	POST 3	PDIR	
Applic. Placement:	on soil	overtop	overtop	overtop	directed	
Air Temp., Unit:	83 f	82 f	83 f	81 F	86 F	
% Relative Humidity:	40	59	65	69	68	
Wind Velocity, Unit:	2 mph	0 mph	3 mph	1 mph	2 mph	
Dew Presence (Y/N):	N	n	y	n	n	
Soil Temp., Unit:	80 F	83 F	83 F	80 F	88 F	
Soil Moisture:	fair	wet	wet	wet	moist	
% Cloud Cover:	0	15	25	20	25	

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Crop 1 GOSHI Stage:	PRE	POST1	POST2	POST3	PDIR	
Stage Scale:	.	V2	V8	V12	V15	
Height, Unit:	0.	3 inch	15 inch	22 inch	28 inch	

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WEED STAGE AT EACH APPLICATION						
	A	B	C	D	E	F
Weed 1 ACHNI Stage:	PRE	POST1	POST2	POST3	PDIR	
Stage Scale:	.	<3 inch	<3 inch	<3 inch	<3 inch	
Density, Unit:	. .	4 ydsq	. .	. .	. .
Weed 2 DEDTO Stage:	PRE	POST1	POST2	POST3	PDIR	
Stage Scale:	.	<3 inch	<3 inch	<3 inch	<3 inch	
Density, Unit:	. .	7 ydsq	. .	. .	. .
Weed 3 CASOB Stage:	PRE	POST1	POST2	POST3	PDIR	
Stage Scale:	.	<3 inch	<3 inch	<3 inch	<3 inch	
Density, Unit:	. .	2 ydsq	. .	. .	. .
Weed 4 IAQTA Stage:	PRE	POST1	POST2	POST3	PDIR	
Stage Scale:	.	<3 inch	<3 inch	<3 inch	<3 inch	
Density, Unit:	. .	3 ydsq	. .	. .	. .
Weed 5 PANTE Stage:	PRE	POST1	POST2	POST3	PDIR	
Stage Scale:	.	<3 inch	<3 inch	<3 inch	<3 inch	
Density, Unit:	. .	12 ydsq	. .	. .	. .

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

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Trial ID: C50-03

Study Dir.: Stanley Culpepper

Location: Attapulgus

Investigator: Alan C. York

Weed Code		GOSHI	GOSHI	GOSHI	GOSHI	PANTE	PANTE	PANTE	PANTE		
Crop Code		injury	injury	injury	injury	control	control	control	control		
Rating Data Type		percent	percent	percent	percent	percent	percent	percent	percent		
Rating Unit											
Rating Date		Jun-20-03	Jun-30-03	Jul-27-03	Aug-11-03	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03		
Trt-Eval Interval			33 DA-A								
Trt	Treatment										
No.	Name	Rate	Unit	1	2	3	4	5	6	7	8
1	RR Flex cotton Untreated			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	RR Flex cotton Prowl Weathermax Weathermax Direx MSMA 6.6 Surfac 820	1.8 22 22 2 2.4 0.25	pt/a fl oz/a fl oz/a pt/a pt/a % v/v	3.7	4.7	0.0	0.0	99.0	99.0	99.0	99.0
3	RR Flex cotton Prowl Weathermax Weathermax Weathermax	1.8 22 22 22	pt/a fl oz/a fl oz/a fl oz/a	3.3	3.3	0.0	0.0	99.0	99.0	99.0	99.0
4	RR Flex cotton Prowl Weathermax Weathermax Weathermax	1.8 22 22 22	pt/a fl oz/a fl oz/a fl oz/a	4.0	2.7	0.0	0.0	99.0	99.0	92.3	99.0
5	RR Flex cotton Prowl Weathermax Staple Weathermax Weathermax	1.8 22 0.8 22 22	pt/a fl oz/a oz/a fl oz/a fl oz/a	14.3	8.0	0.0	0.0	99.0	99.0	98.0	99.0
6	RR Flex cotton Prowl Weathermax Dual Magnum Weathermax Weathermax	1.8 22 1 22 22	pt/a fl oz/a pt/a fl oz/a fl oz/a	14.0	8.0	0.0	0.0	99.0	99.0	98.0	99.0
7	RR Flex cotton Weathermax Weathermax Weathermax	22 22 22	fl oz/a fl oz/a fl oz/a	4.0	2.0	0.0	0.0	99.0	99.0	99.0	99.0
8	LL cotton Untreated			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	LL cotton Prowl Liberty Liberty Direx MSMA 6.6 Surfac 820	1.8 32 32 2 2.4 0.25	pt/a fl oz/a fl oz/a pt/a pt/a % v/v	2.7	5.0	0.0	0.0	99.0	99.0	99.0	99.0
10	LL cotton Prowl Liberty Liberty Liberty	1.8 32 32 32	pt/a fl oz/a fl oz/a fl oz/a	2.0	2.0	0.0	0.0	99.0	99.0	99.0	99.0

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Weed Code			GOSHI	GOSHI	GOSHI	GOSHI	PANTE	PANTE	PANTE	PANTE
Crop Code			injury	injury	injury	injury	control	control	control	control
Rating Data Type			percent	percent	percent	percent	percent	percent	percent	percent
Rating Unit			Jun-20-03	Jun-30-03	Jul-27-03	Aug-11-03	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03
Rating Date										
Trt-Eval Interval				33 DA-A						
Trt No.	Treatment Name	Rate Unit	1	2	3	4	5	6	7	8
11	LL cotton		2.0	2.7	0.0	0.0	99.0	99.0	95.0	99.0
	Prowl	1.8 pt/a								
	Liberty	32 fl oz/a								
	Liberty	32 fl oz/a								
	Liberty	32 fl oz/a								
12	LL cotton		8.7	4.0	0.0	0.0	99.0	99.0	99.0	99.0
	Prowl	1.8 pt/a								
	Liberty	32 fl oz/a								
	Staple	0.8 oz/a								
	Liberty	32 fl oz/a								
	Liberty	32 fl oz/a								
13	LL cotton		13.0	2.0	0.0	0.0	99.0	99.0	98.3	99.0
	Prowl	1.8 pt/a								
	Liberty	32 fl oz/a								
	Dual Magnum	1 pt/a								
	Liberty	32 fl oz/a								
	Liberty	32 fl oz/a								
14	LL cotton		4.3	1.3	0.0	0.0	99.0	99.0	98.3	99.0
	Liberty	32 fl oz/a								
	Liberty	32 fl oz/a								
	Liberty	32 fl oz/a								
	LSD (P=.05)		3.02	4.60	0.00	0.00	0.00	0.00	2.82	0.00
	Standard Deviation		1.80	2.74	0.00	0.00	0.00	0.00	1.68	0.00
	CV		33.14	84.05	0.0	0.0	0.0	0.0	2.0	0.0
	Bartlett's X2		2.507	15.369	0.0	0.0	0.0	0.0	7.637	0.0
	P(Bartlett's X2)		0.996	0.166	.	.	.	.	0.177	.

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

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Weed Code	IAQTA	IAQTA	IAQTA	IAQTA	ACNHI	ACHNI	ACHNI	ACHNI		
Crop Code	control	control	control	control	control	control	control	control		
Rating Data Type	percent	percent	percent	percent	percent	percent	percent	percent		
Rating Unit	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03		
Rating Date										
Trt-Eval Interval						60 DA-A				
Trt No.	Treatment Name	Rate	Rate	Rate	Rate	Rate	Rate	Rate		
		Unit	Unit	Unit	Unit	Unit	Unit	Unit		
1	RR Flex cotton Untreated		9	10	11	12	13	14	15	16
			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	RR Flex cotton Prowl Weathermax Weathermax Direx MSMA 6.6 Surfac 820	1.8 pt/a 22 fl oz/a 22 fl oz/a 2 pt/a 2.4 pt/a 0.25 % v/v	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
3	RR Flex cotton Prowl Weathermax Weathermax Weathermax	1.8 pt/a 22 fl oz/a 22 fl oz/a 22 fl oz/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
4	RR Flex cotton Prowl Weathermax Weathermax Weathermax	1.8 pt/a 22 fl oz/a 22 fl oz/a 22 fl oz/a	99.0	99.0	90.7	93.3	99.0	99.0	94.7	99.0
5	RR Flex cotton Prowl Weathermax Staple Weathermax Weathermax	1.8 pt/a 22 fl oz/a 0.8 oz/a 22 fl oz/a 22 fl oz/a	99.0	99.0	98.0	98.3	99.0	99.0	97.3	95.7
6	RR Flex cotton Prowl Weathermax Dual Magnum Weathermax Weathermax	1.8 pt/a 22 fl oz/a 1 pt/a 22 fl oz/a 22 fl oz/a	99.0	99.0	98.0	97.7	99.0	99.0	98.0	99.0
7	RR Flex cotton Weathermax Weathermax Weathermax	22 fl oz/a 22 fl oz/a 22 fl oz/a	99.0	99.0	99.0	99.0	99.0	99.0	98.7	99.0
8	LL cotton Untreated		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	LL cotton Prowl Liberty Liberty Direx MSMA 6.6 Surfac 820	1.8 pt/a 32 fl oz/a 32 fl oz/a 2 pt/a 2.4 pt/a 0.25 % v/v	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
10	LL cotton Prowl Liberty Liberty Liberty	1.8 pt/a 32 fl oz/a 32 fl oz/a 32 fl oz/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
11	LL cotton Prowl Liberty Liberty Liberty	1.8 pt/a 32 fl oz/a 32 fl oz/a 32 fl oz/a	99.0	99.0	93.7	95.7	99.0	99.0	95.0	99.0

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Weed Code	IAQTA	IAQTA	IAQTA	IAQTA	ACNHI	ACHNI	ACHNI	ACHNI			
Crop Code	control	control	control	control	control	control	control	control			
Rating Data Type	percent	percent	percent	percent	percent	percent	percent	percent			
Rating Unit	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03			
Rating Date											
Trt-Eval Interval						60 DA-A					
Trt No.	Treatment Name	Rate	Unit	9	10	11	12	13	14	15	16
12	LL cotton			99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
	Prowl	1.8	pt/a								
	Liberty	32	fl oz/a								
	Staple	0.8	oz/a								
	Liberty	32	fl oz/a								
	Liberty	32	fl oz/a								
13	LL cotton			99.0	99.0	98.3	98.7	99.0	99.0	98.3	95.7
	Prowl	1.8	pt/a								
	Liberty	32	fl oz/a								
	Dual Magnum	1	pt/a								
	Liberty	32	fl oz/a								
	Liberty	32	fl oz/a								
14	LL cotton			99.0	99.0	98.3	98.7	99.0	99.0	98.3	99.0
	Liberty	32	fl oz/a								
	Liberty	32	fl oz/a								
	Liberty	32	fl oz/a								
LSD (P=.05)		0.00		0.00	0.00	2.39	1.96	0.00	0.00	2.40	3.73
Standard Deviation		0.00		0.00	0.00	1.42	1.17	0.00	0.00	1.43	2.22
CV		0.0		0.0	0.0	1.7	1.39	0.0	0.0	1.71	2.64
Bartlett's X2		0.0		0.0	0.0	9.329	7.613	0.0	0.0	8.632	0.0
P(Bartlett's X2)		.		.	.	0.097	0.179	.	.	0.195	1.00

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

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Weed Code	DEDTO	DEDTO	DEDTO	DEDTO	CASOB	CASOB	CASOB	CASOB			
Crop Code	control	control	control	control	control	control	control	control			
Rating Data Type	percent	percent	percent	percent	percent	percent	percent	percent			
Rating Unit	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03	Aug-11-03	Jul-27-03	Aug-11-03	Oct-02-03			
Rating Date											
Trt-Eval Interval											
Trt No.	Treatment Name	Rate	Unit	17	18	19	20	21	22	23	24
1	RR Flex cotton Untreated			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	RR Flex cotton Prowl Weathermax Weathermax Direx MSMA 6.6 Surfac 820	1.8 22 22 2 2.4 0.25	pt/a fl oz/a fl oz/a pt/a pt/a % v/v	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
3	RR Flex cotton Prowl Weathermax Weathermax Weathermax	1.8 22 22 22	pt/a fl oz/a fl oz/a fl oz/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
4	RR Flex cotton Prowl Weathermax Weathermax Weathermax	1.8 22 22 22	pt/a fl oz/a fl oz/a fl oz/a	99.0	99.0	94.0	99.0	94.7	99.0	99.0	99.0
5	RR Flex cotton Prowl Weathermax Staple Weathermax Weathermax	1.8 22 0.8 22 22	pt/a fl oz/a oz/a fl oz/a fl oz/a	99.0	99.0	98.0	99.0	98.0	99.0	99.0	99.0
6	RR Flex cotton Prowl Weathermax Dual Magnum Weathermax Weathermax	1.8 22 1 22 22	pt/a fl oz/a pt/a fl oz/a fl oz/a	99.0	99.0	98.0	99.0	98.0	99.0	99.0	99.0
7	RR Flex cotton Weathermax Weathermax Weathermax	22 22 22	fl oz/a fl oz/a fl oz/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
8	LL cotton Untreated			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	LL cotton Prowl Liberty Liberty Direx MSMA 6.6 Surfac 820	1.8 32 32 2 2.4 0.25	pt/a fl oz/a fl oz/a pt/a pt/a % v/v	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
10	LL cotton Prowl Liberty Liberty Liberty	1.8 32 32 32	pt/a fl oz/a fl oz/a fl oz/a	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
11	LL cotton Prowl Liberty Liberty Liberty	1.8 32 32 32	pt/a fl oz/a fl oz/a fl oz/a	99.0	99.0	95.0	99.0	95.0	99.0	99.0	99.0

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Weed Code	DEDTO	DEDTO	DEDTO	DEDTO	CASOB	CASOB	CASOB	CASOB								
Crop Code	control	control	control	control	control	control	control	control								
Rating Data Type	percent	percent	percent	percent	percent	percent	percent	percent								
Rating Unit	Jun-30-03	Jul-27-03	Aug-11-03	Oct-02-03	Aug-11-03	Jul-27-03	Aug-11-03	Oct-02-03								
Rating Date																
Trt-Eval Interval																
Trt No.	Treatment Name	Rate	Unit	17	18	19	20	21	22	23	24					
12	LL cotton			99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0					
	Prowl	1.8	pt/a													
	Liberty	32	fl oz/a													
	Staple	0.8	oz/a													
	Liberty	32	fl oz/a													
	Liberty	32	fl oz/a													
13	LL cotton			99.0	99.0	98.3	99.0	98.3	99.0	99.0	99.0					
	Prowl	1.8	pt/a													
	Liberty	32	fl oz/a													
	Dual Magnum	1	pt/a													
	Liberty	32	fl oz/a													
	Liberty	32	fl oz/a													
14	LL cotton			99.0	99.0	98.3	99.0	98.3	99.0	99.0	99.0					
	Liberty	32	fl oz/a													
	Liberty	32	fl oz/a													
	Liberty	32	fl oz/a													
LSD (P=.05)		0.00		0.00		2.24		0.00		2.39		0.00		0.00		0.00
Standard Deviation		0.00		0.00		1.34		0.00		1.43		0.00		0.00		0.00
CV		0.0		0.0		1.59		0.0		1.7		0.0		0.0		0.0
Bartlett's X2		0.0		0.0		5.979		0.0		6.445		0.0		0.0		0.0
P(Bartlett's X2)		.		.		0.308		.		0.265		.		.		.

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

Trial Comments

OBJECTIVE: Evaluate LL and RR Flex weed management systems.

Visual Crop Response:

- 1) At 4 days after POST 1 applications the following was noted:
 - 1) Minor stunting from Prowl PRE was noted (<5%). Several inches of rain occurred 3 day after planting.
 - 2) WeatherMax applied overtop of RR cotton caused minor speckling.
 - 3) Liberty did not visual effect LL cotton.
 - 4) Mixing Staple or Dual with Roundup or Liberty increased injury (9 to 14%) compared to either non-selective applied alone.
- 2) Cotton recovered quickly from injury noted from POST 1 applications.

Weed Response:

Texas panicum:

- 1) Control was at least 95% in all treatments throughout the season.

Smallflower mg:

- 1) Control was at least 91% in all treatments throughout the season.
- 2) Interestingly, significantly less control was noted late in the season in the two systems that did not receive a directed application.

Bristly Starbur:

- 1) Control was at least 95% in all treatments throughout the season.

Florida beggarweed:

- 1) Control was at least 95% in all treatments throughout the season.

Sicklepod:

- 1) Control was at least 95% throughout the season.

Seed Cotton Yield:

- 1) Data was variable do to a difficult growing season at Attapulcus.

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- 2) Treatments had no effect on yield.
- 3) Yield values are available for LL cotton for Bayer and RR Flex cotton to Monsanto.