

University of Georgia

Weed management in conservation tillage Liberty Link cotton.

Trial ID: C31-05

Study Dir.: Culpepper

Location: Ponder (5119)

Investigator: Stanley Culpepper

Reps: 4

Plots: 12 by 30 feet

Spray vol: 14.8 gal/ac

Mix size: 2 liters (min 1.852)

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code	Amt Product to Measure	Plot No. By Rep			
									1	2	3	4
1	Untreated								101	211	304	406
2	AE F039866	2.33 L	L	22.9 oz/a		POST 1	B	24.18 ml/mx	102	212	305	412
	AE F039866	2.33 L	L	22.9 oz/a		POST 3	D	24.18 ml/mx				
3	AE F039866	2.33 L	L	22.9 oz/a		POST 2	C	24.18 ml/mx	103	207	308	410
	AE F039866	2.33 L	L	22.9 oz/a		POST 4	E	24.18 ml/mx				
4	Prowl	3.3 EC	EC	2 pt/a		PRE	A	33.78 ml/mx	104	205	312	401
	AE F039866	2.33 L	L	22.9 oz/a		POST 2	C	24.18 ml/mx				
	AE F039866	2.33 L	L	22.9 oz/a		POST 4	E	24.18 ml/mx				
5	Prowl	3.3 EC	EC	2 pt/a		PRE	A	33.78 ml/mx	105	208	302	404
	AE F039866	2.33 L	L	22.9 oz/a		POST 2	C	24.18 ml/mx				
	AE F039866	2.33 L	L	22.9 oz/a		POST 4	E	24.18 ml/mx				
	Envoke	75 DF	DF	0.1 oz/a		POST 4	E	0.1012 g/mx				
6	Prowl	3.3 EC	EC	2 pt/a		PRE	A	33.78 ml/mx	106	209	311	403
	AE F039866	2.33 L	L	22.9 oz/a		POST 2	C	24.18 ml/mx				
	AE F039866	2.33 L	L	22.9 oz/a		POST 4	E	24.18 ml/mx				
	Staple	85 WP	WP	0.8 oz/a		POST 4	E	0.8096 g/mx				
7	Prowl	3.3 EC	EC	2 pt/a		PRE	A	33.78 ml/mx	107	204	303	407
	AE F039866	2.33 L	L	22.9 oz/a		POST 2	C	24.18 ml/mx				
	AE F039866	2.33 L	L	22.9 oz/a		POST 4	E	24.18 ml/mx				
	Dual Magnum	7.62 L	L	1 pt/a		POST 4	E	16.89 ml/mx				
8	Prowl	3.3 EC	EC	2 pt/a		PRE	A	33.78 ml/mx	108	210	301	409
	AE F039866	2.33 L	L	22.9 oz/a		POST 2	C	24.18 ml/mx				
	AE F039866	2.33 L	L	22.9 oz/a		PDIR	E	24.18 ml/mx				
	Valor	51 WDG	WDG	1.5 oz/a		PDIR	E	1.518 g/mx				
9	AE F039866	2.33 L	L	22.9 oz/a		POST 1	B	24.18 ml/mx	109	203	309	402
	AE F039866	2.33 L	L	22.9 oz/a		POST 3	D	24.18 ml/mx				
10	AE F039866	2.33 L	L	22.9 oz/a		POST 1	B	24.18 ml/mx	110	201	307	408
	AE F039866	2.33 L	L	22.9 oz/a		POST 3	D	24.18 ml/mx				
	Staple	85 WP	WP	0.8 oz/a		POST 3	D	0.8096 g/mx				
11	AE F039866	2.33 L	L	22.9 oz/a		POST 1	B	24.18 ml/mx	111	206	310	405
	AE F039866	2.33 L	L	22.9 oz/a		POST 3	D	24.18 ml/mx				
	Dual Magnum	7.62 L	L	1 pt/a		POST 3	D	16.89 ml/mx				
12	AE F039866	2.33 L	L	22.9 oz/a		POST 1	B	24.18 ml/mx	112	202	306	411
	Staple	85 WP	WP	0.8 oz/a		POST 1	B	0.8096 g/mx				
	AE F039866	2.33 L	L	22.9 oz/a		POST 3	D	24.18 ml/mx				
	Dual Magnum	7.62 L	L	1 pt/a		POST 3	D	16.89 ml/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Lot Code
664.856	ml	AE F039866 2.33 L	
211.126	ml	Prowl 3.3 EC	
0.127	g	Envoke 75 DF	
3.036	g	Staple 85 WP	
63.338	ml	Dual Magnum 7.62 L	
1.898	g	Valor 51 WDG	

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Reps: 4 Plots: 12 by 30 feet
 Spray vol: 14.8 gal/ac Mix size: 2 liters (min 1.852)

Trt No.	Tr> N>	Form Conc	Form Type	Plot No. By Rep
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Product quantities required for listed treatments and applications in one trial:

Amount*	Unit	Treatment Name	Lot Code
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- * '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: Compare Liberty Link weed management systems in a strip tillage system.

VISUAL INJURY RESPONSE:

1. Ignite did not injure cotton.
2. Mixing Staple or Dual Magnum with Ignite at POST 1 or POST 3 injured (primarily leaf spotting and necrosis) cotton 12 to 13% at 3 DAT. Cotton quickly recovered.
3. POST 4 applications of Ignite plus Dual caused little injury while injury was 16% or less when treated with Ignite plus Envoke or Staple.

WEED RESPONSE:

Palmer Amaranth:

1. When POST 1 applications were made, cotton had only 1-2 leaves but Palmer was up to 4.5 inches tall if Prowl PRE was not applied; Ignite provided inadequate control of emerged Palmer. Following Prowl PRE, Palmer was still up to 3.5 inches tall and Prowl followed by Ignite POST 1 only provided 82 to 87% control 10 DAT. Only applications of Ignite plus Staple provided excellent control of emerged pigweed.
2. By late-season, programs relying on Ignite or Prowl fb Ignite provided poor control. However, three programs did provide good control (89-98%): Prowl fb Ignite (POST 2) fb Ignite + Staple or Envoke (POST 3) or Ignite plus Staple (POST 1) fb Ignite + Dual Magnum (POST 3).
3. Valor at layby was of little benefit because the pigweed was too large to cover with the directed application.

Pitted Morningglory:

1. Ignite provided excellent control of emerged plants.
2. There was a little erratic late-season emergence but for the most part all programs provided excellent control.

Yellow Nutsedge:

1. Nutsedge was spotty and difficult to evaluate.
2. After the layby, the Valor or the Envoke systems appeared to provide the best control (79-82%).
3. Palmer and grasses were so bad in most plots, late-season ratings were not possible.

Texas Panicum:

1. Ignite provide good initial control of Panicum up to 4 inches and provided poor control when panicum reached 6 inches. Although initial control was good, regrowth even of the 4 inch panicum was noted by 14 d after treatment.
2. At 11 d after layby, most programs except Ignite alone, provided good control; however, late-season regrowth and new emergence quickly dropped control to the point that no program provided acceptable control.

SEED YIELD:

1. Weed control was so poor plots were not harvested.

CONCLUSIONS:

1. Rainfall was plentiful throughout the crop and weeds grew quickly and continued to emerge.
2. Residual herbicide activity was limited because of the conservation tillage system with a wheat cover crop.
3. Palmer amaranth and Texas panicum will be EXTREMELY challenging to manage in conservation tillage Liberty Link cotton production.

GENERAL COMMENTS:

1. At the POST 2 timing when not following a PRE: Palmer was up to 8 inch, grasses were up to 6 inch, pitted morningglory was up to 6 inch; when following a PRE Palmer was up to 4 inch, grasses were up to 3 inch, and pitted morningglory was up to 5 inch.

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Trial ID: C31-05

Study Dir.: Culpepper

Location: Ponder (5119)

Investigator: Stanley Culpepper

Weed Code		GOSHI	GOSHI	GOSHI	GOSHI	AMAPA	AMAPA	AMAPA	AMAPA	
Crop Code		injury	injury	injury	injury	cotton	cotton	cotton	cotton	
Rating Data Type		percent	percent	percent	percent	control	control	control	control	
Rating Unit		percent	percent	percent	percent	percent	percent	percent	percent	
Rating Date		May-20-05	May-31-05	Jun-07-05	Jun-24-05	May-31-05	Jun-07-05	Jun-24-05	Jul-11-05	
Trt-Eval Interval		3 DA-A	14 DA-A	21 DA-A	38 DA-A	14 DA-A	21 DA-A	38 DA-A	55 DA-A	
Trt No.	Treatment Name	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	
		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	
1	Untreated									
2	AE F039866	22.9 oz/a				72	79	78	72	
	AE F039866	22.9 oz/a								
3	AE F039866	22.9 oz/a			1	50	45	81	70	
	AE F039866	22.9 oz/a								
4	Prowl	2 pt/a				85	76	90	93	
	AE F039866	22.9 oz/a								
	AE F039866	22.9 oz/a								
5	Prowl	2 pt/a			16	85	81	99	99	
	AE F039866	22.9 oz/a								
	AE F039866	22.9 oz/a								
	Envoke	0.1 oz/a								
6	Prowl	2 pt/a			12	87	90	89	99	
	AE F039866	22.9 oz/a								
	AE F039866	22.9 oz/a								
	Staple	0.8 oz/a								
7	Prowl	2 pt/a				75	72	93	85	
	AE F039866	22.9 oz/a								
	AE F039866	22.9 oz/a								
	Dual Magnum	1 pt/a								
8	Prowl	2 pt/a			4	87	66	68	58	
	AE F039866	22.9 oz/a								
	AE F039866	22.9 oz/a								
	Valor	1.5 oz/a								
9	AE F039866	22.9 oz/a				76	83	83	76	
	AE F039866	22.9 oz/a								
10	AE F039866	22.9 oz/a		12		65	71	92	90	
	AE F039866	22.9 oz/a								
	Staple	0.8 oz/a								
11	AE F039866	22.9 oz/a		13		68	76	84	85	
	AE F039866	22.9 oz/a								
	Dual Magnum	1 pt/a								
12	AE F039866	22.9 oz/a	12	1	13	95	98	99	94	
	Staple	0.8 oz/a								
	AE F039866	22.9 oz/a								
	Dual Magnum	1 pt/a								
	LSD (P=.05)		1.0	0.4	1.4	3.2	11.1	14.4	12.7	9.7
	Standard Deviation		0.7	0.3	1.0	2.2	7.7	10.0	8.8	6.7
	CV		69.66	692.82	31.74	79.97	10.92	14.3	11.09	8.78

Means followed by same letter do not significantly differ (P=.05, LSD)

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Weed Code	AMAPA	IPOLA	IPOLA	IPOLA	IPOLA	CYPES	CYPES	CYPES			
Crop Code	cotton	cotton	cotton	cotton	cotton	cotton	cotton	cotton			
Rating Data Type	control	control	control	control	control	control	control	control			
Rating Unit	percent	percent	percent	percent	percent	percent	percent	percent			
Rating Date	Sep-07-05	May-31-05	Jun-07-05	Jul-11-05	Sep-07-05	May-31-05	Jun-07-05	Jun-24-05			
Trt-Eval Interval	113 DA-A	14 DA-A	21 DA-A	55 DA-A	113 DA-A	14 DA-A	21 DA-A	38 DA-A			
Trt No.	Treatment Name	Rate	Unit	9	10	11	12	13	14	15	16
1	Untreated			0	0	0	0	0	0	0	0
2	AE F039866	22.9	oz/a	38	90	99	93	93	30	48	41
	AE F039866	22.9	oz/a								
3	AE F039866	22.9	oz/a	25	92	95	97	90	20	28	53
	AE F039866	22.9	oz/a								
4	Prowl	2	pt/a	71	95	94	99	99	45	50	50
	AE F039866	22.9	oz/a								
	AE F039866	22.9	oz/a								
5	Prowl	2	pt/a	95	81	76	97	99	31	35	79
	AE F039866	22.9	oz/a								
	AE F039866	22.9	oz/a								
	Envoke	0.1	oz/a								
6	Prowl	2	pt/a	98	96	90	99	99	40	38	63
	AE F039866	22.9	oz/a								
	AE F039866	22.9	oz/a								
	Staple	0.8	oz/a								
7	Prowl	2	pt/a	74	95	93	98	98	26	26	55
	AE F039866	22.9	oz/a								
	AE F039866	22.9	oz/a								
	Dual Magnum	1	pt/a								
8	Prowl	2	pt/a	34	90	79	99	98	41	34	82
	AE F039866	22.9	oz/a								
	AE F039866	22.9	oz/a								
	Valor	1.5	oz/a								
9	AE F039866	22.9	oz/a	43	96	97	99	86	29	40	38
	AE F039866	22.9	oz/a								
10	AE F039866	22.9	oz/a	61	96	96	99	93	25	43	50
	AE F039866	22.9	oz/a								
	Staple	0.8	oz/a								
11	AE F039866	22.9	oz/a	69	94	96	97	86	26	46	58
	AE F039866	22.9	oz/a								
	Dual Magnum	1	pt/a								
12	AE F039866	22.9	oz/a	89	96	98	93	99	36	84	74
	Staple	0.8	oz/a								
	AE F039866	22.9	oz/a								
	Dual Magnum	1	pt/a								
LSD (P=.05)				11.7	6.6	9.7	6.4	9.7	16.8	18.3	15.0
Standard Deviation				8.1	4.6	6.7	4.4	6.7	11.7	12.7	10.4
CV				14.0	5.39	7.93	4.95	7.77	40.02	32.44	19.46

Means followed by same letter do not significantly differ (P=.05, LSD)

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Weed Code		PANTE	PANTE	PANTE	PANTE	PANTE	
Crop Code		cotton	cotton	cotton	cotton	cotton	
Rating Data Type		control	control	control	control	control	
Rating Unit		percent	percent	percent	percent	percent	
Rating Date		Jun-07-05	May-31-05	Jun-24-05	Jul-11-05	Sep-07-05	
Trt-Eval Interval		21 DA-A	14 DA-A	38 DA-A	55 DA-A	113 DA-A	
Trt No.	Treatment Name	Rate	Rate	Rate	Rate	Rate	
		Unit					
			17	18	19	20	21
1	Untreated		0	0	0	0	0
2	AE F039866	22.9 oz/a	90	82	76	57	20
	AE F039866	22.9 oz/a					
3	AE F039866	22.9 oz/a	41	68	85	49	5
	AE F039866	22.9 oz/a					
4	Prowl	2 pt/a	84	90	93	89	43
	AE F039866	22.9 oz/a					
	AE F039866	22.9 oz/a					
5	Prowl	2 pt/a	76	85	88	80	45
	AE F039866	22.9 oz/a					
	AE F039866	22.9 oz/a					
	Envoke	0.1 oz/a					
6	Prowl	2 pt/a	84	91	93	93	76
	AE F039866	22.9 oz/a					
	AE F039866	22.9 oz/a					
	Staple	0.8 oz/a					
7	Prowl	2 pt/a	71	89	87	91	56
	AE F039866	22.9 oz/a					
	AE F039866	22.9 oz/a					
	Dual Magnum	1 pt/a					
8	Prowl	2 pt/a	76	88	97	95	61
	AE F039866	22.9 oz/a					
	AE F039866	22.9 oz/a					
	Valor	1.5 oz/a					
9	AE F039866	22.9 oz/a	95	93	86	65	23
	AE F039866	22.9 oz/a					
10	AE F039866	22.9 oz/a	92	94	84	60	20
	AE F039866	22.9 oz/a					
	Staple	0.8 oz/a					
11	AE F039866	22.9 oz/a	94	88	88	80	44
	AE F039866	22.9 oz/a					
	Dual Magnum	1 pt/a					
12	AE F039866	22.9 oz/a	98	95	89	84	56
	Staple	0.8 oz/a					
	AE F039866	22.9 oz/a					
	Dual Magnum	1 pt/a					
LSD (P=.05)			10.2	7.6	8.9	12.1	17.0
Standard Deviation			7.1	5.2	6.2	8.4	11.8
CV			9.39	6.56	7.7	11.92	31.5

Means followed by same letter do not significantly differ (P=.05, LSD)

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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: 94	% OM: 1.3	Texture: sand
% Silt: 2	pH: 6.0	Soil Name: Tifton sandy loam
% 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: wet

Closest Weather Station: _____ Distance: _____ Unit: ____

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	May-17-05	May-21-05	Jun-04-05	Jun-13-05	Jun-13-05
Time of Day:	8 am	3 pm	11 am	9 am	9 am
Application Method:	broadcast	broadcast	broadcast	broadcast	broadcast
Application Timing:	POST 1	POST 2	POST 3	POST 4	LPD
Applic. Placement:	overtop	overtop	overtop	overtop	directed
Air Temp., Unit:	68 F	84 F	78 F	84 F	84 F
% Relative Humidity:	60	49	70	54	54
Wind Velocity, Unit:	0 mph	4 mph	0 mph	2 mph	2 mph
Dew Presence (Y/N):	n	n	n	n	n
Water Hardness:					
Soil Temp., Unit:	67 F	81 F	78 F	83 F	83 F
Soil Moisture:	moist	moist	wet	moist	moist
% Cloud Cover:	0	0	100	40	40

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	GOSHI POST 1	GOSHI POST 2	GOSHI POST 3	GOSHI POST 4	GOSHI LPD
Stage Scale:	1-2 leaf	3-4 leaf	7 leaf	11 leaf	11 leaf
Height, Unit:	2.5 inch	4 inch	11 inch	15.5 inch	15.5 inch

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WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code, Stage:	AMAPA POST 1	AMAPA POST 2	AMAPA POST 3	AMAPA POST 4	AMAPA LPD
Stage Scale:	< 4.5 in	see comme	< 15 in	< 24 in	< 24 in
Density, Unit:	8 ydsq	. .	9 ydsq	9 ydsq	9 ydsq
Weed 2 Code, Stage:	IPOLA POST 1	IPOLA POST 2	IPOLA POST 3	IPOLA POST 4	IPOLA LPD
Stage Scale:	< 2 inch	see comme	< 6 in	< 18 inch	< 18 inch
Density, Unit:	3 ydsq	. .	5 ydsq	5 ydsq	5 ydsq
Weed 3 Code, Stage:	CYPES POST 1	CYPES POST 2	CYPES POST 3	CYPES POST 4	CYPES LPD
Stage Scale:	< 6 inch	see comme	< 10 in	covered	covered
Density, Unit:	3 ydsq	. .	2 ydsq
Weed 4 Code, Stage:	PANTE POST 1	PANTE POST 2	PANTE POST 3	PANTE POST 4	PANTE LPD
Stage Scale:	<4in, 3 T	see comme	< 8 in	< 14 in	< 14 in
Density, Unit:	18 ydsq	. .	18 ydsq	18 ydsq	18 ydsq

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	backpack	backpack	backpack	backpack	backpack
Operating Pressure:	23	23	23	23	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
Band Width, Unit:					
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
Incorporation Equip.:					
Hours to Incorp.:					
Incorp. Depth, Unit:					
Carrier:	water	water	water	water	water
Spray Volume, Unit:	14.8 GPA	14.8 GPA	14.8 GPA	14.8 GPA	14.8 GPA
Spray pH:					
Propellant:	CO2	CO2	CO2	CO2	CO2
Tank Mix (Y/N):	Y	Y	Y	Y	Y

Trt No	Treatment Application Comment