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Smallflower morningglory response to Envoke/Staple mixtures.

Trial ID: C33-03 Study Dir.: Stanley Culpepper
 Location: Ponder farm (5130) Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

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

Trial Status: completed **Initiation Date:** Apr-28-03 **Country:** USA
City: TyTy **State/Prov.:** GA **Postal Code:** 31794
Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND PEST DESCRIPTION

Weed 1: XANST common cocklebur
Weed 3: IPOLA pitted morningglory **4:** IAQTA smallflower morningglory

Crop 1: GOSHI cotton **Variety:** DP 555 B/RR **Planting Date:** Apr-28-03
Planting Method: strip till **Rate:** 3 seed/ft **Depth:** 0.5 in
Row Spacing: 36 inch **Seed Bed:** flat
Soil Moisture: moist **Emergence Date:** May-03-03

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

SOIL DESCRIPTION

Texture: sand **% OM:** 1.1 **% Sand:** 94 **% Silt:** 2 **% Clay:** 4
pH: 5.8 **Soil Name:** Tifton sandy loa

Overall Moisture Conditions: wet

APPLICATION DESCRIPTION

	A	B	C	D	E	F
Application Date:	May-18-03	May-30-20	Jun-04-03	Jun-14-20		
Time of Day:	9:00 am	8:00am	6:00pm	9:00 am		
Application Method:	broadcast	broadcast	broadcast	broadcast		
Application Timing:	2-1f	6-1f	8-1f	13-1f		
Applic. Placement:	overtop	overtop	directed	directed		
Air Temp., Unit:	80 F	75 F	87 F	83 F		
% Relative Humidity:	50	59	44	70		
Wind Velocity, Unit:	2 mph	0 mph	3 mph	3 mph		
Dew Presence (Y/N):	N	Y	N	N		
Soil Temp., Unit:	79 f	73 f	87 f	85 f		
Soil Moisture:	fair	fair	wet	moist		
% Cloud Cover:	95	0	25	10		

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Crop 1 GOSHI Stage:	2-leaf	6-leaf	8-leaf	13-leaf		
Stage Scale:	V2	V6	V8	V12		
Height, Unit:	2 inch	8.5 inch	13 inch	23 inch		

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WEED STAGE AT EACH APPLICATION						
	A	B	C	D	E	F
Weed 1 XANST Stage:	2-leaf	6-leaf	8-leaf	13-leaf		
Stage Scale:	1-4"	5-10"	5", 4lf	<8"		
Density, Unit:	. .	3 ydsq		
Weed 3 IPOLA Stage:	2-leaf	6-leaf	8-leaf	13-leaf		
Stage Scale:	<2"	<12"	<6"	<12 inch		
Density, Unit:	. .	4 ydsq		
Weed 4 IAQTA Stage:	2-leaf	6-leaf	8-leaf	13-leaf		
Stage Scale:	<0.5"	<5 inch	<2 inch	<8 inch		
Density, Unit:	. .	7 ydsq		

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

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Smallflower morningglory response to Envoke/Staple mixtures.

Trial ID: C33-03

Study Dir.: Stanley Culpepper

Location: Ponder farm (5130)

Investigator: Stanley Culpepper

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	PRM Data Type	# Subsamples, Dec.	GOSHI injury percent Jun-04-03 658562 D	GOSHI injury percent Jun-10-03 658545 D	GOSHI injury percent Jun-20-03 658570 D	GOSHI injury percent May-30-03	XANST control percent May-30-03	XANST control percent Jun-12-03	XANST control percent Jul-14-03
Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7				
1	no herbicide			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
2	Envoke NIS	0.0047 0.25	lb ai/a % v/v	7.0	0.0	0.0	0.0	0.0	83.8	98.0				
3	Staple NIS	1.2 0.25	oz/a % v/v	0.5	0.0	0.0	0.0	0.0	66.3	71.0				
4	Envoke NIS Suprend NIS	0.0047 0.25 1 0.25	lb ai/a % v/v lb ai/a % v/v	6.5	0.0	0.0	0.0	0.0	87.3	99.0				
5	A13886 Envoke NIS Suprend NIS	1.75 0.0047 0.25 1 0.25	lb ae/a lb ai/a % v/v lb ai/a % v/v	8.5	12.5	0.0	2.0	97.3	98.0	99.0				
6	Envoke Staple NIS	0.0047 1.2 0.25	lb ai/a oz/a % v/v	12.0	0.0	0.0	0.0	0.0	86.8	98.8				
7	Envoke Staple NIS	0.0047 0.9 0.25	lb ai/a oz/a % v/v	8.0	0.0	0.0	0.0	0.0	84.8	97.8				
8	Envoke Staple NIS	0.0047 0.6 0.25	lb ai/a oz/a % v/v	10.8	0.0	0.0	0.0	0.0	89.3	99.0				
9	Envoke Staple NIS	0.0047 0.3 0.25	lb ai/a oz/a % v/v	8.3	0.0	0.0	0.0	0.0	83.3	93.3				
10	Staple NIS Envoke NIS	1.2 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	0.0	7.5	0.0	0.0	95.0	99.0	99.0				
11	Staple NIS Envoke NIS	0.9 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	0.0	10.5	0.0	0.0	75.3	87.3	99.0				
12	Staple NIS Envoke NIS	0.6 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	0.0	8.3	0.0	0.0	74.8	84.0	99.0				
13	Staple NIS Envoke NIS	0.3 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	1.0	6.3	0.0	0.0	47.5	80.0	99.0				
14	Envoke Staple NIS Suprend NIS	0.0047 0.6 0.25 1 0.25	lb ai/a oz/a % v/v lb ai/a % v/v	12.5	0.0	0.0	0.0	0.0	83.3	99.0				
15	Roundup WeatherMax Roundup WeatherMax	21.3 21.3	oz/a oz/a	0.0	0.8	0.0	0.0	99.0	92.8	90.8				

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Weed Code			GOSHI	GOSHI	GOSHI	GOSHI	XANST	XANST	XANST	
Crop Code			GOSHI	GOSHI	GOSHI	GOSHI	XANST	XANST	XANST	
Rating Data Type			injury	injury	injury	injury	control	control	control	
Rating Unit			percent	percent	percent	percent	percent	percent	percent	
Rating Date			Jun-04-03	Jun-10-03	Jun-20-03	May-30-03	May-30-03	Jun-12-03	Jul-14-03	
Trt-Eval Interval			658562 D	658545 D	658570 D					
PRM Data Type										
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7
16	Envoke Staple NIS	0.0035 0.6 0.25	lb ai/a oz/a % v/v	8.0	0.0	0.0	0.0	0.0	84.5	99.0
17	Envoke Staple NIS	0.0026 0.6 0.25	lb ai/a oz/a % v/v	7.0	0.0	0.0	0.0	0.0	87.3	94.3
18	Roundup WeatherMax Staple	21.3 0.6	oz/a oz/a	7.0	0.0	0.0	0.0	0.0	92.3	93.3
LSD (P=.05)			2.46	2.15	0.00	1.33	3.78	11.41	12.95	
Standard Deviation			1.74	1.52	0.00	0.94	2.67	8.07	9.15	
CV			32.32	59.7	0.0	848.53	9.83	9.89	10.12	
Bartlett's X2			12.768	6.942	0.0	0.0	16.108	24.731	50.249	
P(Bartlett's X2)			0.309	0.225	.	.	0.001*	0.054	0.001*	

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

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Weed Code		XANST	IPOLA	IPOLA	IPOLA	IPOLA	IAQTA	IAQTA		
Crop Code										
Rating Data Type		control	control	control	control	control	control	control		
Rating Unit		percent	percent	percent	percent	percent	percent	percent		
Rating Date		Sep-06-03	May-30-03	Jun-12-03	Jul-14-03	Sep-06-03	May-30-03	Jun-12-03		
Trt-Eval Interval										
PRM Data Type										
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Unit	8	9	10	11	12	13	14
1	no herbicide			0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Envoke NIS	0.0047 0.25	lb ai/a % v/v	93.3	0.0	74.5	80.0	70.0	0.0	10.0
3	Staple NIS	1.2 0.25	oz/a % v/v	53.5	0.0	61.3	52.5	51.3	0.0	76.3
4	Envoke NIS Suprend NIS	0.0047 0.25 1 0.25	lb ai/a % v/v lb ai/a % v/v	98.5	0.0	75.0	88.5	91.3	0.0	12.5
5	A13886 Envoke NIS Suprend NIS	1.75 0.0047 0.25 1 0.25	lb ae/a lb ai/a % v/v lb ai/a % v/v	98.0	96.3	96.3	97.5	96.3	98.5	92.0
6	Envoke Staple NIS	0.0047 1.2 0.25	lb ai/a oz/a % v/v	97.8	0.0	79.5	93.3	93.3	0.0	80.0
7	Envoke Staple NIS	0.0047 0.9 0.25	lb ai/a oz/a % v/v	93.0	0.0	69.5	71.3	65.8	0.0	73.8
8	Envoke Staple NIS	0.0047 0.6 0.25	lb ai/a oz/a % v/v	97.5	0.0	71.0	71.3	67.3	0.0	72.5
9	Envoke Staple NIS	0.0047 0.3 0.25	lb ai/a oz/a % v/v	94.5	0.0	81.3	76.3	72.0	0.0	70.5
10	Staple NIS Envoke NIS	1.2 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	98.5	99.0	99.0	99.0	94.3	99.0	98.0
11	Staple NIS Envoke NIS	0.9 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	97.5	99.0	96.0	99.0	97.5	99.0	96.0
12	Staple NIS Envoke NIS	0.6 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	96.5	99.0	89.8	98.0	96.5	99.0	96.0
13	Staple NIS Envoke NIS	0.3 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	97.5	96.5	93.0	98.0	97.5	99.0	85.0
14	Envoke Staple NIS Suprend NIS	0.0047 0.6 0.25 1 0.25	lb ai/a oz/a % v/v lb ai/a % v/v	97.5	0.0	76.3	94.5	89.5	0.0	77.5
15	Roundup WeatherMax Roundup WeatherMax	21.3 21.3	oz/a oz/a	87.0	99.0	96.3	88.5	95.0	99.0	96.3
16	Envoke Staple NIS	0.0035 0.6 0.25	lb ai/a oz/a % v/v	97.5	0.0	77.5	76.3	81.0	0.0	62.5

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Weed Code				XANST	IPOLA	IPOLA	IPOLA	IPOLA	IAQTA	IAQTA
Crop Code										
Rating Data Type				control	control	control	control	control	control	control
Rating Unit				percent	percent	percent	percent	percent	percent	percent
Rating Date				Sep-06-03	May-30-03	Jun-12-03	Jul-14-03	Sep-06-03	May-30-03	Jun-12-03
Trt-Eval Interval										
PRM Data Type										
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Rate Unit	8	9	10	11	12	13	14
17	Envoke Staple NIS	0.0026 0.6 0.25	lb ai/a oz/a % v/v	89.5	0.0	73.8	77.5	76.8	0.0	69.3
18	Roundup WeatherMax Staple	21.3 0.6	oz/a oz/a	92.5	0.0	82.5	89.3	88.8	0.0	84.5
LSD (P=.05)				9.39	1.70	12.69	13.16	11.30	0.33	9.07
Standard Deviation				6.64	1.20	8.98	9.30	7.99	0.24	6.42
CV				7.56	3.67	11.6	11.55	10.1	0.71	9.22
Bartlett's X2				81.776	0.05	36.139	24.148	36.538	0.0	41.67
P(Bartlett's X2)				0.001*	0.824	0.002*	0.044*	0.002*	.	0.001*

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

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Weed Code			IAQTA	IAQTA	GOSHI	GOSHI	
Crop Code					seed yld	seed yld	
Rating Data Type			control	control	lb/plot	lb/a	
Rating Unit			percent	percent			
Rating Date			Jul-14-03	Sep-06-03	Sep-24-03	Sep-24-03	
Trt-Eval Interval							
PRM Data Type						TY1	
# Subsamples, Dec.						1	
Trt No.	Treatment Name	Rate	Unit	15	16	17	18
1	no herbicide			0.0	0.0	2.5	720.2
2	Envoke NIS	0.0047 0.25	lb ai/a % v/v	26.3	47.5	7.4	2135.9
3	Staple NIS	1.2 0.25	oz/a % v/v	88.0	91.0	6.0	1727.9
4	Envoke NIS Suprend NIS	0.0047 0.25 1 0.25	lb ai/a % v/v lb ai/a % v/v	75.0	80.3	9.0	2616.5
5	A13886 Envoke NIS Suprend NIS	1.75 0.0047 0.25 1 0.25	lb ae/a lb ai/a % v/v lb ai/a % v/v	91.3	90.8	10.2	2956.3
6	Envoke Staple NIS	0.0047 1.2 0.25	lb ai/a oz/a % v/v	96.8	94.5	7.9	2301.4
7	Envoke Staple NIS	0.0047 0.9 0.25	lb ai/a oz/a % v/v	93.5	95.8	8.2	2390.0
8	Envoke Staple NIS	0.0047 0.6 0.25	lb ai/a oz/a % v/v	84.8	87.0	8.5	2455.3
9	Envoke Staple NIS	0.0047 0.3 0.25	lb ai/a oz/a % v/v	67.5	73.5	7.6	2215.8
10	Staple NIS Envoke NIS	1.2 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	99.0	98.5	9.1	2636.8
11	Staple NIS Envoke NIS	0.9 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	99.0	97.5	9.6	2774.8
12	Staple NIS Envoke NIS	0.6 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	98.0	96.5	9.7	2811.1
13	Staple NIS Envoke NIS	0.3 0.25 0.007 0.25	oz/a % v/v lb ai/a % v/v	92.0	91.5	10.3	2999.8
14	Envoke Staple NIS Suprend NIS	0.0047 0.6 0.25 1 0.25	lb ai/a oz/a % v/v lb ai/a % v/v	99.0	97.5	10.1	2925.8
15	Roundup WeatherMax Roundup WeatherMax	21.3 21.3	oz/a oz/a	85.3	91.3	8.9	2584.6
16	Envoke Staple NIS	0.0035 0.6 0.25	lb ai/a oz/a % v/v	87.5	89.3	9.7	2802.4

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Weed Code		IAQTA	IAQTA	GOSHI	GOSHI
Crop Code				seed yld	seed yld
Rating Data Type		control	control	lb/plot	lb/a
Rating Unit		percent	percent		
Rating Date		Jul-14-03	Sep-06-03	Sep-24-03	Sep-24-03
Trt-Eval Interval					
PRM Data Type					TY1
# Subsamples, Dec.					1
Trt Treatment	Rate				
No. Name	Unit	15	16	17	18
17 Envoke	0.0026 lb ai/a	83.8	89.8	8.3	2413.2
Staple	0.6 oz/a				
NIS	0.25 % v/v				
18 Roundup WeatherMax	21.3 oz/a	89.3	90.8	10.0	2889.5
Staple	0.6 oz/a				
LSD (P=.05)		14.36	12.45	2.22	644.11
Standard Deviation		10.15	8.81	1.57	455.45
CV		12.56	10.55	18.48	18.48
Bartlett's X2		25.21	60.865	17.382	17.381
P(Bartlett's X2)		0.022*	0.001*	0.429	0.429

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

Column 18: TY1 = 290.4*[C17]

Trial Comments

GENERAL COMMENTS: Prowl applied PRE at 1 qt over the entire trial.

OBJECTIVE: Determine a mixture of Envoke and Staple that would effectively control smallflower morningglory.

CROP RESPONSE:

1. Injury from Envoke was mild and short lived (7 to 10%).
2. Adding Staple with Envoke tended to increase injury up to an additional 5%.

WEED RESPONSE:

Common cocklebur:

1. Envoke provided excellent control.
2. Staple was 39% less effective than Envoke applied at the 6 leaf stage of cotton.
3. Combinations of Staple and Envoke provided excellent control.

Pitted Morningglory:

1. Envoke provided 70 to 80% control of large pitted morningglory.
2. Staple provided 51 to 61% control of large pitted morningglory.
3. Envoke plus Staple applied at full rates were more effective than either product applied alone (75 to 91% control).
4. Staple applied to 2 leaf cotton followed by Envoke at 6-leaf provided excellent control.
5. All systems beginning treatment at 2-leaf cotton provided excellent control.

Smallflower morningglory:

1. Envoke provided 10 to 48% control.
2. Staple provided 76 to 91% control.
3. Adding any rate of Staple with Envoke increased control at least 26%.
4. Following Envoke with Suprend only provided 80% control at late-season.
5. Sequential applications of Staple fb Envoke provided excellent control.
6. Any system beginning treatment at 2-leaf cotton provided excellent control.

COTTON YIELD

1. Yield generally followed trends noted in weed control.
2. Yields from systems with sequential programs were generally greater than from single applications.
3. Staple applied alone was the lowest numerically yielding treatment due to poor cocklebur control.

CONCLUSIONS:

- 1) At this time, it appears 0.6 to 0.8 oz/A of Staple mixed with Envoke would likely control smallflower morningglory. Alternatively, sequential applications appears to be very effective.
- 2) Much, much more work is needed in the area of mixing Staple and Envoke as well as applying sequential applications.

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GENERAL COMMENTS:

1) Tried to rate croton but data was too variable and was deleted.