

University of Georgia

Okra response to various rates and timing of prometryn

Trial ID: veg36-03
Location: Ponder farm

Study Dir.: Culpepper
Investigator: Dr. David Monks

GENERAL TRIAL INFORMATION

Study Director: Roger Batts **Title:** NCSU IR-4
Affiliation: N. C. State University
Postal Code: 27695
Investigator: Stanley Culpepper **Title:** Ext. Weed Sci
Affiliation: University of Georgia
Postal Code: 31794

TRIAL LOCATION

City: TyTy **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** excellent
Postal Code: 31794 **Initiation Date:** Jun-06-03
Country: USA

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	.		

Crop 1: AMBES okra **Variety:** Spineless Beauty
Planting Date: Jun-06-03 **Planting Method:** conventional
Rate: 3 per foot **Depth:** 0.5 in
Row Spacing: 36 inch **Spacing Within Row:** 4 inch **Seed Bed:** slight
Soil Temperature: 82 F **Soil Moisture:** moist **Emergence Date:** Jun-10-03

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 20 FT **Reps:** 4
Site Type: research station
Tillage Type: conventional **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 94 **% OM:** 1.3 **Texture:** sand
% Silt: 2 **pH:** 5.9 **Soil Name:** Tifton sandy loam
% Clay: 4

Overall Moisture Conditions: .

APPLICATION DESCRIPTION

	A	B	C
Application Date:	Jun-06-03	Jun-06-03	Jul-14-03
Time of Day:	9 am	10 am	8 AM
Application Method:	broadcast	broadcast	broadcast
Application Timing:	PPI	PRE	layby
Applic. Placement:	incorpora	on soil	directed
Air Temp., Unit:	82 F	84 F	81 F
% Relative Humidity:	65	65	61
Wind Velocity, Unit:	3 mph	3 mph	1 mph
Dew Presence (Y/N):	y	y	n
Soil Temp., Unit:	82 F	82 F	81 F
Soil Moisture:	moist	moist	moist
% Cloud Cover:	25	25	25

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	AMBES PPI	AMBES PRE	AMBES PDIR
Stage Scale:	.	.	9 leaf
Height, Unit:	0. .	0. .	12 inch

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WEED STAGE AT EACH APPLICATION

	A	B	C
	.		
Stage Scale:	.		
Density, Unit:	.	.	

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	backpack	backpack	backpack
Operating Pressure:	22	22	19
Nozzle Type:	flat fan	flat fan	flat fan
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 inch	18 inch	12 inch
Nozzles/Row:	2	2	3
Boom Length, Unit:	4.5 feet	4.5 feet	2 feet
Boom Height, Unit:	15 inch	15 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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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	ARM Action Codes	AMBES injury percent	AMBES injury percent	AMBES injury percent	AMBES injury percent	AMBES height cm	AMBES height cm	AMBES height cm	AMBES height cm
							Jul-02-03	Jun-21-03	Jul-26-03	Aug-08-03	Jul-07-03	Jul-07-03	Jul-07-03	Jul-07-03
							-12 DA-A	-23 DA-A	12 DA-B	25 DA-B	-7 DA-B	-7 DA-B	-7 DA-B	-7 DA-B
Trt No.	Treatment Name	Rate	Unit											
1	2	3	4	5	6	7	8							
1	Treflan	1.5	pt/a	6.3	6.5	4.0	5.0	20.3	18.5	18.5	17.8			
	Cotton-Pro	1.5	pt/a											
2	Treflan	1.5	pt/a	7.5	14.0	8.3	5.0	17.3	20.3	18.0	18.8			
	Cotton-Pro	2.25	pt/a											
3	Treflan	1.5	pt/a	31.0	23.3	22.5	18.0	13.3	15.3	13.8	13.0			
	Cotton-Pro	3	pt/a											
4	Treflan	1.5	pt/a	7.0	22.5	16.5	7.5	16.3	18.0	16.0	17.8			
	Cotton-Pro	1.5	pt/a											
5	Treflan	1.5	pt/a	6.5	17.0	12.5	5.5	16.5	17.3	19.5	20.8			
	Cotton-Pro	2.25	pt/a											
6	Treflan	1.5	pt/a	7.0	19.0	15.5	5.5	16.0	20.8	20.0	17.3			
	Cotton-Pro	3	pt/a											
7	Treflan	1.5	pt/a	8.3	8.8	5.0	7.5	18.8	17.3	16.5	17.3			
8	Weed free check			0.0	0.0	0.0	0.0	25.8	23.8	22.0	23.5			
LSD (P=.05)				9.92	10.78	10.70	10.62	5.36	4.14	4.31	4.77			
Standard Deviation				6.74	7.33	7.28	7.22	3.65	2.82	2.93	3.24			
CV				73.41	52.84	69.11	107.01	20.26	14.93	16.27	17.78			
Bartlett's X2				13.594	5.83	7.788	16.081	15.335	5.734	1.952	7.257			
P(Bartlett's X2)				0.035*	0.442	0.168	0.013*	0.032*	0.571	0.962	0.403			

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

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Weed Code			AMBES	AMBES	AMBES	AMBES	AMBES	AMBES	AVERAGE	AMBES	
Crop Code			height	height	height	height	height	height	AMBES	height	
Rating Data Type			cm	cm	cm	cm	cm	cm	height	cm	
Rating Unit			cm	cm	cm	cm	cm	cm	cm	cm	
Rating Date			Jul-07-03	Jul-07-03	Jul-07-03	Jul-07-03	Jul-07-03	Jul-07-03	Jul-07-03	Jul-28-03	
Trt-Eval Interval			-7 DA-B	-7 DA-B	-7 DA-B	-7 DA-B	-7 DA-B	-7 DA-B	-7 DA-A	14 DA-B	
ARM Action Codes									T1		
Trt No.	Treatment Name	Rate	Unit	9	10	11	12	13	14	15	17
1	Treflan Cotton-Pro	1.5 1.5	pt/a pt/a	18.0	18.5	18.3	18.8	18.3	18.5	18.5	59.5
2	Treflan Cotton-Pro	1.5 2.25	pt/a pt/a	18.5	17.8	18.3	18.0	14.8	18.3	18.0	58.0
3	Treflan Cotton-Pro	1.5 3	pt/a pt/a	12.0	10.3	11.3	13.5	13.5	11.0	12.7	41.5
4	Treflan Cotton-Pro	1.5 1.5	pt/a pt/a	18.3	18.8	19.0	16.3	17.5	18.3	17.6	45.5
5	Treflan Cotton-Pro	1.5 2.25	pt/a pt/a	18.3	18.3	16.8	14.5	19.3	19.3	18.0	42.3
6	Treflan Cotton-Pro	1.5 3	pt/a pt/a	17.5	17.5	20.5	18.8	18.0	17.0	18.3	46.5
7	Treflan	1.5	pt/a	19.0	18.3	16.8	16.0	17.0	18.5	17.5	49.0
8	Weed free check			26.0	25.0	25.0	24.3	27.0	24.5	24.7	65.3
LSD (P=.05)				5.71	7.14	5.46	5.19	6.90	7.11	3.09	12.08
Standard Deviation				3.88	4.85	3.71	3.53	4.69	4.83	2.10	8.21
CV				21.07	26.91	20.36	20.15	25.83	26.62	11.56	16.13
Bartlett's X2				6.654	0.426	4.045	8.393	5.632	7.292	5.105	7.959
P(Bartlett's X2)				0.466	1.00	0.775	0.299	0.583	0.399	0.647	0.336

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

Column 15: T1 = @AVG([C5].[C14])

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Weed Code			AMBES	AMBES	AMBES	AMBES	AMBES	AMBES	AMBES		
Crop Code			height	height	height	height	height	height	height		
Rating Data Type			cm	cm	cm	cm	cm	cm	cm		
Rating Unit			cm	cm	cm	cm	cm	cm	cm		
Rating Date			Jul-28-03	Jul-28-03	Jul-28-03	Jul-28-03	Jul-28-03	Jul-28-03	Jul-28-03		
Trt-Eval Interval			14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B		
ARM Action Codes											
Trt No.	Treatment Name	Rate	Unit	18	19	20	21	22	23	24	25
1	Treflan Cotton-Pro	1.5 1.5	pt/a pt/a	60.3	58.8	54.8	56.5	55.0	54.3	54.8	52.5
2	Treflan Cotton-Pro	1.5 2.25	pt/a pt/a	55.5	51.3	58.3	51.3	53.0	52.3	48.3	46.5
3	Treflan Cotton-Pro	1.5 3	pt/a pt/a	47.3	37.3	48.5	46.0	41.0	39.0	45.0	51.3
4	Treflan Cotton-Pro	1.5 1.5	pt/a pt/a	51.8	46.5	50.8	54.3	52.0	44.8	52.3	53.5
5	Treflan Cotton-Pro	1.5 2.25	pt/a pt/a	53.8	59.8	54.3	53.0	51.3	56.5	59.0	49.0
6	Treflan Cotton-Pro	1.5 3	pt/a pt/a	54.5	55.3	48.0	49.5	48.5	46.0	48.3	47.5
7	Treflan	1.5	pt/a	52.8	53.5	53.3	53.0	56.0	51.8	61.8	58.0
8	Weed free check			66.3	66.5	68.5	67.3	72.3	68.0	67.0	62.5
LSD (P=.05)				9.62	12.42	10.08	11.57	16.29	16.37	11.98	13.88
Standard Deviation				6.54	8.44	6.86	7.87	11.07	11.13	8.15	9.44
CV				11.83	15.75	12.57	14.61	20.65	21.59	14.94	17.94
Bartlett's X2				6.019	5.637	9.058	12.021	12.04	11.294	5.24	10.214
P(Bartlett's X2)				0.538	0.583	0.249	0.10	0.099	0.126	0.631	0.177

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

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Weed Code			AVERAGE							
Crop Code			AMBES	AMBES	AMBES	AMBES	AMBES	AMBES	AMBES	AMBES
Rating Data Type			height	height	fruit	wt	fruit	wt	fruit	wt
Rating Unit			cm	cm	#/plot	gram/plo	#/plot	gram/plo	#/plot	gram/plo
Rating Date			Jul-28-03	Jul-28-03	Aug-05-03	Aug-05-03	Aug-08-03	Aug-08-03	Aug-11-03	Aug-11-03
Trt-Eval Interval			14 DA-B	14 DA-A	22 DA-B	22 DA-B	25 DA-B	25 DA-B	28 DA-B	28 DA-B
ARM Action Codes				T4						
Trt No.	Treatment Name	Rate	26	27	29	30	31	32	33	34
1	Treflan Cotton-Pro	1.5 pt/a 1.5 pt/a	55.3	56.2	7.0	67.3	16.0	146.0	16.5	171.0
2	Treflan Cotton-Pro	1.5 pt/a 2.25 pt/a	54.0	52.8	5.3	169.5	6.5	45.3	2.3	28.3
3	Treflan Cotton-Pro	1.5 pt/a 3 pt/a	55.8	45.3	4.0	57.5	5.8	40.3	3.0	45.0
4	Treflan Cotton-Pro	1.5 pt/a 1.5 pt/a	55.8	50.7	5.0	34.0	6.0	61.8	12.5	101.3
5	Treflan Cotton-Pro	1.5 pt/a 2.25 pt/a	51.3	53.0	8.8	132.8	7.3	115.8	12.3	110.0
6	Treflan Cotton-Pro	1.5 pt/a 3 pt/a	51.0	49.5	5.0	49.0	5.5	50.5	3.5	20.3
7	Treflan	1.5 pt/a	53.3	54.2	10.5	167.5	12.5	148.8	16.3	144.3
8	Weed free check		71.8	67.5	14.8	399.5	16.5	126.8	18.0	182.3
LSD (P=.05)			14.49	7.88	7.70	207.42	12.82	112.34	9.17	88.77
Standard Deviation			9.85	5.36	5.24	141.03	8.72	76.38	6.23	60.35
CV			17.59	9.99	69.52	104.75	91.76	83.14	59.18	60.19
Bartlett's X2			12.991	5.306	3.562	23.363	10.635	10.739	7.326	7.543
P(Bartlett's X2)			0.072	0.623	0.829	0.001*	0.155	0.15	0.396	0.375

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

Column 26: T4 = @AVG([C17],[C26])

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Weed Code			AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	
Crop Code			#/plot	gram/plo	#/plot	gram/plo	#/plot	gram/plo	#/plot	gram/plo	
Rating Data Type			Aug-14-03	Aug-14-03	Aug-19-03	Aug-19-03	Aug-22-03	Aug-22-03	Aug-26-03	Aug-26-03	
Rating Unit			31 DA-B	31 DA-B	36 DA-B	36 DA-B	39 DA-B	39 DA-B	43 DA-B	43 DA-B	
Rating Date											
Trt-Eval Interval											
ARM Action Codes											
Trt No.	Treatment Name	Rate	Unit								
				35	36	37	38	39	40	41	42
1	Treflan	1.5	pt/a	11.8	92.3	25.3	437.5	29.5	283.3	37.0	522.0
	Cotton-Pro	1.5	pt/a								
2	Treflan	1.5	pt/a	7.3	85.0	9.8	121.0	11.8	90.0	21.8	224.8
	Cotton-Pro	2.25	pt/a								
3	Treflan	1.5	pt/a	2.0	30.0	12.3	155.0	9.5	112.5	24.0	266.3
	Cotton-Pro	3	pt/a								
4	Treflan	1.5	pt/a	9.3	57.5	19.3	188.0	11.0	81.0	23.0	256.5
	Cotton-Pro	1.5	pt/a								
5	Treflan	1.5	pt/a	15.8	145.3	21.3	285.8	17.8	199.3	38.5	427.3
	Cotton-Pro	2.25	pt/a								
6	Treflan	1.5	pt/a	7.8	73.5	20.0	241.5	9.3	114.8	31.5	404.3
	Cotton-Pro	3	pt/a								
7	Treflan	1.5	pt/a	17.8	169.0	33.5	506.8	23.5	234.5	35.8	412.0
8	Weed free check			14.5	144.0	42.8	721.3	20.5	156.5	46.8	553.5
LSD (P=.05)				11.27	129.84	19.28	352.24	10.38	121.62	17.13	286.29
Standard Deviation				7.66	88.28	13.11	239.50	7.06	82.69	11.64	194.65
CV				71.29	88.67	57.0	72.12	42.52	52.02	36.07	50.78
Bartlett's X2				12.084	13.803	13.387	8.543	8.383	7.594	6.948	9.218
P(Bartlett's X2)				0.098	0.055	0.063	0.287	0.30	0.37	0.434	0.237

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

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Weed Code			AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	AMBES fruit wt	
Crop Code			#/plot	gram/plo	#/plot	gram/plo	#/plot	gram/plo	#/plot	gram/plo	
Rating Data Type			Aug-29-03	Aug-29-03	Sep-02-03	Sep-02-03	Sep-04-03	Sep-04-03	Sep-09-03	Sep-09-03	
Rating Unit			46 DA-B	46 DA-B	50 DA-B	50 DA-B	52 DA-B	52 DA-B	57 DA-B	57 DA-B	
Rating Date											
Trt-Eval Interval											
ARM Action Codes											
Trt No.	Treatment Name	Rate	Unit								
				43	44	45	46	47	48	49	50
1	Treflan Cotton-Pro	1.5 1.5	pt/a pt/a	36.8	371.8	69.3	707.3	67.3	795.5	46.8	416.3
2	Treflan Cotton-Pro	1.5 2.25	pt/a pt/a	24.8	241.3	69.8	836.8	65.5	480.5	36.0	342.3
3	Treflan Cotton-Pro	1.5 3	pt/a pt/a	20.8	166.3	53.8	530.8	57.0	630.3	27.5	245.5
4	Treflan Cotton-Pro	1.5 1.5	pt/a pt/a	31.8	316.5	54.3	577.8	49.0	597.3	31.8	364.5
5	Treflan Cotton-Pro	1.5 2.25	pt/a pt/a	35.3	250.0	69.8	648.8	59.0	360.3	64.8	442.8
6	Treflan Cotton-Pro	1.5 3	pt/a pt/a	34.0	292.5	68.5	848.0	72.8	690.0	38.5	312.0
7	Treflan	1.5	pt/a	34.3	312.5	65.0	655.3	46.5	349.0	20.5	178.8
8	Weed free check			37.3	328.0	80.0	851.0	74.5	787.0	61.5	560.8
LSD (P=.05)				21.22	194.25	26.75	412.26	29.96	490.84	22.53	209.89
Standard Deviation				14.43	132.07	18.19	280.30	20.37	333.73	15.32	142.71
CV				45.31	46.37	27.44	39.65	33.15	56.93	37.45	39.88
Bartlett's X2				3.725	6.704	6.156	4.693	5.877	19.937	4.085	10.714
P(Bartlett's X2)				0.811	0.46	0.522	0.697	0.554	0.006*	0.77	0.152

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

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Weed Code			TOTAL	TOTAL
Crop Code	ABMES	ABMES	ABMES	ABMES
Rating Data Type	fruit	wt	fruit	fruit
Rating Unit	#/plot	gram/plo	#/plot	wt/plot
Rating Date	Sep-12-03	Sep-12-03	Jan-04-04	Jan-04-04
Trt-Eval Interval	60 DA-B	60 DA-B	174 DA-A	174 DA-A
ARM Action Codes			T5	T6
Trt Treatment	Rate			
No. Name	Rate Unit	51	52	53
1 Treflan	1.5 pt/a	60.8	505.3	423.8
Cotton-Pro	1.5 pt/a			4515.3
2 Treflan	1.5 pt/a	85.5	752.5	346.0
Cotton-Pro	2.25 pt/a			3417.0
3 Treflan	1.5 pt/a	39.5	398.0	259.0
Cotton-Pro	3 pt/a			2677.3
4 Treflan	1.5 pt/a	99.3	502.8	352.0
Cotton-Pro	1.5 pt/a			3138.8
5 Treflan	1.5 pt/a	58.0	380.0	408.3
Cotton-Pro	2.25 pt/a			3497.8
6 Treflan	1.5 pt/a	47.5	429.5	343.8
Cotton-Pro	3 pt/a			3525.8
7 Treflan	1.5 pt/a	45.0	381.0	361.0
8 Weed free check		64.5	620.5	491.5
LSD (P=.05)		69.55	198.70	127.04
Standard Deviation		47.29	135.10	86.38
CV		75.66	27.23	23.15
Bartlett's X2		27.577	8.19	9.701
P(Bartlett's X2)		0.001*	0.316	0.206

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

Column 51: T5 = [29]+[31]+[33]+[35]+[37]+[39]+[41]+[43]+[45]+[47]+[49]+[51]

Column 52: T6 = [30]+[32]+[34]+[36]+[38]+[40]+[42]+[44]+[46]+[48]+[50]+[52]

Trial Comments

OBJECTIVE: Determine okra response to Cotton-Pro applied PRE or directed at various rates.

VISUAL INJURY:

1. Treflan stunted okra growth 5 to 9% throughout the season.
2. Cotton-Pro PRE at 1.5 or 2.25 pt/A following Treflan PPI was no more injurious than Treflan alone.
3. Cotton-Pro PRE at 3 pt/A following Treflan PPI, caused 18 to 31% chlorosis and stunting throughout the season.
4. Directing Cotton-Pro after Treflan PPI, regardless of rate, caused 12 to 19% injury at 7 and 12 DAT. Injury from Cotton-Pro was leaf chlorosis. Okra recovered by 25 DAT.

OKRA HEIGHTS (measure of 10 plants per plot):

1. Treflan PPI stunted okra growth 24% at 31 DAT and 18% at 52 DAT compared to the weed free control.
2. Compared to Treflan PPI, the only treatment that stunted Okra growth was Cotton-Pro PRE at 3 pt/A (32%).

OKRA YIELDS (picked one full row: 12 harvest dates)

1. Compared to the weed free, Treflan PPI reduced the number or weight of fruit at 5 of the 12 harvest dates. Additionally, less total fruit numbers and weight was produced in the Treflan only treated plot as compared to the weed free.
2. Compared to the Treflan only treatment, applying Cotton-Pro PRE at 1.5 pt/A did not negatively effect yield at any or harvest date as well as total yield.
3. Compared to the Treflan only treatment, applying Cotton-Pro PRE at 2.25 or 3 pt/A in two of 12 harvest dates but no effect on total yield was noted. However, the trend for less total yield was noted with Cotton-Pro at 3 pt/A.
4. Compared to the Treflan only treatment, directing Cotton-Pro at 1.5 and 3 pt/A only reduced yield at 1 harvest date and had no negative effect on total yield.

CONCLUSIONS:

1. Treflan should be applied at 0.75 to 1 pt/A on most Georgia soils.
2. Cotton-Pro rate should be between 1.5 and 2 pt/A for GA soils.
3. POST use of Cotton-Pro should probably be under a hooded application.