Pepper response to Goal applied PRE, POST, and in Row Middles. Trial ID: Veg17-03 Study Dir.: Location: Ponder farm 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 LOCATION City: TyTy Trial Status: completed Trial Reliability: State/Prov.: GA good Postal Code: 31794 Initiation Date: Mar-25-03 Country: USA Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N **Crop 1:** CPSAN pepper Variety: Stelleto Planting Date: Mar-28-03 Planting Method: transplant Rate: 1 per foot Depth: 1 in Row Spacing: 15 inch Spacing Within Row: 12 inch Seed Bed: bedded Soil Temperature: 84 F Soil Moisture: drip 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 COTT DESCRIPTION

					DOIL PEDOKITION		
응	Sand:	94	% OM :	1.0	Texture:	sand	
응	Silt:	2	pH:	6.2	Soil Name:	Tifton sandy loam	l
응	Clay:	4					

		APPLI	CATI	ON DESC	CRIP	TION
		A		в		С
Application Date:	Mar-25-03		Mar-27-03		Apr	-13-03
Time of Day:	10:0)0am	10:	00am	1:0	0pm
Application Method:	Broadcast Broadcast		adcast	Bro	adcast	
Application Timing:	PRE		Row middl		POST	
Applic. Placement:	under pla		in middle		overtop	
Air Temp., Unit:	75	F	76	F	74	F
<pre>% Relative Humidity:</pre>	46		55		56	
Wind Velocity, Unit:	3	mph	1	mph	3	mph
Dew Presence (Y/N):	Ν		Ν		Ν	
Soil Temp., Unit:	73	F	74	F	69	F
Soil Moisture:	peri	fect	perfect		perfect	
<pre>% Cloud Cover:</pre>	0		20		0	

CROP STAGE AT EACH APPLICATION

	A	В	С
Crop 1 Code, Stage:	CPSAN PRE	CPSAN RM	CPSAN POST
Stage Scale:	•	•	begingrow
Height, Unit:	0	0	4 inch

		-		~ -		
		A		в		С
Appl. Equipment:	super	rbedd	back	pack	back	pack
Operating Pressure:	22		18		22	
Nozzle Type:	flat	fan	floo	djet	flat	fan
Nozzle Size:	11002	2	D2		11002	2
Nozzle Spacing, Unit:	12	inch	6	feet	18	inch
Nozzles/Row:	5		1		4	
Boom Length, Unit:	6	feet			4.5	feet
Boom Height, Unit:	12	inch	18	inch	15	inch
Ground Speed, Unit:	2.5	mph	3	mph	3	mph
Carrier:	wate	r	wate	r	wate	r
Spray Volume, Unit:	27	GPA	14.8	GPA	14.8	GPA
Propellant:	CO2		CO2		CO2	
Tank Mix (Y/N):	Y		Y		Y	

APPLICATION EQUIPMENT

University of Georgia

	Pepper	response	to Goal a	pplied PR	E, POST, a	nd in Row	Middles.			
Trial ID: Veg17-	03		Stu	dy Dir.:						
Location: Ponder	farm		Inves	stigator:	Stanley Cu	lpepper				
Weed Code						plant1	plant2	plant3	plant4	
Crop Code		CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	
Rating Data Type		injury	injury	injury	injury	height	height	height	height	
Rating Unit		percent	percent	percent	percent	cm	cm	cm	cm	
Rating Date		Apr-21-03	May-03-03	May-14-03	May-26-03	May-06-03	May-06-03	May-06-03	May-06-03	
Trt-Eval Interval		27 DA-A	39 DA-A	-	-	42 DA-A		-		
ARM Action Codes										
Trt Treatment	Rate									
No. Name Ra	ite Unit	1	2	3	4	5	6	7	8	
1 Goal	1 qt/a	0.0	1.3	1.5	1.3	18.3	18.3	18.5	18.5	
2 Goal	2 qt/a	2.5	3.8	5.5	3.8	17.5	17.0	17.3	16.3	
3 Goal	1 qt/a	0.0	5.0	7.3	6.3	15.8	16.8	16.0	16.8	
4 Goal	2 qt/a	7.5	13.8	12.0	10.5	15.0	13.0	15.0	15.5	
5 non-treated		0.0	0.0	0.0	0.0	17.0	18.0	15.5	18.0	
6 Goal	1 qt/a	96.3	98.8	92.3	92.5	0.0	0.0	0.0	0.0	
LSD (P=.05)		4.61	5.60	7.77	6.45	4.04	4.27	3.84	3.43	
Standard Deviation		3.06	3.72	5.16	4.28	2.68	2.83	2.55	2.27	
CV		17.29	18.22	26.12	22.48	19.25	20.49	18.61	16.04	
Bartlett's X2		1.496	7.021	2.374	9.903	1.631	1.02	5.19	4.705	
P(Bartlett's X2)		0.473	0.135	0.667	0.042*	0.803	0.907	0.268	0.319	

				-			
plant5	plant6	plant7	plant8	plant9	plant10	plant11	plant12
CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	CPSAN	CPSAN
height	height	height	height	height	height	height	height
cm	cm	cm	cm	cm	cm	cm	cm
May-06-03	May-06-03	May-06-03	May-06-03	May-06-03	May-06-03	May-06-03	May-06-03
	-		-	-		-	
ate							
nit 9	10	11	12	13	14	15	16
/a 20.0	19.3	17.3	19.8	18.5	19.3	17.3	17.8
/a 16.0	18.5	14.0	16.3	14.3	16.8	14.5	14.0
/a 17.8	17.8	18.8	19.5	17.0	17.3	16.5	16.8
/a 15.5	15.5	13.8	17.8	16.3	17.5	16.8	16.3
16.8	17.3	18.0	16.8	17.8	18.8	19.0	18.3
/a 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.47	2.90	2.27	2.94	4.50	3.74	3.67	3.65
2.30	1.92	1.51	1.95	2.99	2.48	2.44	2.42
16.06	13.07	11.07	13.0	21.4	16.65	17.42	17.51
3.18	5.917	0.754	3.604	6.617	2.444	0.819	2.027
0.528	0.205	0.945	0.462	0.158	0.655	0.936	0.731
	plant5 CPSAN height cm May-06-03 t/a 20.0 t/a 16.0 t/a 17.8 t/a 15.5 16.8 t/a 0.0 X/a 0.0 3.47 2.30 16.06 3.18 0.528	plant5 CPSAN plant6 CPSAN height cm CPSAN height cm height may-06-03 May-06-03 mit 9 10 t/a 20.0 19.3 t/a 16.0 18.5 t/a 15.5 15.5 16.8 17.3 t/a 0.0 0.0 3.47 2.90 2.30 1.92 16.06 13.07 3.18 5.917 0.528 0.205	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

			<i>.</i>					
Weed Code	plant13	plant14	plant15	plant16	plant17	plant18	plant19	plant20
Crop Code	CPSAN							
Rating Data Type	height							
Rating Unit	cm							
Rating Date	May-06-03							
Trt-Eval Interval								
ARM Action Codes								
Trt Treatment Rate								
No. Name Rate Unit	17	18	19	20	21	22	23	24
1 Goal 1 qt/a	15.5	17.0	18.8	18.5	18.0	17.5	17.5	17.5
2 Goal 2 qt/a	16.5	16.0	16.0	17.0	15.3	15.8	15.5	16.0
3 Goal 1 qt/a	17.8	18.0	17.8	17.3	18.8	19.5	18.5	18.3
4 Goal 2 qt/a	16.8	16.0	16.3	17.3	16.5	17.0	16.5	15.3
5 non-treated	18.8	17.5	18.5	17.8	17.8	17.5	17.3	17.3
6 Goal 1 qt/a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)	2.69	4.31	2.44	2.62	4.05	3.34	3.99	3.91
Standard Deviation	1.78	2.86	1.62	1.74	2.69	2.22	2.65	2.60
CV	12.56	20.32	11.15	11.9	18.71	15.24	18.65	18.49
Bartlett's X2	1.919	1.68	1.783	1.391	3.897	2.554	1.986	1.811
P(Bartlett's X2)	0.751	0.794	0.776	0.846	0.42	0.635	0.738	0.77

					-			
Weed Code	AVERAGE	plant1	plant2	plant3	plant4	plant5	plant6	plant7
Crop Code	CPSAN							
Rating Data Type	height							
Rating Unit	cm							
Rating Date	May-06-03	May-29-03						
Trt-Eval Interval						-	-	-
ARM Action Codes	T1							
Trt Treatment Rate								
No. Name Rate Unit	25	26	27	28	29	30	31	32
1 Goal 1 qt/a	18.1	36.8	40.3	37.3	36.8	37.3	40.8	35.8
2 Goal 2 qt/a	16.0	42.0	40.5	39.3	36.0	37.5	35.5	33.3
3 Goal 1 qt/a	17.6	35.0	40.5	36.5	43.8	40.5	39.5	40.0
4 Goal 2 qt/a	16.0	35.0	36.0	33.8	35.5	36.5	37.0	39.0
5 non-treated	17.7	36.3	37.8	39.0	37.8	39.0	40.5	40.5
6 Goal 1 qt/a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)	1.87	9.44	6.66	5.04	6.71	6.39	8.27	6.99
Standard Deviation	1.24	6.26	4.42	3.34	4.45	4.24	5.49	4.64
CV	8.74	20.31	13.6	10.8	14.07	13.34	17.04	14.76
Bartlett's X2	3.431	5.495	4.436	3.746	5.363	4.44	0.608	3.126
P(Bartlett's X2)	0.488	0.24	0.35	0.442	0.252	0.35	0.962	0.537

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT) Column 25: T1 = @AVG([C5].[C24])

Weed Code	plant8	plant9	plant10	plant11	plant12	plant13	plant14	plant15
Crop Code	CPSAN							
Rating Data Type	height							
Rating Unit	cm							
Rating Date	May-29-03							
Trt-Eval Interval								
ARM Action Codes								
Trt Treatment Rate								
No. Name Rate Unit	33	34	35	36	37	38	39	40
1 Goal 1 qt/a	39.8	40.5	41.0	41.3	37.8	40.5	39.3	38.3
2 Goal 2 qt/a	35.5	33.8	36.8	39.3	36.3	38.8	33.8	31.0
3 Goal 1 qt/a	38.5	37.3	35.3	39.0	39.5	40.5	37.3	39.0
4 Goal 2 qt/a	35.8	35.3	34.0	37.8	32.3	35.0	36.8	37.0
5 non-treated	41.0	44.5	37.8	40.3	37.0	37.5	36.5	36.5
6 Goal 1 qt/a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)	5.64	6.12	7.37	8.21	9.73	9.22	9.28	8.30
Standard Deviation	3.74	4.06	4.89	5.45	6.45	6.12	6.16	5.51
CV	11.78	12.73	15.89	16.56	21.19	19.09	20.14	18.17
Bartlett's X2	4.156	0.612	2.35	1.449	11.285	7.946	2.266	2.528
P(Bartlett's X2)	0.385	0.962	0.672	0.836	0.024*	0.094	0.687	0.64

Weed Code	plant16	plant17	plant18	plant19	plant20	AVERAGE		
Crop Code	CPSAN							
Rating Data Type	height	height	height	height	height	height	US FANCY	US FANCY
Rating Unit	cm	cm	cm	cm	cm	cm	number	wt/lbs
Rating Date	May-29-03	May-29-03	May-29-03	May-29-03	May-29-03	May-29-03	Jun-12-03	Jun-12-03
Trt-Eval Interval								
ARM Action Codes						T2		
Trt Treatment Rate								
No. Name Rate Unit	41	42	43	44	45	46	47	48
1 Goal 1 qt/a	37.0	41.8	40.3	38.8	36.3	38.9	0.8	0.3
2 Goal 2 qt/a	35.3	36.0	36.0	37.0	38.8	36.6	0.0	0.0
3 Goal 1 qt/a	37.5	36.3	46.0	38.8	43.5	39.2	3.8	1.6
4 Goal 2 qt/a	35.5	37.3	35.5	32.5	35.5	35.6	0.3	0.1
5 non-treated	40.8	42.5	41.0	32.8	38.0	38.8	0.8	0.3
6 Goal 1 qt/a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)	10.95	8.08	6.42	9.62	7.86	4.67	2.21	0.95
Standard Deviation	7.27	5.36	4.26	6.38	5.21	3.10	1.46	0.63
CV	23.44	16.6	12.86	21.31	16.29	9.84	159.75	164.35
Bartlett's X2	2.798	5.372	2.091	0.977	2.129	2.403	10.897	10.964
P(Bartlett's X2)	0.592	0.251	0.719	0.913	0.712	0.662	0.012*	0.012*

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT) Column 46: T2 = @AVG([C26].[C45])

Standardized Summary Page 9 of 9

University of Georgia

							U			
Weed Code									Total	Total
Crop Code			CPSAN	CPSAN						
Rating Data Type	;		US NO 1	US NO 1	US NO 2	US NO 2	culls	culls	allbutculls	allbutcull
Rating Unit			number	wt/lbs	number	wt/lbs	number	wt/lbs	number	lbs/wt
Rating Date			Jun-12-03	Jun-12-03	Jun-12-03	Jun-12-03	Jun-12-03	Jun-12-03	Aug-29-03	Aug-29-03
Trt-Eval Interval										
ARM Action Code	es								Т3	T4
Trt Treatment		Rate								
No. Name	Rate	Unit	49	50	51	52	53	54	55	57
1 Goal	1	qt/a	21.3	6.4	59.8	10.4	3.5	1.0	81.8	17.1
2 Goal	2	qt/a	13.0	4.1	63.5	10.1	3.3	0.8	76.5	14.1
3 Goal	1	qt/a	25.8	8.2	50.5	10.3	5.0	1.6	80.0	20.1
4 Goal	2	qt/a	25.3	8.1	51.8	9.5	2.3	0.6	77.3	17.7
5 non-treated			11.5	3.8	70.5	12.8	3.0	0.7	82.8	16.8
6 Goal	1	qt/a	0.3	0.1	17.8	1.7	0.0	0.0	18.0	1.7
LSD (P=.05)			9.06	3.53	18.21	2.20	3.19	1.06	17.69	4.47
Standard Deviation	on		6.01	2.34	12.09	1.46	2.12	0.70	11.74	2.96
CV			37.17	46.01	23.11	16.03	74.69	89.46	16.92	20.31
Bartlett's X2			11.88	15.391	3.069	6.593	4.237	4.679	3.78	10.909
P(Bartlett's X2)			0.036*	0.009*	0.689	0.253	0.375	0.322	0.581	0.053

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

Column 55: T3 = [C47]+[C49]+[C51]

Column 56: T4 = [48]+[50]+[52]

Trial Comments

GENERAL COMMENTS: The night after planting temperatures dropped to 31 degrees and wind beat plants badly bruising plant stems. This planting did not grow or produce nearly as effectively as previous plantings. The trial was maintained weed free.

OBJECTIVE: Determine tolerance of pepper to Goal applied under plastic prior to planting and to Goal applied in the row middle.

RESULTS:

Visual Injury:

1) Goal applied at 1 qt/A under plastic injured pepperless than 2%.

2) Increasing the rate of Goal to 2 qt/A had little impact with up to 6% stunting.

3) Applying Goal under the plastic and in the row middle tended to be a little more injurious. This was likely a result of applying the row middle

application 1 day prior to transplanting. Injury ranged from 5 to 14% with these applications.

4) Goal applied at 2 qt PRE and in the RM caused significantly more stunting than the non-treated control.

5) Goal applied topically injured pepper 92 to 99%.

Plant Heights: (20 plants per plot were measured at each date):

1) Goal applied POST reduced plant heights by nearly 100%.

2) No other Goal application had a significant impact on pepper height. However, there was a slight trend for stunting at 68 d after transplant when Goal was applied at 2 qt/A.

Yields: (low yields were noted in trial most likely due to weather occuring within 2 days of transplanting)

1) Few US FANCY fruit were harvested.

2) Compared to the control, Goal applied POST was the only treatment to reduce fruit numbers and weight of US No 1 fruit. Additionally, several Goal treatments increased the number and weight of US No. 1 fruit. The trial was kept weed free but competition occuring between weedings could have played a small role.

3) Compared to the control, several Goal treatments did reduced the number of US No 2 fruit. This is likely a response to a slight delay in the control producing less US NO 1 fruit and more US No 2 fruit.

4) Treatments did no affect the number or weight of culls.

5) Only Goal POST reduced total fruit numbers or weights when compared to the non-treated control.

CONCLUSION:

1) Goal at 1 to 1.5 qt/Awould be a good use rate.

2) Row middle applications should be made at least 3 days prior to transplanting.

3) Pepper is extremely tolerant to Goal applied PRE under plastic.