

University of Georgia

Broccoli and cabbage tolerance to Goal 4 F applied topically.

Trial ID: V-07-05(goal) Study Dir.: Stanley Culpepper
 Location: Ponder 5161 Investigator: Stanley Culpepper

Reps: 4 Plots: 6 by 25 feet
 Spray vol: 14.8 gal/ac Mix size: 1 liters (min .77168)

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code	Amt to Measure	Plot No. By Rep			
									1	2	3	4
1	No herbicide								101	206	307	405
2	Goal	4 F		0.0625	lb ai/a	3WAT	A	1.056 ml/mx	102	207	301	406
3	Goal	4 F		0.125	lb ai/a	3WAT	A	2.111 ml/mx	103	208	306	401
4	Goal	4 F		0.25	lb ai/a	3WAT	A	4.223 ml/mx	104	205	303	407
5	Goal	4 F		0.0625	lb ai/a	5WAT	B	1.056 ml/mx	105	201	308	404
6	Goal	4 F		0.125	lb ai/a	5WAT	B	2.111 ml/mx	106	204	302	408
7	Goal	4 F		0.25	lb ai/a	5WAT	B	4.223 ml/mx	107	203	304	403
8	Goal	4 F		0.0625	lb ai/a	3WAT	A	1.056 ml/mx	108	202	305	402
	Goal	4 F		0.0625	lb ai/a	5WAT	B	1.056 ml/mx				

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Lot Code
21.113	ml	Goal 4 F	

* 'Per area' calculations based on spray volume= 14.8 gal/ac, mix size= 1 liters (mix size basis).
 * Product amount calculations increased 25 % for overage adjustment.

Trial Comments

OBJECTIVE: Determine the potential for Goal Tender to be applied topically in cabbage or broccoli.

Crop Response:

1. Injury consisted of spotting of leaf tissue. Overall injury was relatively minor because leaf spotting was minor and the specific leaves injured were not part of the crop being harvested.
2. Age of crop did not really impact crop response; however, earlier applications allow more time for crop recovery, less leaf foliage to burn, and earlier weed control.
3. Plant heights were not impacted by treatment.
4. Five plants per plot were harvested for biomass. Treatments had no impact on plant biomass.

Weed Response:

1. Weeds were hand removed prior to impacting crop growth; thus, weed evaluations were made only once just prior to hand removal.
2. With 3 WAT applications, Goal at 0.0625 provided fair primrose control. Higher rates of Goal provided good to excellent control for a short period of time.
3. Less control was noted with treatments applied 5 WAT.

GENERAL COMMENTS:

1. The trial was maintained essentially weed free. There was the opportunity to rate primrose control one time prior to hand removal.

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Trial ID: V-07-05(goal)

Study Dir.: Stanley Culpepper

Location: Ponder 5161

Investigator: Stanley Culpepper

Weed Code	broccoli injury percent	broccoli injury percent	broccoli injury percent	broccoli injury percent	red cabbage injury percent	red cabbage injury percent	red cabbage injury percent	red cabbage injury percent			
Crop Code											
Rating Data Type											
Rating Unit											
Rating Date	Apr-05-05	Apr-12-06	Apr-22-05	May-06-05	Apr-05-05	Apr-12-05	Apr-22-05	May-06-05			
Trt-Eval Interval	6 DA-A	378 DA-A	23 DA-A	37 DA-A	6 DA-A	13 DA-A	23 DA-A	37 DA-A			
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7	8
1	No herbicide			0	1	0	4	0	0	0	0
2	Goal	0.0625	lb ai/a	11	4	4	0	5	1	1	1
3	Goal	0.125	lb ai/a	16	12	8	4	7	2	0	1
4	Goal	0.25	lb ai/a	16	13	9	3	8	4	2	1
5	Goal	0.0625	lb ai/a	0	7	11	1	0	5	3	0
6	Goal	0.125	lb ai/a	0	9	11	4	0	4	4	0
7	Goal	0.25	lb ai/a	0	13	18	6	0	4	6	5
8	Goal	0.0625	lb ai/a	11	12	14	0	4	5	4	0
	Goal	0.0625	lb ai/a								
LSD (P=.05)				4.4	4.0	4.6	7.8	5.2	1.7	3.3	4.4
Standard Deviation				3.0	2.7	3.1	5.3	3.5	1.1	2.2	3.0
CV				43.88	31.6	34.3	198.73	121.57	38.87	91.24	271.48

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

University of Georgia

Weed Code	green cabbage	green cabbage	green cabbage	green cabbage	OEOLA	plant 1 g. cabba	plant 2 g. cabba	plant 3 g. cabba			
Crop Code											
Rating Data Type	injury	injury	injury	injury	control	ht	ht	ht			
Rating Unit	percent	percent	percent	percent	percent	cm	cm	cm			
Rating Date	Apr-05-05	Apr-12-05	Apr-22-05	May-06-05	May-06-05	Mar-30-05	Mar-30-05	Mar-30-05			
Trt-Eval Interval	6 DA-A	13 DA-A	23 DA-A	37 DA-A	37 DA-A	0 DA-A	0 DA-A	0 DA-A			
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Unit	9	10	11	12	13	14	15	16
1	No herbicide			0	0	0	0	0	5	6	6
2	Goal	0.0625	lb ai/a	4	1	1	1	79	5	5	5
3	Goal	0.125	lb ai/a	4	2	0	1	92	6	5	5
4	Goal	0.25	lb ai/a	6	5	2	1	97	6	7	5
5	Goal	0.0625	lb ai/a	0	5	3	0	36	7	6	7
6	Goal	0.125	lb ai/a	0	4	5	0	72	6	4	5
7	Goal	0.25	lb ai/a	0	4	6	5	87	6	6	5
8	Goal	0.0625	lb ai/a	1	5	4	3	95	5	7	5
	Goal	0.0625	lb ai/a								
LSD (P=.05)				5.3	1.7	3.5	4.9	21.8	3.0	2.1	2.9
Standard Deviation				3.6	1.2	2.4	3.3	14.8	2.0	1.4	2.0
CV				210.03	37.96	93.21	237.96	21.22	36.74	24.63	37.67

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

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Weed Code	plant 4 g. cabba	plant 5 g. cabba	plant 6 g. cabba	plant 7 g. cabba	plant 8 g. cabba	plant 9 g. cabba	plant 10 g. cabba	Avg10pla g. cabba
Crop Code	ht	ht	ht	ht	ht	ht	ht	ht
Rating Data Type	cm	cm	cm	cm	cm	cm	cm	cm
Rating Unit	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05
Rating Date	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A
Trt-Eval Interval								T1
ARM Action Codes								1
# Subsamples, Dec.								
Trt Treatment								
No. Name Rate Unit	17	18	19	20	21	22	23	24
1 No herbicide	7	6	7	6	6	5	7	5.9
2 Goal 0.0625 lb ai/a	5	5	6	4	7	5	6	5.2
3 Goal 0.125 lb ai/a	6	6	6	6	7	6	5	5.6
4 Goal 0.25 lb ai/a	6	7	7	7	5	7	7	6.3
5 Goal 0.0625 lb ai/a	6	8	6	5	7	5	6	6.2
6 Goal 0.125 lb ai/a	6	6	5	5	7	7	6	5.7
7 Goal 0.25 lb ai/a	7	6	6	5	6	5	7	5.8
8 Goal 0.0625 lb ai/a	5	5	7	5	5	3	6	5.2
Goal 0.0625 lb ai/a								
LSD (P=.05)	1.6	2.1	1.5	2.6	2.6	2.8	1.9	0.94
Standard Deviation	1.1	1.4	1.0	1.8	1.8	1.9	1.3	0.64
CV	18.63	23.88	16.76	33.48	30.22	35.91	21.3	11.2

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

Column 24: T1 = @AVG([C14],[C23])

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Weed Code	plant 1	plant 2	plant 3	plant 4	plant 5	plant 6	plant 7	plant 8			
Crop Code	g. cabba	g. cabba	g. cabba	g. cabba	g. cabba	g. cabba	g. cabba	g. cabba			
Rating Data Type	ht	ht	ht	ht	ht	ht	ht	ht			
Rating Unit	cm	cm	cm	cm	cm	cm	cm	cm			
Rating Date	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05			
Trt-Eval Interval	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A			
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Unit	25	26	27	28	29	30	31	32
1	No herbicide			7	7	8	8	8	8	7	10
2	Goal	0.0625	lb ai/a	6	8	7	7	7	9	7	8
3	Goal	0.125	lb ai/a	8	9	4	8	8	9	8	9
4	Goal	0.25	lb ai/a	6	6	7	8	9	8	8	7
5	Goal	0.0625	lb ai/a	6	10	5	9	5	10	5	9
6	Goal	0.125	lb ai/a	6	9	5	6	8	8	6	8
7	Goal	0.25	lb ai/a	5	8	7	9	7	8	7	7
8	Goal	0.0625	lb ai/a	8	8	7	7	8	8	8	6
	Goal	0.0625	lb ai/a								
LSD (P=.05)				3.1	4.3	3.4	3.4	3.0	4.5	4.1	4.4
Standard Deviation				2.1	2.9	2.3	2.3	2.0	3.1	2.8	3.0
CV				33.49	36.61	38.62	29.78	27.79	36.56	41.43	37.89

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

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Weed Code	plant 9 g. cabba	plant 10 g. cabba	Avg.10pl g.cabba	plant 1 broccoli	plant 2 broccoli	plant 3 broccoli	plant 4 broccoli	plant 5 broccoli
Crop Code	ht	ht	ht	ht	ht	ht	ht	ht
Rating Data Type	cm	cm	cm	cm	cm	cm	cm	cm
Rating Unit	Apr-18-05	Apr-18-05	Apr-18-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05
Rating Date	19 DA-A	19 DA-A	19 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A
Trt-Eval Interval								
ARM Action Codes			T2					
# Subsamples, Dec.			1					
Trt Treatment								
No. Name Rate Unit	33	34	35	36	37	38	39	40
1 No herbicide	8	9	7.9	11	11	10	12	11
2 Goal 0.0625 lb ai/a	8	9	7.4	12	13	11	11	11
3 Goal 0.125 lb ai/a	7	8	7.8	11	12	12	10	10
4 Goal 0.25 lb ai/a	8	7	7.2	10	12	12	12	8
5 Goal 0.0625 lb ai/a	6	9	7.2	10	11	11	10	9
6 Goal 0.125 lb ai/a	7	10	7.0	10	11	11	11	11
7 Goal 0.25 lb ai/a	7	8	7.1	11	10	12	14	12
8 Goal 0.0625 lb ai/a	5	8	7.2	10	12	12	9	11
Goal 0.0625 lb ai/a								
LSD (P=.05)	3.2	4.7	1.44	4.1	4.4	4.0	3.4	4.4
Standard Deviation	2.2	3.2	0.98	2.8	3.0	2.7	2.3	3.0
CV	31.28	39.17	13.33	25.79	25.83	24.13	20.65	28.78

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

Column 35: T2 = @AVG([C25].[C34])

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Weed Code	plant 6 broccoli	plant 7 broccoli	plant 8 broccoli	plant 9 broccoli	plant 10 broccoli	Avg.10pl broccoli	plant 1 broccoli	plant 2 broccoli
Crop Code	ht	ht	ht	ht	ht	ht	ht	ht
Rating Data Type	cm	cm	cm	cm	cm	cm	cm	cm
Rating Unit	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Mar-30-05	Apr-18-05	Apr-18-05
Rating Date	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A	19 DA-A	19 DA-A
Trt-Eval Interval								
ARM Action Codes						T3		
# Subsamples, Dec.						1		
Trt Treatment								
No. Name Rate Unit	41	42	43	44	45	46	47	48
1 No herbicide	10	11	10	12	11	10.9	14	11
2 Goal 0.0625 lb ai/a	10	12	10	11	12	11.3	13	12
3 Goal 0.125 lb ai/a	10	10	11	14	12	11.3	10	12
4 Goal 0.25 lb ai/a	11	11	10	10	9	10.4	8	12
5 Goal 0.0625 lb ai/a	11	12	11	11	11	10.7	14	11
6 Goal 0.125 lb ai/a	12	11	14	12	11	11.3	11	8
7 Goal 0.25 lb ai/a	11	12	14	10	12	11.7	13	13
8 Goal 0.0625 lb ai/a	9	12	12	9	12	10.7	12	12
Goal 0.0625 lb ai/a								
LSD (P=.05)	4.1	2.6	3.8	3.5	1.9	1.26	5.1	4.0
Standard Deviation	2.8	1.7	2.6	2.4	1.3	0.86	3.5	2.7
CV	26.23	15.66	22.69	21.66	11.48	7.78	29.31	24.01

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

Column 46: T3 = @AVG([C36].[C45])

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Weed Code	plant 3 broccoli	plant 4 broccoli	plant 5 broccoli	plant 6 broccoli	plant 7 broccoli	plant 8 broccoli	plant 9 broccoli	plant 10 broccoli			
Crop Code	ht	ht	ht	ht	ht	ht	ht	ht			
Rating Data Type	cm	cm	cm	cm	cm	cm	cm	cm			
Rating Unit	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05	Apr-18-05			
Rating Date	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A	19 DA-A			
Trt-Eval Interval											
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Unit	49	50	51	52	53	54	55	56
1	No herbicide			14	14	14	14	10	10	14	13
2	Goal	0.0625	lb ai/a	12	12	10	11	14	10	10	13
3	Goal	0.125	lb ai/a	12	11	10	9	11	9	15	13
4	Goal	0.25	lb ai/a	9	9	7	11	12	12	9	11
5	Goal	0.0625	lb ai/a	12	10	13	13	12	8	15	11
6	Goal	0.125	lb ai/a	12	11	11	10	12	11	11	9
7	Goal	0.25	lb ai/a	14	14	11	14	11	12	11	11
8	Goal	0.0625	lb ai/a	11	11	11	12	14	14	9	14
	Goal	0.0625	lb ai/a								
LSD (P=.05)				5.9	4.6	6.0	5.1	5.6	7.9	6.6	3.7
Standard Deviation				4.0	3.1	4.1	3.4	3.8	5.4	4.5	2.5
CV				34.0	27.37	37.97	29.2	32.14	50.07	38.65	21.92

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

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Weed Code		Avg.10pl	biomass	biomass
Crop Code		broccoli	broccoli	g. cabba
Rating Data Type		ht	plant wt	plant wt
Rating Unit		cm	lbs	lbs
Rating Date		Apr-18-05	May-06-05	May-06-05
Trt-Eval Interval		19 DA-A	37 DA-A	37 DA-A
ARM Action Codes		T4		
# Subsamples, Dec.		1		
Trt Treatment	Rate			
No. Name	Rate Unit	57	58	59
1 No herbicide		12.7	1	0
2 Goal	0.0625 lb ai/a	11.6	0	1
3 Goal	0.125 lb ai/a	11.1	0	0
4 Goal	0.25 lb ai/a	10.1	0	1
5 Goal	0.0625 lb ai/a	11.8	0	0
6 Goal	0.125 lb ai/a	10.5	0	0
7 Goal	0.25 lb ai/a	12.3	0	1
8 Goal	0.0625 lb ai/a	11.9	0	0
Goal	0.0625 lb ai/a			
LSD (P=.05)		2.41	0.3	0.3
Standard Deviation		1.64	0.2	0.2
CV		14.3	50.65	40.35

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

Column 57: T4 = @AVG([C47].[C56])

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Trial ID: V-07-05(goal) Study Dir.: Stanley Culpepper
 Location: Ponder 5161 Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper **Title:** Ext. Weed Science
Affiliation: Univ. of Georgia
Postal Code: 31794
Investigator: Stanley Culpepper **Title:** Ext. Weed Science
Affiliation: Univ. of Georgia
Postal Code: 31794

TRIAL LOCATION

City: TyTy **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** fair
Postal Code: 31794 **Initiation Date:** Mar-07-05
Country: USA **Planned Completion Date:** _____
E-Longitude of LL Corner °: _____ **N-Latitude of LL Corner °:** _____
Altitude of LL Corner: _____ **Unit:** _____ **Angle y-axis to North °:** _____
Directions:

COOPERATOR/LANDOWNER

Cooperator: _____ **Country:** _____
Org: _____ **Phone No:** _____
Address 1: _____ **Fax No:** _____
Address 2: _____
City: _____
State/Prov: _____
Postal Code: _____

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N
Guidelines: _____ **Guideline Description:** _____

Objective:

Conclusions:

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	OEOLA	cutleaf eveningprimrose	

Crop 1: BRSOL CABBAGE **Variety:** Rio Verde and Red Dynasty
Planting Date: Mar-07-05 **Planting Method:** transplant
Rate: 1 per ft **Depth:** 1 in **Perennial Age:** _____
Row Spacing: 18 inch **Spacing Within Row:** 12 inch **Seed Bed:** flat
Soil Temperature: 68 F **Soil Moisture:** moist **Emergence Date:** _____

Crop 2: BRSOK BROCCOLI **Variety:** PacMan
Planting Date: Mar-07-05 **Planting Method:** transplant
Rate: 1 per ft **Depth:** 1 in **Perennial Age:** _____
Row Spacing: 18 inch **Spacing Within Row:** 12 inch **Seed Bed:** flat
Soil Temperature: 68 F **Soil Moisture:** moist **Emergence Date:** _____

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: research station
Tillage Type: conventional **Study Design:** RANDOMIZED COMPLETE BLOCK

Trial Initiation Comments:

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	Previous Crops	Previous Pesticides	Year
1.			

MAINTENANCE

Field Prep./Maintenance:

No.	Date	Maintenance Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit
1.							

SOIL DESCRIPTION

% Sand: 94	% OM: 1.1	Texture: sand	
% Silt: 2	pH: 6.2	Soil Name: Tifton sandy loam	
% Clay: 4	CEC: _____	Fert. Level: _____	

ADDITIONAL MEASURED ELEMENTS

Element	Quantity	Unit

MOISTURE CONDITIONS

	Date	Time	Amount	Unit	Type	Interval	Unit
1.							

Overall Moisture Conditions: drip

Closest Weather Station: _____ Distance: _____ Unit: ____

APPLICATION DESCRIPTION

	A	B
Application Date:	Mar-30-05	Apr-11-05
Time of Day:	11 am	10 am
Application Method:	broadcast	broadcast
Application Timing:	3WAT	5WAT
Applic. Placement:	overtop	overtop
Air Temp., Unit:	74 F	76 F
% Relative Humidity:	38	37
Wind Velocity, Unit:	2 mph	0 mph
Dew Presence (Y/N):	n	n
Water Hardness:		
Soil Temp., Unit:	74 F	79 F
Soil Moisture:	wet	moist
% Cloud Cover:	80	0

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	BRSOL 3WAT	BRSOL 5WAT
Stage Scale:	3 to 5 lf	4 to 6 lf
Height, Unit:	3.5 inch	5 inch
Crop 2 Code, Stage:	BRSOK 3WAT	BRSOK 5WAT
Stage Scale:	5-6 leaf	7-9 leaf
Height, Unit:	4 inch	5 inch

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WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code, Stage:	OEOLA 3WAT	OEOLA 5WAT
Stage Scale:	not up	0.25 in
Density, Unit:	0 ydsq	2 ydsq

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	backpack	backpack
Operating Pressure:	23	23
Nozzle Type:	flat fan	flat fan
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 inch	18 inch
Nozzles/Row:	2	2
Band Width, Unit:		
Boom Length, Unit:	4.5 feet	4.5 feet
Boom Height, Unit:	15 inch	15 inch
Ground Speed, Unit:	3 mph	3 mph
Incorporation Equip.:		
Hours to Incorp.:		
Incorp. Depth, Unit:		
Carrier:	water	water
Spray Volume, Unit:	14.8 GPA	14.8 GPA
Spray pH:		
Propellant:	CO2	CO2
Tank Mix (Y/N):	Y	Y

Trt No	Treatment Application Comment