

University of Georgia

Tomato tolerance to Envoke applied PRE and POST over-the-top.

Trial ID: Veg13-03
Location: Ponder farm

Study Dir.: Stanley Culpepper
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
State/Prov.: Ga **Trial Reliability:** good
Postal Code: 31794 **Initiation Date:** Feb-25-03
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: LYPES TOMATO **Variety:** Amelia
Planting Date: Mar-18-03 **Planting Method:** transplant
Rate: 1 18" **Depth:** 2 in
Row Spacing: 6 foot **Spacing Within Row:** 18 inch **Seed Bed:** plasticulture
Soil Temperature: 75 F **Soil Moisture:** drip

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 25 FT **Reps:** 3
Site Type: FIELD
Tillage Type: Plasticulture **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 94 **% OM:** 1.3 **Texture:** sand
% Silt: 2 **pH:** 5.7 **Soil Name:** Tifton sandy loam
% Clay: 4

Overall Moisture Conditions: .

APPLICATION DESCRIPTION

	A	B
Application Date:	Feb-25-03	Apr-12-03
Time of Day:	3:00pm	10:00am
Application Method:	Broadcast	Broadcast
Application Timing:	PRE	POST
Applic. Placement:	und. plas	overtop
Air Temp., Unit:	68 F	67 F
% Relative Humidity:	46	49
Wind Velocity, Unit:	1 mph	1 mph
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	60 F	79 F
Soil Moisture:	moist	perfect
% Cloud Cover:	100	0

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	LYPES prior to	LYPES POST
Stage Scale:	.	7-8 leaf
Height, Unit:	0. .	9 inch

University of Georgia

WEED STAGE AT EACH APPLICATION

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

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	supper be	backpack
Operating Pressure:	28	23
Nozzle Type:	flat fan	flat fan
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	12 inch	18 inch
Nozzles/Row:	5	4
Boom Length, Unit:	6 feet	4.5 feet
Boom Height, Unit:	12 inch	15 inch
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	25.0 GPA	14.8 GPA
Propellant:	CO2	CO2
Tank Mix (Y/N):	Y	Y

University of Georgia

Tomato tolerance to Envoke applied PRE and POST over-the-top.

Trial ID: Veg13-03
Location: Ponder farm

Study Dir.: Stanley Culpepper
Investigator: Stanley Culpepper

Weed Code		tomato	tomato	tomato	tomato	plant1	plant2	plant3	plant4		
Crop Code		injury	injury	injury	injury	tomato	tomato	tomato	tomato		
Rating Data Type		percent	percent	percent	percent	height	height	height	height		
Rating Unit						in	in	in	in		
Rating Date		Apr-21-03	May-03-03	May-11-03	May-26-03	Apr-18-03	Apr-18-03	Apr-18-03	Apr-18-03		
Trt-Eval Interval		55 DA-A	67 DA-A			37 DA-A	37 DA-A	37 DA-A	37 DA-A		
ARM Action Codes											
Trt No.	Treatment Name	Rate	Unit	1	2	3	4	5	6	7	8
1	Envoke	0.0047	lb ai/a	0.0	0.0	0.0	0.0	14.7	12.7	13.7	12.7
2	Envoke	0.0094	lb ai/a	10.0	5.0	0.0	1.7	13.3	13.0	12.3	13.7
3	Envoke	0.0141	lb ai/a	14.0	7.7	3.7	0.0	14.7	13.0	13.7	13.3
4	Envoke	0.0047	lb ai/a	21.7	12.3	5.0	0.0	13.3	12.7	12.7	13.0
	NIS	0.25	% v/v								
5	Envoke	0.0094	lb ai/a	23.3	15.7	8.3	0.0	10.7	10.7	11.3	11.7
	NIS	0.25	% v/v								
6	Envoke	0.0141	lb ai/a	29.0	18.3	13.3	0.0	11.3	10.7	12.0	11.0
	NIS	0.25	% v/v								
7	Non-treated			0.0	0.0	0.0	0.0	12.3	12.3	12.7	12.7
LSD (P=.05)				11.10	4.41	2.53	1.94	3.03	1.59	2.29	2.47
Standard Deviation				6.24	2.48	1.42	1.09	1.70	0.90	1.29	1.39
CV				44.58	29.42	32.76	458.26	13.21	7.37	10.21	11.02
Bartlett's X2				4.687	2.979	1.593	0.0	8.174	4.585	7.594	2.916
P(Bartlett's X2)				0.321	0.395	0.451	.	0.226	0.598	0.18	0.713

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

University of Georgia

Weed Code	plant5	plant6	Avg.6pla	Avg.5pla
Crop Code	tomato	tomato	tomato	tomato
Rating Data Type	height	height	height	height
Rating Unit	in	in	in	in
Rating Date	Apr-18-03	Apr-18-03	Apr-18-03	May-01-03
Trt-Eval Interval	37 DA-A	37 DA-A		
ARM Action Codes			T1	
Trt No.	Treatment	Rate		
	Name	Rate Unit	9	10
1	Envoke	0.0047 lb ai/a	14.0	14.0
2	Envoke	0.0094 lb ai/a	13.3	13.7
3	Envoke	0.0141 lb ai/a	16.0	15.0
4	Envoke	0.0047 lb ai/a	12.0	11.0
	NIS	0.25 % v/v		
5	Envoke	0.0094 lb ai/a	11.3	12.3
	NIS	0.25 % v/v		
6	Envoke	0.0141 lb ai/a	11.3	12.0
	NIS	0.25 % v/v		
7	Non-treated		13.7	12.7
LSD (P=.05)			3.08	1.66
Standard Deviation			1.73	0.93
CV			13.23	7.21
Bartlett's X2			8.519	3.048
P(Bartlett's X2)			0.203	0.693
				1.28
				0.72
				5.64
				8.62
				3.667
				0.722

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

Column 11: T1 = ((C5)+[C6]+[C7]+[C8]+[C9]+[C10])/6

Trial Comments

OBJECTIVE: Determine tomato tolerance to Envoke applied PRE and POST.

VISUAL TOMATO RESPONSE:

- 1) Envoke at 0.0047 lb ai/A PRE did not visually stunt tomato.
- 2) Envoke PRE at 0.0094 to 0.0141 lb ai/A PRE visually reduced plant growth 10 to 14% at 33 days after planting, 5-8% at 45 days after planting, 0 to 4% at 53 days after planting, and 0-2% at 68 days after planting.
- 3) Envoke POST was more injurious than when applied PRE.
- 4) Applied POST, Envoke at 0.0047-0.0141 lb ai/A caused chlorotic symptoms and a slight visual stunting of 22-23% at 9 day after POST, 12-16% at 21 day after POST, 8-13% at 29 day after POST, and 0% at 44 day after POST. The bulk of injury was a quick chlorotic flash that disappeared over time. Some minor stunting was also noted.

PLANT HEIGHTS:

- 1) At 30 or 43 day after planting, PRE herbicides did not affect plant growth.
- 2) At 6 day after POST, Envoke at 0.0047 lb ai/A did not reduce plant growth compared to the non-treated control.
- 3) At 6 day after POST, Envoke at 0.0094 to 0.0141 reduced plant growth 15% compared to the non-treated control.
- 4) By 19 day after POST, plant growth was not affected by any treatment. There was a slight trend for still smaller plants with Envoke POST (0.0094-0.0141 plots).

CONCLUSIONS:

- 1) Envoke appears to be a far better herbicide POST than PRE, so POST applications would be more useful.
- 2) Chlorotic injury from topical applications of Envoke are concerning.
- 3) Envoke should be labeled as a directed (keep spray out of bud) spray in tomato.
- 4) Trial could not be harvested as I ran out of time picking protocol studies.

GENERAL COMMENTS:

- 1) Admire applied March 25 at 12 oz/A.