

University of Georgia

Strawberry response to Goal, Valor, and sulfentrazone applied under plastic.

Trial ID: Veg8-06

Study Dir.: Stanley Culpepper

Location: Ponder (5158)

Investigator: Stanley Culpepper

Reps: 4

Plots: 6 by 15 feet

Spray vol: 20.6 gal/ac

Mix size: 3 liters (min .64446)

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code	Amt Product to Measure	Plot No. By Rep			
									1	2	3	4
1	None								101	205	301	401
2	Goal Tender	4	F	1	PT/A	PREUP	A	18.2 ml/mx	102	204	303	402
3	Sulfentrazone	4	L	0.2	LB A/A	PREUP	A	7.281 ml/mx	103	206	302	403
4	Valor	75	DF	1	OZ/A	PREUP	A	1.091 g/mx	104	202	305	404
5	Valor	75	DF	3	OZ/A	PREUP	A	3.272 g/mx	105	201	304	405
6	Goal Tender	4	F	2	PT/A	PREUP	A	36.4 ml/mx	106	203	306	406

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
68.257	ml	Goal Tender	4	F	
9.101	ml	Sulfentrazone	4	L	
5.453	g	Valor	75	DF	

* 'Per area' calculations based on spray volume= 20.6 gal/ac, mix size= 3 liters (mix size basis).

* Product amount calculations increased 25 % for overage adjustment.

Trial Comments

OBJECTIVE: Determine strawberry tolerance to Goal, sulfentrazone, and Valor applied under LDPE mulch.

VISUAL STRAWBERRY RESPONSE:

- Both Goal and Valor caused significant injury (13-37%) at 100 DAT (86 d after transplant).
- By season's end, significant injury was still noted with Valor at 3 oz and Goal Tender at 2 pt/A.

STRAWBERRY STAND:

- Valor at 3 oz/A was the only product that reduced plant stand.

WEED RESPONSE:

- All herbicide treatments reduced the number of wild radish, swinecress, and henbit present when compared to the non-herbicide treatment.

STRAWBERRY DIAMETER (averaged 10 plants per plot):

- At 110 DAT, plant diameter was reduced by only Goal Tender at 2 pt/A. Trends for smaller plants were noted in the Valor plots.

STRAWBERRY YIELDS (7 row feet harvested 12 times):

- The greatest number and weight of strawberry harvested were in the Goal 1 pt/A and sulfentrazone plots. Yields in the non-treated were reduced by weed competition, especially wild radish. Yield in Valor and Goal 2 pt/A plots were likely reduced because of herbicide injury.

CONCLUSIONS:

- Strawberry was tolerant to sulfentrazone.
- Low rates of Valor and Goal caused significant stunting.
- Culpepper needs to harvest at least 20 row feet to reduce yield variability.

GENERAL COMMENTS:

- Herbicides were applied at the same time the mulch was being laid. Strawberry was transplanted 14 d later.
- The entire land area was treated with Telone 11 at 12 GPA on July 14.

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Weed Code	FRAAN	FRAAN	FRAAN	RAPRA	RAPRA	COPSS	GERCA	LAMAM
Crop Code								
Rating Data Type	FRAAN	FRAAN	FRAAN	RAPRA	RAPRA	COPSS	GERCA	LAMAM
Rating Unit	injury	injury	plants	# per	# per	# per	# per	# per
Rating Date	percent	percent	#	plot	plot	plot	plot	plot
Trt-Eval Interval	Jan-15-06	Mar-21-06	Mar-21-06	Jan-15-06	Mar-21-06	Mar-21-06	Mar-21-06	Mar-21-06
ARM Action Codes	102 DA-A	167 DA-A	167 DA-A	102 DA-A	167 DA-A	167 DA-A	167 DA-A	167 DA-A
# Subsamples, Dec.								
Trt No.	Treatment Name	Rate	Rate	Rate	Rate	Rate	Rate	Rate
		Unit	Unit	Unit	Unit	Unit	Unit	Unit
1	None							
		0 e	0 b	29 a	5 a	5 a	2 a	1 a
2	Goal Tender	1 PT/A						
		14 cd	6 ab	28 a	0 b	0 c	0 b	0 a
3	Sulfentrazone	0.2 LB A/A						
		5 de	3 b	29 a	1 b	1 bc	0 b	0 a
4	Valor	1 OZ/A						
		21 bc	7 ab	27 a	2 b	3 b	0 b	1 a
5	Valor	3 OZ/A						
		38 a	15 a	21 b	1 b	1 bc	0 b	1 a
6	Goal Tender	2 PT/A						
		28 ab	16 a	27 a	0 b	1 bc	0 b	0 a
LSD (P=.05)		12.9	10.1	4.5	2.4	1.9	0.8	1.6
Standard Deviation		8.5	6.7	3.0	1.6	1.3	0.5	1.0
CV		48.7	85.62	11.1	113.64	70.78	114.42	191.41
Bartlett's X2		6.245	2.915	16.824	11.724	6.38	1.74	4.059
P(Bartlett's X2)		0.182	0.572	0.005*	0.039*	0.271	0.419	0.144

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

University of Georgia

Weed Code	plant 1	plant 2	plant 3	plant 4	plant 5	plant 6	plant 7	plant 8			
Crop Code	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN			
Rating Data Type	dt	dt	dt	dt	dt	dt	dt	dt			
Rating Unit	cm/lit	cm/lit	cm/lit	cm/lit	cm/lit	cm/lit	cm/lit	cm/lit			
Rating Date	Jan-23-06	Jan-23-06	Jan-23-06	Jan-23-06	Jan-23-06	Jan-23-06	Jan-23-06	Jan-23-06			
Trt-Eval Interval	110 DA-A	110 DA-A	110 DA-A	110 DA-A	110 DA-A	110 DA-A	110 DA-A	110 DA-A			
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Unit	9	10	11	12	13	14	15	16
1	None			17 ab	15 ab	15 a	18 a	17 a	17 a	16 a	19 a
2	Goal Tender	1	PT/A	20 a	18 a	19 a	18 a	17 a	15 a	13 a	14 ab
3	Sulfentrazone	0.2	LB A/A	18 ab	14 ab	18 a	13 a	17 a	17 a	14 a	20 a
4	Valor	1	OZ/A	13 bc	13 ab	15 a	17 a	16 a	12 a	13 a	14 ab
5	Valor	3	OZ/A	8 c	10 b	15 a	14 a	14 a	16 a	12 a	14 ab
6	Goal Tender	2	PT/A	11 c	12 ab	13 a	12 a	13 a	14 a	11 a	11 b
LSD (P=.05)				4.9	5.7	6.8	6.0	8.2	6.1	6.0	6.4
Standard Deviation				3.2	3.8	4.5	4.0	5.4	4.0	4.0	4.3
CV				21.99	27.55	28.75	26.26	34.9	26.63	30.19	27.92
Bartlett's X2				2.327	4.842	10.55	1.671	8.333	7.034	5.22	3.071
P(Bartlett's X2)				0.802	0.435	0.061	0.893	0.139	0.218	0.39	0.689

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

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Weed Code	plant 9	plant10	Avg10pla	plant 1	plant 2	plant 3	plant 4	plant 5
Crop Code	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN
Rating Data Type	dt	dt	dt	dt	dt	dt	dt	dt
Rating Unit	cm/lt	cm/lt	cm/lt	cm/lt	cm/lt	cm/lt	cm/lt	cm/lt
Rating Date	Jan-23-06	Jan-23-06	Jan-23-06	Feb-07-06	Feb-07-06	Feb-07-06	Feb-07-06	Feb-07-06
Trt-Eval Interval	110 DA-A	110 DA-A	110 DA-A	125 DA-A	125 DA-A	125 DA-A	125 DA-A	125 DA-A
ARM Action Codes			T3					
# Subsamples, Dec.								
Trt Treatment								
No. Name	17	18	19	20	21	22	23	24
Rate								
Rate Unit								
1 None	14 a	15 a	16 a	17 a	17 a	15 a	16 a	15 a
2 Goal Tender 1 PT/A	16 a	13 a	16 a	17 a	17 a	17 a	17 a	14 a
3 Sulfentrazone 0.2 LB A/A	18 a	15 a	16 a	19 a	15 ab	18 a	12 a	19 a
4 Valor 1 OZ/A	16 a	15 a	14 ab	12 b	13 ab	14 a	16 a	15 a
5 Valor 3 OZ/A	15 a	13 a	13 b	11 b	11 b	13 a	14 a	14 a
6 Goal Tender 2 PT/A	13 a	13 a	12 b	10 b	13 ab	12 a	13 a	12 a
LSD (P=.05)	5.4	8.9	2.4	4.1	4.3	5.5	4.5	7.4
Standard Deviation	3.6	5.9	1.6	2.7	2.8	3.7	3.0	4.9
CV	23.71	41.66	10.95	18.95	20.22	24.63	20.69	33.07
Bartlett's X2	3.195	3.435	6.234	11.051	5.177	1.332	1.859	6.138
P(Bartlett's X2)	0.67	0.633	0.284	0.05	0.395	0.932	0.868	0.293

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

Column 19: T3 = @AVG([C9].[C18])

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Weed Code	plant 6	plant 7	plant 8	plant 9	plant10	Avg10pla	Harv 1	Harv 1			
Crop Code	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN			
Rating Data Type	dt	dt	dt	dt	dt	dt	fruit	wt			
Rating Unit	cm/rt	cm/rt	cm/rt	cm/rt	cm/rt	cm/rt	#/7ftrow	g/7ftrow			
Rating Date	Feb-07-06	Feb-07-06	Feb-07-06	Feb-07-06	Feb-07-06	Feb-07-06	Feb-13-06	Feb-13-06			
Trt-Eval Interval	125 DA-A	125 DA-A	125 DA-A	125 DA-A	125 DA-A	125 DA-A	131 DA-A	131 DA-A			
ARM Action Codes						T4					
# Subsamples, Dec.						1					
Trt No.	Treatment Name	Rate	Unit	25	26	27	28	29	30	31	32
1	None			16 a	14 a	14 a	15 a	14 a	15.1 ab	0 a	0 a
2	Goal Tender	1	PT/A	14 a	11 a	12 a	14 a	12 a	14.5 ab	0 a	0 a
3	Sulfentrazone	0.2	LB A/A	14 a	14 a	15 a	16 a	16 a	15.6 a	0 a	0 a
4	Valor	1	OZ/A	12 a	11 a	12 a	14 a	13 a	13.2 abc	0 a	4 a
5	Valor	3	OZ/A	15 a	12 a	13 a	12 a	13 a	12.6 bc	0 a	0 a
6	Goal Tender	2	PT/A	12 a	9 a	11 a	11 a	12 a	11.6 c	0 a	0 a
LSD (P=.05)				4.1	4.7	6.5	4.7	5.9	2.45	0.3	5.4
Standard Deviation				2.7	3.1	4.3	3.1	3.9	1.62	0.2	3.6
CV				19.68	26.14	33.78	22.91	29.5	11.81	489.9	489.9
Bartlett's X2				3.976	8.864	7.415	5.516	3.46	6.232	0.0	0.0
P(Bartlett's X2)				0.553	0.115	0.192	0.356	0.63	0.284	.	.

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

Column 30: T4 = @AVG([20],[29])

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Weed Code	Harv 2	Harv 2	Harv 3	Harv 3	Harv 4	Harv 4	Harv 5	Harv 5			
Crop Code	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN			
Rating Data Type	fruit	wt	fruit	wt	fruit	wt	fruit	wt			
Rating Unit	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow			
Rating Date	Feb-17-06	Feb-17-06	Feb-20-06	Feb-20-06	Feb-24-06	Feb-24-06	Feb-27-06	Feb-27-06			
Trt-Eval Interval	135 DA-A	135 DA-A	138 DA-A	138 DA-A	142 DA-A	142 DA-A	145 DA-A	145 DA-A			
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Unit	33	34	35	36	37	38	39	40
1	None			0 ab	6 ab	1 a	13 a	1 a	15 a	0 a	5 a
2	Goal Tender	1 PT/A		0 b	0 b	0 a	3 a	1 a	15 a	0 a	0 a
3	Sulfentrazone	0.2 LB A/A		1 a	13 a	1 a	20 a	0 a	0 a	0 a	5 a
4	Valor	1 OZ/A		1 ab	6 ab	0 a	5 a	0 a	0 a	0 a	0 a
5	Valor	3 OZ/A		0 b	0 b	0 a	0 a	0 a	0 a	0 a	0 a
6	Goal Tender	2 PT/A		0 b	0 b	2 a	12 a	0 a	0 a	0 a	0 a
LSD (P=.05)				0.5	9.3	1.7	20.5	0.9	14.3	0.4	9.2
Standard Deviation				0.3	6.2	1.2	13.6	0.6	9.5	0.3	6.1
CV				133.33	151.13	163.53	157.31	178.89	194.36	357.77	357.86
Bartlett's X2				0.081	0.614	8.834	7.637	0.0	0.035	0.0	0.007
P(Bartlett's X2)				0.96	0.736	0.065	0.106	0.001*	0.852	0.001*	0.934

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

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Weed Code	Harv 6	Harv 6	Harv 7	Harv 7	Harv 8	Harv 8	Harv 9	Harv 9
Crop Code	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN
Rating Data Type	fruit	wt	fruit	wt	fruit	wt	fruit	wt
Rating Unit	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow
Rating Date	Mar-01-06	Mar-01-06	Mar-03-06	Mar-03-06	Mar-06-06	Mar-06-06	Mar-10-06	Mar-10-06
Trt-Eval Interval	147 DA-A	147 DA-A	149 DA-A	149 DA-A	152 DA-A	152 DA-A	156 DA-A	156 DA-A
ARM Action Codes								
# Subsamples, Dec.								
Trt Treatment								
No. Name Rate Unit	41	42	43	44	45	46	47	48
1 None	0 a	0 a	0 b	0 a	0 a	0 a	0 ab	4 ab
2 Goal Tender 1 PT/A	0 a	5 a	1 a	4 a	0 a	6 a	1 ab	6 ab
3 Sulfentrazone 0.2 LB A/A	0 a	0 a	0 b	0 a	0 a	4 a	2 a	41 a
4 Valor 1 OZ/A	0 a	0 a	0 b	0 a	0 a	0 a	0 b	0 b
5 Valor 3 OZ/A	0 a	0 a	0 b	0 a	0 a	0 a	1 ab	16 ab
6 Goal Tender 2 PT/A	0 a	0 a	0 b	0 a	0 a	0 a	1 ab	7 ab
LSD (P=.05)	0.3	5.8	0.4	3.2	0.4	8.6	1.3	34.6
Standard Deviation	0.2	3.9	0.2	2.1	0.3	5.7	0.9	23.0
CV	489.9	489.9	282.84	363.65	357.77	361.65	160.18	189.62
Bartlett's X2	0.0	0.0	0.0	0.0	0.0	0.291	6.34	15.592
P(Bartlett's X2)	0.001*	0.589	0.175	0.004*

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Weed Code	Harv 10	Harv 10	Harv 11	Harv 11	Harv 12	Harv 12	Har1-12	Har1-12		
Crop Code	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN	FRAAN		
Rating Data Type	fruit	wt	fruit	wt	fruit	wt	fruit	fruit		
Rating Unit	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow	#/7ftrow	g/7ftrow		
Rating Date	Mar-22-06	Mar-22-06	Mar-29-06	Mar-29-06	Apr-03-06	Apr-03-06	Aug-09-06	Aug-09-06		
Trt-Eval Interval	168 DA-A	168 DA-A	175 DA-A	175 DA-A	180 DA-A	180 DA-A	308 DA-A	308 DA-A		
ARM Action Codes							T1	T2		
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Rate	Rate	Rate	Rate	Rate	Rate		
		Unit	Unit	Unit	Unit	Unit	Unit	Unit		
49			50	51	52	53	54	55	56	
1	None		2 a	37 a	7 a	134 a	9 a	151 a	20 b	364 b
2	Goal Tender	1 PT/A	3 a	49 a	10 a	190 a	13 a	217 a	29 a	493 a
3	Sulfentrazone	0.2 LB A/A	2 a	49 a	8 a	156 a	16 a	279 a	30 a	567 a
4	Valor	1 OZ/A	2 a	35 a	4 a	69 a	10 a	166 a	17 b	285 b
5	Valor	3 OZ/A	2 a	27 a	4 a	63 a	13 a	198 a	19 b	303 b
6	Goal Tender	2 PT/A	2 a	31 a	4 a	68 a	10 a	149 a	17 b	266 b
LSD (P=.05)			3.4	67.5	5.4	118.1	8.0	168.0	6.8	122.0
Standard Deviation			2.2	44.8	3.6	78.4	5.3	111.5	4.5	81.0
CV			114.66	117.83	60.2	69.23	45.06	57.69	20.69	21.33
Bartlett's X2			3.763	5.551	2.466	3.28	10.24	5.46	2.917	2.356
P(Bartlett's X2)			0.584	0.352	0.782	0.657	0.069	0.362	0.713	0.798

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

Column 55: T1 = [C31]+[C33]+[C35]+[C37]+[C39]+[C41]+[C43]+[C45]+[C47]+[C49]+[C51]+[C53]

Column 56: T2 = [C32]+[C34]+[C36]+[C38]+[C40]+[C42]+[C44]+[C46]+[C48]+[C50]+[C52]+[C54]

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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: 6.1	Soil Name: Tifton sandy loam	
% Clay: 4	CEC: _____	Fert. Level: _____	

ADDITIONAL MEASURED ELEMENTS

Element	Quantity	Unit

MOISTURE CONDITIONS

No.	Date	Time	Amount	Unit	Type	Interval	Unit
1.							

Overall Moisture Conditions: drip irrigation

Closest Weather Station: _____ Distance: _____ Unit: ____

APPLICATION DESCRIPTION

	A
Application Date:	Oct-05-05
Time of Day:	10 am
Application Method:	broadcast
Application Timing:	PRE
Applic. Placement:	undermulc
Air Temp., Unit:	75 F
% Relative Humidity:	98
Wind Velocity, Unit:	2 mph
Dew Presence (Y/N):	n
Water Hardness:	
Soil Temp., Unit:	81 F
Soil Moisture:	verymoist
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	FRAAN PRE
Stage Scale:	not plant
Height, Unit:	0 inch

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WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	RAPRA PRE
Stage Scale:	not up
Density, Unit:	. .
Weed 2 Code, Stage:	COPSS PRE
Stage Scale:	not up
Density, Unit:	. .
Weed 3 Code, Stage:	GERCA PRE
Stage Scale:	not up
Density, Unit:	. .
Weed 4 Code, Stage:	LAMAM PRE
Stage Scale:	not up
Density, Unit:	. .

APPLICATION EQUIPMENT

	A
Appl. Equipment:	superbedd
Operating Pressure:	23
Nozzle Type:	flat fan
Nozzle Size:	11002
Nozzle Spacing, Unit:	12 inch
Nozzles/Row:	6
Band Width, Unit:	
Boom Length, Unit:	5 feet
Boom Height, Unit:	12 inch
Ground Speed, Unit:	3 mph
Incorporation Equip.:	
Hours to Incorp.:	
Incorp. Depth, Unit:	
Carrier:	water
Spray Volume, Unit:	20.6 GPA
Spray pH:	
Propellant:	CO2
Tank Mix (Y/N):	Y

Trt No	Treatment Application Comment