

# University of Georgia

**Glyphosate-resistant Palmer amaranth response to PPI or PRE residual herbicides.**

Trial ID: C14-07  
 Location: Macon County

Study Dir.: Culpepper  
 Investigator: Stanley Culpepper

Reps: 3                      Plots: 6 by 25 feet  
 Spray vol: 14.8 gal/ac      Mix size: 1 liters (min .57876)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Form Rate	Rate Unit	Grow Stg	Appl Code	Amt to Measure	Product	Plot No. By Rep		
											1	2	3
1	Non-treated										101	215	306
2	V-10204	60		WG	0.053	LB	A/A	PPI	A	0.7152 g/mx	102	214	304
3	V-10204	60		WG	0.106	LB	A/A	PPI	A	1.43 g/mx	103	212	303
4	V-10204	60		WG	0.159	LB	A/A	PPI	A	2.146 g/mx	104	211	314
5	V-10204	60		WG	0.213	LB	A/A	PPI	A	2.874 g/mx	105	201	316
6	Prowl H20	3.8		L	1	LB	A/A	PPI	A	17.78 ml/mx	106	216	315
7	Reflex	2		L	0.25	LB	A/A	PPI	A	8.445 ml/mx	107	213	311
8	Staple	3.2		L	0.043	LB	A/A	PPI	A	0.9078 ml/mx	108	210	302
9	V-10204	60		WG	0.053	LB	A/A	PRE	B	0.7152 g/mx	109	207	305
10	V-10204	60		WG	0.106	LB	A/A	PRE	B	1.43 g/mx	110	208	312
11	V-10204	60		WG	0.159	LB	A/A	PRE	B	2.146 g/mx	111	205	309
12	V-10204	60		WG	0.213	LB	A/A	PRE	B	2.874 g/mx	112	209	310
13	Prowl H20	3.8		L	1	LB	A/A	PRE	B	17.78 ml/mx	113	206	313
14	Reflex	2		L	0.25	LB	A/A	PRE	B	8.445 ml/mx	114	203	301
15	Staple	3.2		L	0.043	LB	A/A	PRE	B	0.9078 ml/mx	115	202	307
16	Cotoran	4		L	0.75	LB	A/A	PRE	B	12.67 ml/mx	116	204	308

Sort Order: Treatment

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

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
17.913	g	V-10204	60	WG	
44.448	ml	Prowl H20	3.8	L	
21.113	ml	Reflex	2	L	
2.270	ml	Staple	3.2	L	
15.834	ml	Cotoran	4	L	

\* '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 glyphosate-resistant Palmer amaranth response to PPI and PRE herbicides.

Note: The first rainfall after applications did not occur for 17 days. The initial pigweed flush contained over 45 plants per yard square thus it was not possible to evaluate control of these herbicides for the second or third Palmer amaranth flush.

Glyphosate-resistant Palmer amaranth response:

1. PPI herbicide applications were far more effective than PRE applications because of no rainfall to activate the PRE herbicides.
2. All PRE herbicide options provided less than 38% control of the initial pigweed flush.
3. PPI herbicides were more effective than PRE applications with Reflex, Staple, and V-10204 at 0.213 lb providing 80 to 90% control at 24 DAT.
4. By 58 DAT, at plant herbicide treatments provided little to no control because of continual Palmer emergence and rapid growth of the initial Palmer flush once it rained at 17 DAT.

Cotton Injury:

# University of Georgia

1. Without rainfall occurring until the cotton already had 2 true leaves, cotton was not injured. This trial should not be considered when determining cotton response to these herbicides because of lack of rainfall at time of cotton emergence.

GENERAL COMMENTS:

May 1: Overspray trial with 88 oz. WeatherMax.

May 10: Overspray trial with Roundup WeatherMax @ 88 oz./A.

# University of Georgia

## Glyphosate-resistant Palmer amaranth response to PPI or PRE residual herbicides.

Trial ID: C14-07

Study Dir.: Culpepper

Location: Macon County

Investigator: Stanley Culpepper

Weed Code	AMAPA	AMAPA	AMAPA	INJURY	INJURY			
Crop Code	cotton	cotton	cotton	cotton	cotton			
Rating Data Type	%	%	%	%	%			
Rating Unit	control	control	control	control	control			
Rating Date	May-11-07	May-30-07	Jun-14-07	May-11-07	May-30-07			
Trt-Eval Interval	24 DA-A	43 DA-A	58 DA-A	24 DA-A	43 DA-A			
Trt No.	Treatment Name	Rate	Unit	1	2	3	4	5
1	Non-treated			0 e	0 e	0 a	0 a	0 a
2	V-10204	0.053	LB A/A	23 d	13 de	0 a	0 a	0 a
3	V-10204	0.106	LB A/A	67 bc	28 bc	0 a	0 a	0 a
4	V-10204	0.159	LB A/A	67 bc	37 b	0 a	0 a	0 a
5	V-10204	0.213	LB A/A	85 a	60 a	0 a	0 a	0 a
6	Prowl H20	1	LB A/A	60 c	35 b	0 a	0 a	0 a
7	Reflex	0.25	LB A/A	90 a	60 a	0 a	0 a	0 a
8	Staple	0.043	LB A/A	80 ab	53 a	0 a	0 a	0 a
9	V-10204	0.053	LB A/A	22 d	0 e	0 a	0 a	0 a
10	V-10204	0.106	LB A/A	23 d	0 e	0 a	0 a	0 a
11	V-10204	0.159	LB A/A	20 d	10 de	0 a	0 a	0 a
12	V-10204	0.213	LB A/A	27 d	20 cd	0 a	0 a	0 a
13	Prowl H20	1	LB A/A	20 d	0 e	0 a	0 a	0 a
14	Reflex	0.25	LB A/A	33 d	7 de	0 a	0 a	0 a
15	Staple	0.043	LB A/A	30 d	10 de	0 a	0 a	0 a
16	Cotoran	0.75	LB A/A	37 d	0 e	0 a	0 a	0 a
LSD (P=.05)				16.6	13.7	0.0	0.0	0.0
Standard Deviation				10.0	8.2	0.0	0.0	0.0
CV				23.33	39.57	0.0	0.0	0.0
Bartlett's X2				6.558	4.228	0.0	0.0	0.0
P(Bartlett's X2)				0.885	0.936	.	.	.

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



# University of Georgia

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

**SOIL DESCRIPTION**

% Sand: 82      % OM: 6.3      Texture: loamy sand  
 % Silt: 14      pH: 2.0      Soil Name: \_\_\_\_\_  
 % 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: \_\_\_\_\_

Closest Weather Station: \_\_\_\_\_ Distance: \_\_\_\_\_ Unit: \_\_\_\_\_

**APPLICATION DESCRIPTION**

	A	B
Application Date:	Apr-17-07	Apr-17-07
Time of Day:	8:00 am	10:00 am
Application Method:	broadcast	broadcast
Application Timing:	PPI	PRE
Applic. Placement:	on soil	on soil
Air Temp., Unit:	54 F	65 F
% Relative Humidity:	56	65
Wind Velocity, Unit:	3 mph	5 mph
Dew Presence (Y/N):	N	N
Water Hardness:		
Soil Temp., Unit:	55 F	64 F
Soil Moisture:	moist	moist
% Cloud Cover:	0	0

**CROP STAGE AT EACH APPLICATION**

	A	B
Crop 1 Code, Stage:	GOSHI PPI	GOSHI PRE
Stage Scale:	BBCH	BBCH
Height, Unit:	0 in	0 in

**WEED STAGE AT EACH APPLICATION**

	A	B
Weed 1 Code, Stage:	AMAPA PPI	AMAPA PRE
Stage Scale:	not up	not up
Density, Unit:	45 ydsq	45 ydsq

# University of Georgia

## APPLICATION EQUIPMENT

	A	B
<b>Appl. Equipment:</b>	backpack	backpack
<b>Operating Pressure:</b>	24	24
<b>Nozzle Type:</b>	flat fan	flat fan
<b>Nozzle Size:</b>	11002	11002
<b>Nozzle Spacing, Unit:</b>	18 in	18 in
<b>Nozzles/Row:</b>	2	2
<b>Band Width, Unit:</b>		
<b>Boom Length, Unit:</b>	4.5 ft	4.5 ft
<b>Boom Height, Unit:</b>	15 in	15 in
<b>Ground Speed, Unit:</b>	3 mph	3 mph
<b>Incorporation Equip.:</b>		
<b>Hours to Incorp.:</b>		
<b>Incorp. Depth, Unit:</b>		
<b>Carrier:</b>	water	water
<b>Spray Volume, Unit:</b>	15 GPA	15 GPA
<b>Spray pH:</b>		
<b>Propellant:</b>	CO2	CO2
<b>Tank Mix (Y/N):</b>	Y	Y

Trt No	Treatment Application Comment