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Determining the most effective PRE herbicide mixtures to manage glyphosate resistant Palmer.

Trial ID: C12-07

Protocol ID:

Location: Macon County

Study Director: Culpepper

Investigator: Stanley Culpepper

Reps: 4

Plots: 6 by 23 feet

Spray vol: 14.8 gal/ac

Mix size: 1 liters (min .70995)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Amt to Measure	Product	Plot No. By Rep			
											1	2	3	4
1	No herbicide										101	206	302	401
2	Staple	3.2	L		1.7	OZ/A	PRE	A	0.8974	ml/mx	102	211	307	409
	Reflex	2	L		1	PT/A	PRE	A	8.445	ml/mx				
3	Direx	4	L		1	QT/A	PRE	A	16.89	ml/mx	103	205	304	407
	Reflex	2	L		1	PT/A	PRE	A	8.445	ml/mx				
4	Prowl H20	3.8	L		2.5	PT/A	PRE	A	21.11	ml/mx	104	203	310	404
	Reflex	2	L		1	PT/A	PRE	A	8.445	ml/mx				
5	Cotoran	4	L		1	QT/A	PRE	A	16.89	ml/mx	105	207	311	412
	Reflex	2	L		1	PT/A	PRE	A	8.445	ml/mx				
6	Caparol	4	L		1	QT/A	PRE	A	16.89	ml/mx	106	201	309	411
	Reflex	2	L		1	PT/A	PRE	A	8.445	ml/mx				
7	Staple	3.2	L		1.3	OZ/A	PRE	A	0.6862	ml/mx	107	204	305	402
	Reflex	2	L		0.75	PT/A	PRE	A	6.334	ml/mx				
8	Direx	4	L		1.5	PT/A	PRE	A	12.67	ml/mx	108	210	303	408
	Reflex	2	L		0.75	PT/A	PRE	A	6.334	ml/mx				
9	Prowl H20	3.8	L		1.875	PT/A	PRE	A	15.83	ml/mx	109	212	308	410
	Reflex	2	L		0.75	PT/A	PRE	A	6.334	ml/mx				
10	Cotoran	4	L		1.5	PT/A	PRE	A	12.67	ml/mx	110	208	301	403
	Reflex	2	L		0.75	PT/A	PRE	A	6.334	ml/mx				
11	Caparol	4	L		1.5	PT/A	PRE	A	12.67	ml/mx	111	209	306	405
	Reflex	2	L		0.75	PT/A	PRE	A	6.334	ml/mx				
12	Reflex	2	L		1	PT/A	PRE	A	8.445	ml/mx	112	202	312	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
1.980	ml	Staple	3.2	L	
102.924	ml	Reflex	2	L	
36.947	ml	Direx	4	L	
46.184	ml	Prowl H20	3.8	L	
36.947	ml	Cotoran	4	L	
36.947	ml	Caparol	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 the most effective residual at plant herbicide.

Note: Cotton was planted and treatments applied on the same day. Rainfall did not occur until 17 days later.

COTTON RESPONSE:

1. As expected without rainfall, herbicides did not injure cotton.

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PALMER RESPONSE:

1. Control at 17 DAT was extremely poor and erratic with little differences in control noted.
2. At 27 DAT, ratings were taken on the Palmer flush that emerged at planting and control again was extremely poor and variable.
3. By 43 DAT, it was clear that the initial Palmer flush could not be controlled but it could be distinguished from the second Palmer flush that germinated with the rainfall 17 DAP. So ratings at 43 DAP or 26 d after the germination of the second flush of Palmer noted similar and excellent control of the second flush with Reflex + Staple, Direx, or Prowl H2O. Also these combinations were no more effective than Reflex applied alone but are needed for resistance management.

CONCLUSIONS:

1. This trial noted that Reflex would lay on the ground for 17 days and if activated still provide excellent control of Palmer amaranth emerging after that point.

GENERAL COMMENTS:

Overspray entire trial with WeatherMax 22 oz. + Dual Magnum 1 pt/A when AMAPA=2-5 "

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Pest Type		W Weed	W Weed	W Weed			
Pest Code		AMAPA	AMAPA	AMAPA			
Crop Code	GOSHI						
BBCH Scale	BCOT						
Part Rated				2ndFlu			
Rating Date	May-11-07	May-05-07	May-15-07	Jun-17-07			
Rating Data Type	%	%	%	%			
Rating Unit	injury	control	control	control			
Days After First/Last Applic.	23	17	27	60			
Trt-Eval Interval	23 DA-A	17 DA-A	27 DA-A	43 d rai			
Trt No.	Treatment Name	Rate	Unit	1	2	3	4
1	No herbicide			0 a	0 b	0 c	0 d
2	Staple Reflex	1.7 1	OZ/A PT/A	0 a	31 a	30 a	93 ab
3	Direx Reflex	1 1	QT/A PT/A	0 a	15 ab	15 b	93 ab
4	Prowl H20 Reflex	2.5 1	PT/A PT/A	0 a	18 ab	25 ab	95 ab
5	Cotoran Reflex	1 1	QT/A PT/A	0 a	16 ab	21 ab	94 ab
6	Caparol Reflex	1 1	QT/A PT/A	0 a	29 a	24 ab	88 bc
7	Staple Reflex	1.3 0.75	OZ/A PT/A	0 a	20 ab	28 ab	95 ab
8	Direx Reflex	1.5 0.75	PT/A PT/A	0 a	29 a	21 ab	94 ab
9	Prowl H20 Reflex	1.875 0.75	PT/A PT/A	0 a	28 ab	26 ab	95 a
10	Cotoran Reflex	1.5 0.75	PT/A PT/A	0 a	25 ab	23 ab	85 c
11	Caparol Reflex	1.5 0.75	PT/A PT/A	0 a	38 a	21 ab	89 abc
12	Reflex	1	PT/A	0 a	25 ab	16 ab	94 ab
LSD (P=.05)		0.0		24.1	12.3	6.1	
Standard Deviation		0.0		16.7	8.5	4.2	
CV		0.0		73.55	40.95	5.0	
Bartlett's X2		0.0		5.831	8.771	9.836	
P(Bartlett's X2)		.		0.829	0.554	0.455	

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

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General Trial Information

Study Director: Stanley Culpepper

Title: Ext. Weed Science

Affiliation: Univ. of Georgia

Postal Code: 31794

E-mail: _____

Investigator: Stanley Culpepper

Title: Ext. Weed Science

Affiliation: Univ. of Georgia

Postal Code: 31794

E-mail: _____

Keywords:

Trial Location

City: Macon County

Trial Status: completed

State/Prov.: GA

Trial Reliability: good

Postal Code: _____

Initiation Date: Apr-17-07

Country: USA

Planned Completion Date: _____

-Latitude of LL Corner °: _____

-Longitude of LL Corner °: _____

Altitude of LL Corner: _____ Unit: _____ Angle y-axis to North °: _____

Map Reference: _____

Directions:

Conducted Under GLP: _

Official Trial Code: _____

Conducted Under GEP: _

Other Trial Code: _____

Guideline	Description
1.	

Objectives:

Conclusions:

Cooperator/Landowner

Cooperator: _____ Country: _____

Organization: _____ Phone No: _____

Address 1: _____ Fax No: _____

Address 2: _____

City: _____

State/Prov: _____

Postal Code: _____ E-mail: _____

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Crop Description	
Crop 1: GOSHI <i>Gossypium hirsutum</i>	Cotton, American upland
Variety: DP 143 B2RF	Description: _____
BBCH Scale: BCOT	Planting Date: Apr-17-07
Planting Method: hill drop	Rate, Unit: 2 8 in
Depth, Unit: 0.5 in	Perennial Age, Unit: _____
Row Spacing, Unit: 36 in	Spacing Within Row, Unit: _____
Seed Bed: bedded	Soil Temperature, Unit: 54 F
Soil Moisture: moist	Emergence Date: Apr-23-07
Harvest Date: _____	Harvest Equipment: _____
Harvested Width, Unit: _____	Harvested Length, Unit: _____
% Standard Moisture: _____	Moisture Meter: _____
Weighing Equipment: _____	

Pest Description	
Pest 1 Type: W Code: AMAPA <i>Amaranth, Palmer</i>	
Common Name: <i>Amaranthus palmeri</i>	
Description: _____	

Site and Design			
Plot Width, Unit: 6	FT	Site Type: On farm	
Plot Length, Unit: 23	FT	Tillage Type: Conventional	
Replications: 4		Study Design: Randomized Complete Block	
% Slope: _____		Soil Drainage: _ _____	

Trial Initiation Comments:

	Previous Crops	Previous Pesticides	Year
1.			

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

Comment:

Field Prep./Maintenance:

Soil Description			
Description Name: _____			
% Sand: 82	% OM: 2.0	Texture: loamy sand	
% Silt: 14	pH: 6.3	Soil Name: _____	
% Clay: 4	CEC: _____	Fert. Level: _____	
Analyzed By: _____			

Additional Measured Elements		
Element	Quantity	Unit

Moisture Conditions		
Overall Moisture Conditions: dry		
Closest Weather Station: _____	Distance: _____	Unit: _____

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	Date	Time	Amount	Unit	Type	Interval	Unit
1.							

Application Description

	A
Application Date:	Apr-18-07
Time of Day:	7:30 am
Application Method:	broadcast
Application Timing:	PRE
Application Placement:	on soil
Applied By:	Culpepper
Air Temperature, Unit:	64 F
% Relative Humidity:	56
Wind Velocity, Unit:	3 mph
Wind Direction:	
Dew Presence (Y/N):	N
Water Hardness:	
Soil Temperature, Unit:	57 F
Soil Moisture:	moist
% Cloud Cover:	100
Next Rain Occurred On:	

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GOSHI BCOT
Stage Scale Used:	BBCH
Stage Majority, Percent:	PRE 100
Stage Minimum, Percent:	PRE 100
Stage Maximum, Percent:	PRE 100
Diameter, Unit:	0 in
Height, Unit:	0 in
Height Minimum, Maximum:	0 0

Pest Stage At Each Application

	A
Pest 1 Code, Disc., Scale:	AMAPA W .
Stage Majority, Percent:	PRE 100
Stage Minimum, Percent:	PRE 100
Stage Maximum, Percent:	PRE 100
Diameter, Unit:	0 in
Height, Unit:	0 in
Height Minimum, Maximum:	0 0
Density, Unit:	0 %
Coverage, Unit:	100 %

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Application Equipment

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

Equipment Comment:

Trt No Treatment Application Comment

Date By Notes

Date By Deviations

Reasons: