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Cotton and weed response to Aim mixtures directed in Roundup Ready cotton.

Trial ID: C23-03 Study Dir.: Stanley Culpepper
Location: Ponder farm 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: Moultrie **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** good
Initiation Date: May-09-03
Country: U.S.A.

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	COMBE	Tropical spiderwort	
2.	CYPES	Yellow nutsedge	
3.	IPOLA	pitted morningglory	
4.	Grass	70%DIGSA/30%PANTE	
5.	PORPI	Pink purslane	

Crop 1: GOSHI cotton **Variety:** FM 989 B/RR
Planting Date: May-09-03 **Planting Method:** conventional
Rate: 4 seed/ft **Depth:** 0.5 in
Row Spacing: 38 inch **Spacing Within Row:** 3 inch **Seed Bed:** low bed
Soil Temperature: 83 F **Soil Moisture:** moist **Emergence Date:** May-11-03

SITE AND DESIGN

Plot Width, Unit: 12 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: Sunbelt Expo
Tillage Type: conventional **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 88 **% OM:** 1.2 **Texture:** loamy sand
% Silt: 12 **pH:** 6 **Soil Name:** .
% Clay: 0 **CEC:** 0. **Fert. Level:** .

Overall Moisture Conditions: moist

APPLICATION DESCRIPTION

	A
Application Date:	Jun-19-03
Time of Day:	9:00am
Application Method:	broadcast
Application Timing:	LPD
Applic. Placement:	directed
Air Temp., Unit:	79 F
% Relative Humidity:	71
Wind Velocity, Unit:	4 mph
Dew Presence (Y/N):	Y
Soil Temp., Unit:	83 F
Soil Moisture:	wet
% Cloud Cover:	40

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CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GOSHI LPD
Stage Scale:	V9-V11
Height, Unit:	15 inch

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	COMBE V9-V11
Stage Scale:	3-5 inch
Density, Unit:	5 ydsq
Weed 2 Code, Stage:	CYPES 6-9blade
Stage Scale:	7-10 inch
Density, Unit:	4 ydsq
Weed 3 Code, Stage:	IPOLA V2-V7
Stage Scale:	3-12 inch
Density, Unit:	5 ydsq
Weed 4 Code, Stage:	Grass .
Stage Scale:	4-8 inch
Density, Unit:	4 ydsq
Weed 5 Code, Stage:	PORPI .
Stage Scale:	3-4"
Density, Unit:	1 ydsq

APPLICATION EQUIPMENT

	A
Appl. Equipment:	backpack
Operating Pressure:	22
Nozzle Type:	flat fan
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 inch
Nozzles/Row:	4
Boom Length, Unit:	4.5 feet
Boom Height, Unit:	15 inch
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	14.8 GPA
Propellant:	CO2
Tank Mix (Y/N):	Y

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Cotton and weed response to Aim mixtures directed in Roundup Ready cotton.

Trial ID: C23-03 Study Dir.: Stanley Culpepper
Location: Ponder farm Investigator: Stanley Culpepper

Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7
Weed Code				GOSHI	GOSHI	GOSHI	GOSHI	grass	grass	grass
Crop Code										
Rating Data Type				injury	injury	injury	injury	control	control	control
Rating Unit				percent	percent	percent	percent	percent	percent	percent
Rating Date				Jun-26-03	Jul-04-03	Jul-20-03	Sep-06-03	Jun-26-03	Jul-04-03	Jul-20-03
Trt-Eval Interval				48 DA-A	15 DA-A	1 DA-A	15 DA-A	7 DA-A	15 DA-A	1 DA-A
1	Aim	0.016	lb ai/a	15.3	12.3	0.0	0.0	35.0	40.0	18.8
	COC	1	% v/v							
2	Aim	0.025	lb ai/a	17.3	12.3	0.0	0.0	23.8	41.5	35.0
	COC	1	% v/v							
3	Aim	0.016	lb ai/a	13.5	12.5	0.0	0.0	86.0	75.8	55.0
	COC	1	% v/v							
	MSMA	2	lb ai/a							
4	Aim	0.016	lb ai/a	14.5	8.3	0.0	0.0	93.0	80.8	76.8
	COC	1	% v/v							
	Direx	0.75	lb ai/a							
5	Aim	0.016	lb ai/a	14.8	9.3	0.0	0.0	89.3	86.5	83.8
	COC	1	% v/v							
	Direx	1	lb ai/a							
6	Aim	0.016	lb ai/a	19.3	17.8	0.0	0.0	97.0	98.0	98.0
	Roundup WeatherMax	0.75	lb ai/a							
	AMS	2.5	lb/a							
7	Aim	0.016	lb ai/a	18.5	12.3	0.0	0.0	65.8	51.3	61.3
	COC	1	% v/v							
	Cotoran	0.75	lb ai/a							
8	Direx	1	lb ai/a	7.3	7.3	0.0	0.0	97.5	93.5	92.3
	MSMA	2	lb ai/a							
	COC	1	% v/v							
9	Aim	0.016	lb ai/a	17.5	13.5	0.0	0.0	77.5	73.5	51.0
	COC	1	% v/v							
	CottonPro	0.375	lb ai/a							
10	Roundup WeatherMax	0.75	lb ai/a	3.0	1.3	0.0	0.0	96.0	98.3	97.5
	AMS	2.5	lb/a							
11	Roundup WeatherMax	0.75	lb ai/a	5.0	2.5	0.0	0.0	95.0	97.3	99.0
	Direx	1.25	pt/a							
12	non-treated			0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)				9.74	7.01	0.00	0.00	11.71	10.23	11.53
Standard Deviation				6.75	4.85	0.00	0.00	8.11	7.09	7.98
CV				55.56	53.41	0.0	0.0	11.37	10.17	12.47
Bartlett's X2				25.66	12.062	0.0	0.0	19.971	16.864	21.124
P(Bartlett's X2)				0.004*	0.281	.	.	0.03*	0.077	0.012*

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

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Weed Code				grass	IPOLA	IPOLA	IPOLA	IPOLA	PORPI	PORPI
Crop Code										
Rating Data Type				control	control	control	control	control	control	control
Rating Unit				percent	percent	percent	percent	percent	percent	percent
Rating Date				Sep-06-03	Jun-26-03	Jul-04-03	Jul-20-03	Sep-06-03	Jun-26-03	Jul-04-03
Trt-Eval Interval				15 DA-A	7 DA-A	15 DA-A	1 DA-A	15 DA-A	7 DA-A	15 DA-A
Trt No.	Treatment Name	Rate	Rate Unit	8	9	10	11	12	13	14
1	Aim	0.016	lb ai/a	45.0	96.8	94.8	82.5	79.8	51.3	66.3
	COC	1	% v/v							
2	Aim	0.025	lb ai/a	33.8	95.3	94.5	85.8	82.5	56.3	76.8
	COC	1	% v/v							
3	Aim	0.016	lb ai/a	58.8	99.0	99.0	94.3	86.5	76.3	78.8
	COC	1	% v/v							
	MSMA	2	lb ai/a							
4	Aim	0.016	lb ai/a	67.3	99.0	94.8	92.5	91.3	92.5	99.0
	COC	1	% v/v							
	Direx	0.75	lb ai/a							
5	Aim	0.016	lb ai/a	85.8	99.0	96.8	91.8	91.0	97.3	98.0
	COC	1	% v/v							
	Direx	1	lb ai/a							
6	Aim	0.016	lb ai/a	99.0	99.0	99.0	93.5	90.5	88.0	88.0
	Roundup WeatherMax	0.75	lb ai/a							
	AMS	2.5	lb/a							
7	Aim	0.016	lb ai/a	48.8	99.0	97.0	92.0	91.3	85.3	94.8
	COC	1	% v/v							
	Cotoran	0.75	lb ai/a							
8	Direx	1	lb ai/a	92.3	99.0	93.8	85.5	85.8	94.5	99.0
	MSMA	2	lb ai/a							
	COC	1	% v/v							
9	Aim	0.016	lb ai/a	66.8	99.0	96.3	89.3	81.8	85.5	94.8
	COC	1	% v/v							
	CottonPro	0.375	lb ai/a							
10	Roundup WeatherMax	0.75	lb ai/a	99.0	71.0	83.5	78.8	75.3	87.0	84.5
	AMS	2.5	lb/a							
11	Roundup WeatherMax	0.75	lb ai/a	98.0	92.3	99.0	95.5	89.0	99.0	99.0
	Direx	1.25	pt/a							
12	non-treated			0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)				12.93	5.25	5.66	9.15	11.88	15.20	11.93
Standard Deviation				8.95	3.63	3.92	6.33	8.23	10.53	8.26
CV				13.53	4.16	4.49	7.75	10.46	13.84	10.13
Bartlett's X2				19.094	1.549	7.266	16.578	7.882	21.465	17.921
P(Bartlett's X2)				0.014*	0.671	0.402	0.084	0.64	0.011*	0.012*

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

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Trt No.	Treatment Name	Rate	Rate Unit	15	16	17	18	19
	Weed Code			PORPI	COMBE	COMBE	COMBE	COMBE
	Crop Code							
	Rating Data Type			control	control	control	control	control
	Rating Unit			percent	percent	percent	percent	percent
	Rating Date			Jul-20-03	Jun-26-03	Jul-04-03	Jul-20-03	Sep-06-03
	Trt-Eval Interval			1 DA-A	7 DA-A	15 DA-A	1 DA-A	15 DA-A
1	Aim	0.016	lb ai/a	63.5	83.5	82.3	76.3	55.0
	COC	1	% v/v					
2	Aim	0.025	lb ai/a	53.8	87.0	78.3	79.5	50.0
	COC	1	% v/v					
3	Aim	0.016	lb ai/a	61.3	90.8	91.0	75.5	67.5
	COC	1	% v/v					
	MSMA	2	lb ai/a					
4	Aim	0.016	lb ai/a	94.8	99.0	99.0	96.0	97.5
	COC	1	% v/v					
	Direx	0.75	lb ai/a					
5	Aim	0.016	lb ai/a	95.3	97.8	97.0	94.8	95.5
	COC	1	% v/v					
	Direx	1	lb ai/a					
6	Aim	0.016	lb ai/a	86.5	94.8	95.5	91.0	65.5
	Roundup WeatherMax	0.75	lb ai/a					
	AMS	2.5	lb/a					
7	Aim	0.016	lb ai/a	92.5	96.8	95.8	90.0	90.0
	COC	1	% v/v					
	Cotoran	0.75	lb ai/a					
8	Direx	1	lb ai/a	96.5	99.0	99.0	93.0	94.5
	MSMA	2	lb ai/a					
	COC	1	% v/v					
9	Aim	0.016	lb ai/a	95.5	99.0	93.3	93.5	88.3
	COC	1	% v/v					
	CottonPro	0.375	lb ai/a					
10	Roundup WeatherMax	0.75	lb ai/a	63.3	38.8	68.8	69.3	52.5
	AMS	2.5	lb/a					
11	Roundup WeatherMax	0.75	lb ai/a	98.0	90.5	84.5	89.8	74.8
	Direx	1.25	pt/a					
12	non-treated			0.0	0.0	0.0	0.0	0.0
	LSD (P=.05)			21.42	11.91	14.15	18.00	8.35
	Standard Deviation			14.83	8.25	9.80	12.47	5.78
	CV			19.76	10.13	11.95	15.77	8.35
	Bartlett's X2			61.209	19.769	19.044	28.988	17.528
	P(Bartlett's X2)			0.001*	0.006*	0.015*	0.001*	0.063

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

Trial Comments

GENERAL COMMENTS: Prowl PRE followed by Roundup POT to manage early-season weeds.

RESULTS:

Cotton Injury:
1) Aim treatments caused 14 to 19% stem necrosis at 6 DAT. Aim "ran the plant" on several plants in eachplot (green stem plants at time of application).
2) Adding MSMA, Direx, Cotoran, or Cotton-Pro with Aim did not affect injury.
3) Stem necrosis from Aim was still detected at 15 DAT.

Weed Control:

Annual grass:
1) Aim provided poor control.

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2) By late-season, mixing MSMA, Direx, or Cotton-Pro with Aim increased control 14 to 41%. Mixing glyphosate with Aim improved control 55% compared to Aim alone.
3) Mixing Cotoran with Aim was generally less effective than mixing Direx or Cotton-Pro with Aim.
4) Roundup plus Direx or Direx plus MSMA provided excellent control.

Pitted morningglory:
1) All treatments provided excellent control except Roundup alone at 7, 15, and 31 d after treatment.
2) By late-season, control was still good with most treatments and control was similar except with a general trend for less control with Roundup alone.

Pink purslane (died out prior to late rating):
1) Aim provided poor to at best fair control.
2) Mixing MSMA with Aim had little effect.
3) Mixing Roundup with Aim provided good control but control was generally less than when Aim was mixed with Direx or Caparol.
4) Roundup plus Direx provided near complete control throughout the season.
5) Roundup alone provided only 84% control at 15 d after treatment and 63% control at 31 d after treatment.

Tropical spiderwort:
1) Roundup provided poor control.
2) Aim provided fair to good burndown of emerged plants. Control was poor at late-season do to continued weed emergence.
3) Mixing MSMA, Direx, Roundup, Cotoran, or Cotton-Pro with Aim improved POST burndown.
4) Direx 0.75 to 1 lb ai, Cotoran, and Cotton-Pro provided excellent residual activity (control was improved because of poor grass control).
5) Direx at 0.63 lb ai provided less residual control than the 0.75 to 1 lb ai/A rate.