University of Georgia

Cotton and Palmer amaranth response to Sonar, Reflex, and Warrant.

Trial ID: C72-11 Study Dir.: Stanley Culpepper
Location: Ponder Farm Investigator: Stanley Culpepper

Use 1.5 liters(s) per treatment mixture to spray 14.8 gal/ac
Plots: 6 by 35 feet

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	Amt Product to Measure	Plot No. By Rep 1	2	3	4
1	No herbicide								101	202	305	409
2	Sonar	4	L	0.1	lb ai/a	PRE	A	2.534 ml/mx	102	203	306	408
3	Sonar	4	L	0.2	lb ai/a	PRE	A	5.067 ml/mx	103	206	308	407
4	Sonar	4	L	0.25	lb ai/a	PRE	A	6.334 ml/mx	104	201	304	406
5	Sonar	4	L	0.3	lb ai/a	PRE	A	7.601 ml/mx	105	209	303	405
6	Sonar	4	L	0.4	lb ai/a	PRE	A	10.13 ml/mx	106	207	307	404
7	Reflex	2	L	0.25	lb ai/a	PRE	A	12.67 ml/mx	107	208	309	403
8	Warrant	3	ME	1.125	lb ai/a	PRE	A	38.0 ml/mx	108	205	302	402
9	Dual Magnum	7.64	L	0.95	lb ai/a	PRE	A	12.6 ml/mx	109	204	301	401

Sort Order: Treatment

Trial Comments

OBJECTIVE: Determine cotton and weed response to Sonar.

Note: This trial was planted on Sept 29 when conditions were unfavorable for cotton growth.

PHY 499 COTTON INJURY (GOSHI 1):
1. At 14 DAT, injury was greatest with Reflex at 14%. Injury from all other treatments was less than 6%.
2. At 21 DAT, the greatest level of injury from Sonar was noted and that was only 9% with 0.4 lb ai/A.

DP 1050BRR COTTON INJURY (GOSHI 2):
1. Injury with 1050 was generally greater than that of 499, as expected.
2. At 14 DAT, 11 to 15% injury was noted with Reflex, Dual, and Sonar at 0.4 lb ai/A.
3. At 21 DAT, Dual Magnum caused 25% stunting followed by Sonar 0.4 lb (15%), Reflex (13%), and Sonar 0.3 lb (10%).
4. Cotton recovered quickly from all treatments except Dual Magnum.

COTTON STAND COUNTS:
1. An entire row for each plot was counted.
2. Treatments did not influence stand counts at 7, 15, or 28 DAT.

COTTON HEIGHTS:
1. Cotton heights were taken from 10 plants per plot at 14, 18, and 28 DAT.
2. With both cultivars, Dual Magnum was the only treatment reducing plant heights.

PALMER CONTROL FALL 2011:
1. All systems provided essentially complete control.

PALMER CONTROL SPRING 2012:
1. At 219 day after application during the following spring, no control was noted with Reflex, Warrant, or Dual Magnum. Sonar at 0.1, 0.2, 0.25, 0.3, and 0.4 lb ai provided 45, 78, 85, 93, and 97% control, respectively.

VEGETABLE RESPONSE:
1. Crops were transplanted back into plots on March 20, without tillage. Evaluations are taken on May 5, 219 days after application.
2. Cucurbits showed no visual damage.
3. Tomato injury ranged from 18 to 35% with Sonar at 0.2 to 0.4 lb.
4. Pepper injury ranged from 28 to 92% injury with 0.1 to 0.4 lb.

University of Georgia

GENERAL COMMENTS:

1. Weather information can be found at automated web site (www.griffin.uga.edu/aemn/) but the first three rain/irrigation occurred as Sept 29 with 0.5 inch immediately following planting, Oct 3 with 0.5 inch, and Oct 5 with 0.2 inch.
2. Vanguard bell pepper, athena cantaloupe, liberty watermelon, enterprise squash, BHN 602 tomato were planted back into the original plot, without tillage, on march 20, 2012.

University of Georgia

Cotton and Palmer amaranth response to Sonar, Reflex, and Warrant.

Trial ID: C72-11 Study Dir.: Stanley Culpepper
Location: Ponder Farm Investigator: Stanley Culpepper

Trt No.	Treatment Name	Rate	Rate Unit	1	2	3	4	5	6	7	8	9	10
Weed Code												AMAPA	AMAPA
Crop Code				GOSBA 1	GOSBA 1	GOSBA 1	GOSBA 1	GOSBA 1	GOSBA 1				
Rating Data Type				INJURY	INJURY	INJURY	INJURY	INJURY	INJURY			control	control
Rating Unit				%	%	%	%	%	%			%	%
Rating Date				10/7/2011	10/13/2011	10/20/2011	10/28/2011	11/3/2011	11/11/2011			10/13/2011	10/20/2011
Crop Stage													
Assessed By				JS	SC	SC	SC	JS	SC			SC	SC
Trt-Eval Interval				8 DA-A	14 DA-A	21 DA-A	29 DA-A	35 DA-A	43 DA-A			14 DA-A	21 DA-A
ARM Action Codes													
1	No herbicide			0.0 b	0.0 c	0.0 d	0.0 c	0.0 b	0.0 b			0.0 b	0.0 b
2	Sonar	0.1	lb ai/a	0.0 b	3.8 bc	2.5 cd	0.0 c	0.0 b	0.0 b			99.0 a	99.0 a
3	Sonar	0.2	lb ai/a	0.0 b	3.5 bc	2.5 cd	0.0 c	0.0 b	0.0 b			99.0 a	99.0 a
4	Sonar	0.25	lb ai/a	0.0 b	5.5 b	5.5 abc	0.0 c	0.0 b	0.0 b			99.0 a	99.0 a
5	Sonar	0.3	lb ai/a	1.3 b	4.8 b	6.0 abc	0.0 c	0.0 b	0.0 b			99.0 a	99.0 a
6	Sonar	0.4	lb ai/a	0.0 b	5.5 b	9.3 a	0.0 c	0.0 b	0.0 b			99.0 a	99.0 a
7	Reflex	0.25	lb ai/a	0.0 b	13.8 a	10.0 a	3.8 b	0.0 b	0.0 b			99.0 a	99.0 a
8	Warrant	1.125	lb ai/a	0.0 b	3.5 bc	3.5 bcd	1.8 bc	0.0 b	0.0 b			99.0 a	99.0 a
9	Dual Magnum	0.95	lb ai/a	5.0 a	5.5 b	7.5 ab	10.0 a	8.8 a	10.0 a			99.0 a	99.0 a
LSD (P=.05)				2.33	4.60	4.74	3.62	1.22	1.99	.	.	0.00	0.00
Standard Deviation				1.60	3.15	3.25	2.48	0.83	1.36	.	.	0.00	0.00
CV				229.78	62.01	62.56	143.89	85.71	122.47	.	.	0.0	0.0
Bartlett's X2				0.682	21.825	10.893	0.283	0.0	0.0	.	.	0.0	0.0
P(Bartlett's X2)				0.409	0.003*	0.143	0.868	.	.	.	.	.	.
Replicate F				1.000	0.294	1.083	0.440	1.000	1.000			0.000	0.000
Replicate Prob(F)				0.4098	0.8297	0.3752	0.7263	0.4098	0.4098			1.0000	1.0000
Treatment F				4.364	5.453	4.260	7.363	49.000	24.000			0.000	0.000
Treatment Prob(F)				0.0023	0.0006	0.0027	0.0001	0.0001	0.0001			1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Georgia

Weed Code				AMAPA		AMAPA		AMAPA		AMAPA							AVG10PLA		AVG20PLA	
Crop Code												GOSHI 1		GOSHI 1		GOSHI 1	GOSHI 1		GOSHI 1	
Rating Data Type				control		control		control		control		STAND CT		STAND CT		STAND CT	HEIGHTS		HEIGHTS	
Rating Unit				%		%		%		%		#/PLOT		#/PLOT		#/PLOT	CM		CM	
Rating Date				10/28/2011		11/3/2011		11/11/2011		5/5/2012		10/6/2011		10/14/2011		10/27/2011	10/13/2011		10/17/2011	
Crop Stage																	AVERAGE		AVERAGE	
Assessed By				SC				SC												
Trt-Eval Interval				29 DA-A		35 DA-A		43 DA-A		219 DA-A		7 DA-A		15 DA-A		28 DA-A	14 DA-A		18 DA-A	
ARM Action Codes																	T1		T2	
Trt No.	Treatment Name	Rate	Rate Unit	11		12		13		14	15	16		17		18	30		43	
1	No herbicide			0.0	b	0.0	b	0.0	b	0.0 e		50.5	a	65.3	a	62.0 a	6.30	a	7.85	a
2	Sonar	0.1	lb ai/a	99.0	a	99.0	a	99.0	a	44.8 d		55.8	a	64.0	a	68.3 a	5.90	a	7.15	a
3	Sonar	0.2	lb ai/a	99.0	a	99.0	a	99.0	a	77.5 c		53.0	a	67.5	a	65.3 a	6.25	a	7.93	a
4	Sonar	0.25	lb ai/a	99.0	a	99.0	a	99.0	a	85.0 bc		47.5	a	67.5	a	64.3 a	6.05	a	7.23	a
5	Sonar	0.3	lb ai/a	99.0	a	99.0	a	99.0	a	93.3 ab		46.5	a	63.8	a	63.8 a	6.10	a	8.25	a
6	Sonar	0.4	lb ai/a	99.0	a	99.0	a	99.0	a	97.0 a		53.3	a	71.0	a	67.8 a	6.28	a	7.65	a
7	Reflex	0.25	lb ai/a	99.0	a	99.0	a	99.0	a	0.0 e		51.5	a	68.8	a	66.3 a	6.43	a	7.88	a
8	Warrant	1.125	lb ai/a	99.0	a	99.0	a	99.0	a	0.0 e		56.3	a	63.5	a	66.3 a	6.30	a	7.13	a
9	Dual Magnum	0.95	lb ai/a	99.0	a	99.0	a	99.0	a	0.0 e		42.3	a	61.0	a	64.5 a	5.78	a	7.25	a
LSD (P=.05)				0.00		0.00		0.00		9.15 .		11.15		9.19		6.71	0.541		0.966	
Standard Deviation				0.00		0.00		0.00		6.27 .		7.64		6.29		4.60	0.370		0.662	
CV				0.0		0.0		0.0		14.19 .		15.06		9.56		7.03	6.02		8.72	
Bartlett's X2				0.0		0.0		0.0		2.431 .		4.358		10.837		14.935	4.961		3.625	
P(Bartlett's X2)				.		.		.		0.657 .		0.823		0.211		0.06	0.762		0.889	
Replicate F				0.000		0.000		0.000		3.064		28.411		1.098		5.030	12.463		2.323	
Replicate Prob(F)				1.0000		1.0000		1.0000		0.0474		0.0001		0.3690		0.0076	0.0001		0.1005	
Treatment F				0.000		0.000		0.000		200.774		1.441		0.979		0.745	1.318		1.552	
Treatment Prob(F)				1.0000		1.0000		1.0000		0.0001		0.2307		0.4753		0.6518	0.2816		0.1921	

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Georgia

Weed Code				AVG20PLA																		
Crop Code				GOSHI 1			GOSHI 2		GOSHI 2		GOSHI 2		GOSHI 2		GOSHI 2		GOSHI 2					
Rating Data Type				HEIGHTS			INJURY		INJURY		INJURY		INJURY		INJURY		INJURY					
Rating Unit				CM			%		%		%		%		%		%					
Rating Date				10/27/2011			10/7/2011		10/13/2011		10/20/2011		10/28/2011		11/3/2011		11/11/2011					
Crop Stage				AVERAGE																		
Assessed By							JS		SC		SC		SC		JS		SC					
Trt-Eval Interval				28 DA-A			8 DA-A		14 DA-A		21 DA-A		29 DA-A		35 DA-A		43 DA-A					
ARM Action Codes				T3																		
Trt No.	Treatment Name	Rate	Rate Unit	56		57	58	59		60		61		62		63		64		65	66	
1	No herbicide			10.45	a			0.0	b	0.0	e	0.0	f	0.0	c	0.0	b	0.0	b			
2	Sonar	0.1	lb ai/a	10.23	a			0.0	b	2.5	de	2.5	ef	0.0	c	0.0	b	0.0	b			
3	Sonar	0.2	lb ai/a	10.48	a			0.0	b	8.5	bc	8.8	cd	0.0	c	0.0	b	0.0	b			
4	Sonar	0.25	lb ai/a	10.18	a			0.0	b	8.8	bc	8.8	cd	6.3	b	0.0	b	0.0	b			
5	Sonar	0.3	lb ai/a	10.48	a			2.5	b	8.0	bc	10.0	bcd	3.8	bc	0.0	b	0.0	b			
6	Sonar	0.4	lb ai/a	10.28	a			1.3	b	11.3	ab	15.0	b	8.8	b	0.0	b	0.0	b			
7	Reflex	0.25	lb ai/a	10.93	a			0.0	b	13.8	a	12.5	bc	5.0	bc	0.0	b	0.0	b			
8	Warrant	1.125	lb ai/a	10.03	a			0.0	b	4.8	cd	6.8	de	0.0	c	0.0	b	0.0	b			
9	Dual Magnum	0.95	lb ai/a	8.50	b			8.0	a	15.0	a	25.0	a	23.8	a	16.3	a	15.0	a			
LSD (P=.05)				1.039		.	.	3.91		4.55		5.67		5.25		3.06		4.86		.	.	
Standard Deviation				0.712		.	.	2.68		3.12		3.89		3.60		2.10		3.33		.	.	
CV				7.0		.	.	205.12		38.69		39.18		68.22		116.15		200.0		.	.	
Bartlett's X2				4.606		.	.	1.856		2.843		9.257		4.924		0.0		0.0		.	.	
P(Bartlett's X2)				0.799		.	.	0.395		0.899		0.235		0.295		.		.		.	.	
Replicate F				2.246				0.913		3.703		3.132		0.357		1.000		1.000				
Replicate Prob(F)				0.1088				0.4495		0.0254		0.0443		0.7844		0.4098		0.4098				
Treatment F				3.608				3.937		10.204		14.111		18.054		26.684		9.000				
Treatment Prob(F)				0.0069				0.0043		0.0001		0.0001		0.0001		0.0001		0.0001				

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Georgia

Weed Code																				
Crop Code				GOSHI 2		GOSHI 2		GOSHI 2		AVG10PLA GOSHI 2		AVG10PLA GOSHI 2		AVG10PLA GOSHI 2		CUUPE		CITLA		LYPES
Rating Data Type				STAND CT		STAND CT		STAND CT		HEIGHTS		HEIGHTS		HEIGHTS		injury		injury		injury
Rating Unit				#/PLOT		#/PLOT		#/PLOT		CM		CM		CM		%		%		%
Rating Date				10/6/2011		10/14/2011		10/27/2011		10/13/2011		10/17/2011		10/27/2011		5/5/2012		5/5/2012		5/5/2012
Crop Stage										AVERAGE		AVERAGE		AVERAGE						
Assessed By																				
Trt-Eval Interval				7 DA-A		15 DA-A		28 DA-A		14 DA-A		18 DA-A		28 DA-A		219 DA-A		219 DA-A		219 DA-A
ARM Action Codes										T4		T5		T6						
Trt No.	Treatment Name	Rate	Rate Unit	67		68		69		82		95		108		111		112		113	
1	No herbicide			30.5	a	54.8	a	58.3	a	4.90	a	6.23	a	8.63	a	0.0	a	0.0	a	0.0	c
2	Sonar	0.1	lb ai/a	29.0	a	63.3	a	63.5	a	4.70	a	6.38	a	9.10	a	0.0	a	0.0	a	0.0	c
3	Sonar	0.2	lb ai/a	31.3	a	63.0	a	58.8	a	4.47	a	5.55	a	8.48	a	0.0	a	0.0	a	17.5	b
4	Sonar	0.25	lb ai/a	23.3	a	66.0	a	61.8	a	5.00	a	6.28	a	7.95	a	0.0	a	0.0	a	17.5	b
5	Sonar	0.3	lb ai/a	34.5	a	64.5	a	67.3	a	4.90	a	5.80	a	8.53	a	0.0	a	0.0	a	33.8	a
6	Sonar	0.4	lb ai/a	27.5	a	64.8	a	62.0	a	4.55	a	5.38	a	8.38	a	0.0	a	0.0	a	30.0	a
7	Reflex	0.25	lb ai/a	28.5	a	59.5	a	59.8	a	4.53	a	5.53	a	8.88	a	0.0	a	0.0	a	0.0	c
8	Warrant	1.125	lb ai/a	33.0	a	65.8	a	63.0	a	4.35	a	6.18	a	8.33	a	0.0	a	0.0	a	0.0	c
9	Dual Magnum	0.95	lb ai/a	26.0	a	62.8	a	59.3	a	4.10	a	3.93	b	6.05	b	0.0	a	0.0	a	0.0	c
LSD (P=.05)				14.44		7.09		7.40		0.595		1.422		1.172		0.00		0.00		8.28	
Standard Deviation				9.90		4.85		5.07		0.408		0.975		0.803		0.00		0.00		5.67	
CV				33.8		7.74		8.25		8.84		17.12		9.73		0.0		0.0		51.7	
Bartlett's X2				8.205		14.792		9.272		10.732		5.18		5.817		0.0		0.0		1.986	
P(Bartlett's X2)				0.414		0.063		0.32		0.217		0.738		0.668		.		.		0.575	
Replicate F				0.419		0.935		2.019		15.925		0.747		0.288		0.000		0.000		1.518	
Replicate Prob(F)				0.7407		0.4393		0.1380		0.0001		0.5348		0.8335		1.0000		1.0000		0.2353	
Treatment F				0.497		2.153		1.280		2.060		2.425		4.905		0.000		0.000		24.367	
Treatment Prob(F)				0.8459		0.0701		0.2996		0.0818		0.0445		0.0011		1.0000		1.0000		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Georgia

Weed Code	
Crop Code	CPSAN
Rating Data Type	injury
Rating Unit	%
Rating Date	5/5/2012
Crop Stage	
Assessed By	
Trt-Eval Interval	219 DA-A
ARM Action Codes	

Trt No.	Treatment Name	Rate	Rate Unit	114	
1	No herbicide			0.0	e
2	Sonar	0.1	lb ai/a	27.5	d
3	Sonar	0.2	lb ai/a	52.5	c
4	Sonar	0.25	lb ai/a	78.5	b
5	Sonar	0.3	lb ai/a	95.5	a
6	Sonar	0.4	lb ai/a	92.0	a
7	Reflex	0.25	lb ai/a	0.0	e
8	Warrant	1.125	lb ai/a	0.0	e
9	Dual Magnum	0.95	lb ai/a	0.0	e

LSD (P=.05)	11.71
Standard Deviation	8.02
CV	20.87
Bartlett's X2	2.682
P(Bartlett's X2)	0.612
Replicate F	0.389
Replicate Prob(F)	0.7620
Treatment F	108.413
Treatment Prob(F)	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Georgia

Cotton and Palmer amaranth response to Sonar, Reflex, and Warrant.

Trial ID: C72-11 Study Dir.: Stanley Culpepper
Location: Ponder Farm Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper **Title:** EXTENSION WEED SCIENCE
Affiliation: UNIVERSITY OF GEORGIA
Postal Code: 31794
Investigator: Stanley Culpepper **Title:** EXTENSION WEED SCIENCE
Affiliation: UNIVERSITY OF GEORIGA
Postal Code: 31794

TRIAL LOCATION

City: TY TY **Trial Status:** COMPLETED
State/Prov.: GEORGIA **Trial Reliability:** Very Good
Postal Code: 31795 **Initiation Date:** 9/29/2011
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.	AMAPA	Palmer amaranth	

Crop 1: GOSHI COTTON, LONG STAPLE (GOSHI 1) **Variety:** PHYTOGEN 499 WRF
Planting Date: 9/29/2011 **Planting Method:** SEEDED
Rate: 1 3.5 IN
Row Spacing: 3 FT **Spacing Within Row:** 3.5 IN **Seed Bed:** FLAT
Soil Temperature: 69 F **Soil Moisture:** IDEAL **Emergence Date:** 10/5/2011

Crop 2: GOSHI COTTON, LONG STAPLE (GOSHI) 2) **Variety:** DP 1050 BRF
Planting Date: 9/29/2011 **Planting Method:** SEEDED
Rate: 1 3.5 IN
Row Spacing: 3 FT **Spacing Within Row:** 3.5 IN **Seed Bed:** FLAT
Soil Temperature: 69 F **Soil Moisture:** IDEAL **Emergence Date:** 10/5/2012

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 35 FT **Reps:** 4
Site Type: PONDER FARM
Tillage Type: BAREGROUND **Study Design:** RANDOMIZED COMPLETE BLOCK

SOIL DESCRIPTION

% Sand: 90 **% OM:** 0.8
% Silt: 4 **pH:** 6.5 **Soil Name:** TIFTON SANDY LOAM
% Clay: 6 **CEC:** 400

Overall Moisture Conditions: Wet
Closest Weather Station: On site **Distance:** 250 **Unit:** yd

APPLICATION DESCRIPTION

	A
Application Date:	9/29/2011
Time of Day:	7:30AM
Application Method:	BROADCAST
Application Timing:	PRE
Applic. Placement:	ON SOIL
Air Temp., Unit:	65 F
% Relative Humidity:	88
Wind Velocity, Unit:	5 MPH
Dew Presence (Y/N):	N
Soil Temp., Unit:	69 F
Soil Moisture:	MOIST
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GOSHI
Stage Scale:	PRE
Height, Unit:	0 inch
Crop 2 Code, Stage:	GOSHI
Stage Scale:	PRE
Height, Unit:	0 inch

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	AMAPA
Stage Scale:	PRE

Density, Unit: 40 ydsq

University of Georgia

APPLICATION EQUIPMENT

	A
Appl. Equipment:	BACKPACK
Operating Pressure:	26 PSI
Nozzle Type:	FLAT FAN
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 IN
Nozzles/Row:	2
Boom Length, Unit:	4.5 FT
Boom Height, Unit:	15 IN
Ground Speed, Unit:	3 MPH
Carrier:	H20
Spray Volume, Unit:	15 GPA
Propellant:	CO2
Tank Mix (Y/N):	Y