

# LSU Northeast Research Station

## GLYPOSATE FORMULATION EFFICACY ALONE AND IN HERBICIDE COMBINATIONS AGAINST SUSCEPTIBLE AND RESISTANT WEED POPULATIONS

### GENERAL TRIAL INFORMATION

Study Director: UPI  
Investigator: Donnie Miller  
TRIAL LOCATION: ST JOSEPH, LA

### CROP AND WEED DESCRIPTION

Weed Code	Common Name	Scientific Name
1. CASOB	Sickle pod	Cassia obtusifolia
2. SEBEX	Coffeebean	Sesbania exaltata
3. IPOLA	Morningglory, pitted	Ipomoea lacunosa
4. IPOHG	Morningglory, entireleaf	Ipomoea hederacea integriuscul
5. ECHCG	Barnyardgrass, common	Echinochloa crus-galli
6. AMARE	Carelessweed	Amaranthus retroflexus

Crop 1: GLXMA SOYBEAN  
Variety: DP4919RR  
Planting Date: 1/May/2008

### SITE AND DESIGN

Plot Width, Unit: 6.67 FT  
Plot Length, Unit: 25 FT  
Reps: 4  
Study Design: RANDOMIZED COMPLETE BLOCK

### SOIL DESCRIPTION

% Sand: 25      % OM: 1.4  
% Silt: 50      pH: 6.1  
% Clay: 26      CEC: 12.6  
Texture: SILT LOAM

### APPLICATION DESCRIPTION

A  
Application Date: 5/Jun/2008  
Time of Day: 3:00 AM  
Application Method: SPRAY  
Application Timing: EAPOWE  
Applic. Placement: BROFOL  
Air Temp., Unit: 88 F  
% Relative Humidity: 58  
Wind Velocity, Unit: 13.6 MPH  
Dew Presence (Y/N): N  
Water Hardness: N  
Soil Temp., Unit: 99 F  
% Cloud Cover: 30

### CROP STAGE AT EACH APPLICATION

A  
Crop 1 Code, Stage: GLXMA 4-5TRIFOL

### WEED STAGE AT EACH APPLICATION

A  
Weed 1 Code, Stage: CASOB 4-8"  
Weed 2 Code, Stage: SEBEX 4-8"  
Weed 3 Code, Stage: IPOLA 4-8"  
Weed 4 Code, Stage: IPOHG 4-8"  
Weed 5 Code, Stage: ECHCG 6-8"  
Weed 6 Code, Stage: AMARE 6-8"

### APPLICATION EQUIPMENT

A  
Appl. Equipment: CO2 BCPCCK  
Operating Pressure: 34 psi  
Nozzle Type: DG  
Nozzle Size: 11002  
Nozzle Spacing, Unit: 20 IN  
Nozzles/Row: 2  
Ground Speed, Unit: 3.2 MPH  
Carrier: WATER  
Spray Volume, Unit: 15 GPA

# LSU Northeast Research Station

Weed Code	CASOB	SEBEX	IPOLA	IPOHG	AMARE	ECHCG	SORHA	CASOB				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
Rating Data Type	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	INJURY	CONTROL			
Rating Unit	%	%	%	%	%	%	%	%	%			
Rating Date	12/Jun/2008	12/Jun/2008	12/Jun/2008	12/Jun/2008	12/Jun/2008	12/Jun/2008	12/Jun/2008	12/Jun/2008	19/Jun/2008			
Trt-Eval Interval	7 DA-A	7 DA-A	7 DA-A	7 DA-A	7 DA-A	7 DA-A	7 DA-A	7 DA-A	14 DA-A			
# Subsamples, Dec.												
Trt Treatment												
No. Name	Rate	Unit	Appl Code	1	2	3	4	5	6	7	8	9
1 KFD 51-01	0.75 lb ai/a	A		43.75 d	40.00 g	33.75 e	33.75 g	80.00 e	26.25 f	58.33 bc	0.00 a	70.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
2 KFD 51-01	1 lb ai/a	A		47.50 cd	42.50 g	41.25 de	41.25 fg	81.25 de	31.25 ef	58.33 bc	0.00 a	80.00 a
AMMONIUM SULFATE	1 % ai/v	A										
3 KFD 51-01	1.5 lb ai/a	A		51.25 bcd	45.00 fg	41.25 de	41.25 fg	80.00 e	37.50 b-f	71.25 ab	0.00 a	70.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
4 KFD 51-01	0.75 lb ai/a	A		47.50 cd	51.25 efg	46.25 cde	46.25 efg	83.75 de	31.25 ef	50.00 c	0.00 a	52.50 cd
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
5 KFD 51-01	1 lb ai/a	A		56.25 abc	63.75 cde	56.25 cd	56.25 def	82.50 de	33.75 def	67.50 ab	0.00 a	57.50 bcd
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
6 KFD 51-01	1.5 lb ai/a	A		60.00 ab	83.75 ab	78.75 ab	78.75 ab	93.75 ab	48.75 abc	78.33 a	0.00 a	80.00 a
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
7 KFD 51-01	0.75 lb ai/a	A		53.75 a-d	72.50 bcd	58.75 c	71.25 bcd	87.50 bcd	36.25 c-f	72.50 ab	0.00 a	70.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
8 KFD 51-01	1 lb ai/a	A		55.00 abc	81.25 ab	78.75 ab	78.75 ab	93.75 ab	43.75 a-e	77.50 a	0.00 a	70.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
9 KFD 51-01	1.5 lb ai/a	A		58.75 ab	83.75 ab	82.50 a	82.50 ab	92.50 abc	50.00 ab	75.00 ab	0.00 a	77.50 ab
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
10 KFD 51-01	0.75 lb ai/a	A		58.75 ab	90.00 a	88.75 a	88.75 a	97.50 a	46.25 a-d	71.25 ab	0.00 a	71.25 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	16 oz/a	A										
11 KFD 51-01	1 lb ai/a	A		61.25 ab	87.50 ab	83.75 a	83.75 ab	95.00 a	46.25 a-d	78.33 a	0.00 a	70.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	16 oz/a	A										
12 KFD 51-01	1.5 lb ai/a	A		62.50 a	91.25 a	90.00 a	90.00 a	97.50 a	52.50 a	77.50 a	0.00 a	61.25 a-d
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	16 oz/a	A										
13 GLYFOS XTRA	0.75 lb ai/a	A		55.00 abc	71.25 bcd	62.50 bc	62.50 cd	86.25 cde	40.00 a-e	45.00 c	0.00 a	68.75 abc
AMMONIUM SULFATE	1 % ai/v	A										
14 GLYFOS XTRA	0.75 lb ai/a	A		52.50 a-d	60.00 def	57.50 cd	57.50 de	81.25 de	35.00 def	60.00 bc	0.00 a	47.50 d
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
15 GLYFOS XTRA	0.75 lb ai/a	A		56.25 abc	80.00 abc	76.25 ab	76.25 abc	92.50 abc	38.75 b-f	60.00 bc	0.00 a	51.25 cd
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
16				0.00 e	0.00 h	0.00 f	0.00 h	0.00 f	0.00 g	0.00 d	0.00 a	0.00 e
LSD (P=.05)				10.320	16.508	17.128	15.589	7.370	13.162	17.359	0.000	20.823
Standard Deviation				7.222	11.552	11.986	10.909	5.157	9.210	11.987	0.000	14.571
CV				14.09	17.71	19.64	17.65	6.23	24.66	19.16	0.0	23.37
Grand Mean				51.25	65.23	61.02	61.8	82.81	37.34	62.55	0.0	62.34
Bartlett's X2				9.02	16.537	29.882	29.203	9.803	29.939	6.924	0.0	6.549
P(Bartlett's X2)				0.83	0.221	0.008*	0.01*	0.633	0.008*	0.906	.	0.951
Replicate F				1.937	0.128	0.155	0.493	1.449	2.634	1.608	0.000	10.236
Replicate Prob(F)				0.1371	0.9431	0.9259	0.6886	0.2411	0.0613	0.2097	1.0000	0.0001
Treatment F				16.426	18.142	16.627	20.273	79.410	7.357	10.767	0.000	7.056
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	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.

# LSU Northeast Research Station

Weed Code	SEBEX	IPOLA	IPOHG	AMARE	ECHCG	SORHA	CASOB	SEBEX	IPOLA			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
Rating Data Type	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	INJURY	CONTROL	CONTROL			
Rating Unit	%	%	%	%	%	%	%	%	%			
Rating Date	19/Jun/2008	19/Jun/2008	19/Jun/2008	19/Jun/2008	19/Jun/2008	19/Jun/2008	19/Jun/2008	3/Jul/2008	3/Jul/2008	3/Jul/2008		
Trt-Eval Interval	14 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	28 DA-A	28 DA-A	28 DA-A		
# Subsamples, Dec.												
Trt Treatment	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate			
No. Name	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit			
Appl Code	10	11	12	13	14	15	16	17	18	19		
1 KFD 51-01	0.75 lb ai/a	A	51.25 gh	57.50 e	76.25 d	100.00 a	30.00 a	60.00 bcd	0.00 a	76.25 abc	57.50 e	66.25 d
AMMONIUM SULFATE	1 % ai/v	A										
2 KFD 51-01	1 lb ai/a	A	56.25 fgh	66.25 de	85.00 bcd	100.00 a	32.50 a	81.67 abc	0.00 a	82.50 ab	60.00 e	71.25 cd
AMMONIUM SULFATE	1 % ai/v	A										
3 KFD 51-01	1.5 lb ai/a	A	48.75 h	71.25 cd	83.75 cd	100.00 a	35.00 a	86.67 ab	0.00 a	78.75 abc	67.50 de	71.25 cd
AMMONIUM SULFATE	1 % ai/v	A										
4 KFD 51-01	0.75 lb ai/a	A	68.75 efg	75.00 bcd	83.75 cd	100.00 a	32.50 a	56.67 cd	0.00 a	65.00 bc	72.50 cde	75.00 bcd
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
5 KFD 51-01	1 lb ai/a	A	81.25 b-e	78.75 abc	88.75 abc	100.00 a	27.50 a	70.00 a-d	0.00 a	62.50 c	88.75 abc	82.50 ab
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
6 KFD 51-01	1.5 lb ai/a	A	92.50 abc	86.25 ab	93.75 abc	100.00 a	56.25 a	91.67 a	0.00 a	85.00 a	95.00 ab	81.25 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
7 KFD 51-01	0.75 lb ai/a	A	90.00 a-d	78.75 abc	87.50 abc	100.00 a	16.25 a	66.25 a-d	0.00 a	78.75 abc	98.75 ab	85.00 ab
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
8 KFD 51-01	1 lb ai/a	A	90.00 a-d	83.75 ab	92.50 abc	100.00 a	17.50 a	60.00 bcd	0.00 a	77.50 abc	97.50 ab	80.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
9 KFD 51-01	1.5 lb ai/a	A	90.00 a-d	87.50 a	95.00 ab	100.00 a	41.25 a	85.00 ab	0.00 a	82.50 ab	93.75 ab	88.75 a
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
10 KFD 51-01	0.75 lb ai/a	A	97.50 ab	85.00 ab	93.75 abc	100.00 a	30.00 a	53.33 d	0.00 a	78.75 abc	100.00 a	85.00 ab
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	16 oz/a	A										
11 KFD 51-01	1 lb ai/a	A	100.00 a	83.75 ab	93.75 abc	100.00 a	23.75 a	86.67 ab	0.00 a	80.00 abc	100.00 a	80.00 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	16 oz/a	A										
12 KFD 51-01	1.5 lb ai/a	A	100.00 a	88.75 a	95.00 ab	100.00 a	26.25 a	85.00 ab	0.00 a	65.00 bc	98.75 ab	85.00 ab
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	16 oz/a	A										
13 GLYFOS XTRA	0.75 lb ai/a	A	75.00 cde	68.75 cde	86.25 a-d	100.00 a	26.25 a	55.00 cd	0.00 a	72.50 abc	81.25 bcd	85.00 ab
AMMONIUM SULFATE	1 % ai/v	A										
14 GLYFOS XTRA	0.75 lb ai/a	A	72.50 def	85.00 ab	96.25 a	100.00 a	23.75 a	67.50 a-d	0.00 a	66.25 abc	83.75 a-d	82.50 ab
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	4 oz/a	A										
15 GLYFOS XTRA	0.75 lb ai/a	A	91.25 abc	85.00 ab	93.75 abc	100.00 a	16.25 a	65.00 a-d	0.00 a	70.00 abc	91.25 ab	78.75 abc
AMMONIUM SULFATE	1 % ai/v	A										
KFD 39-02	8 oz/a	A										
16			0.00 i	0.00 f	0.00 e	0.00 b	0.00 a	0.00 e	0.00 a	0.00 d	0.00 f	0.00 e
LSD (P=.05)			17.788	12.380	10.698	0.000	29.044	28.101	0.000	18.952	17.802	10.351
Standard Deviation			12.447	8.663	7.486	0.000	20.324	19.405	0.000	13.262	12.457	7.243
CV			16.53	11.73	8.91	0.0	74.75	29.0	0.0	18.92	15.5	9.66
Grand Mean			75.31	73.83	84.06	93.75	27.19	66.9	0.0	70.08	80.39	74.84
Bartlett's X2			23.471	10.332	33.393	0.0	30.211	14.018	0.0	6.197	31.53	24.156
P(Bartlett's X2)			0.024*	0.738	0.001*	.	0.007*	0.448	.	0.961	0.002*	0.031
Replicate F			2.723	4.405	2.472	0.000	0.494	0.565	0.000	3.420	0.211	4.457
Replicate Prob(F)			0.0553	0.0084	0.0738	1.0000	0.6881	0.6426	1.0000	0.0251	0.8885	0.0080
Treatment F			17.753	24.846	38.074	0.000	1.468	5.158	0.000	9.081	17.113	33.210
Treatment Prob(F)			0.0001	0.0001	0.0001	1.0000	0.1588	0.0001	1.0000	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.

# LSU Northeast Research Station

Weed Code	IPOHG	AMARE	ECHCG	SORHA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
Rating Data Type	CONTROL	CONTROL	CONTROL	CONTROL	INJURY	YIELD	MOISTURE	YIELD	YIELD		
Rating Unit	%	%	%	%	%	LB	%	BU/A	BU/A		
Rating Date	3/Jul/2008	3/Jul/2008	3/Jul/2008	3/Jul/2008	3/Jul/2008	23/Sep/2008	23/Sep/2008	23/Sep/2008	23/Sep/2008		
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	110 DA-A	110 DA-A	110 DA-A	110 DA-A		
# Subsamples, Dec.									1		
Trt Treatment											
No. Name	Rate	Unit	Appl Code	20	21	22	23	24	25	26	27
1 KFD 51-01	0.75 lb ai/a	A		82.50 c	100.00 a	58.75 a-d	77.50 c	0.00 a	4.25 ab	11.98 ab	19.2 ab
AMMONIUM SULFATE	1 % ai/v	A									
2 KFD 51-01	1 lb ai/a	A		86.25 bc	100.00 a	61.25 a-d	95.00 a	0.00 a	3.73 abc	12.40 a	17.0 abc
AMMONIUM SULFATE	1 % ai/v	A									
3 KFD 51-01	1.5 lb ai/a	A		85.00 bc	100.00 a	72.50 ab	92.50 ab	0.00 a	3.30 a-d	12.05 ab	14.9 a-d
AMMONIUM SULFATE	1 % ai/v	A									
4 KFD 51-01	0.75 lb ai/a	A		86.25 bc	100.00 a	55.00 cd	85.00 abc	0.00 a	3.53 abc	12.63 a	15.8 abc
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	4 oz/a	A									
5 KFD 51-01	1 lb ai/a	A		88.75 abc	100.00 a	61.25 a-d	90.00 abc	0.00 a	3.63 abc	12.65 a	16.3 abc
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	4 oz/a	A									
6 KFD 51-01	1.5 lb ai/a	A		90.00 ab	100.00 a	75.00 a	91.67 ab	0.00 a	5.00 a	12.18 a	22.3 a
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	4 oz/a	A									
7 KFD 51-01	0.75 lb ai/a	A		87.50 abc	100.00 a	48.75 d	78.75 c	0.00 a	2.83 b-e	12.28 a	12.9 b-e
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	8 oz/a	A									
8 KFD 51-01	1 lb ai/a	A		86.25 bc	100.00 a	66.25 abc	90.00 abc	0.00 a	3.28 a-d	12.35 a	15.1 abc
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	8 oz/a	A									
9 KFD 51-01	1.5 lb ai/a	A		93.75 a	100.00 a	72.50 ab	90.00 abc	0.00 a	2.68 b-e	10.88 ab	12.3 b-e
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	8 oz/a	A									
10 KFD 51-01	0.75 lb ai/a	A		88.75 abc	100.00 a	47.50 d	77.50 c	0.00 a	1.53 def	9.75 b	7.1 def
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	16 oz/a	A									
11 KFD 51-01	1 lb ai/a	A		86.25 bc	100.00 a	58.75 a-d	90.00 abc	0.00 a	2.30 c-f	12.80 a	10.6 c-f
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	16 oz/a	A									
12 KFD 51-01	1.5 lb ai/a	A		87.50 abc	100.00 a	75.00 a	90.00 abc	0.00 a	2.65 b-e	11.95 ab	12.3 b-e
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	16 oz/a	A									
13 GLYFOS XTRA	0.75 lb ai/a	A		90.00 ab	100.00 a	56.25 bcd	81.67 bc	0.00 a	2.30 c-f	11.13 ab	10.7 c-f
AMMONIUM SULFATE	1 % ai/v	A									
14 GLYFOS XTRA	0.75 lb ai/a	A		90.00 ab	100.00 a	61.25 a-d	85.00 abc	0.00 a	2.13 c-f	11.28 ab	10.0 c-f
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	4 oz/a	A									
15 GLYFOS XTRA	0.75 lb ai/a	A		87.50 abc	100.00 a	62.50 a-d	85.00 abc	0.00 a	1.08 ef	7.20 c	5.4 ef
AMMONIUM SULFATE	1 % ai/v	A									
KFD 39-02	8 oz/a	A									
16				0.00 d	0.00 b	0.00 e	0.00 d	0.00 a	0.44 f	5.79 c	2.9 f
LSD (P=.05)				6.551	0.000	16.670	12.791	0.000	1.866	2.370	7.97
Standard Deviation				4.584	0.000	11.665	8.573	0.000	1.306	1.659	5.57
CV				5.57	0.0	20.02	10.55	0.0	46.82	14.8	43.53
Grand Mean				82.27	93.75	58.28	81.22	0.0	2.79	11.2	12.8
Bartlett's X2				6.782	0.0	12.236	4.279	0.0	29.91	11.283	34.992
P(Bartlett's X2)				0.943	.	0.587	0.934	.	0.012*	0.732	0.002*
Replicate F				11.667	0.000	1.412	0.182	0.000	13.142	31.211	8.934
Replicate Prob(F)				0.0001	1.0000	0.2515	0.9072	1.0000	0.0001	0.0001	0.0001
Treatment F				92.836	0.000	9.191	27.158	0.000	3.227	5.909	3.302
Treatment Prob(F)				0.0001	1.0000	0.0001	0.0001	1.0000	0.0012	0.0001	0.0010

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.