

Influence of Preplant Growth Regulator Herbicide on Soybean Development.

Project Code: 06-6B Location: Belleville Research Center
 Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final **Updated:** 12-1-06

Objective:

Evaluate the effect of various rates of 2,4-D and dicamba applied preplant to soybean.

Crop 1: GLXMA soybean **Variety:** See treatment list
Planting Method: Seeded **Planting Date:** 5-23-06
Rate: 75 lb/A **Depth:** 1.0 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 32 FT **Reps:** 4
Tillage Type: No-Till **Study Design:** Split-block
Previous Crop, Year: ZEAMX, 2005
Field Prep./Maintenance: N 0 LB/A, P205 0 LB/A, K20 100 LB/A

Soil Name: Stoy **% OM:** 1.6 **pH:** 6.4 **CEC:** 8
Texture: Silt loam **Fert. Level:** P1: 81 LB/A, K: 414 LB/A

APPLICATION DESCRIPTION

A
Application Date: 5-22-06
Time of Day: 11:00
Application Method: Spray
Application Timing: 1DBP
Applic. Placement: BROS0I
Air Temp., Unit: 70 F
% Relative Humidity: 48
Wind Velocity, Unit: 5-7 MPH
Soil Moisture: NORMAL

CROP STAGE AT EACH APPLICATION

A
Crop 1 Code, Stage: GLXMA NA
Height, Unit: NA NA

APPLICATION EQUIPMENT

A
Appl. Equipment: CO2 sprayer
Operating Pressure: 40 PSI
Nozzle Type: Flat fan
Nozzle Size: 8003
Boom Length, Unit: 5 FT
Spray Volume, Unit: 20 GPA

NOTES:

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GLXMA GLXMA GLXMA GLXMA GLXMA GLXMA GLXMA GLXMA
 Moisture Yield V Stage V Stage V Stage V Stage R Stage R Stage
 Percent bu/A
 10-21-06 10-21-06 6-6-06 6-13-06 6-20-06 7-4-06 7-18-06 8-15-06
 14 DAP 21 DAP 28 DAP 42 DAP 56 DAP 84 DAP

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Moisture Percent	GLXMA Yield bu/A	GLXMA V Stage 6-6-06	GLXMA V Stage 6-13-06	GLXMA V Stage 6-20-06	GLXMA V Stage 7-4-06	GLXMA R Stage 7-18-06	GLXMA R Stage 8-15-06
1	AG4403RR									14.3	32	0	2	3	8	2	5
1	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A								
2	AG4403RR									14.3	34	0	2	3	8	2	5
2	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A								
3	AG4403RR									14.2	32	0	2	3	8	2	5
3	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A								
4	AG4403RR									14.5	33	0	2	3	7	2	5
4	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A								
5	AG4403RR									14.0	26	0	2	3	7	2	5
5	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A								
6	AG4403RR									14.2	26	0	2	2	6	2	5
6	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A								
7	AG4403RR									14.2	13	0	2	2	5	1	4
7	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A								
8	AG4403RR									14.3	0	0	2	2			
8	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A								
9	AG4403RR									14.1	36	0	2	3	8	2	5
9	NONTREATED																
10	DK4651									14.6	40	0	2	3	8	2	5
10	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A								
11	DK4651									14.7	36	0	2	3	8	2	5
11	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A								
12	DK4651									14.9	36	0	2	3	8	2	5
12	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A								
13	DK4651									14.7	31	0	2	3	8	2	5
13	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A								
14	DK4651									14.6	33	0	2	3	8	2	5
14	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A								
15	DK4651									14.9	32	0	2	2	7	2	5
15	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A								
16	DK4651									14.4	21	0	2	2	5	1	5
16	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A								
17	DK4651									14.4	2	0	2	2	4		
17	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A								
18	DK4651									14.7	37	0	2	3	8	2	5
18	NONTREATED																
LSD (P=.05)										0.54	11.1	0.0	0.0	0.2	0.4	0.2	0.0
Replicate F										3.486	2.779	0.000	0.000	1.000	2.133	1.000	0.000
Replicate Prob(F)										0.0227	0.0504	1.0000	1.0000	0.4005	0.1083	0.4016	1.0000
Treatment F										2.024	8.543	0.000	0.000	49.588	85.711	23.400	0.000
Treatment Prob(F)										0.0286	0.0001	1.0000	1.0000	0.0001	0.0001	0.0001	1.0000

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GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
Stunt	Stunt	Stunt	Stunt	Stunt	Stunt
Percent	Percent	Percent	Percent	Percent	Percent
6-6-06	6-13-06	6-20-06	7-4-06	7-18-06	8-15-06
14 DAP	21 DAP	28 DAP	42 DAP	56 DAP	84 DAP

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Stunt Percent 6-6-06 14 DAP	GLXMA Stunt Percent 6-13-06 21 DAP	GLXMA Stunt Percent 6-20-06 28 DAP	GLXMA Stunt Percent 7-4-06 42 DAP	GLXMA Stunt Percent 7-18-06 56 DAP	GLXMA Stunt Percent 8-15-06 84 DAP
1	AG4403RR									0	4	1	0	0	0
1	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A						
2	AG4403RR									23	16	9	4	3	0
2	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A						
3	AG4403RR									34	28	20	14	5	3
3	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A						
4	AG4403RR									50	50	43	31	21	10
4	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A						
5	AG4403RR									43	36	31	13	9	4
5	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A						
6	AG4403RR									85	81	75	54	39	21
6	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A						
7	AG4403RR									95	95	91	80	76	68
7	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A						
8	AG4403RR									98	98	99			
8	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A						
9	AG4403RR									0	0	0	0	0	0
9	NONTREATED														
10	DK4651									1	1	0	0	0	0
10	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A						
11	DK4651									1	1	0	0	0	0
11	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A						
12	DK4651									15	11	8	3	1	0
12	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A						
13	DK4651									45	30	24	11	9	5
13	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A						
14	DK4651									24	18	15	9	3	0
14	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A						
15	DK4651									60	60	53	31	16	7
15	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A						
16	DK4651									94	93	89	76	70	49
16	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A						
17	DK4651									96	99	98	98		
17	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A						
18	DK4651									0	0	0	0	0	0
18	NONTREATED														
LSD (P=.05)										4.6	6.4	6.4	6.4	6.1	4.2
Replicate F										0.944	1.104	0.785	9.025	7.676	5.927
Replicate Prob(F)										0.4262	0.3559	0.5080	0.0001	0.0003	0.0017
Treatment F										539.358	285.280	278.992	209.357	135.227	182.735
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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GLXMA GLXMA GLXMA GLXMA GLXMA GLXMA
 Chloro Chloro Chloro Chloro Chloro Chloro
 Percent Percent Percent Percent Percent Percent
 6-6-06 6-13-06 6-20-06 7-4-06 7-18-06 8-15-06
 14 DAP 21 DAP 28 DAP 42 DAP 56 DAP 84 DAP

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Chloro Percent 6-6-06 14 DAP	GLXMA Chloro Percent 6-13-06 21 DAP	GLXMA Chloro Percent 6-20-06 28 DAP	GLXMA Chloro Percent 7-4-06 42 DAP	GLXMA Chloro Percent 7-18-06 56 DAP	GLXMA Chloro Percent 8-15-06 84 DAP
1	AG4403RR									0	0	0	0	0	0
1	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A						
2	AG4403RR									0	0	0	0	0	0
2	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A						
3	AG4403RR									0	0	0	0	0	0
3	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A						
4	AG4403RR									0	0	0	0	0	0
4	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A						
5	AG4403RR									0	0	0	0	0	0
5	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A						
6	AG4403RR									0	0	0	0	0	0
6	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A						
7	AG4403RR									0	0	0	0	0	0
7	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A						
8	AG4403RR									0	0				
8	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A						
9	AG4403RR									0	0	0	0	0	0
9	NONTREATED														
10	DK4651									0	0	0	0	0	0
10	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A						
11	DK4651									0	0	0	0	0	0
11	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A						
12	DK4651									0	0	0	0	0	0
12	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A						
13	DK4651									0	0	0	0	0	0
13	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A						
14	DK4651									0	0	0	0	0	0
14	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A						
15	DK4651									0	0	0	0	0	0
15	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A						
16	DK4651									0	0	0	0	0	0
16	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A						
17	DK4651									0					
17	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A						
18	DK4651									0	0	0	0	0	0
18	NONTREATED														
LSD (P=.05)										0.0	0.0	0.0	0.0	0.0	0.0
Replicate F										0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)										1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F										0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)										1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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Weed Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
Crop Code	Malform	Malform	Malform	Malform	Malform	Malform
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	6-6-06	6-13-06	6-20-06	7-4-06	7-18-06	8-15-06
Rating Date	14 DAP	21 DAP	28 DAP	42 DAP	56 DAP	84 DAP
Trt-Eval Interval						

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Malform Percent 6-6-06 14 DAP	GLXMA Malform Percent 6-13-06 21 DAP	GLXMA Malform Percent 6-20-06 28 DAP	GLXMA Malform Percent 7-4-06 42 DAP	GLXMA Malform Percent 7-18-06 56 DAP	GLXMA Malform Percent 8-15-06 84 DAP
1	AG4403RR									18	5	5	1	0	0
1	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A						
2	AG4403RR									40	11	8	1	0	0
2	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A						
3	AG4403RR									28	16	13	6	1	0
3	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A						
4	AG4403RR									56	31	29	15	1	0
4	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A						
5	AG4403RR									59	69	59	31	5	0
5	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A						
6	AG4403RR										88	84	61	33	0
6	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A						
7	AG4403RR											93	90	78	58
7	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A						
8	AG4403RR									0					
8	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A						
9	AG4403RR									0	0	0	0	0	0
9	NONTREATED														
10	DK4651									23	8	6	0	0	0
10	2,4-D LV4	3.8	EC	0.25	lb ae/a	0.53	pt/a	1DBP	A						
11	DK4651									33	8	5	0	0	0
11	2,4-D LV4	3.8	EC	0.5	lb ae/a	1.05	pt/a	1DBP	A						
12	DK4651									34	14	10	0	0	0
12	2,4-D LV4	3.8	EC	1.0	lb ae/a	2.1	pt/a	1DBP	A						
13	DK4651									46	20	19	5	0	0
13	2,4-D LV4	3.8	EC	2.0	lb ae/a	4.2	pt/a	1DBP	A						
14	DK4651									45	61	53	18	3	0
14	CLARITY	4	EC	0.125	lb ae/a	0.25	pt/a	1DBP	A						
15	DK4651									66	79	71	54	20	0
15	CLARITY	4	EC	0.25	lb ae/a	0.5	pt/a	1DBP	A						
16	DK4651										94	90	81	56	0
16	CLARITY	4	EC	0.5	lb ae/a	1	pt/a	1DBP	A						
17	DK4651														
17	CLARITY	4	EC	1.0	lb ae/a	2	pt/a	1DBP	A						
18	DK4651									0	0	0	0	0	0
18	NONTREATED														
LSD (P=.05)										7.3	6.7	5.8	5.9	3.6	0.0
Replicate F										0.750	1.852	1.552	2.082	2.166	0.000
Replicate Prob(F)										0.5293	0.1517	0.2142	0.1159	0.1052	1.0000
Treatment F										74.716	238.976	292.874	203.338	249.551	0.000
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	1.0000

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GLXMA Injury Percent 6-6-06 14 DAP	GLXMA Injury Percent 6-13-06 21 DAP	GLXMA Injury Percent 6-20-06 28 DAP	GLXMA Injury Percent 7-4-06 42 DAP	GLXMA Injury Percent 7-18-06 56 DAP	GLXMA Injury Percent 8-15-06 84 DAP	GLXMA Plants 000/A 6-20-06 28 DAP	GLXMA Plants 000/A 10-4-06 EOS
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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code							
1	AG4403RR														
1	2,4-D LV4	3.8	EC	0.25 lb ae/a	0.53	pt/a	1DBP	A	9	7	5	1	0	0	157.2 126.0
2	AG4403RR														
2	2,4-D LV4	3.8	EC	0.5 lb ae/a	1.05	pt/a	1DBP	A	41	21	13	5	2	0	155.9 110.8
3	AG4403RR														
3	2,4-D LV4	3.8	EC	1.0 lb ae/a	2.1	pt/a	1DBP	A	39	36	25	14	4	3	129.3 107.4
4	AG4403RR														
4	2,4-D LV4	3.8	EC	2.0 lb ae/a	4.2	pt/a	1DBP	A	54	58	44	35	23	10	108.1 92.9
5	AG4403RR														
5	CLARITY	4	EC	0.125 lb ae/a	0.25	pt/a	1DBP	A	56	55	50	24	9	4	137.3 114.7
6	AG4403RR														
6	CLARITY	4	EC	0.25 lb ae/a	0.5	pt/a	1DBP	A	85	90	83	60	44	20	88.9 77.6
7	AG4403RR														
7	CLARITY	4	EC	0.5 lb ae/a	1	pt/a	1DBP	A	95	96	93	81	79	68	35.8 35.8
8	AG4403RR														
8	CLARITY	4	EC	1.0 lb ae/a	2	pt/a	1DBP	A	98	98	99	99	99	99	4.0 3.3
9	AG4403RR														
9	NONTREATED								0	2	0	0	0	0	141.9 130.0
10	DK4651														
10	2,4-D LV4	3.8	EC	0.25 lb ae/a	0.53	pt/a	1DBP	A	15	8	6	0	0	0	159.8 131.3
11	DK4651														
11	2,4-D LV4	3.8	EC	0.5 lb ae/a	1.05	pt/a	1DBP	A	19	8	5	0	0	0	162.5 127.3
12	DK4651														
12	2,4-D LV4	3.8	EC	1.0 lb ae/a	2.1	pt/a	1DBP	A	29	20	12	3	1	0	166.5 133.3
13	DK4651														
13	2,4-D LV4	3.8	EC	2.0 lb ae/a	4.2	pt/a	1DBP	A	55	36	29	14	8	5	140.6 107.4
14	DK4651														
14	CLARITY	4	EC	0.125 lb ae/a	0.25	pt/a	1DBP	A	40	41	40	14	3	0	161.8 122.0
15	DK4651														
15	CLARITY	4	EC	0.25 lb ae/a	0.5	pt/a	1DBP	A	67	74	66	43	21	7	148.6 110.8
16	DK4651														
16	CLARITY	4	EC	0.5 lb ae/a	1	pt/a	1DBP	A	94	94	90	81	75	50	50.4 33.2
17	DK4651														
17	CLARITY	4	EC	1.0 lb ae/a	2	pt/a	1DBP	A	96	99	98	98			7.3 5.3
18	DK4651														
18	NONTREATED								0	0	0	0	0	0	164.5 129.3
LSD (P=.05)									5.7	7.1	7.1	5.3	5.0	4.1	19.74 17.10
Replicate F									1.293	1.816	0.746	7.741	7.999	3.990	3.401 1.311
Replicate Prob(F)									0.2867	0.1560	0.5298	0.0002	0.0002	0.0129	0.0245 0.2809
Treatment F									285.409	218.825	215.633	378.036	343.570	403.907	64.197 53.431
Treatment Prob(F)									0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001 0.0001

Trial Comments

1. Protocol: ISA.
2. Ratings: Date to 90% emergence; plant growth stage at 14, 21, and 28 DAP; soybean stunt, chlorosis, malformation and overall injury at 14, 21, and 28 DAP; soybean population at 28 DAP; injury evaluations to continue if injury persists beyond 28 DAP; grain yield and final soybean population at maturity.
3. Yield.
4. Blanket application of Roundup W-Max (22 fl oz/A) + Dual II Magnum (1.33 pt/A) + Firstrate (0.6 oz/A) at 14 days before planned planting date was applied 7-27-06.
5. Maintain the study weedfree with a POST application of Roundup W-Max or handweeding.
6. DAP = Days after planting. V Stage = Soybean vegetative stage, 0 = VC, 1-7 = V1-V7, 8 = R1.
 R Stage = Soybean reproductive stage, 1-5 = R1-R5.
 Stunt = Soybean stunting. Chloro = Chlorosis. Malform = Malformation. Injury = Overall injury.
 000/A = Thousands per acre. EOS = End of Season.
 Plant counts on 10-4-06 were not counted in the same meter of row as on 6-20-06.
7. At 14 DAP it was not possible to rate soybean malformation in all plots as plants in some plots had yet to unfurl any leaves.
8. Harvested 10-21-06, (2) 30 inch rows by 29 ft.