

Influence of Weed Management on Optimal Soybean Seed Rates - Site 1.

Trial ID: 11-KRC-SeedingRate Location: Kuehn Res. Center

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu
 City State Zip Country: Dowell IL 62927 USA
 Trial Status: SETUP

Objectives: Determine if crop management factors such as weed removal timing and disease/insect management influence the optimal seeding rate.

Crop 1: GLXMA Soybean
 Planting Method: See treatment list

Depth, Unit: 1.0 IN

Row Spacing, Unit: 15 IN

Pest 1 Type: W Code: PANDI Panicum dichotomiflorum Michx. panicum, fall
 Pest 2 Type: W Code: AMATA Amaranthus rudis Sauer waterhemp, common

Plot Width, Unit: 10 FT Site Type: FIELD
 Plot Length, Unit: 30 FT Tillage Type: NO-TILL
 Replications: 4 Study Design: Randomized Complete Block

Prior Crops, Year
 1. ZEAMD 2010

Field Prep./Maintenance: N 0 LB/A, P205 ___ LB/A, K20 ___ LB/A

Application Description

	A	B	C	D	E	F
Application Date:	6-2-11	6-24-11	7-7-11	7-19-11	7-25-11	7-19-11
Time of Day:	13:30	10:30	16:00	9:30	13:00	9:30
Application Method:	Spray	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	4-6"W	8-12"W	>18"W	R2-3	IF-NEED
Application Placement:	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Applied By:	LAH	JRK	MJA	MJA	JRK	MJA
Air Temperature, Unit:	92 F	78 F	87 F	90 F	92 F	90 F
% Relative Humidity:	39	49	69	58	45	58
Wind Velocity, Unit:	2 MPH	4 MPH	2 MPH	3 MPH	1 MPH	3 MPH
Wind Direction:	E	NW	S	W	W	W
Dew Presence (Y/N):	N	N	N	N	N	N
Soil Temperature, Unit:	83 F	72 F	84 F	84 F	88 F	84 F
Soil Moisture:	NORMAL	ABONOR	NORMAL	NORMAL	ABONOR	NORMAL
% Cloud Cover:	65	65	100	0	5	0

	A	B	C	D	E	F
Crop stage at application:	NA	V2-V3	V4-V5	R1-R2	R2	R1-R2
Height Min, Max (inch):	4	6 7	10 18	26 18	28 18	26

Pest Stage At Each Application

	A	B	C	D	E	F
Application Date:	6-2-11	6-24-11	7-7-11	7-19-11	7-25-11	7-19-11
Weed Code:	PANDI	PANDI	PANDI	PANDI	PANDI	PANDI
Stage Majority (leaves):	NA	2	12	10	NA	10
Stage Min, Max:		1 4	3 20	7 15		7 15
Height Majority:		4 IN	10 IN	20 IN		20 IN
Height Min, Max:		1 6	3 15	13 30		13 30
Density, Unit:		1 FT2	2 FT2	2 FT2		2 FT2
Weed Code:	AMATA	AMATA	AMATA	AMATA	AMATA	AMATA
Stage Majority (leaves):	NA	6	12	25	NA	25
Stage Min, Max:		coty 10	coty 35	12 50		12 50
Height Majority:		4 IN	8 IN	24 IN		24 IN
Height Min, Max:		0.5 6	0.5 20	16 40		16 40
Density, Unit:		1 FT2	3 FT2	3 FT2		3 FT2

Application Equipment

	A	B	C	D	E	F
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	30 PSI	30 PSI	30 PSI	30 PSI	30 PSI	30 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	XR 8002	XR 8002	XR 8002	XR 8002	XR 8002	XR 8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	15 GPA	15 GPA	15 GPA	15 GPA	15 GPA	15 GPA

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Pest Code										PANDI	PANDI	AMATA	AMATA
Crop Code										GLXMA	GLXMA	GLXMA	
Rating Date										10-14-11	10-14-11	10-14-11	
Rating Data Type										Moisture	Test wt.	Yield	
Rating Unit										Percent	lb/bu	bu/A	
Rating Timing										0 DAB	21 DAD	0 DAB	21 DAD
Trt-Eval Interval										22 DA-A	68 DA-A	22 DA-A	68 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code				
1	50,000 SEEDS/A									15.9 cde	54.2 abc	43 a-f	98 a
1	WEED FREE												99 a
1	SONIC	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A				99 a
1	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A				99 a
1	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	IF-NEED	F				98 a
1	N-PAK AMS	100	SL	5	% v/v	5	% v/v	IF-NEED	F				
1	HANDWEED												
2	50,000 SEEDS/A									16.4 b-e	53.9 a-e	32 f-i	91 b
2	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	4-6"W	B				
2	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4-6"W	B				51 c
3	50,000 SEEDS/A									15.9 cde	54.2 abc	38 b-h	92 b
3	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	C				
3	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8-12"W	C				96 a
4	50,000 SEEDS/A									15.5 de	54.4 ab	36 d-h	99 a
4	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	>18"W	D				
4	N-PAK AMS	100	SL	5	% v/v	5	% v/v	>18"W	D				97 a
5	50,000 SEEDS/A									18.1 a	53.1 f	21 ij	0 d
5	NONTREATED												0 d
6	100,000 SEEDS/A									15.8 de	54.2 abc	49 ab	99 a
6	WEED FREE												99 a
6	SONIC	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A				99 a
6	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A				99 a
6	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	IF-NEED	F				99 a
6	N-PAK AMS	100	SL	5	% v/v	5	% v/v	IF-NEED	F				99 a
6	HANDWEED												
7	100,000 SEEDS/A									15.7 de	54.2 abc	42 a-f	99 a
7	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	4-6"W	B				
7	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4-6"W	B				93 a
8	100,000 SEEDS/A									15.6 de	54.3 abc	47 a-d	99 a
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	C				
8	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8-12"W	C				99 a
9	100,000 SEEDS/A									15.6 de	54.3 abc	42 a-f	99 a
9	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	>18"W	D				
9	N-PAK AMS	100	SL	5	% v/v	5	% v/v	>18"W	D				98 a
10	100,000 SEEDS/A									17.2 abc	53.4 def	28 hi	0 d
10	NONTREATED												0 d
11	150,000 SEEDS/A									15.4 de	54.4 ab	48 ab	97 a
11	WEED FREE												99 a
11	SONIC	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A				99 a
11	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A				99 a
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	IF-NEED	F				99 a
11	N-PAK AMS	100	SL	5	% v/v	5	% v/v	IF-NEED	F				99 a
11	HANDWEED												
12	150,000 SEEDS/A									15.5 de	54.4 ab	45 a-e	99 a
12	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	4-6"W	B				
12	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4-6"W	B				95 a
13	150,000 SEEDS/A									15.4 de	54.4 ab	40 b-g	99 a
13	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	C				
13	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8-12"W	C				96 a
14	150,000 SEEDS/A									15.3 e	54.5 a	40 b-g	99 a
14	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	>18"W	D				
14	N-PAK AMS	100	SL	5	% v/v	5	% v/v	>18"W	D				98 a
15	150,000 SEEDS/A									15.9 cde	54.2 abc	32 f-i	0 d
15	NONTREATED												0 d

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Crop Code								GLXMA	GLXMA	GLXMA						
Rating Date								10-14-11	10-14-11	10-14-11						
Rating Data Type								Moisture	Test wt.	Yield						
Rating Unit								Percent	lb/bu	bu/A						
Rating Timing								0 DAB	21 DAD	0 DAB	21 DAD					
Trt-Eval Interval								22 DA-A	68 DA-A	22 DA-A	68 DA-A					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code							
16	50,000 SEEDS/A									15.6 de	54.2 abc	45 a-e	97 a	99 a	99 a	99 a
16	WEED FREE															
16	SONIC	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A							
16	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A							
16	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	IF-NEED	F							
16	N-PAK AMS	100	SL	5	% v/v	5	% v/v	IF-NEED	F							
16	HANDWEED															
16	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
16	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
16	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
17	50,000 SEEDS/A									16.6 b-e	53.6 c-f	38 b-h		85 c		64 b
17	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	4-6"W	B							
17	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4-6"W	B							
17	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
17	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
17	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
18	50,000 SEEDS/A									15.3 e	54.3 abc	47 a-d		99 a		99 a
18	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	C							
18	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8-12"W	C							
18	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
18	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
18	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
19	50,000 SEEDS/A									15.9 cde	54.2 abc	37 c-h		99 a		98 a
19	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	>18"W	D							
19	N-PAK AMS	100	SL	5	% v/v	5	% v/v	>18"W	D							
19	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
19	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
19	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
20	50,000 SEEDS/A									17.4 ab	53.3 ef	13 j		0 d		0 d
20	NONTREATED															
20	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
20	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
20	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
21	100,000 SEEDS/A									15.6 de	54.3 abc	48 abc	99 a	99 a	99 a	99 a
21	WEED FREE															
21	SONIC	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A							
21	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A							
21	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	IF-NEED	F							
21	N-PAK AMS	100	SL	5	% v/v	5	% v/v	IF-NEED	F							
21	HANDWEED															
21	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
21	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
21	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
22	100,000 SEEDS/A									15.9 cde	54.1 a-d	43 a-e		99 a		95 a
22	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	4-6"W	B							
22	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4-6"W	B							
22	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
22	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
22	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
23	100,000 SEEDS/A									15.6 de	54.3 abc	46 a-d		99 a		98 a
23	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	C							
23	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8-12"W	C							
23	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
23	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
23	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
24	100,000 SEEDS/A									15.6 de	54.3 abc	42 a-f		99 a		98 a
24	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	>18"W	D							
24	N-PAK AMS	100	SL	5	% v/v	5	% v/v	>18"W	D							
24	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
24	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
24	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							

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Pest Code					GLXMA	GLXMA	GLXMA	PANDI	PANDI	AMATA	AMATA					
Crop Code					10-14-11	10-14-11	10-14-11	6-24-11	8-9-11	6-24-11	8-9-11					
Rating Date					Moisture	Test wt.	Yield	Control	Control	Control	Control					
Rating Data Type					Percent	lb/bu	bu/A	0 DAB	21 DAD	0 DAB	21 DAD					
Rating Unit																
Rating Timing																
Trt-Eval Interval																
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code							
25	100,000 SEEDS/A									16.7 a-d	53.7 b-f	34 e-h	0 d	0 d		
25	NONTREATED															
25	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
25	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
25	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
26	150,000 SEEDS/A									15.5 de	54.4 ab	52 a	97 a	99 a		
26	WEED FREE															
26	SONIC	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A							
26	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A							
26	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	IF-NEED	F							
26	N-PAK AMS	100	SL	5	% v/v	5	% v/v	IF-NEED	F							
26	HANDWEED															
26	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
26	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
26	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
27	150,000 SEEDS/A									15.5 de	54.4 ab	47 a-d	98 a	96 a		
27	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	4-6"W	B							
27	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4-6"W	B							
27	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
27	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
27	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
28	150,000 SEEDS/A									15.4 de	54.4 ab	48 ab	99 a	99 a		
28	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	C							
28	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8-12"W	C							
28	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
28	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
28	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
29	150,000 SEEDS/A									15.5 de	54.3 ab	47 a-d	99 a	99 a		
29	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	>18"W	D							
29	N-PAK AMS	100	SL	5	% v/v	5	% v/v	>18"W	D							
29	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
29	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
29	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
30	150,000 SEEDS/A									17.5 ab	53.5 def	30 ghi	0 d	0 d		
30	NONTREATED															
30	HEADLINE	2.09	EC	0.098	lb ai/a	6	fl oz/a	R2-R3	E							
30	WARRIOR	1	CS	0.02	lb ai/a	2.56	fl oz/a	R2-R3	E							
30	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	R2-R3	E							
LSD (P=.05)										1.40	0.70	11.2	2.4	5.9	0.0	10.3
Replicate F										0.278	0.249	5.262	2.902	3.182	0.000	0.082
Replicate Prob(F)										0.8408	0.8619	0.0022	0.0694	0.0279	1.0000	0.9696
Treatment F										2.216	2.247	4.989	1.525	362.599	0.000	119.327
Treatment Prob(F)										0.0024	0.0021	0.0001	0.2409	0.0001	1.0000	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Trial Comments

1. Protocol: ISA.
2. Ratings: WC at B timing and 21 da D.
3. Yield.
4. Consider weed counts or biomass per plot for data collection.
5. Blanket burndown application of Roundup PowerMax (22 fl oz/A) plus 2,4-D (1 pt/A) to be applied at 7 DBP.
6. Blanket POST application of Roundup PowerMax (22 fl oz/A) + N-Pak AMS (5 %v/v), as needed, at 2-3 inch weed regrowth to maintain weed-free following the initial herbicide application, for all treatments except the nontreated weedy checks.
7. Harvested 10-14-11, (2) 30 inch rows by 26.5 ft.