

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50
 Location: Agronomy Res. Center
 Investigator: Bryan Young

General Trial Information	
Study Director: Bryan Young	Investigator: Bryan Young Title: Professor
Trial Status: F - one-year/final	
Initiation Date: 10-26-11	
Trial Location	
City: Carbondale	
State/Prov.: IL	
Postal Code: 62901	
Country: USA	United States

Objectives:
 Evaluate a program approach of Axiom followed by Osprey applied sequentially for season-long weed control.

Personnel	
Study Director: Bryan Young	Title: Professor
Investigator: Bryan Young	Affiliation: Southern Illinois University
Address: 1205 Lincoln Drive - AG 176 - MC 4415	
Location: Carbondale IL	
Postal Code: 62901	E-mail: bgyoung@siu.edu
Phone No.: 618-453-7679	Mobile No.: 618-713-6471

Crop Description	
Crop 1: TRZAW Triticum aestivum (winter) Winter wheat	
Variety: P25R62	
BBCH Scale: BCER	Planting Date: 10-26-11
Planting Method: SEEDED Seeded	Rate, Unit: 1.4 millionS/A
Depth, Unit: 1 IN	
Row Spacing, Unit: 7.5 IN	

Pest Description	
Pest 1 Type: W Code: POAN - Poa annua L.	Common Name: bluegrass, annual
Pest 2 Type: W Code: ALLVI - Allium vineale L.	Common Name: garlic, wild
Pest 3 Type: W Code: LAMAM - Lamium amplexicaule L.	Common Name: henbit
Pest 4 Type: W Code: RANAB - Ranunculus abortivus L.	Common Name: buttercup, smallflower

Site and Design	
Plot Width, Unit: 10 FT	Site Type: FIELD field
Plot Length, Unit: 30 FT	
Plot Area, Unit: 300 FT2	Tillage Type: NOTILL no-till
Replications: 4	Study Design: RACOB L Randomized Complete Block (RCB)

No.	Previous Crop	Year
1.	GLXMA	2011

Maintenance	
No.	Maintenance Treatment Name
1.	Fall: N 30 LB/A, P205 0 LB/A, K20 0 LB/A
2.	Spring: N 85 LB/A, P205 0 LB/A, K20 0 LB/A

Soil Description	
% OM: 2.2	Texture: SIL SILT LOAM
pH: 6.2	Soil Name: WEIR
CEC: 7.3	

Additional Measured Elements		
Element	Quantity	Unit
P1	63	LB/A
K	217	LB/A

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50
 Location: Agronomy Res. Center
 Investigator: Bryan Young

Moisture and Weather Conditions	
Overall Moisture Conditions:	BELNOR below normal
Closest Weather Station: ICN - Carbondale IL	Distance, Unit: 0.5 MI

Application Description		
	A	B
Application Date:	10-29-11	3-13-12
Time of Day:	11:00 am	12:00 pm
Application Method:	Spray	Spray
Application Timing:	PRE	SPRING
Application Placement:	BROFOL	BROFOL
Applied By:	NRJ	NRJ
Air Temperature, Unit:	55 F	80 F
% Relative Humidity:	33	35
Wind Velocity, Unit:	3 MPH	1 MPH
Wind Direction:	W	S
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	50 F	50 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	0	0
Next Rain Occurred On:	11-3-11	3-15-12

Crop Stage At Each Application				
	A		B	
Crop 1 Code, BBCH Scale:	TRZAW	BCER	TRZAW	BCER
Stage Scale Used:	BBCH		DESC	
Stage Majority, Percent:	NA		FK4	
Height, Unit:	NA	IN	6	IN
Height Minimum, Maximum:			3	6

Pest Stage At Each Application				
	A		B	
Pest 1 Code, Type, Scale:	POAAN	W DESC	POAAN	W DESC
Stage Majority, Percent:	2		15	
Stage Minimum, Percent:	1		10	
Stage Maximum, Percent:	3		20	
Height, Unit:	1	IN	1.5	IN
Height Minimum, Maximum:	0.5	1	1	2
Density, Unit:	10	FT2	1	FT2
Pest 2 Code, Type, Scale:	ALLVI	W DESC	ALLVI	W DESC
Stage Majority, Percent:	2		2	
Stage Minimum, Percent:	1		1	
Stage Maximum, Percent:	3		3	
Height, Unit:	3	IN	5	IN
Height Minimum, Maximum:	2	6	4	8
Density, Unit:	5	FT2	0.5	FT2
Pest 3 Code, Type, Scale:	LAMAM	W DESC	LAMAM	W DESC
Stage Majority, Percent:	4		15	
Stage Minimum, Percent:	4		10	
Stage Maximum, Percent:	6		20	
Height, Unit:	1	IN	3	IN
Height Minimum, Maximum:	0.5	1	2	3
Density, Unit:	4	FT2	0.1	FT2
Pest 4 Code, Type, Scale:	RANAB	W DESC	RANAB	W DESC
Stage Majority, Percent:	3		8	
Stage Minimum, Percent:	2		4	
Stage Maximum, Percent:	5		10	
Height, Unit:	1	IN	2	IN
Height Minimum, Maximum:	0.5	1	1.5	2
Density, Unit:	2	FT2	0.5	FT2

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50

Location: Agronomy Res. Center

Investigator: Bryan Young

Application Equipment		
	A	B
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Equipment Type:	BACSPR	BACSPR
Operation Pressure, Unit:	30 PSI	30 PSI
Nozzle Type:	XR	XR
Nozzle Size:	8002	8002
Boom Length, Unit:	6.67 FT	6.67 FT
Spray Volume, Unit:	15 GPA	15 GPA

Southern Illinois University

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50
 Location: Agronomy Res. Center

Investigator: Bryan Young

Pest Code Crop Code Rating Date Rating Type Rating Unit Rating Timing Trt-Eval Interval							TRZAW 6-4-12 Moisture Percent	TRZAW 6-4-12 Test wt. lb/bu	TRZAW 6-4-12 Yield bu/A
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	
1	NONTREATED								12.7 a 54.6 a 57 b
2	ROUNDUP POWERMAX N-PAK AMS	4.5 100	SL SL	0.77 lb ae/a 5 % v/v	22 fl oz/a 5 % v/v		PRE PRE	A A	12.1 b 54.5 a 84 a
3	ROUNDUP POWERMAX AXIOM N-PAK AMS	4.5 68 100	SL WG SL	0.77 lb ae/a 0.425 lb ai/a 5 % v/v	22 fl oz/a 10 oz/a 5 % v/v		PRE PRE PRE	A A A	11.9 b 54.2 a 87 a
4	ROUNDUP POWERMAX N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN	4.5 100 4.5 100 100	SL SL WG SL SL	0.77 lb ae/a 5 % v/v 0.0134 lb ai/a 0.5 % v/v 4 pt/a	22 fl oz/a 5 % v/v 4.76 oz/a 0.5 % v/v 4 pt/a		PRE PRE SPRING SPRING SPRING	A A B B B	12.0 b 54.2 a 79 a
5	ROUNDUP POWERMAX AXIOM N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN	4.5 68 100 4.5 100	SL WG SL WG SL	0.77 lb ae/a 0.425 lb ai/a 5 % v/v 0.0134 lb ai/a 0.5 % v/v 4 pt/a	22 fl oz/a 10 oz/a 5 % v/v 4.76 oz/a 0.5 % v/v 4 pt/a		PRE PRE PRE SPRING SPRING SPRING	A A A B B B	11.9 b 54.8 a 89 a
6	ROUNDUP POWERMAX N-PAK AMS HARMONY EXTRA SG SENCOR NIS (ACTIVATOR 90)	4.5 100 50 75 100	SL SL SG WG SL	0.77 lb ae/a 5 % v/v 0.0234 lb ai/a 0.188 lb ai/a 0.25 % v/v	22 fl oz/a 5 % v/v 0.75 oz/a 4 oz/a 0.25 % v/v		PRE PRE SPRING SPRING SPRING	A A B B B	12.3 b 55.6 a 78 a
7	ROUNDUP POWERMAX N-PAK AMS POWERFLEX NIS (ACTIVATOR 90)	4.5 100 7.5 100	SL SL WG SL	0.77 lb ae/a 5 % v/v 0.0164 lb ai/a 0.25 % v/v	22 fl oz/a 5 % v/v 3.5 oz/a 0.25 % v/v		PRE PRE SPRING SPRING	A A B B	11.9 b 52.8 a 76 a
8	ROUNDUP POWERMAX ANTHEM N-PAK AMS	4.5 2.15 100	SL SE SL	0.77 lb ae/a 0.111 lb ai/a 5 % v/v	22 fl oz/a 6.6 fl oz/a 5 % v/v		PRE PRE PRE	A A A	11.9 b 53.8 a 86 a
LSD (P=.05)							0.40	2.36	16.8
Standard Deviation							0.27	1.60	11.4
CV							2.27	2.95	14.33
Replicate F							4.992	1.298	0.502
Replicate Prob(F)							0.0091	0.3012	0.6847
Treatment F							3.798	1.043	3.123
Treatment Prob(F)							0.0081	0.4320	0.0201

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.

Southern Illinois University

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50
 Location: Agronomy Res. Center

Investigator: Bryan Young

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	TRZAW 11-14-11 Injury Percent 7 DAE 16 DA-A	TRZAW 11-28-11 Injury Percent 21 DAE 30 DA-A	TRZAW 3-20-12 Injury Percent 7 DA-B	TRZAW 4-3-12 Injury Percent 21 DA-B	
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
1	NONTREATED									0 a	0 a
2	ROUNDUP POWERMAX N-PAK AMS	4.5 100	SL SL	0.77 lb ae/a 5 % v/v		22 fl oz/a 5 % v/v		PRE PRE	A A	0 a	0 a
3	ROUNDUP POWERMAX AXIOM N-PAK AMS	4.5 68 100	SL WG SL	0.77 lb ae/a 0.425 lb ai/a 5 % v/v		22 fl oz/a 10 oz/a 5 % v/v		PRE PRE PRE	A A A	0 a	0 a
4	ROUNDUP POWERMAX N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN	4.5 100 4.5 100 100	SL SL WG SL SL	0.77 lb ae/a 5 % v/v 0.0134 lb ai/a 0.5 % v/v 4 pt/a		22 fl oz/a 5 % v/v 4.76 oz/a 0.5 % v/v 4 pt/a		PRE PRE SPRING B SPRING B SPRING B	A A B B B	0 a	0 a
5	ROUNDUP POWERMAX AXIOM N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN	4.5 68 100 4.5 100	SL WG SL WG SL	0.77 lb ae/a 0.425 lb ai/a 5 % v/v 0.0134 lb ai/a 0.5 % v/v 4 pt/a		22 fl oz/a 10 oz/a 5 % v/v 4.76 oz/a 0.5 % v/v 4 pt/a		PRE PRE PRE SPRING B SPRING B SPRING B	A A A B B B	0 a	0 a
6	ROUNDUP POWERMAX N-PAK AMS HARMONY EXTRA SG SENCOR NIS (ACTIVATOR 90)	4.5 100 50 75 100	SL SL SG WG SL	0.77 lb ae/a 5 % v/v 0.0234 lb ai/a 0.188 lb ai/a 0.25 % v/v		22 fl oz/a 5 % v/v 0.75 oz/a 4 oz/a 0.25 % v/v		PRE PRE SPRING B SPRING B SPRING B	A A B B B	0 a	0 a
7	ROUNDUP POWERMAX N-PAK AMS POWERFLEX NIS (ACTIVATOR 90)	4.5 100 7.5 100	SL SL WG SL	0.77 lb ae/a 5 % v/v 0.0164 lb ai/a 0.25 % v/v		22 fl oz/a 5 % v/v 3.5 oz/a 0.25 % v/v		PRE PRE SPRING B SPRING B	A A B B	0 a	0 a
8	ROUNDUP POWERMAX ANTHEM N-PAK AMS	4.5 2.15 100	SL SE SL	0.77 lb ae/a 0.111 lb ai/a 5 % v/v		22 fl oz/a 6.6 fl oz/a 5 % v/v		PRE PRE PRE	A A A	0 a	0 a
LSD (P=.05)							0.0	0.0	0.0	0.0	
Standard Deviation							0.0	0.0	0.0	0.0	
CV							0.0	0.0	0.0	0.0	
Replicate F							0.000	0.000	0.000	0.000	
Replicate Prob(F)							1.0000	1.0000	1.0000	1.0000	
Treatment F							0.000	0.000	0.000	0.000	
Treatment Prob(F)							1.0000	1.0000	1.0000	1.0000	

Southern Illinois University

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50
 Location: Agronomy Res. Center

Investigator: Bryan Young

Pest Code							POAAN	POAAN	POAAN	ALLVI	ALLVI	ALLVI				
Crop Code							11-28-11	3-27-12	4-12-12	11-28-11	3-27-12	4-12-12				
Rating Date							Control	Control	Control	Control	Control	Control				
Rating Type							Percent	Percent	Percent	Percent	Percent	Percent				
Rating Unit							21 DAE	14 DA-B	30 DA-B	21 DAE	14 DA-B	30 DA-B				
Rating Timing							30 DA-A	14 DA-B	30 DA-B	30 DA-A	14 DA-B	30 DA-B				
Trt-Eval Interval																
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Rate	Growth Unit	Stage	Appl Code						
1	NONTREATED										0 b	0 d	0 d	0 b	0 d	0 e
2	ROUNDUP POWERMAX N-PAK AMS	4.5 100	SL SL	0.77 5 %	lb ae/a v/v	22 5 %	fl oz/a v/v	PRE PRE	A A		99 a	82 c	84 c	55 a	85 c	83 d
3	ROUNDUP POWERMAX AXIOM N-PAK AMS	4.5 68 100	SL WG SL	0.77 0.425 5 %	lb ae/a lb ai/a v/v	22 10 5 %	fl oz/a oz/a v/v	PRE PRE PRE	A A A		99 a	94 ab	96 a	53 a	85 bc	86 cd
4	ROUNDUP POWERMAX N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN	4.5 100 4.5 100 100	SL SL WG SL SL	0.77 5 % 0.0134 0.5 % 4 pt/a	lb ae/a v/v lb ai/a v/v pt/a	22 5 % 4.76 0.5 % 4 pt/a	fl oz/a v/v oz/a v/v pt/a	PRE PRE SPRING SPRING SPRING	A A B B B		99 a	94 ab	97 a	55 a	91 ab	90 bc
5	ROUNDUP POWERMAX AXIOM N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN	4.5 68 100 4.5 100	SL WG SL WG SL	0.77 0.425 5 % 0.0134 0.5 % 4 pt/a	lb ae/a lb ai/a v/v lb ai/a v/v pt/a	22 10 5 % 4.76 0.5 % 4 pt/a	fl oz/a oz/a v/v oz/a v/v pt/a	PRE PRE PRE SPRING SPRING SPRING	A A A B B B		99 a	96 a	99 a	55 a	91 a	94 b
6	ROUNDUP POWERMAX N-PAK AMS HARMONY EXTRA SG SENCOR NIS (ACTIVATOR 90)	4.5 100 50 75 100	SL SL SG WG SL	0.77 5 % 0.0234 0.188 0.25 %	lb ae/a v/v lb ai/a ai/a v/v	22 5 % 0.75 4 0.25 %	fl oz/a v/v oz/a oz/a v/v	PRE PRE SPRING SPRING SPRING	A A B B B		99 a	97 a	99 a	50 a	95 a	99 a
7	ROUNDUP POWERMAX N-PAK AMS POWERFLEX NIS (ACTIVATOR 90)	4.5 100 7.5 100	SL SL WG SL	0.77 5 % 0.0164 0.25 %	lb ae/a v/v lb ai/a v/v	22 5 % 3.5 0.25 %	fl oz/a v/v oz/a v/v	PRE PRE SPRING SPRING	A A B B		99 a	91 b	90 b	53 a	90 abc	89 c
8	ROUNDUP POWERMAX ANTHEM N-PAK AMS	4.5 2.15 100	SL SE SL	0.77 0.111 5 %	lb ae/a lb ai/a v/v	22 6.6 5 %	fl oz/a fl oz/a v/v	PRE PRE PRE	A A A		99 a	96 a	96 a	50 a	85 bc	86 cd
LSD (P=.05)							0.3	4.3	4.4	8.0	6.2	4.1				
Standard Deviation							0.2	2.9	3.0	5.5	4.2	2.8				
CV							0.2	3.6	3.61	11.8	5.45	3.52				
Replicate F							1.000	1.095	0.935	0.280	1.221	3.980				
Replicate Prob(F)							0.4123	0.3733	0.4411	0.8392	0.3269	0.0216				
Treatment F							156703.875	514.090	511.596	47.520	223.349	541.231				
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001	0.0001				

Southern Illinois University

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50
 Location: Agronomy Res. Center

Investigator: Bryan Young

Pest Code Crop Code Rating Date Rating Type Rating Unit Rating Timing Trt-Eval Interval								LAMAM	LAMAM	LAMAM	RANAB	RANAB
Trt Treatment No. Name								11-28-11 Control Percent 21 DAE 30 DA-A	3-27-12 Control Percent 14 DA-B	4-12-12 Control Percent 30 DA-B	3-27-12 Control Percent 14 DA-B	4-12-12 Control Percent 30 DA-B
Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit Stage	Appl Code						
1 NONTREATED								0 b	0 e	0 c	0 c	0 d
2 ROUNDUP POWERMAX N-PAK AMS								99 a	93 d	93 b	80 b	80 c
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
3 ROUNDUP POWERMAX AXIOM N-PAK AMS								98 a	94 cd	94 b	90 a	90 abc
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
68 WG		0.425 lb ai/a	10 oz/a	5 % v/v	PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
4 ROUNDUP POWERMAX N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN								98 a	94 bcd	98 a	96 a	97 a
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
4.5 WG		0.0134 lb ai/a	4.76 oz/a		SPRING B							
100 SL		0.5 % v/v	0.5 % v/v		SPRING B							
100 SL		4 pt/a	4 pt/a		SPRING B							
5 ROUNDUP POWERMAX AXIOM N-PAK AMS OSPREY NIS (ACTIVATOR 90) 32% UAN								98 a	97 abc	99 a	96 a	99 a
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
68 WG		0.425 lb ai/a	10 oz/a	5 % v/v	PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
4.5 WG		0.0134 lb ai/a	4.76 oz/a		SPRING B							
100 SL		0.5 % v/v	0.5 % v/v		SPRING B							
100 SL		4 pt/a	4 pt/a		SPRING B							
6 ROUNDUP POWERMAX N-PAK AMS HARMONY EXTRA SG SENCOR NIS (ACTIVATOR 90)								98 a	98 a	99 a	96 a	98 a
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
50 SG		0.0234 lb ai/a	0.75 oz/a		SPRING B							
75 WG		0.188 lb ai/a	4 oz/a		SPRING B							
100 SL		0.25 % v/v	0.25 % v/v		SPRING B							
7 ROUNDUP POWERMAX N-PAK AMS POWERFLEX NIS (ACTIVATOR 90)								99 a	98 a	99 a	95 a	96 ab
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
7.5 WG		0.0164 lb ai/a	3.5 oz/a		SPRING B							
100 SL		0.25 % v/v	0.25 % v/v		SPRING B							
8 ROUNDUP POWERMAX ANTHEM N-PAK AMS								99 a	97 ab	98 a	88 ab	87 bc
4.5 SL		0.77 lb ae/a	22 fl oz/a	5 % v/v	PRE	A						
2.15 SE		0.111 lb ai/a	6.6 fl oz/a		PRE	A						
100 SL		5 % v/v	5 % v/v		PRE	A						
LSD (P=.05)								1.9	3.4	2.8	9.5	10.0
Standard Deviation								1.3	2.3	1.9	6.5	6.8
CV								1.49	2.75	2.26	8.1	8.37
Replicate F								0.625	0.636	1.233	3.822	3.013
Replicate Prob(F)								0.6069	0.5999	0.3228	0.0249	0.0529
Treatment F								2933.927	867.970	1284.480	102.524	96.945
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001	0.0001

Evaluation of Herbicides for Grass Control in Winter Wheat.

Trial ID: 12-ARC-13-E50

Location: Agronomy Res. Center

Investigator: Bryan Young

Trial Comments

1. Protocol: Bayer (WM1).
2. Ratings: CI 7 + 21 DAE and 7 + 21 DA-B.
WC 21 DAE, 14 DA-B, 35 DA-B.
Estimate % weed cover in nontreated by species at each evaluation.
3. Target weed annual bluegrass (POAAN).
4. Percent groundcover at evaluation:
POAAN is 50 and 30% at 21 DAE and 14DA-B, respectively.
ALLVI is 10 and 10% at 21 DAE and 14DA-B, respectively.
STEME is 25 and 20% at 21 DAE and 14DA-B, respectively.
RANAB is 20% at 14 DA-B, respectively.
5. Harvested 6-4-12, 5 ft by 27 ft.