

Purdue University

Dandelion Control Timing Study with Glyphosate and 2,4-D

Trial ID: 03F-WBURN-DANDTIM
Location: Woodburn

Study Dir.:
Investigator: Dr. Bill Johnson

GENERAL TRIAL INFORMATION

Investigator: Dr. Bill Johnson

TRIAL LOCATION

City: Woodburn

State/Prov.: IN

E-Longitude of LL Corner °: 275.112630

N-Latitude of LL Corner °: 41.130590

Altitude of LL Corner: 742.00 Unit: ft

Conducted Under GLP (Y/N): N

Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	TAROF	DANDELION, COMMON	TARAXACUM OFFICINALE WEBER IN WIGGERS

Crop 1: ZEAMX CORN, FIELD
Row Spacing: 30 IN

Variety: Harvest Residue

Crop 2: GLXMA SOYBEAN
Planting Date: 6/May/2004
Row Spacing: 15 IN

Planting Method: DRILLED

Emergence Date: 14/May/2004

SITE AND DESIGN

Plot Width, Unit: 10 FT
Tillage Type: no-till

Plot Length, Unit: 30 FT Reps: 4
Study Design: RANDOMIZED COMPLETE BLOCK

	Previous Crops	Previous Pesticides	Year
1.	corn		

MAINTENANCE

Field Prep./Maintenance:

June 4, 2004 - Blanket maintenance application made to entire study area with 15' sprayer mounted on 4-wheeler.

Fusion @ 14 oz/acre
Flexstar @ 1 pt/acre
Outlook @ 7 oz/acre
MSO @ 1% v/v
AMS @ 2.5 #/acre

SOIL DESCRIPTION

% OM: 3 Texture: medium/fine (silt loam/silty clay loam)
pH: 6.5 Soil Name: Hoytville-Nappanee
CEC: 18 Fert. Level: good

APPLICATION DESCRIPTION

	A	B	C	D	E	F
Application Date:	17/Nov/2003	1/Apr/2004	9/Apr/2004	20/Apr/2004	30/Apr/2004	11/May/2004
Time of Day:	09:30 EST	1130-1145	1245-1300	1115-1130	0745-0800	0815-0845
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	FALBD(A)	APR-1(B)	APR-10(C)	APR-20(D)	APR-30(E)	MAY-10(F)
Applic. Placement:	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	52 F	50 F	69 F	61 F	62 F	71 F
% Relative Humidity:	90	48	21	51	93	100
Wind Velocity, Unit:	1 MPH	5 MPH	3 MPH	7.5 MPH	6.5 MPH	0 MPH
Soil Temp., Unit:	18 C	44 F	54 F	54 F	56 F	66 F
Soil Moisture:	WET	moist	dry surf	dry surf	dry surf	wet surf
% Cloud Cover:	100	95	5	100	100	100

Purdue University

	G
Application Date:	20/May/2004
Time of Day:	0845-0900
Application Method:	SPRAY
Application Timing:	MAY-20(G)
Applic. Placement:	BROFOL
Air Temp., Unit:	75 F
% Relative Humidity:	85
Wind Velocity, Unit:	6.5 MPH
Soil Temp., Unit:	70 F
Soil Moisture:	dry surf
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F	G
Crop 1 Code, Stage:	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Stage Scale:	Residue						
Height, Unit:	70 %	60 %	60 %	50 %	na	40 %	35 %
Crop 2 Code, Stage:	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
Stage Scale:	na	na	na	na	na	planted	VC
Height, Unit:						na	2 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code, Stage:	TAROF DIA	TAROF	TAROF	TAROF	TAROF
Stage Scale:	2-8 inch	8-12"	2-12"	2-12"	8-12"
Density, Unit:	8-11 M2	8 M2	4-50 M2	6-20 M2	9-20 M2
	F	G			
Weed 1 Code, Stage:	TAROF	TAROF			
Stage Scale:	10-14"	12-18"			
Density, Unit:	9-15 M2	8-16 M2			

APPLICATION EQUIPMENT

	A	B	C	D	E	F
Appl. Equipment:	CO2 Backp					
Operating Pressure:	25 psi					
Nozzle Type:	VS	VS	VS	VS	VS	VS
Nozzle Size:	8002	8002	8002	8002	8002	8002
Nozzle Spacing, Unit:	20 IN					
Boom Length, Unit:	10 FT					
Ground Speed, Unit:	3 MPH					
Carrier:	water	water	water	water	water	water
Spray Volume, Unit:	15 gpa					
Propellant:	CO2	CO2	CO2	CO2	CO2	CO2
	G					
Appl. Equipment:	CO2 Backp					
Operating Pressure:	25 psi					
Nozzle Type:	VS					
Nozzle Size:	8002					
Nozzle Spacing, Unit:	20 IN					
Boom Length, Unit:	10 FT					
Ground Speed, Unit:	3 MPH					
Carrier:	water					
Spray Volume, Unit:	15 gpa					
Propellant:	CO2					

Purdue University

Dandelion Control Timing Study with Glyphosate and 2,4-D

Trial ID: 03F-WBURN-DANDTIM
 Location: Woodburn

Study Dir.:
 Investigator: Dr. Bill Johnson

Weed Code		TAROF	TAROF	GLXMA	TAROF	TAROF	TAROF			
Crop Code		biomas	biomas	crop	biomas	establ	seedli			
Part Rated		%control	%control	%injury	%control	counts	counts			
Rating Data Type		%	%	%	%	0.5 m2	0.5 m2			
Rating Unit		9/Apr/2004	30/Apr/2004	4/Jun/2004	4/Jun/2004	1/Jul/2004	1/Jul/2004			
Rating Date		na	na	V2-V3	V2-V3	R1, V5	R1, V5			
Crop Stage		na	na	4-6"	4-6"	8-10"	8-10"			
Crop Stage Scale		2-12"	8-12"	15-18"	15-18"	6-14"	<6"			
Weed Stage		4-50M2	9-20M2	9-20M2	9-20M2	Earl & Vince	Earl & Vince			
Weed Density, Unit		Jeff & Reece	Bill & Vince	Earl & Vince	Earl & Vince	Earl & Vince	Earl & Vince			
Assessed By		144 DA-A	10 DA-D	15 DA-G	15 DA-G	42 DA-G	42 DA-G			
Trt-Eval Interval										
ARM Action Codes										
# Subsamples, Dec.		0	0	0	0	2 0	2 0			
Trt No.	Treatment Name	Rate	Unit	Grow Stg	1	2	3	4	5	6
1	2,4-D Ester	1	lb ai/a	FALPRE	91 a	78 abc	0 b	80 a-d	3 ab	4 c
2	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	FALPRE FALPRE	96 a	93 a	0 b	78 a-d	4 ab	5 c
3	2,4-D Ester	1	lb ai/a	FALPRE	97 a	86 ab	0 b	88 abc	3 ab	2 c
	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	FALPRE FALPRE						
4	2,4-D Ester	1	lb ai/a	APR-1		54 c	3 b	90 ab	3 ab	4 c
5	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	APR-1 APR-1		75 abc	0 b	93 ab	3 ab	3 c
6	Roundup Weathermax	0.77	lb ae/a	APR-1		69 abc	0 b	98 a	0 b	4 c
	2,4-D Ester	1	lb ai/a	APR-1						
	AMS	2.5	lb/a	APR-1						
7	2,4-D Ester	1	lb ai/a	APR-10		61 bc	0 b	93 ab	1 ab	3 c
8	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	APR-10 APR-10		69 abc	0 b	90 ab	4 ab	4 c
9	Roundup Weathermax	0.77	lb ae/a	APR-10		59 bc	6 b	100 a	0 b	3 c
	2,4-D Ester	1	lb ai/a	APR-10						
	AMS	2.5	lb/a	APR-10						
10	2,4-D Ester	1	lb ai/a	APR-20		31 d	15 b	53 de	3 ab	3 c
11	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	APR-20 APR-20		28 d	5 b	61 b-e	7 ab	3 c
12	Roundup Weathermax	0.77	lb ae/a	APR-20		51 c	5 b	91 ab	2 ab	3 c
	2,4-D Ester	1	lb ai/a	APR-20						
	AMS	2.5	lb/a	APR-20						
13	2,4-D Ester	1	lb ai/a	APR-30			0 b	54 cde	5 ab	6 c
14	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	APR-30 APR-30			3 b	69 a-e	6 ab	4 c
15	Roundup Weathermax	0.77	lb ae/a	APR-30			0 b	84 a-d	4 ab	5 c
	2,4-D Ester	1	lb ai/a	APR-30						
	AMS	2.5	lb/a	APR-30						
16	2,4-D Ester	1	lb ai/a	MAY-10			0 b	75 a-e	3 ab	7 c
17	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	MAY-10 MAY-10			0 b	68 a-e	8 a	44 a
18	Roundup Weathermax	0.77	lb ae/a	MAY-10			3 b	85 a-d	2 ab	6 c
	2,4-D Ester	1	lb ai/a	MAY-10						
	AMS	2.5	lb/a	MAY-10						
19	2,4-D Ester	1	lb ai/a	MAY-20			98 a	24 f	2 ab	4 c
20	Roundup Weathermax AMS	0.77 2.5	lb ae/a lb/a	MAY-20 MAY-20			3 b	43 ef	7 ab	14 c
21	Roundup Weathermax	0.77	lb ae/a	MAY-20			99 a	45 ef	2 ab	3 c
	2,4-D Ester	1	lb ai/a	MAY-20						
	AMS	2.5	lb/a	MAY-20						

Purdue University

Weed Code	TAROF	TAROF	GLXMA	TAROF	TAROF	TAROF
Crop Code			GLXMA			
Part Rated	biomas	biomas	crop	biomas	establ	seedli
Rating Data Type	%control	%control	%injury	%control	counts	counts
Rating Unit	%	%	%	%	0.5 m2	0.5 m2
Rating Date	9/Apr/2004	30/Apr/2004	4/Jun/2004	4/Jun/2004	1/Jul/2004	1/Jul/2004
Crop Stage	na	na	V2-V3	V2-V3	R1, V5	R1, V5
Crop Stage Scale			4-6"	4-6"	8-10"	8-10"
Weed Stage	2-12"	8-12"		15-18"	6-14"	<6"
Weed Density, Unit	4-50M2	9-20M2		9-20M2		
Assessed By	Jeff & Reece	Bill & Vince	Earl & Vince	Earl & Vince	Earl & Vince	Earl & Vince
Trt-Eval Interval	144 DA-A	10 DA-D	15 DA-G	15 DA-G	42 DA-G	42 DA-G
ARM Action Codes						
# Subsamples, Dec.	0	0	0	0	2 0	2 0
Trt Treatment	Rate	Grow				
No. Name	Rate Unit	Stg				
22 UTC	1	2	3	4	5	6
	0 b	0 e	0 b	0 g	5 ab	29 b
LSD (P=.05)	5.8	18.2	10.6	20.8	4.1	13.8
Standard Deviation	3.6	12.7	7.5	14.7	2.9	9.8
CV	5.07	22.03	69.11	20.77	84.47	134.13
Grand Mean	71.13	57.87	10.83	70.88	3.45	7.28
Bartlett's X2	1.459	8.076	51.244	53.273	30.918	132.424
P(Bartlett's X2)	0.482	0.706	0.001*	0.001*	0.056	0.001*
Replicate F	0.979	1.330	3.219	1.589	0.989	0.650
Replicate Prob(F)	0.4449	0.2797	0.0286	0.2008	0.4040	0.5861
Treatment F	692.322	16.327	58.358	12.244	2.063	4.124
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0144	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Purdue University

Weed Code				TAROF	GLXMA	TAROF	GLXMA	TAROF
Crop Code				biomas	crop	biomas	crop	biomas
Part Rated				%control	%injury	%control	%injury	counts
Rating Data Type				%	%	%	%	number
Rating Unit				1/Jul/2004	1/Jul/2004	2/Sep/2004	2/Sep/2004	7/Oct/2004
Rating Date				R1, V5	R1, V5		R6	
Crop Stage				8-10"	8-10"		30-36"	
Crop Stage Scale				1-14"		10-20"		<1-18"
Weed Stage						3-10M2		75FT2
Weed Density, Unit				Earl & Vince	Earl & Vince	Earl & Reece	Earl & Reece	Glenn & Reece
Assessed By				42 DA-G	42 DA-G	105 DA-G	105 DA-G	140 DA-G
Trt-Eval Interval								
ARM Action Codes								
# Subsamples, Dec.				1 0	1 0	1 0	1 0	1 0
Trt No.	Treatment Name	Rate	Grow Unit Stg	7	8	9	10	11
1	2,4-D Ester	1 lb ai/a	FALPRE	53 b-e	0 b	62 abc	0 c	51 de
2	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	FALPRE FALPRE	73 a-d	0 b	61 abc	0 c	66 cde
3	2,4-D Ester	1 lb ai/a	FALPRE	72 a-d	13 b	82 ab	0 c	51 de
	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	FALPRE FALPRE					
4	2,4-D Ester	1 lb ai/a	APR-1	74 a-d	13 b	81 ab	0 c	44 de
5	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-1 APR-1	81 abc	0 b	81 ab	0 c	44 de
6	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-1 APR-1 APR-1	89 a	0 b	89 a	0 c	42 de
7	2,4-D Ester	1 lb ai/a	APR-10	83 ab	0 b	85 a	0 c	30 e
8	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-10 APR-10	80 abc	0 b	71 abc	0 c	66 cde
9	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-10 APR-10 APR-10	92 a	13 b	84 a	0 c	40 de
10	2,4-D Ester	1 lb ai/a	APR-20	50 cde	13 b	62 abc	0 c	40 de
11	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-20 APR-20	45 de	0 b	56 abc	0 c	51 de
12	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-20 APR-20 APR-20	81 abc	13 b	73 abc	0 c	44 de
13	2,4-D Ester	1 lb ai/a	APR-30	38 e	0 b	45 cd	0 c	86 b-e
14	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-30 APR-30	46 de	0 b	68 abc	0 c	50 de
15	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-30 APR-30 APR-30	61 a-e	13 b	73 abc	0 c	59 de
16	2,4-D Ester	1 lb ai/a	MAY-10	66 a-e	0 b	78 ab	0 c	58 de
17	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	MAY-10 MAY-10	46 de	0 b	50 bc	0 c	128 ab
18	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	MAY-10 MAY-10 MAY-10	89 a	0 b	71 abc	0 c	69 cde
19	2,4-D Ester	1 lb ai/a	MAY-20	82 abc	100 a	8 ef	100 a	112 abc
20	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	MAY-20 MAY-20	86 a	25 b	26 de	38 b	122 ab
21	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	MAY-20 MAY-20 MAY-20	90 a	100 a	6 ef	100 a	143 a

Purdue University

Weed Code	TAROF		GLXMA		TAROF		TAROF	
Crop Code			GLXMA				GLXMA	
Part Rated	biomas		crop		biomas		crop	
Rating Data Type	%control		%injury		%control		%injury	
Rating Unit	%		%		%		%	
Rating Date	1/Jul/2004		1/Jul/2004		2/Sep/2004		2/Sep/2004	
Crop Stage	R1, V5		R1, V5				R6	
Crop Stage Scale	8-10"		8-10"				30-36"	
Weed Stage	1-14"				10-20"			
Weed Density, Unit					3-10M2			
Assessed By	Earl & Vince		Earl & Vince		Earl & Reece		Earl & Reece	
Trt-Eval Interval	42 DA-G		42 DA-G		105 DA-G		105 DA-G	
ARM Action Codes								
# Subsamples, Dec.	1 0		1 0		1 0		1 0	
Trt Treatment	Rate	Grow						
No. Name	Rate Unit	Stg	7	8	9	10	11	
22 UTC			11 f	13 b	0 f	0 c	98 a-d	
LSD (P=.05)	19.3	21.9	19.3	13.1	33.5			
Standard Deviation	13.7	15.5	13.6	9.2	23.7			
CV	20.23	108.94	22.9	85.52	34.98			
Grand Mean	67.56	14.2	59.55	10.8	67.75			
Bartlett's X2	35.82	0.112	32.095	0.0	26.203			
P(Bartlett's X2)	0.023*	1.00	0.042*	.	0.199			
Replicate F	0.427	0.751	2.906	1.000	5.348			
Replicate Prob(F)	0.7342	0.5256	0.0415	0.3988	0.0024			
Treatment F	9.634	13.746	15.479	42.111	7.474			
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001			

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Purdue University

Weed Code				TAROF
Crop Code				
Part Rated				biomas
Rating Data Type				counts
Rating Unit				number
Rating Date				7/Oct/2004
Crop Stage				
Crop Stage Scale				
Weed Stage				<1-18"
Weed Density, Unit				75FT2
Assessed By				Glenn & Reece
Trt-Eval Interval				140 DA-G
ARM Action Codes				TS[11]
# Subsamples, Dec.				1 2
Trt No.	Treatment Name	Rate	Grow Stg	
		Rate Unit		12
1	2,4-D Ester	1 lb ai/a	FALPRE	48.94 def
2	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	FALPRE FALPRE	63.90 b-f
3	2,4-D Ester	1 lb ai/a	FALPRE	50.31 def
	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	FALPRE FALPRE	
4	2,4-D Ester	1 lb ai/a	APR-1	40.48 ef
5	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-1 APR-1	42.06 def
6	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-1 APR-1 APR-1	37.65 ef
7	2,4-D Ester	1 lb ai/a	APR-10	26.34 f
8	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-10 APR-10	63.07 b-f
9	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-10 APR-10 APR-10	36.13 ef
10	2,4-D Ester	1 lb ai/a	APR-20	39.65 ef
11	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-20 APR-20	49.42 def
12	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-20 APR-20 APR-20	43.09 def
13	2,4-D Ester	1 lb ai/a	APR-30	85.17 a-e
14	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	APR-30 APR-30	48.78 def
15	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	APR-30 APR-30 APR-30	58.42 c-f
16	2,4-D Ester	1 lb ai/a	MAY-10	57.81 c-f
17	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	MAY-10 MAY-10	121.98 ab
18	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	MAY-10 MAY-10 MAY-10	67.03 b-f
19	2,4-D Ester	1 lb ai/a	MAY-20	109.79 abc
20	Roundup Weathermax AMS	0.77 lb ae/a 2.5 lb/a	MAY-20 MAY-20	120.13 ab
21	Roundup Weathermax 2,4-D Ester AMS	0.77 lb ae/a 1 lb ai/a 2.5 lb/a	MAY-20 MAY-20 MAY-20	141.91 a

Purdue University

Weed Code	TAROF		
Crop Code			
Part Rated	biomas		
Rating Data Type	counts		
Rating Unit	number		
Rating Date	7/Oct/2004		
Crop Stage			
Crop Stage Scale			
Weed Stage	<1-18"		
Weed Density, Unit	75FT2		
Assessed By	Glenn & Reece		
Trt-Eval Interval	140 DA-G		
ARM Action Codes	TS[11]		
# Subsamples, Dec.	1 2		
Trt No.	Treatment Name	Rate	Grow Stg
22	UTC	96.75	a-d
LSD (P=.05)	1.978t		
Standard Deviation	1.399t		
CV	17.62		
Grand Mean	7.94t		
Bartlett's X2	20.639		
P(Bartlett's X2)	0.481		
Replicate F	7.424		
Replicate Prob(F)	0.0002		
Treatment F	7.140		
Treatment Prob(F)	0.0001		

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Column 12: TS[11] = SQR([11] + .5)