

Influence of Winter Annual Weeds on Giant Ragweed Emergence.

Project Code: 06-50E-N80 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:** 10-31-06

Objective:

Determine the influence of winter annual weed management on giant ragweed emergence.

Weed Code	Common Name	Scientific Name
1. RANAB	buttercup, smallflower	Ranunculus abortivus L.
2. POAAN	bluegrass, annual	Poa annua L.
3. ALLVI	garlic, wild	Allium vineale L.
4. CERVU	chickweed, mouseear	Cerastium vulgatum L.
5. LAMAM	henbit	Lamium amplexicaule L.
6. STEME	chickweed, common	Stellaria media (L.) Vill.
7. AMBTR	ragweed, giant	Ambrosia trifida L.
8. AMATA	waterhemp, common	Amaranthus rudis Sauer
9. XANST	cocklebur, common	Xanthium strumarium L.
10. IPOSS	morningglory, species	Ipomoea sp.
11. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
12. CHEAL	lambsquarters, common	Chenopodium album L.
13. ABUTH	velvetleaf	Abutilon theophrasti Medicus
14. POLPY	smartweed, Pennsylvania	Polygonum pensylvanicum L.
15. CYPES	nutsedge, yellow	Cyperus esculentus L.

Crop 1: GLXMA soybean **Variety:** Asgrow 4403 RR
Planting Method: Seeded **Planting Date:** 5-22-06
Rate: 75 S/A **Depth:** 1.0 IN
Row Spacing: 30 IN

Plot Width, Unit: 20 FT **Plot Length, Unit:** 27 FT **Reps:** 6
Tillage Type: No-Till **Study Design:** Randomized complete block
Previous Crop, Year: ZEAMX, 2005
Field Prep./Maintenance: N 0 LB/A, P205 0 LB/A, K20 100 LB/A

Soil Name: Weir **% OM:** 2.2 **pH:** 6.7 **CEC:** 12
Texture: Silt loam **Fert. Level:** P1: 101 LB/A, K: 388 LB/A

APPLICATION DESCRIPTION

	A	B
Application Date:	11-18-05	4-4-06
Time of Day:	12:30	11:00
Application Method:	Spray	Spray
Application Timing:	NOV15	APRIL1
Applic. Placement:	BROFOL	BROFOL
Air Temp., Unit:	50 F	55 F
% Relative Humidity:	40	42
Wind Velocity, Unit:	7 MPH	3 MPH
Soil Moisture:	ABONOR	ABONOR
% Cloud Cover:	0	0

CROP STAGE AT EACH APPLICATION

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

WEED STAGE AT EACH APPLICATION

	A		B	
Weed 1 Code:	RANAB		RANAB	
Stage(leaves):	2-4		10+	
Height(inches):	0.5-2		2-12	
Density:	High		Medium	
Weed 2 Code:			POAAN	
Stage(leaves):			10+	
Height(inches):			3-4	
Density:			Low	
Weed 3 Code:	ALLVI		ALLVI	
Stage(leaves):	3-4		3-4	
Height(inches):	3-5		6-8	
Density:	Low		Low	
Weed 4 Code:	CERVU		CERVU	
Stage(leaves):	6-10		10+	
Height(inches):	0.5-1		1-3	
Density:	Medium		Medium	
Weed 5 Code:	LAMAM		LAMAM	
Stage(leaves):	3-5		10+	
Height(inches):	1-3		4-6	
Density:	Low		Low	
Weed 6 Code:	STEME		STEME	
Stage(leaves):	8-12		10+	
Height(inches):	1-3		1-3	
Density:	Low		Low	

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan
Nozzle Size:	8002	8002
Boom Length, Unit:	10 FT	10 FT
Spray Volume, Unit:	20 GPA	20 GPA

NOTES:

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	GLXMA Moisture Percent 10-20-06	GLXMA Yield bu/A 10-20-06	RANAB Control Percent 14 DAT	RANAB Control Percent 28 DAT	RANAB Control Percent 134 DA-A	POAAN Control Percent 14 DAT	POAAN Control Percent 28 DAT	POAAN Control Percent 134 DA-A
1	NONTREATED					16.4	56	0	0	0	0	0	0
2	Fall and Spring Control					16.3	55	0	0	100	0	0	100
2	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	NOV15 A								
2	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	NOV15 A								
2	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	APRIL1 B								
2	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	APRIL1 B								
3	Fall Control					16.4	54	0	0	100	0	0	100
3	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	NOV15 A								
3	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	NOV15 A								
4	Spring Control					16.4	55	100	100	0	100	100	0
4	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	APRIL1 B								
4	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	APRIL1 B								
LSD (P=.05)						0.20	2.9	0.0	0.0	0.0	0.0	0.0	0.0
Replicate F						3.322	0.693	0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)						0.0323	0.6364	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F						0.568	0.896	0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)						0.6446	0.4662	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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1	NONTREATED					0	0	0	0	0	0
2	Fall and Spring Control					0	0	100	0	0	100
2	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	NOV15 A						
2	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	NOV15 A						
2	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	APRIL1 B						
2	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	APRIL1 B						
3	Fall Control					0	0	100	0	0	100
3	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	NOV15 A						
3	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	NOV15 A						
4	Spring Control					90	90	0	100	100	0
4	ROUNDUP W-MAX	4.5 SL	0.77 lb ae/a	22 fl oz/a	APRIL1 B						
4	AMS	100 DRY	2.0 % w/w	17 lb/100 gal	APRIL1 B						
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	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	LAMAM	LAMAM	LAMAM	STEME	STEME	STEME
						Control	Control	Control	Control	Control	Control
						Percent	Percent	Percent	Percent	Percent	Percent
								4-1-06			4-1-06
						14 DAT	28 DAT	134 DA-A	14 DAT	28 DAT	134 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code			
1	NONTREATED								0	0	0
2	Fall and Spring Control								0	0	100
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A				
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A				
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B				
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B				
3	Fall Control								0	0	100
3	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A				
3	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A				
4	Spring Control								100	100	0
4	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B				
4	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B				
LSD (P=.05)									0.0	0.0	0.0
Replicate F									0.000	0.000	0.000
Replicate Prob(F)									1.0000	1.0000	1.0000
Treatment F									0.000	0.000	0.000
Treatment Prob(F)									1.0000	1.0000	1.0000

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	AMBTR	AMBTR	AMBTR	AMATA	AMATA	AMATA
						Control	Control	Control	Control	Control	Control
						Percent	Percent	Percent	Percent	Percent	Percent
						6-8-06	6-22-06	7-20-06	6-8-06	6-22-06	7-20-06
						15 DABL1	14 DABL2	28 DABL3	15 DABL1	14 DABL2	28 DABL3
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code			
1	NONTREATED								88	96	97
2	Fall and Spring Control								85	96	96
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A				
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A				
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B				
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B				
3	Fall Control								69	92	97
3	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A				
3	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A				
4	Spring Control								91	95	97
4	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B				
4	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B				
LSD (P=.05)									6.7	3.1	1.9
Replicate F									0.660	0.076	0.646
Replicate Prob(F)									0.6591	0.9950	0.6687
Treatment F									18.769	3.170	0.623
Treatment Prob(F)									0.0001	0.0552	0.6111

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						XANST	XANST	XANST	IPOSS	IPOSS
						Control	Control	Control	Control	Control
						Percent	Percent	Percent	Percent	Percent
						6-8-06	6-22-06	7-20-06	6-22-06	7-20-06
						15 DABL1	14 DABL2	28 DABL3	14 DABL2	28 DABL3
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code		
1	NONTREATED								96	97
2	Fall and Spring Control								98	97
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A		99	96
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A			
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B			
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B			
3	Fall Control								97	97
3	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A		98	97
3	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A			
4	Spring Control								97	96
4	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B		99	95
4	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B			
LSD (P=.05)									3.6	1.7
Replicate F									0.000	1.856
Replicate Prob(F)									1.0000	0.1624
Treatment F									0.391	3.844
Treatment Prob(F)									1.0000	0.4709

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						WINANN	AMBTR	AMATA	AMBEL	CHEAL	ABUTH	POLPY
						ODW	ODW	ODW	ODW	ODW	ODW	ODW
						g/0.25m2	g/0.25m2	g/0.25m2	g/0.25m2	g/0.25m2	g/0.25m2	g/0.25m2
						5-5-06	5-5-06	5-5-06	5-5-06	5-5-06	5-5-06	5-5-06
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code				
1	NONTREATED								15.91	0.43	0.01	0.02
2	Fall and Spring Control								0.02	0.33	0.05	0.04
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A				0.03	0.03
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A					
2	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B					
2	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B					
3	Fall Control								7.15	0.96	0.03	0.02
3	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	NOV15	A				0.03	0.00
3	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	NOV15	A					0.02
4	Spring Control								0.00	0.23	0.01	0.00
4	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a	APRIL1	B				0.02	0.02
4	AMS	100	DRY	2.0 % w/w	17 lb/100 gal	APRIL1	B					0.00
LSD (P=.05)									4.371	0.593	0.058	0.046
Replicate F									1.660	0.701	0.800	0.647
Replicate Prob(F)									0.2049	0.6312	0.5667	0.6680
Treatment F									27.088	2.727	0.790	1.093
Treatment Prob(F)									0.0001	0.0809	0.5184	0.3826

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Weed Code	XANST	CYPES	IPOSS	SUANGR
Crop Code				
Rating Data Type	ODW	ODW	ODW	ODW
Rating Unit	g/0.25m2	g/0.25m2	g/0.25m2	g/0.25m2
Rating Date	5-5-06	5-5-06	5-5-06	5-5-06
Trt-Eval Interval				

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code				
1	NONTREATED									0.00	0.04	0.01	0.06
2	Fall and Spring Control									0.00	0.07	0.00	0.27
2	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	NOV15	A				
2	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	NOV15	A				
2	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	APRIL1	B				
2	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	APRIL1	B				
3	Fall Control									0.00	0.05	0.02	0.17
3	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	NOV15	A				
3	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	NOV15	A				
4	Spring Control									0.01	0.08	0.00	0.16
4	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	APRIL1	B				
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	APRIL1	B				
LSD (P=.05)										0.014	0.083	0.023	0.146
Replicate F										1.000	0.943	1.024	0.807
Replicate Prob(F)										0.4509	0.4817	0.4386	0.5621
Treatment F										1.000	0.392	1.179	3.052
Treatment Prob(F)										0.4199	0.7607	0.3508	0.0610

Trial Comments

1. Protocol: USDA - IPM.
2. Ratings: Starting February 1;
 Air and soil temperature using dataloggers,
 Weekly - weed species diversity and density from 4 fixed subplots, along a diagonal, within each plot. Use 0.25 or 0.5 m2 quadrants.
 Every 2 weeks - gravimetric soil moisture content, vegetative cover estimates.
3. Keep all weeds until planting, then determine label recommended rate of Roundup WeatherMax (per treatment) and apply at planting, then after planting whenever weeds are 4-8 inches (per treatment).
4. Harvest weeds and biomass by species at planting in each fixed subplot.
5. Evaluate weed control by species at 14 and 28 DAT. Rate all plots for weed control at 0, 28 and 56 DAP. Make any crop injury notes if observed.
6. Harvest for grain yield.
7. DAT = Days after NOV15 or APRIL1 application.
 Ratings at 14 days after the NOV15 and APRIL1 applications were on 12-2-05 and 4-18-06, respectively.
 Ratings at 28 days after the NOV15 and APRIL1 applications were on 12-16-05 and 5-2-06, respectively.
 DA-A = Days after NOV15 application. 134 DA-A was also 3 days before the APRIL1 application.
 DABL1, DABL2, and DABL3 = Days after blanket applications 1, 2, and 3, respectively.
 Blanket applications were Roundup WeatherMax at 44 fl oz/A + AMS at 2.0%, applied to all plots.
 ODW = Oven dry weight. WINANN = Winter annual weeds. SUANGR = Summer annual grassy weeds.
 g/0.25m2 = Grams per 0.25 square meter.
8. Harvested 10-20-06, (4) 30 inch rows by 24 ft.