

## Winter Annual Weed Control in Roundup Ready Corn.

Project Code: 04-8A-N60      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:      10-11-04

## Objective:

Determine performance of various strategies for control of winter annual weeds in a Roundup Ready corn system.

Weed Code	Common Name	Scientific Name
1. ALLVI	garlic, wild	Allium vineale L.
2. STEME	chickweed, common	Stellaria media (L.) Vill.
3. HORPU	barley, little	Hordeum pusillum Nutt.
4. CERVU	chickweed, mouseear	Cerastium vulgatum L.
5. RANAB	buttercup, smallflower	Ranunculus abortivus L.
6. AMBTR	ragweed, giant	Ambrosia trifida L.
7. CHEAL	lambsquarters, common	Chenopodium album L.
8. SETFA	foxtail, giant	Setaria faberi Herrm.
9. PANDI	panicum, fall	Panicum dichotomiflorum Michx.

Crop 1:      ZEAMX corn, field      Variety:      DKC 60-17 RR  
 Planting Method: Seeded      Planting Date: 5-10-04  
 Rate:      28000 S/A      Depth:      1.5 IN  
 Row Spacing:      30 IN

Plot Width, Unit: 10 FT      Plot Length, Unit: 23 FT      Reps: 3  
 Tillage Type: No-Till      Study Design: Randomized complete block  
 Previous Crop, Year: GLXMA, 2003

Field Prep./Maintenance: N 150 LB/A, P205 50 LB/A, K20 100 LB/A and 2 ton/A lime

Soil Name: Weir      % OM: 1.8      pH: 5.8      CEC: 12  
 Texture: Silt loam      Fert. Level: P1: 73 LB/A, K: 436 LB/A

## APPLICATION DESCRIPTION

	A	B	C
Application Date:	11-21-03	4-26-04	5-11-04
Time of Day:	9:00	10:00	7:00
Application Method:	Spray	Spray	Spray
Application Timing:	FALL	14DBP	PRE
Applic. Placement:	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	55 F	60 F	70 F
% Relative Humidity:	75	62	88
Wind Velocity, Unit:	5 MPH	3 MPH	0 MPH
Soil Moisture:	ABONOR	NORMAL	NORMAL

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX NA	ZEAMX NA
Height, Unit:	NA NA	NA NA	NA NA

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	ALLVI	ALLVI	ALLVI
Stage (leaves):	1-3		
Height (inches):	2-6		
Density:	Medium		
Weed 2 Code:	STEME	STEME	STEME
Stage (leaves):	2-6		10+
Height (inches):	1-2		2-4
Density:	Medium		Medium
Weed 3 Code:	HORPU	HORPU	HORPU
Stage (leaves):	2-3		5-6
Height (inches):	1-2		12-14
Density:	Low		High

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Weed 4 Code:	CERVU	CERVU	CERVU
Stage (leaves):			10+
Height (inches):			2-4
Density:			Medium
Weed 5 Code:	RANAB	RANAB	RANAB
Stage (leaves):		10+	
Height (inches):		10-12	
Density:		Low	
Weed 6 Code:	AMBTR	AMBTR	AMBTR
Stage (leaves):		5-6	5-8
Height (inches):		3-4	3-5
Density:		Medium	Low
Weed 7 Code:	CHEAL	CHEAL	CHEAL
Stage (leaves):		10+	10+
Height (inches):		3-4	5-10
Density:		Medium	Medium
Weed 8 Code:	SETFA	SETFA	SETFA
Stage (leaves):			3-4
Height (inches):			1-3
Density:			Low
Weed 9 Code:	PANDI	PANDI	PANDI

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8003	8003
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA

## NOTES:

Harvested 9-27-04, (2) 30 inch rows x 20 ft.

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Weed Code																					
Crop Code																					
Rating Data Type																					
Rating Unit																					
Rating Date																					
Trt-Eval Interval																					
		ZEAMX	ALLVI	ALLVI	STEME	STEME	HORPU	HORPU	HORPU	HORPU	HORPU	CERVU	CERVU								
		Yield	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control								
		bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent								
		9-27-04	12-12-03	4-1-04	12-12-03	4-1-04	12-12-03	4-1-04	4-26-04	5-10-04	5-25-04	4-26-04	5-10-04								
			21 DA-A	132 DA-A	21 DA-A	132 DA-A	21 DA-A	132 DA-A	0 DA-B	14 DA-B	14 DA-C	0 DA-B	14 DA-B								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code												
1	NONTREATED									117	0	0	0	0	0	0	0	0			
2	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	207	50	95	50	100	50	100	99	99	99		
2	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
2	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C												
2	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C												
3	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	217	50	95	50	100	50	100	100	99	100	99	
3	PRINCEP	90	WG	1.0	LB A/A	17.8	OZ/A	FALL	A												
3	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
3	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C												
3	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C												
4	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	194	50	95	50	100	50	100	99	100	100	99	100
4	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
4	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	14DBP	B												
4	AMS	100	DRY	2.0	% W/W	2	%W/W	14DBP	B												
5	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	190	50	95	50	100	50	100	99	100	100	99	100
5	PRINCEP	90	WG	1.0	LB A/A	17.8	OZ/A	FALL	A												
5	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
5	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	14DBP	B												
5	AMS	100	DRY	2.0	% W/W	2	%W/W	14DBP	B												
6	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	197										100	
6	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C												
7	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	207										100	
7	PRINCEP	90	WG	2.0	LB A/A	35.6	OZ/A	PRE	C												
7	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C												
8	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	175										100	
8	AATREX	90	WG	2.0	LB A/A	35.6	OZ/A	PRE	C												
8	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C												
9	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	185										100	
9	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	PRE	C												
9	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C												
10	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	186	50	100	50	100	50	100	100	100	100	100	100
10	CANOPY XL	56.3	WG			4.5	OZ/A	FALL	A												
10	->CLASSIC	25	WG	0.0264	LB A/A			FALL	A												
10	->AUTHORITY	75	WG	0.132	LB A/A			FALL	A												
10	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
LSD (P=.05)										39.5	0.0	4.3	0.0	0.0	0.0	0.0	1.0	0.8	0.0	1.0	0.9
Replicate F										2.063	0.000	10.000	0.000	0.000	0.000	0.000	5.385	2.059	0.000	5.345	2.143
Replicate Prob(F)										0.1560	1.0000	0.0041	1.0000	1.0000	1.0000	1.0000	0.0259	0.1783	1.0000	0.0264	0.1681
Treatment F										4.337	0.000	816.344	0.000	0.000	0.000	0.000	17080.000	26297.234	0.000	15293.138	21261.143
Treatment Prob(F)										0.0039	1.0000	0.0001	1.0000	1.0000	1.0000	1.0000	0.0001	0.0001	1.0000	0.0001	0.0001

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Weed Code				RANAB		RANAB		AMBTR		AMBTR		AMBTR		AMBTR		CHEAL		CHEAL		CHEAL		CHEAL					
Crop Code				Control		Control		Control		Control		Control		Control		Control		Control		Control		Control					
Rating Data Type				Percent		Percent		Percent		Percent		Percent		Percent		Percent		Percent		Percent		Percent					
Rating Unit				4-26-04		5-10-04		4-26-04		5-10-04		5-25-04		6-8-04		7-6-04		4-26-04		5-10-04		5-25-04		6-8-04			
Rating Date				0 DA-B		14 DA-B		0 DA-B		14 DA-B		14 DA-C		28 DA-C		56 DA-C		0 DA-B		14 DA-B		14 DA-C		28 DA-C		56 DA-C	
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	0	99	99	93	67	0	99	99	97	97	97	97	90				
2	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	96	96	17	17	100	63	100	17	17	100	93	100						
2	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A																		
2	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C																		
2	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C																		
3	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	100	99	92	92	100	100	100	100	99	100	100	100	100	100				
3	PRINCEP	90	WG	1.0	LB A/A	17.8	OZ/A	FALL	A																		
3	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A																		
3	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C																		
3	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C																		
4	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	96	100	27	100	97	100	100	27	100	100	100	100	100	100				
4	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A																		
4	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	14DBP	B																		
4	AMS	100	DRY	2.0	% W/W	2	%W/W	14DBP	B																		
5	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	99	100	92	100	100	100	100	99	100	100	100	100	100	100				
5	PRINCEP	90	WG	1.0	LB A/A	17.8	OZ/A	FALL	A																		
5	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A																		
5	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	14DBP	B																		
5	AMS	100	DRY	2.0	% W/W	2	%W/W	14DBP	B																		
6	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C					100	100	100				100	100	100					
6	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C																		
7	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C					100	100	100				100	100	100					
7	PRINCEP	90	WG	2.0	LB A/A	35.6	OZ/A	PRE	C																		
7	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C																		
8	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C					100	100	100				100	100	100					
8	AATREX	90	WG	2.0	LB A/A	35.6	OZ/A	PRE	C																		
8	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C																		
9	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C					100	99	100				100	100	100					
9	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	PRE	C																		
9	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C																		
10	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	100	100	99	99	90	100	100	100	100	100	100	100	100	100				
10	CANOPY XL	56.3	WG			4.5	OZ/A	FALL	A																		
10	->CLASSIC	25	WG	0.0264	LB A/A			FALL	A																		
10	->AUTHORITY	75	WG	0.132	LB A/A			FALL	A																		
10	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A																		
LSD (P=.05)										5.0	3.9	35.1	21.2	7.4	40.9	0.0	36.3	21.3	3.1	4.3	0.0						
Replicate F										2.623	1.174	3.274	1.189	0.000	2.212	0.000	2.448	1.098	1.000	1.588	0.000						
Replicate Prob(F)										0.1214	0.3483	0.0806	0.3442	1.0000	0.1384	1.0000	0.1364	0.3705	0.3874	0.2316	1.0000						
Treatment F										649.969	1070.925	11.811	24.540	2.080	1.148	0.000	12.265	25.230	1.000	2.412	0.000						
Treatment Prob(F)										0.0001	0.0001	0.0006	0.0001	0.0889	0.3815	1.0000	0.0005	0.0001	0.4742	0.0535	1.0000						

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Weed Code																		
Crop Code																		
Rating Data Type																		
Rating Unit																		
Rating Date																		
Trt-Eval Interval																		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMATA Control Percent	AMATA Control Percent	AMATA Control Percent	SETFA Control Percent	SETFA Control Percent	SETFA Control Percent	ZEAMX Injury Percent	ZEAMX Injury Percent	ZEAMX Injury Percent
										5-25-04	6-8-04	7-6-04	5-25-04	6-8-04	7-6-04	5-25-04	6-8-04	7-6-04
										14 DA-C	28 DA-C	56 DA-C	14 DA-C	28 DA-C	56 DA-C	14 DA-C	28 DA-C	56 DA-C
1	NONTREATED									93	0	0	80	0	0	0	0	0
2	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	97	0	100	93	0	100	0	0	0
2	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A									
2	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C									
2	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C									
3	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	97	0	100	97	0	100	0	0	0
3	PRINCEP	90	WG	1.0	LB A/A	17.8	OZ/A	FALL	A									
3	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A									
3	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C									
3	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C									
4	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	50	93	95	50	95	95	0	0	0
4	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A									
4	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	14DBP	B									
4	AMS	100	DRY	2.0	% W/W	2	%W/W	14DBP	B									
5	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	63	94	93	63	97	93	0	0	0
5	PRINCEP	90	WG	1.0	LB A/A	17.8	OZ/A	FALL	A									
5	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A									
5	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	14DBP	B									
5	AMS	100	DRY	2.0	% W/W	2	%W/W	14DBP	B									
6	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	100	0	100	93	0	100	0	0	0
6	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C									
7	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	100	98	92	100	100	96	0	0	0
7	PRINCEP	90	WG	2.0	LB A/A	35.6	OZ/A	PRE	C									
7	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C									
8	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	100	99	100	100	33	100	0	0	0
8	AATREX	90	WG	2.0	LB A/A	35.6	OZ/A	PRE	C									
8	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C									
9	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	PRE	C	100	98	98	100	100	97	0	0	0
9	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	PRE	C									
9	AMS	100	DRY	2.0	% W/W	2	%W/W	PRE	C									
10	ROUNDUP W-MAX	4.5	SL	0.75	LB AE/A	21.3	OZ/A	FALL	A	83	100	100	87	100	90	0	37	15
10	CANOPY XL	56.3	WG			4.5	OZ/A	FALL	A									
10	->CLASSIC	25	WG	0.0264	LB A/A			FALL	A									
10	->AUTHORITY	75	WG	0.132	LB A/A			FALL	A									
10	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A									
LSD (P=.05)										12.7	4.3	7.4	19.8	30.4	7.4	0.0	6.8	4.7
Replicate F										3.162	0.485	0.415	1.307	1.298	1.531	0.000	1.000	1.000
Replicate Prob(F)										0.0665	0.6236	0.6662	0.2950	0.2975	0.2432	1.0000	0.3874	0.3874
Treatment F										17.196	1210.799	156.884	6.673	23.287	153.861	0.000	25.474	9.000
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	1.0000	0.0001	0.0001

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Trial Comments

1. Protocol: SIU (RFK) same as 03-11A-W55.
2. Ratings: WC 21 DA "A", April 1, at application "B", all plots 14 DA "B" and "C".
3. Blanket POST application of Roundup WeatherMax 0.75 lbae/A + AMS 2.0% applied 7.5 ft wide to all plots except the nontreated, if needed, per treatment, as often as needed.  
Treatments 4, 5, and 10 received a blanket application on 5-29-04.  
Weeds present were: AMATA, 10+ LVS and 4-6 IN; AMBTR, 10+ LVS and 4-8 IN; and SETFA, 5-6 LVS and 1-4 IN.  
Treatments 2, 3, 6, and 8 received a blanket application on 6-11-04.  
Weeds present were: AMATA, 10+ LVS and 4-8 IN; AMBTR, 10+ LVS and 4-8 IN; SETFA, 5-6 LVS and 4-8 IN and PANDI, 5-6 LVS and 4-8 IN.
4. DA-A = Days after FALL application. DA-B = Day after 14 DBP (days before planned planting date) application. DA-C = Days after PRE application.  
0 DA-B = Prior to the 14 DBP application.
5. Crop injury was height reduction.
6. Harvested 9-27-04, (2) 30 inch rows x 20 ft.