

Influence of Weed Height on Weed Control and Grain Yield in with Glyphosate in Roundup Ready Corn.

Project Code: 06-9B-Alley 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: 12-18-06

Weed Code	Common Name	Scientific Name
1.	ABUTH velvetleaf	Abutilon theophrasti Medicus
2.	AMAPA amaranth, Palmer	Amaranthus palmeri S.Wats.
3.	SETFA foxtail, giant	Setaria faberi Herrm.
4.	XANST cocklebur, common	Xanthium strumarium L.
5.	CYPES nutsedge, yellow	Cyperus esculentus L.
6.	IPOSS morningglory, species	Ipomoea sp.

Crop 1: ZEAMX corn, field Variety: 33K44
 Planting Method: Seeded Planting Date: 5-26-06
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 30 FT Reps: 3
 Tillage Type: Reduced-Till Study Design: Randomized complete block
 Previous Crop, Year: GLXMA, 2005
 Field Prep./Maintenance: N 150 LB/A, P205 0 LB/A, K20 100 LB/A

Soil Name: Ebbert % OM: 2 pH: 6.3 CEC: 12
 Texture: Silt loam Fert. Level: P1: 80 LB/A, K: 430 LB/A

APPLICATION DESCRIPTION

	A	B	C	D	E	F	G	H
Application Date:	5-26-06	6-13-06	6-16-06	6-16-06	6-19-06	6-21-06	6-23-06	6-26-06
Time of Day:	18:00	12:00	10:00	17:00	10:00	10:00	11:00	11:00
Application Method:	Spray	Spray	Spray	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	2-4"W-1	2-4"W-2	4-6"W	6-8"W	8-10"W	10-12"W	12-14"W
Applic. Placement:	BROSIOI	BROSIOI	BROSIOI	BROSIOI	BROSIOI	BROSIOI	BROSIOI	BROSIOI
Air Temp., Unit:	89 F	76 F	80 F	92 F	84 F	90 F	82 F	76 F
% Relative Humidity:	45	54	94	54	66	62	72	82
Wind Velocity, Unit:	1-3 MPH	6-7 MPH	2-4 MPH	2-4 MPH	1-2 MPH	3-5 MPH	3-4 MPH	2-3 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ABONOR	NORMAL
	I	J	K					
Application Date:	6-28-06	6-30-06	6-30-06					
Time of Day:	9:00	9:00	9:00					
Application Method:	Spray	Spray	Spray					
Application Timing:	14-16"W	16-18"W	18-20"W					
Applic. Placement:	BROSIOI	BROSIOI	BROSIOI					
Air Temp., Unit:	68 F	72 F	72 F					
% Relative Humidity:	94	94	94					
Wind Velocity, Unit:	1-2 MPH	0-1 MPH	0-1 MPH					
Soil Moisture:	NORMAL	NORMAL	NORMAL					

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F	G	H
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX V4	ZEAMX V4	ZEAMX V4	ZEAMX V5	ZEAMX V5	ZEAMX V6	ZEAMX V6-V7
Height, Unit:	NA NA	9 IN	12-14 IN	12-14 IN	15-16 IN	17-18 IN	25 IN	33 IN
	I	J	K					
Crop 1 Code, Stage:	ZEAMX V7	ZEAMX V7	ZEAMX V7					
Height, Unit:	36 IN	39 IN	39 IN					

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E	F	G	H
Weed 1 Code:	ABUTH	ABUTH	ABUTH	ABUTH	ABUTH	ABUTH	ABUTH	ABUTH
Stage (leaves):	2-5	2-5	2-5	5-6	5-6	5-6	5-6	6-7
Height (inches):	2-4	2-4	2-4	4-6	6-8	8-10	10-12	12-14
Density:	High	High	High	Medium	High	High	High	Medium
Weed 2 Code:	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA			
Stage (leaves):	6-8	6-8	6-8	10+	15-16			
Height (inches):	2-4	2-4	2-4	4-6	6-8			
Density:	Low	Low	Low	Medium	Medium			
Weed 3 Code:	SETFA	SETFA	SETFA	SETFA	SETFA	SETFA		
Stage (leaves):	3-4	3-4	3-4	5-6	5-6	5-6		
Height (inches):	2-4	2-4	2-4	4-6	6-8	8-10		
Density:	Low	Low	Low	Low	Low	Low		
Weed 4 Code:	XANST	XANST	XANST	XANST	XANST	XANST	XANST	XANST
Stage (leaves):	4-6	4-6	4-6	5-10	6-8	6-8	8-10	12-14
Height (inches):	2-4	2-4	2-4	4-6	6-8	8-10	10-12	12-14
Density:	High	High	High	High	Low	Medium	Low	Low
Weed 5 Code:					CYPES	CYPES		
Stage (leaves):					7-8	8-10		
Height (inches):					6-8	8-10		
Density:					Medium	Low		

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Weed 6 Code:	IPOSS	IPOSS	IPOSS	IPOSS	IPOSS	IPOSS	IPOSS
Stage (leaves):	3-5	3-5	10+	10-12	10-12	7-8	14-16
Height (inches):	2-4	2-4	4-6	6-8	8-10	10-12	12-14
Density:	Medium	Medium	Low	Medium	Low	Low	Low

	I	J	K
Weed 1 Code:	ABUTH	ABUTH	ABUTH
Stage (leaves):	7-10	5-7	5-7
Height (inches):	14-16	30-35	30-35
Density:	Medium	Medium	Medium

Weed 2 Code:	AMAPA	AMAPA	AMAPA
Stage (leaves):	35-45	38-45	38-45
Height (inches):	14-16	34-40	34-40
Density:	High	High	High

Weed 3 Code:			
Stage (leaves):			
Height (inches):			
Density:			

Weed 4 Code:	XANST	XANST	XANST
Stage (leaves):	10-12	12-14	12-14
Height (inches):	14-16	25-28	25-28
Density:	Low	Low	Low

Weed 5 Code:	CYPES	CYPES	CYPES
Stage (leaves):	10-12	10-12	10-12
Height (inches):	14-20	14-20	14-20
Density:	Low	Low	Low

Weed 6 Code:	IPOSS	IPOSS	IPOSS
Stage (leaves):	12-14	16-18	16-18
Height (inches):	14-16	20-25	14-20
Density:	Low	Low	Low

APPLICATION EQUIPMENT

	A	B	C	D	E	F	G	H
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8002	8002	8002	8002	8002	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA

	I	J	K
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:	8002	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA

NOTES:

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Weed Code										ABUTH	ABUTH	ABUTH
Crop Code										ZEAMX	ZEAMX	ZEAMX
Rating Data Type										Moisture	Yield	Injury
Rating Unit										Percent	bu/A	Percent
Rating Date										10-13-06	10-13-06	10-13-06
Trt-Eval Interval												
											14 DAT	28 DAT
											EOS	14 DAT
											28 DAT	EOS

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ZEAMX Moisture Percent	ZEAMX Yield bu/A	ZEAMX Injury Percent	ZEAMX Injury Percent	ZEAMX Injury Percent	ABUTH Control Percent	ABUTH Control Percent	ABUTH Control Percent
1	NONTREATED									14.9	27	0	0	0	0	0	0
2	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	2-4"W-1	B	15.6	154	0	0	0	92	78	95
3	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	4-6"W	D	15.5	140	0	0	0	73	87	98
4	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	6-8"W	E	15.6	146	0	0	0	92	93	98
5	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	8-10"W	F	15.2	134	0	0	0	85	72	95
6	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	10-12"W	G	15.7	133	0	0	0	82	78	98
7	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	12-14"W	H	15.3	121	0	0	0	65	80	95
8	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	14-16"W	I	15.2	104	0	0	0	75	73	93
9	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	16-18"W	J	15.4	107	0	0	0	50	47	77
10	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	18-20"W	K	15.1	99	0	0	0	63	40	57
11	CULTIVATE									16.1	193	0	0	0	100	100	100
11	HANDWEED																
12	BICEP II MAGNUM	5.5	L	2.88	lb ai/a	2.1	qt/a	PRE	A	15.9	182	0	0	0	100	100	100
12	AATREX	90	WG	0.40	lb ai/a	0.444	lb/a	PRE	A								
12	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	2-4"W-2	C								
12	AMS	100	DRY	3.0	lb ai/a	3	lb/a	2-4"W-2	C								
LSD (P=.05)										0.72	30.9	0.0	0.0	0.0	11.4	24.6	25.5
Replicate F										1.586	5.655	0.000	0.000	0.000	1.034	5.278	2.434
Replicate Prob(F)										0.2272	0.0104	1.0000	1.0000	1.0000	0.3723	0.0134	0.1109
Treatment F										2.020	16.618	0.000	0.000	0.000	50.856	11.914	11.305
Treatment Prob(F)										0.0773	0.0001	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMAPA Control Percent	AMAPA Control Percent	AMAPA Control Percent	SETFA Control Percent	SETFA Control Percent	SETFA Control Percent	XANST Control Percent	XANST Control Percent	XANST Control Percent
1	NONTREATED									0	0	0	0	0	0	0	0	0
2	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	2-4"W-1	B	83	68	92	88	83	95	87	78	95
3	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	4-6"W	D	95	92	98	95	95	98	95	90	98
4	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	6-8"W	E	99	95	98	99	95	98	95	93	98
5	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	8-10"W	F	99	92	98	99	95	98	96	88	98
6	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	10-12"W	G	98	87	98	99	95	98	99	85	98
7	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	12-14"W	H	92	98	98	99	98	98	98	98	98
8	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	14-16"W	I	87	98	98	95	98	98	90	98	98
9	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	16-18"W	J	88	98	98	95	98	98	92	98	98
10	ROUNDUP W-MAX	4.5	SL	1.12	lb ae/a	32	fl oz/a	18-20"W	K	93	98	98	95	98	98	93	98	98
11	CULTIVATE									100	100	100	100	100	100	100	100	100
11	HANDWEED																	
12	BICEP II MAGNUM	5.5	L	2.88	lb ai/a	2.1	qt/a	PRE	A	100	100	100	100	100	100	100	98	98
12	AATREX	90	WG	0.40	lb ai/a	0.444	lb/a	PRE	A									
12	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	2-4"W-2	C									
12	AMS	100	DRY	3.0	lb ai/a	3	lb/a	2-4"W-2	C									
LSD (P=.05)										3.2	8.8	5.1	1.4	2.8	2.3	5.8	4.6	2.6
Replicate F										2.285	1.251	1.000	1.000	1.000	1.000	0.073	0.092	2.068
Replicate Prob(F)										0.1254	0.3059	0.3840	0.3840	0.3840	0.3840	0.9300	0.9121	0.1503
Treatment F										650.750	88.385	267.111	3419.211	849.247	1356.199	194.692	306.807	1058.308
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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									CYPES	CYPES	CYPES	IPOSS	IPOSS	IPOSS
									Control	Control	Control	Control	Control	Control
									Percent	Percent	Percent	Percent	Percent	Percent
									14 DAT	28 DAT	EOS	14 DAT	28 DAT	EOS
Trt	Treatment	Form	Form	Rate	Prod	Prod	Grow	Appl						
No.	Name	Conc	Type	Unit	Rate	Unit	Stg	Code						
1	NONTREATED								0	0	0	0	0	0
2	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		2-4"W-1	B	93	85	95	93	80	95
3	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		4-6"W	D	88	85	98	78	75	98
4	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		6-8"W	E	93	87	98	90	88	98
5	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		8-10"W	F	92	83	98	85	75	98
6	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		10-12"W	G	93	83	98	85	75	98
7	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		12-14"W	H	92	97	98	72	78	98
8	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		14-16"W	I	90	98	98	70	73	98
9	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		16-18"W	J	85	94	98	62	80	95
10	ROUNDUP W-MAX	4.5	SL	1.12 lb ae/a	32 fl oz/a		18-20"W	K	82	97	98	65	87	98
11	CULTIVATE								100	100	100	100	100	100
11	HANDWEED								100	100	100	100	100	100
12	BICEP II MAGNUM	5.5	L	2.88 lb ai/a	2.1 qt/a		PRE	A	100	100	100	100	100	100
12	AATREX	90	WG	0.40 lb ai/a	0.444 lb/a		PRE	A						
12	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		2-4"W-2	C						
12	AMS	100	DRY	3.0 lb ai/a	3 lb/a		2-4"W-2	C						
LSD (P=.05)									5.0	6.3	2.3	5.3	10.9	3.3
Replicate F									4.086	2.374	1.000	0.216	0.618	0.478
Replicate Prob(F)									0.0310	0.1166	0.3840	0.8077	0.5483	0.6262
Treatment F									247.107	159.758	1356.199	224.784	47.470	645.943
Treatment Prob(F)									0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Trial Comments

1. Protocol: SIU/RFK.
2. Ratings: CI + WC 14 + 28 DAT + EOS. Yield.
3. Harvested 10-24-06, (2) 30 inch rows by 22 ft.