

Evaluation of Roundup Ready Corn Tolerance to Touchdown and Touchdown 5.

01-20B

OBJECTIVE: Evaluate Roundup Ready corn tolerance to several rates and formulations of glyphosate.

SUMMARY: Touchdown 5 at 3.0 lb ai/A applied at the V3-4 and V6-7 growth stage caused 33% and 12% height reduction 14 days after treatment (DAT), respectively. Touchdown 5 at 3.0 lb ai/A applied at the V3-4 and V6-7 growth stage caused 4% and 2% discoloration 14 DAT, respectively. Other glyphosate formulations at equivalent rates applied at the V6-7 growth stage caused 2 to 5% height reduction 14 DAT and no discoloration. Despite the injury, there were no differences in plant height at harvest or grain yield.

Corn grain yield ranged from 150 to 198 bu/A.

HERBICIDES

BICEP II MAGNUM 5.5 L
ROUNDUP ULTRA 3 SL
ROUNDUP ULTRA DRY 65 WG
TOUCHDOWN 3 SL
TOUCHDOWN 5 5 SL

WEEDS

crop tolerance only

CROP

corn, field

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Roundup Ready Corn Tolerance to Touchdown and Touchdown 5.

Project Code: 01-20B Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final Initiation Date: 4-9-01

Objective:

Evaluate Roundup Ready corn tolerance to several rates and formulations of glyphosate.

Weed Code Common Name Scientific Name
1. NA crop tolerance onlyCrop 1: ZEAMX corn, field Variety: DK 626 RR
Planting Method: Seeded Planting Date: 4-27-01
Rate: 28000 S/A Depth: 1.5 IN
Row Spacing: 30 INPlot Width, Unit: 10 FT Plot Length, Unit: 24 FT Reps: 3
Tillage Type: Reduced-Till Study Design: Randomized complete block
Previous Crop, Year: GLXMA, 2000
Field Prep./Maintenance: N 150 LB/A, P205 0 LB/A, K20 150 LB/ASoil Name: Ebbert % OM: 1.2 pH: 6.0 CEC: 15
Texture: Silt loam Fert. Level: P1: 74 LB/A, K: 242 LB/A

APPLICATION DESCRIPTION

	A	B	C
Application Date:	4-27-01	5-15-01	6-5-01
Time of Day:	8:00	8:00	7:00
Application Method:	Spray	Spray	Spray
Application Timing:	PPI	V3-4	V6-7
Applic. Placement:	BROS0I	BROFOL	BROFOL
Air Temp., Unit:	58 F	74 F	72 F
% Relative Humidity:	86	68	82
Wind Velocity, Unit:	0 MPH	7 MPH	7-10 MPH
Soil Moisture:	NORMAL	BELNOR	ABONOR

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX V3	ZEAMX V6
Height, Unit:	NA NA	5-6 IN	18-20 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	NA	NA	NA

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:	8002	8002	8002
Boom Length, Unit:	10 FT	10 FT	7.33 FT
Incorporation Equip.:	FC2X+CM	NA	NA
Incorp. Depth, Unit:	2-4 IN		
Spray Volume, Unit:	20.0 GPA	20.0 GPA	20.0 GPA

NOTES: HARVESTED 9-26-01, 2 ROWS X 18 FT.

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Weed Code
Crop Code
Rating Data Type
Rating Unit
Rating Date
Trt-Eval Interval

ZEAMX Yield bu/A 9-26-01	ZEAMX HEIRED Percent 14 DAT	ZEAMX HEIRED Percent 28 DAT	ZEAMX HEIRED Percent 56 DAT	ZEAMX DISCOLOR Percent 14 DAT	ZEAMX DISCOLOR Percent 28 DAT	ZEAMX DISCOLOR Percent 56 DAT
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Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ZEAMX Yield bu/A 9-26-01	ZEAMX HEIRED Percent 14 DAT	ZEAMX HEIRED Percent 28 DAT	ZEAMX HEIRED Percent 56 DAT	ZEAMX DISCOLOR Percent 14 DAT	ZEAMX DISCOLOR Percent 28 DAT	ZEAMX DISCOLOR Percent 56 DAT
1	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	172	0	0	0	0	0	0
1	ROUNDUP ULTRA	3	SL	0	LB AE/A	0	PT/A	V3-4	B							
2	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	178	0	0	0	0	0	0
2	TOUCHDOWN 5	5	SL	0	LB A/A	0	PT/A	V3-4	B							
3	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	173	0	0	0	0	0	0
3	TOUCHDOWN	3	SL	0	LB AE/A	0	PT/A	V3-4	B							
4	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	156	0	0	0	0	0	0
4	ROUNDUP ULTRA DRY	65	WG	0	LB AE/A	0	LB/A	V3-4	B							
5	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	160	0	0	0	0	0	0
5	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2	PT/A	V3-4	B							
6	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	188	0	0	0	1	0	0
6	TOUCHDOWN 5	5	SL	1.0	LB A/A	1.6	PT/A	V3-4	B							
7	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	157	0	0	0	0	0	0
7	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	V3-4	B							
8	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	162	0	0	0	0	0	0
8	ROUNDUP ULTRA DRY	65	WG	0.75	LB AE/A	1.15	LB/A	V3-4	B							
9	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	157	0	0	0	0	0	0
9	ROUNDUP ULTRA	3	SL	1.5	LB AE/A	4	PT/A	V3-4	B							
10	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	184	10	3	0	2	2	0
10	TOUCHDOWN 5	5	SL	2.0	LB A/A	3.2	PT/A	V3-4	B							
11	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	198	0	0	0	0	0	0
11	TOUCHDOWN	3	SL	1.5	LB AE/A	4	PT/A	V3-4	B							
12	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	183	0	0	0	0	0	0
12	ROUNDUP ULTRA DRY	65	WG	1.5	LB AE/A	2.3	LB/A	V3-4	B							
13	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	193	0	0	0	0	0	0
13	ROUNDUP ULTRA	3	SL	2.25	LB AE/A	6	PT/A	V3-4	B							
14	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	163	33	28	7	4	4	0
14	TOUCHDOWN 5	5	SL	3.0	LB A/A	4.8	PT/A	V3-4	B							
15	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	188	0	0	0	0	0	0
15	TOUCHDOWN	3	SL	2.25	LB AE/A	6	PT/A	V3-4	B							
16	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	182	0	0	0	0	0	0
16	ROUNDUP ULTRA DRY	65	WG	2.25	LB AE/A	3.46	LB/A	V3-4	B							
17	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	168	0	0	0	0	0	0
17	ROUNDUP ULTRA	3	SL	0	LB AE/A	0	PT/A	V6-7	C							
18	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	173	0	0	0	0	0	0
18	TOUCHDOWN 5	5	SL	0	LB A/A	0	PT/A	V6-7	C							
19	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	184	0	0	0	0	0	0
19	TOUCHDOWN	3	SL	0	LB AE/A	0	PT/A	V6-7	C							
20	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	180	0	0	0	0	0	0
20	ROUNDUP ULTRA DRY	65	WG	0	LB AE/A	0	LB/A	V6-7	C							
21	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	181	0	0	0	0	0	0
21	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2	PT/A	V6-7	C							
22	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	155	0	0	0	0	0	0
22	TOUCHDOWN 5	5	SL	1.0	LB A/A	1.6	PT/A	V6-7	C							
23	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	190	0	0	0	0	0	0
23	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	V6-7	C							
24	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	193	0	0	0	0	0	0
24	ROUNDUP ULTRA DRY	65	WG	0.75	LB AE/A	1.15	LB/A	V6-7	C							
25	BICEP II MAGNUM	5.5	L	3.3	LB A/A	2.4	QT/A	PPI	A	159	0	0	0	0	0	0
25	ROUNDUP ULTRA	3	SL	1.5	LB AE/A	4	PT/A	V6-7	C							

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Trial Comments

1. Protocol: SIU / RFK.
2. Plots cultivated as needed.
3. HEIRED = height reduction. DISCOLOR = discoloration. DAT = days after postemergence application.
14 days after V3-4 and V6-7 applications was on 5-29-01 and 6-19-01, respectively.
28 days after V3-4 and V6-7 applications was on 6-12-01 and 7-3-01, respectively.
56 days after V3-4 and V6-7 applications was on 7-10-01 and 7-31-01, respectively.