

The Effect of Cumulative Stresses on Corn Yield.

Project Code: 06-20A-W80 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:** 8-28-06

Objective:

Determine the influence of cumulative stress such as glyphosate drift and postemergence herbicides on corn injury and yield.

Crop 1: ZEAMX corn, field **Variety:** 33P66
Planting Method: Seeded **Planting Date:** 5-20-06
Rate: 28000 S/A **Depth:** 1.5 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 27 FT **Reps:** 4
Tillage Type: Reduced-Till **Study Design:** Randomized complete block
Previous Crop, Year: GLXMA, 2005
Field Prep./Maintenance: N 150 LB/A, P205 50 LB/A, K20 100 LB/A

Soil Name: Ebbert **% OM:** 2.6 **pH:** 6.1 **CEC:** 13
Texture: Silt loam **Fert. Level:** P1: 78 LB/A, K: 423 LB/A

APPLICATION DESCRIPTION

	A	B
Application Date:	6-9-06	6-12-06
Time of Day:	6:30	13:00
Application Method:	Spray	Spray
Application Timing:	V4-V5	3-4DA-A
Applic. Placement:	BROFOL	BROFOL
Air Temp., Unit:	76 F	74 F
% Relative Humidity:	92	68
Wind Velocity, Unit:	0-1 MPH	5-7 MPH
Soil Moisture:	NORMAL	ABONOR
% Cloud Cover:	20	

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	ZEAMX V4	ZEAMX V4
Height, Unit:	10-12 IN	10-12 IN

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:	7.5 FT	7.5 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

Trt	Treatment	Form	Form	Rate	Rate	Prod	Prod	Grow	Appl	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
No.	Name	Conc	Type	Unit	Unit	Rate	Unit	Stg	Code	Moisture	Yield	Injury	Injury	Injury	Injury	Dry wt g	Plants
										Percent	bu/A	Percent	Percent	Percent	Percent	6 plants	000/A
										10-9-06	10-9-06	6-19-06	6-26-06	7-10-06	8-7-06	7-25-06	7-10-06
												7 DA-B	14 DA-B	28 DA-B	56 DA-B	43 DA-B	28 DA-B
1	HANDWEED									15.8	193	0	0	0	0	1958	29.5
2	ROUNDUP W-MAX	4.5	SL	0.0089	lb ae/a	0.253	fl oz/a	V4-V5	A	15.6	195	0	1	0	0	1877	28.8
3	ROUNDUP W-MAX	4.5	SL	0.0446	lb ae/a	1.27	fl oz/a	V4-V5	A	15.8	192	0	0	0	0	1849	28.5
4	ROUNDUP W-MAX	4.5	SL	0.089	lb ae/a	2.53	fl oz/a	V4-V5	A	15.6	190	0	0	0	0	2269	28.9
5	ROUNDUP W-MAX	4.5	SL	0.178	lb ae/a	5.06	fl oz/a	V4-V5	A	15.6	152	20	29	21	5	1284	29.1
6	ACCENT	75	WG	0.01115	lb ai/a	0.238	oz/a	3-4DA-A	B	15.6	193	2	2	0	0	1524	29.1
6	MATRIX	25	WG	0.01115	lb ai/a	0.714	oz/a	3-4DA-A	B								
6	DISTINCT	70	WG	0.178	lb ai/a	4.07	oz/a	3-4DA-A	B								
6	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	3-4DA-A	B								
6	28% UAN	100	LIQ	1.25	% v/v	1.25	% v/v	3-4DA-A	B								
7	OPTION	35	WG	0.0312	lb ai/a	1.43	oz/a	3-4DA-A	B	15.6	195	5	0	0	0	1775	29.3
7	BUCTRIL	2	EC	0.25	lb ai/a	1	pt/a	3-4DA-A	B								
7	AATREX	90	WG	0.89	lb ai/a	1	lb/a	3-4DA-A	B								
7	DESTINY MSO	100	LIQ	1.5	pt/a	1.5	pt/a	3-4DA-A	B								
7	28% UAN	100	LIQ	2.13	pt/a	2.13	pt/a	3-4DA-A	B								
8	ROUNDUP W-MAX	4.5	SL	0.0089	lb ae/a	0.253	fl oz/a	V4-V5	A	15.7	202	3	0	0	0	1924	28.6
8	ACCENT	75	WG	0.01115	lb ai/a	0.238	oz/a	3-4DA-A	B								
8	MATRIX	25	WG	0.01115	lb ai/a	0.714	oz/a	3-4DA-A	B								
8	DISTINCT	70	WG	0.178	lb ai/a	4.07	oz/a	3-4DA-A	B								
8	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	3-4DA-A	B								
8	28% UAN	100	LIQ	1.25	% v/v	1.25	% v/v	3-4DA-A	B								
9	ROUNDUP W-MAX	4.5	SL	0.0446	lb ae/a	1.27	fl oz/a	V4-V5	A	15.7	189	3	1	0	0	1799	27.9
9	ACCENT	75	WG	0.01115	lb ai/a	0.238	oz/a	3-4DA-A	B								
9	MATRIX	25	WG	0.01115	lb ai/a	0.714	oz/a	3-4DA-A	B								
9	DISTINCT	70	WG	0.178	lb ai/a	4.07	oz/a	3-4DA-A	B								
9	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	3-4DA-A	B								
9	28% UAN	100	LIQ	1.25	% v/v	1.25	% v/v	3-4DA-A	B								
10	ROUNDUP W-MAX	4.5	SL	0.089	lb ae/a	2.53	fl oz/a	V4-V5	A	15.6	185	4	1	0	0	1996	27.6
10	ACCENT	75	WG	0.01115	lb ai/a	0.238	oz/a	3-4DA-A	B								
10	MATRIX	25	WG	0.01115	lb ai/a	0.714	oz/a	3-4DA-A	B								
10	DISTINCT	70	WG	0.178	lb ai/a	4.07	oz/a	3-4DA-A	B								
10	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	3-4DA-A	B								
10	28% UAN	100	LIQ	1.25	% v/v	1.25	% v/v	3-4DA-A	B								
11	ROUNDUP W-MAX	4.5	SL	0.178	lb ae/a	5.06	fl oz/a	V4-V5	A	15.5	163	21	30	25	9	1532	29.5
11	ACCENT	75	WG	0.01115	lb ai/a	0.238	oz/a	3-4DA-A	B								
11	MATRIX	25	WG	0.01115	lb ai/a	0.714	oz/a	3-4DA-A	B								
11	DISTINCT	70	WG	0.178	lb ai/a	4.07	oz/a	3-4DA-A	B								
11	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	3-4DA-A	B								
11	28% UAN	100	LIQ	1.25	% v/v	1.25	% v/v	3-4DA-A	B								
12	ROUNDUP W-MAX	4.5	SL	0.0089	lb ae/a	0.253	fl oz/a	V4-V5	A	15.7	190	5	2	0	0	2322	28.3
12	OPTION	35	WG	0.0312	lb ai/a	1.43	oz/a	3-4DA-A	B								
12	BUCTRIL	2	EC	0.25	lb ai/a	1	pt/a	3-4DA-A	B								
12	AATREX	90	WG	0.89	lb ai/a	1	lb/a	3-4DA-A	B								
12	DESTINY MSO	100	LIQ	1.5	pt/a	1.5	pt/a	3-4DA-A	B								
12	28% UAN	100	LIQ	2.13	pt/a	2.13	pt/a	3-4DA-A	B								
13	ROUNDUP W-MAX	4.5	SL	0.0446	lb ae/a	1.27	fl oz/a	V4-V5	A	15.5	188	6	2	1	0	1705	28.1
13	OPTION	35	WG	0.0312	lb ai/a	1.43	oz/a	3-4DA-A	B								
13	BUCTRIL	2	EC	0.25	lb ai/a	1	pt/a	3-4DA-A	B								
13	AATREX	90	WG	0.89	lb ai/a	1	lb/a	3-4DA-A	B								
13	DESTINY MSO	100	LIQ	1.5	pt/a	1.5	pt/a	3-4DA-A	B								
13	28% UAN	100	LIQ	2.13	pt/a	2.13	pt/a	3-4DA-A	B								
14	ROUNDUP W-MAX	4.5	SL	0.089	lb ae/a	2.53	fl oz/a	V4-V5	A	15.6	185	5	4	1	1	1986	28.3
14	OPTION	35	WG	0.0312	lb ai/a	1.43	oz/a	3-4DA-A	B								
14	BUCTRIL	2	EC	0.25	lb ai/a	1	pt/a	3-4DA-A	B								
14	AATREX	90	WG	0.89	lb ai/a	1	lb/a	3-4DA-A	B								
14	DESTINY MSO	100	LIQ	1.5	pt/a	1.5	pt/a	3-4DA-A	B								
14	28% UAN	100	LIQ	2.13	pt/a	2.13	pt/a	3-4DA-A	B								

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Trt-Eval Interval

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	ZEAMX Injury Percent	ZEAMX Dry wt g 6 plants	ZEAMX Plants 000/A
15	ROUNDUP W-MAX	4.5	SL	0.178	lb ae/a	5.06	fl oz/a	V4-V5	A	15.7	156	24	26	23	9	1463	28.4
15	OPTION	35	WG	0.0312	lb ai/a	1.43	oz/a	3-4DA-A	B								
15	BUCTRIL	2	EC	0.25	lb ai/a	1	pt/a	3-4DA-A	B								
15	AATREX	90	WG	0.89	lb ai/a	1	lb/a	3-4DA-A	B								
15	DESTINY MSO	100	LIQ	1.5	pt/a	1.5	pt/a	3-4DA-A	B								
15	28% UAN	100	LIQ	2.13	pt/a	2.13	pt/a	3-4DA-A	B								
LSD (P=.05)										0.56	17.7	2.5	3.3	1.5	1.3	534.8	1.53
Replicate F										3.161	1.139	0.368	1.433	1.296	2.372	4.679	1.421
Replicate Prob(F)										0.0343	0.3444	0.7762	0.2466	0.2883	0.0840	0.0066	0.2501
Treatment F										0.191	5.941	85.001	97.927	308.036	49.585	2.339	1.163
Treatment Prob(F)										0.9992	0.0001	0.0001	0.0001	0.0001	0.0001	0.0170	0.3374

Trial Comments

1. Protocol: Univ. of Guelph.
2. Ratings: CI 7, 14, 28 and 56 DA "B"; stand counts 28 DA "B"; dry weight 42 DA "B" (one meter of row).
3. Grain moisture and yield.
4. Blanket application of Lumax (3 qt/A) + Atrazine (2.5 pt/A) over entire study, applied PRE on 5-20-06.
5. Keep entire study weedfree.
6. DA-B = Days after 3-4DA-A application. Dry wt g = Oven dry weight in grams.
000/A = Thousands per acre.
7. Harvested 10-9-06, (2) 30 inch rows by 24 ft.