

Corn Weed Control Studies

Southern Illinois University

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

Trial Status: F one-year/final
Initiation Date: 4-25-16
Completion Date: 6-6-16

Trial Location

City: Belleville **Country:** USA
State/Prov.: Illinois IL
Postal Code: 62221

Objectives:

Demonstrate the uses of Acuron herbicide in a burndown program in no-till corn.

Contacts

Study Director: Karla Gage, Ph.D. **Title:** Assistant Professor of Weed Science
Organization: Southern Illinois University Carbondale
Address: 1205 Lincoln Drive MC 4415 **Phone No.:** 618-453-7679
City+State/Prov.: Carbondale, IL
Postal Code: 62901 **E-mail:** kgage@siu.edu
Country: USA

Crop Description

Crop 1: ZEAMD Zea mays indentata **Dent corn**
Variety: DKC 63-33 **BBCH Scale:** BCOR
Description: SS RIB
Planting Rate, Unit: 32000 S/A **Planting Date:** 5-6-16
Depth, Unit: 1.5 IN **Planting Method:** SEEDED
Row Spacing, Unit: 30 IN

Pest Description

Pest 1 Type: W **Code:** ERICA *Conyza canadensis* (L.) Crong.
Common Name: horseweed

Pest 2 Type: W **Code:** STEME *Stellaria media* (L.) Vill.
Common Name: chickweed, common

Pest 3 Type: W **Code:** VERPG *Veronica peregrina* L.
Common Name: speedwell, purslane

Pest 4 Type: W **Code:** ALOCA *Alopecurus carolinianus* Walt.
Common Name: foxtail, Carolina

Pest 5 Type: W **Code:** AMATA *Amaranthus rudis* Sauer
Common Name: waterhemp, common

Pest 6 Type: W **Code:** PANDI *Panicum dichotomiflorum* Michx.
Common Name: panicum, fall

Site and Design

Treated Plot Width: 7.5 FT **Total Plot Width:** 10 FT **Site Type:** FIELD
Treated Plot Length: 26 FT **Total Plot Length:** 40 FT **Experimental Unit:** 1 PLOT
Tillage Type: NOTILL no-till
Study Design: RACOB L Randomized Complete Block (RCB)
Replications: 3
Untreated Arrangement: INCLUDED single control randomized in each block

No.	Previous Crop	Year
1.	GLXMA	2015

Maintenance

No.	Maintenance Product Name
1.	N 150 LB/A, P2O5 50 LB/A, K2O 100 LB/A

Soil Description

Description Name: 06B_2013
% OM: 2.5 **Texture:** SIL silt loam
pH: 6.2 **Soil Name:** Caseyville
CEC: 6

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

Additional Measured Elements

Element	Quantity	Unit
P1	42	lb/A
K	211	lb/A

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL
Closest Weather Station: ICN - Belleville IL

Distance, Unit: 0.5 MI

No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	4-1-16					7	DAY	32	75	F
2.	4-6-16	0.49	IN	RAIN	rain	1	DAY			
3.	4-8-16					7	DAY	28	71	F
4.	4-10-16	0.97	IN	RAIN	rain	2	DAY			
5.	4-15-16					7	DAY	48	81	F
6.	4-20-16	0.45	IN	RAIN	rain	3	DAY			
7.	4-22-16					7	DAY	47	85	F
8.	4-26-16	1.74	IN	RAIN	rain	2	DAY			
9.	4-29-16					7	DAY	46	75	F
10.	4-29-16	1.94	IN	RAIN	rain	2	DAY			
11.	5-4-16	0.02	IN	RAIN	rain	1	DAY			
12.	5-6-16					7	DAY	44	87	F
13.	5-7-16	0.07	IN	RAIN	rain	1	DAY			
14.	5-9-16	2.12	IN	RAIN	rain	5	DAY			
15.	5-13-16					7	DAY	41	76	F
16.	5-16-16	1.06	IN	RAIN	rain	2	DAY			
17.	5-20-16					7	DAY	51	83	F
18.	5-20-16	0.06	IN	RAIN	rain	1	DAY			
19.	5-25-16	0.68	IN	RAIN	rain	3	DAY			
20.	5-27-16					7	DAY	62	88	F
21.	5-31-16	0.03	IN	RAIN	rain	2	DAY			
22.	6-3-16					7	DAY	55	89	F
23.	6-3-16	0.01	IN	RAIN	rain	1	DAY			
24.	6-4-16	0.72	IN	RAIN	rain	1	DAY			
25.	6-10-16					7	DAY	65	96	F

Comment:

Rainfall was recorded on station and provided by Illinois Climate Network.
 Air temperature was recorded at Scott Air Force Base 2.5 miles north and provided by NOAA's National Centers for Environmental Information.
 Air temperatures given are summarized as weekly high and low, detailed weather data is available on request.

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

Application Description

	A
Application Date:	4-25-16
Appl. Start Time:	7:00
Appl. Stop Time:	7:30
Application Method:	Spray
Application Timing:	3-7DBP
Application Placement:	BROFOL
Applied By:	RFK
Air Temperature, Unit:	61 F
% Relative Humidity:	81
Wind Velocity, Unit:	2 MPH
Wind Direction:	S
Dew Presence (Y/N):	N
Soil Temperature, Unit:	64 F
Soil Moisture:	NORMAL
% Cloud Cover:	0
Next Moisture Occurred On:	4-26-16
Time to Next Moisture, Unit:	31 HR

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	ZEAMD
Stage Scale Used:	DESC
Stage Majority, Percent:	NA

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	ERICA W
Stage Majority, Percent:	10+
Stage Minimum, Percent:	10+
Stage Maximum, Percent:	10+
Height, Unit:	4 IN
Height Minimum, Maximum:	1 5
Density, Unit:	1 FT2
Pest 2 Code, Type, Scale:	STEME W
Stage Majority, Percent:	10+
Stage Minimum, Percent:	10+
Stage Maximum, Percent:	10+
Height, Unit:	4 IN
Height Minimum, Maximum:	4 6
Density, Unit:	3 FT2
Pest 3 Code, Type, Scale:	VERPG W
Stage Majority, Percent:	10+
Stage Minimum, Percent:	10+
Stage Maximum, Percent:	10+
Height, Unit:	6 IN
Height Minimum, Maximum:	4 6
Density, Unit:	4 FT2
Pest 4 Code, Type, Scale:	ALOCA W
Stage Majority, Percent:	6
Stage Minimum, Percent:	5
Stage Maximum, Percent:	6
Height, Unit:	6 IN
Height Minimum, Maximum:	4 6
Density, Unit:	0.01 FT2
Pest 5 Code, Type, Scale:	AMATA W
Stage Majority, Percent:	NA
Pest 6 Code, Type, Scale:	PANDI W
Stage Majority, Percent:	NA

Application Equipment

	A
Appl. Equipment:	CO2 sprayer
Equipment Type:	BACSPR
Operation Pressure, Unit:	30 PSI
Nozzle Type:	XR
Nozzle Size:	8002
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	15 GPA

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

Pest Code								ZEAMD	ZEAMD	ERICA	ERICA	ERICA	STEME	
Crop Code								5-23-16	6-3-16	5-9-16	5-23-16	6-6-16	5-9-16	
Rating Date								Injury	Injury	Control	Control	Control	Control	
Rating Type								Percent	Percent	Percent	Percent	Percent	Percent	
Rating Unit														
Rating Timing														
Trt-Eval Interval								28 DA-A	28 DAP	14 DA-A	28 DA-A	42 DA-A	14 DA-A	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Unit	Growth Stage	Appl Code					
1	NONTREATED									0	0	0	0	
2	ROUNDUP POWERMAX N-PAK AMS	4.5 100	SL SL	1.13 2.5	lb ae/a % v/v	32 2.5	fl oz/a % v/v	3-7DBP 3-7DBP	A A	0 a	0 a	60 b	58 b 58 b	99 a
3	ACURON PRINCEP 4L NIS (ACTIVATOR 90) N-PAK AMS	3.44 4 100 100	CS SC SL SL	2.15 1 0.25 2.5	lb ai/a lb ai/a % v/v % v/v	2.5 1 0.25 2.5	qt/a qt/a % v/v % v/v	3-7DBP 3-7DBP 3-7DBP 3-7DBP	A A A A	0 a	0 a	99 a	98 a 99 a 99 a	99 a
4	ACURON ROUNDUP POWERMAX N-PAK AMS	3.44 4.5 100	CS SL SL	2.15 1.13 2.5	lb ai/a lb ae/a % v/v	2.5 32 2.5	qt/a fl oz/a % v/v	3-7DBP 3-7DBP 3-7DBP	A A A	0 a	0 a	99 a	99 a 99 a	99 a
5	ACURON GRAMOXONE 2 SL NIS (ACTIVATOR 90)	3.44 2 100	CS SL SL	2.15 1.25 0.25	lb ai/a lb ai/a % v/v	2.5 2.5 0.25	qt/a qt/a % v/v	3-7DBP 3-7DBP 3-7DBP	A A A	0 a	0 a	98 a	99 a 99 a	99 a
6	CORVUS AATREX 4L NIS (ACTIVATOR 90)	2.63 4 100	SC SC SL	0.115 1 0.25	lb ai/a lb ai/a % v/v	5.6 1 0.25	fl oz/a qt/a % v/v	3-7DBP 3-7DBP 3-7DBP	A A A	0 a	0 a	96 a	98 a 98 a	99 a
LSD	P=.05									.0	.0	14.1	11.9	12.1
	Standard Deviation									0.0	0.0	7.5	6.3	6.4
	CV									0.0	0.0	8.29	7.0	7.07
	Replicate F									0.000	0.000	1.507	1.484	1.203
	Replicate Prob(F)									1.0000	1.0000	0.2783	0.2830	0.3493
	Treatment F									0.000	0.000	15.395	24.073	23.792
	Treatment Prob(F)									1.0000	1.0000	0.0008	0.0002	0.0002

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Could not calculate LSD (% mean diff) for columns 9,13,6,7,8 because error mean square = 0.

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
 Investigator: Karla L. Gage, Ph.D.

Pest Code	VERPG	ALOCA	PANDI	PANDI	AMATA	AMATA									
Crop Code	5-9-16	5-9-16	5-23-16	6-6-16	5-23-16	6-6-16									
Rating Date	Control	Control	Control	Control	Control	Control									
Rating Type	Percent	Percent	Percent	Percent	Percent	Percent									
Rating Unit	14 DA-A	14 DA-A	28 DA-A	42 DA-A	28 DA-A	42 DA-A									
Rating Timing															
Trt-Eval Interval															
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Unit	Growth Stage	Appl Code						
1	NONTREATED									0	0	0	0	0	0
2	ROUNDUP POWERMAX N-PAK AMS	4.5 100	SL SL	1.13 2.5	lb ae/a % v/v	32 2.5	fl oz/a % v/v	3-7DBP 3-7DBP	A A	99 a	99 a	0 d	0 d	0 b	0 b
3	ACURON PRINCEP 4L NIS (ACTIVATOR 90) N-PAK AMS	3.44 4 100 100	CS SC SL SL	2.15 1 0.25 2.5	lb ai/a lb ai/a % v/v % v/v	2.5 1 0.25 2.5	qt/a qt/a % v/v % v/v	3-7DBP 3-7DBP 3-7DBP 3-7DBP	A A A A	99 a	99 a	93 ab	80 ab	93 a	58 a
4	ACURON ROUNDUP POWERMAX N-PAK AMS	3.44 4.5 100	CS SL SL	2.15 1.13 2.5	lb ai/a lb ae/a % v/v	2.5 32 2.5	qt/a fl oz/a % v/v	3-7DBP 3-7DBP 3-7DBP	A A A	99 a	99 a	87 bc	50 bc	93 a	58 a
5	ACURON GRAMOXONE 2 SL NIS (ACTIVATOR 90)	3.44 2 100	CS SL SL	2.15 1.25 0.25	lb ai/a lb ai/a % v/v	2.5 2.5 0.25	qt/a qt/a % v/v	3-7DBP 3-7DBP 3-7DBP	A A A	99 a	99 a	82 c	43 c	90 a	60 a
6	CORVUS AATREX 4L NIS (ACTIVATOR 90)	2.63 4 100	SC SC SL	0.115 1 0.25	lb ai/a lb ai/a % v/v	5.6 1 0.25	fl oz/a qt/a % v/v	3-7DBP 3-7DBP 3-7DBP	A A A	99 a	99 a	99 a	96 a	88 a	42 a
LSD	P=.05											7.6	33.2	5.4	40.5
	Standard Deviation									0.0	0.0	4.0	17.6	2.9	21.5
	CV									0.0	0.0	5.58	32.69	3.95	49.23
	Replicate F									0.000	0.000	1.800	1.435	3.540	0.707
	Replicate Prob(F)									1.0000	1.0000	0.2263	0.2933	0.0792	0.5215
	Treatment F									0.000	0.000	309.406	13.269	603.601	4.233
	Treatment Prob(F)									1.0000	1.0000	0.0001	0.0013	0.0001	0.0394

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Could not calculate LSD (% mean diff) for columns 9,13,6,7,8 because error mean square = 0.

No-Till Corn Burndown Trial - Syngenta.

Trial ID: 16-6B Location: Belleville Res. Center Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

Trial Comments

1. Protocol: Syngenta (EHLCor04-2016).
2. Ratings:
 CI 14 and 28 DAP;
 WC 14, 28, and 42 DA-A.
3. Yield not requested.
4. Blanket POST possible at 56 DAP.
5. Target marestail.
6. Call Barry Beaupre when sprayed.
7. Rainfall following the 3-7DBP application A was 3.68 inch over 5 days beginning 31 hours later.
8. By 5-23-16, STEME, VERPG, and ALOCA in the nontreated plots were senescing naturally and could no longer be evaluated.
9. Not harvested.