

## Corn One-Pass versus Two-Pass Herbicide Systems Demonstration - BASF.

Trial ID: 16-26C Location: Belleville Res. Center Trial Year: 2016  
Investigator: Karla L. Gage, Ph.D.

**Trial Status:** F one-year/final  
**Initiation Date:** 5-31-16  
**Completion Date:** 10-3-16

**Trial Location**

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

**Objectives:**

Compare weed control with a one-pass program (PRE and EPOST) with two-pass programs from BASF and competitors.

**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 Date:** 5-31-16  
**Planting Rate, Unit:** 32000 S/A **Planting Method:** SEEDED  
**Depth, Unit:** 1.5 IN  
**Row Spacing, Unit:** 30 IN

**Pest Description**

**Pest 1 Type:** W **Code:** PANDI **Panicum dichotomiflorum Michx.**  
**Common Name:** panicum, fall

**Pest 2 Type:** W **Code:** AMATA **Amaranthus rudis Sauer**  
**Common Name:** waterhemp, common

**Site and Design**

**Treated Plot Width:** 7.5 FT **Total Plot Width:** 10 FT **Site Type:** FIELD  
**Treated Plot Length:** 25 FT **Total Plot Length:** 25 FT **Experimental Unit:** 1 PLOT  
**Tillage Type:** REDTIL reduced-till  
**Replications:** 4 **Study Design:** RACOB L Randomized Complete Block (RCB)  
**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 0 LB/A, K2O 150 LB/A

**Soil Description**

**Description Name:** 26C\_2013  
**% OM:** 2.6 **Texture:** SIL silt loam  
**pH:** 6.4 **Soil Name:** Winfield  
**CEC:** 7

**Additional Measured Elements**

Element	Quantity	Unit
P1	70	lb/A
K	346	lb/A

**Moisture and Weather Conditions**

**Overall Moisture Conditions:** NORMAL  
**Closest Weather Station:** ICN - Belleville IL **Distance, Unit:** 0.5 MI

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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
26.	6-13-16	0.03	IN	RAIN	rain	1	DAY			
27.	6-17-16					7	DAY	67	97	F
28.	6-21-16	0.01	IN	RAIN	rain	1	DAY			
29.	6-24-16					7	DAY	57	95	F
30.	6-25-16	0.02	IN	RAIN	rain	1	DAY			
31.	6-30-16	0.03	IN	RAIN	rain	1	DAY			
32.	7-1-16					7	DAY	60	91	F
33.	7-1-16	2.26	IN	RAIN	rain	4	DAY			
34.	7-6-16	0.32	IN	RAIN	rain	3	DAY			
35.	7-8-16					7	DAY	67	93	F
36.	7-13-16	0.49	IN	RAIN	rain	2	DAY			
37.	7-15-16					7	DAY	68	93	F
38.	7-17-16	0.02	IN	RAIN	rain	1	DAY			
39.	7-19-16	1.47	IN	RAIN	rain	2	DAY			
40.	7-22-16					7	DAY	72	94	F
41.	7-25-16	0.1	IN	RAIN	rain	1	DAY			
42.	7-29-16					7	DAY	69	91	F
43.	7-31-16	0.52	IN	RAIN	rain	3	DAY			
44.	8-3-16	0.75	IN	RAIN	rain	1	DAY			
45.	8-5-16					7	DAY	66	93	F
46.	8-5-16	0.06	IN	RAIN	rain	1	DAY			
47.	8-12-16					7	DAY	68	91	F
48.	8-12-16	4.85	IN	RAIN	rain	5	DAY			
49.	8-19-16					7	DAY	57	93	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.

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## Application Description

	A	B	C
Application Date:	5-31-16	6-10-16	6-20-16
Appl. Start Time:	10:40	10:00	6:25
Appl. Stop Time:	11:20	10:30	6:30
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	V2	V4-V6
Application Placement:	BROSOI	BROFOL	BROFOL
Applied By:	MCG	RFK	MCG
Air Temperature, Unit:	75 F	88 F	80 F
% Relative Humidity:	74	52	85
Wind Velocity, Unit:	3 MPH	2 MPH	2 MPH
Wind Direction:	W	W	WSW
Dew Presence (Y/N):	N	N	Y
Soil Temperature, Unit:	73 F	75 F	80 F
Soil Moisture:	NORMAL	NORMAL	BELNOR
% Cloud Cover:	75	25	0
Next Moisture Occurred On:	6-4-16	6-30-16	6-30-16
Time to Next Moisture, Unit:	4 DAY	20 DAY	10 DAY

## Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	ZEAMD	ZEAMD	ZEAMD
Stage Scale Used:	DESC	DESC	DESC
Stage Majority, Percent:	NA	V2	V5
Stage Minimum, Percent:		V2	V5
Stage Maximum, Percent:		V2	V5
Height, Unit:		4 IN	12 IN
Height Minimum, Maximum:		3 4	10 12

## Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	PANDI W	PANDI W	PANDI W
Stage Majority, Percent:	NA	3	4
Stage Minimum, Percent:		1	2
Stage Maximum, Percent:		3	6
Height, Unit:		0.5 IN	1 IN
Height Minimum, Maximum:		0.25 0.5	0.5 2
Density, Unit:		3 FT2	1 FT2
Pest 2 Code, Type, Scale:	AMATA W	AMATA W	AMATA W
Stage Majority, Percent:	NA	4	2
Stage Minimum, Percent:		3	1
Stage Maximum, Percent:		4	3
Height, Unit:		0.5 IN	6 IN
Height Minimum, Maximum:		0.25 0.5	4 6
Density, Unit:		3 FT2	0.01 FT2

## Application Equipment

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

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Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	ZEAMD 10-3-16 Moisture Percent	ZEAMD 10-3-16 Test wt. lb/bu	ZEAMD 10-3-16 Yield bu/A	PANDI 6-27-16 Control Percent 17 DA-B	PANDI 7-25-16 Control Percent 45 DA-B	AMATA 6-27-16 Control Percent 17 DA-B	AMATA 7-25-16 Control Percent 45 DA-B			
										7 DA-C	35 DA-C	7 DA-C	35 DA-C			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Other Rate	Other Rate	Growth Unit	Appl Code							
1	NONTREATED									16.8 a	54.7 a	53 c	0	0	0	0
2	VERDICT	5.57	EC	0.78	lb ai/a	18	fl oz/a	PRE	A	17.9 a	54.6 a	117 ab	95 d	92 bc	97 ab	94 bc
3	VERDICT STATUS ROUNDUP POWERMAX COC AMS - LIQUID	5.57 56 4.5 100 100	EC WG SL SL SL	0.435 0.175 0.77 1 2.5	lb ai/a lb ae/a lb ae/a % v/v % v/v	10 5 22 1 2.5	fl oz/a oz/a fl oz/a % v/v % v/v	PRE V4-V6 V4-V6 V4-V6 V4-V6	A C C C C	18.1 a	54.4 a	107 b	99 a	97 ab	99 a	97 abc
4	ZIDUA SC SHARPEN ARMEZON ROUNDUP POWERMAX COC AMS - LIQUID	100 2.85 2.8 4.5 100 100	SC SC SL SL SL SL	3.3 0.0223 0.0164 0.77 1 2.5	fl oz/a lb ai/a lb ai/a lb ae/a % v/v % v/v	3.3 1 0.75 22 1 2.5	fl oz/a fl oz/a fl oz/a fl oz/a % v/v % v/v	PRE PRE V4-V6 V4-V6 V4-V6 V4-V6	A A C C C C	17.8 a	54.6 a	120 ab	99 a	99 a	99 a	99 a
5	VERDICT ARMEZON PRO AATREX 4L ROUNDUP POWERMAX COC AMS - LIQUID	5.57 5.35 4 4.5 100 100	EC EC SC SL SL SL	0.435 0.67 0.5 0.77 1 2.5	lb ai/a lb ai/a lb ai/a lb ae/a % v/v % v/v	10 16 16 22 1 2.5	fl oz/a fl oz/a fl oz/a fl oz/a % v/v % v/v	PRE V2 V2 V2 V2 V2	A B B B B B	17.8 a	54.6 a	126 ab	99 abc	97 ab	99 a	99 a
6	ARMEZON PRO AATREX 4L ROUNDUP POWERMAX COC AMS - LIQUID	5.35 4 4.5 100 100	EC SC SL SL SL	0.67 0.5 0.77 1 2.5	lb ai/a lb ai/a lb ae/a % v/v % v/v	16 16 22 1 2.5	fl oz/a fl oz/a fl oz/a % v/v % v/v	V2 V2 V2 V2 V2	B B B B B	17.7 a	54.7 a	120 ab	96 bcd	92 bc	99 a	97 ab
7	ARMEZON PRO SHARPEN	5.35 2.85	EC SC	0.84 0.067	lb ai/a lb ai/a	20 3	fl oz/a fl oz/a	PRE PRE	A A	18.1 a	54.5 a	122 ab	96 cd	94 abc	98 a	96 abc
8	VERDICT ZIDUA SC	5.57 100	EC SC	0.52 2.5	lb ai/a fl oz/a	12 2.5	fl oz/a fl oz/a	PRE PRE	A A	18.4 a	54.4 a	117 ab	97 a-d	95 abc	98 a	99 a
9	CAPRENO AATREX 4L ROUNDUP POWERMAX COC AMS - LIQUID	3.45 4 4.5 100 100	SC SC SL SL SL	0.081 0.5 0.77 1 2.5	lb ai/a lb ai/a lb ae/a % v/v % v/v	3 16 22 1 2.5	fl oz/a fl oz/a fl oz/a % v/v % v/v	V2 V2 V2 V2 V2	B B B B B	18.9 a	54.0 a	120 ab	95 d	92 bc	94 b	92 c
10	ACURON	3.44	CS	2.15	lb ai/a	80	fl oz/a	PRE	A	18.0 a	54.6 a	126 ab	99 ab	98 ab	99 a	99 a
11	RESICORE	3.29	EC	1.85	lb ai/a	2.25	qt/a	PRE	A	17.8 a	54.6 a	133 a	98 a-d	94 abc	99 a	99 a
12	CORVUS	2.63	SC	0.115	lb ai/a	5.6	fl oz/a	PRE	A	18.1 a	54.5 a	124 ab	90 e	91 c	85 c	80 d
13	DIFLEXX LAUDIS ROUNDUP POWERMAX COC AMS - LIQUID	4 3.5 4.5 100 100	SC SC SL SL SL	0.313 0.0684 0.77 1 2.5	lb ae/a lb ai/a lb ae/a % v/v % v/v	10 2.5 22 1 2.5	fl oz/a fl oz/a fl oz/a % v/v % v/v	V2 V2 V2 V2 V2	B B B B B	17.9 a	54.6 a	122 ab	86 f	73 e	85 c	83 d
14	SURESTART II	4.16	SE	1.04	lb ai/a	32	fl oz/a	PRE	A	18.7 a	54.2 a	111 b	96 bcd	83 d	97 a	93 bc

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.

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							ZEAMD	ZEAMD	ZEAMD	PANDI	PANDI	AMATA	AMATA										
							10-3-16	10-3-16	10-3-16	6-27-16	7-25-16	6-27-16	7-25-16										
							Moisture	Test wt.	Yield	Control	Control	Control	Control										
							Percent	lb/bu	bu/A	Percent	Percent	Percent	Percent										
										17 DA-B	45 DA-B	17 DA-B	45 DA-B										
										7 DA-C	35 DA-C	7 DA-C	35 DA-C										
Trt	Treatment	Form	Form	Rate	Other	Other	Growth	Appl															
No.	Name	Conc	Type	Rate	Rate	Rate	Unit	Stage	Code														
15	HALEX GT	4.389	CS	1.98	lb ai/a	57.6	fl oz/a	V2	B	18.1	a	54.5	a	117	ab	97	a-d	92	bc	98	a	97	ab
	AATREX 4L	4	SC	0.5	lb ai/a	16	fl oz/a	V2	B														
	NIS	100	SL	0.25	% v/v	0.25	% v/v	V2	B														
	AMS - LIQUID	100	SL	2.5	% v/v	2.5	% v/v	V2	B														
LSD P=.05							1.64	0.75	21.7	3.2	6.2	2.9	4.7										
Standard Deviation							1.15	0.53	15.2	2.2	4.3	2.0	3.3										
CV							6.37	0.97	13.14	2.31	4.68	2.1	3.44										
Replicate F							0.737	0.577	3.753	0.607	2.015	0.146	1.787										
Replicate Prob(F)							0.5362	0.6331	0.0178	0.6141	0.1277	0.9315	0.1656										
Treatment F							0.688	0.497	5.902	10.868	10.191	23.465	14.007										
Treatment Prob(F)							0.7729	0.9217	0.0001	0.0001	0.0001	0.0001	0.0001										

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Trial Comments

1. Protocol: BASF (C51).
2. Ratings:  
CI not requested.  
WC 7-14 and 21-35 DA-C rate all plots each time.
3. Yield.
4. Plant mid-late season for Fieldday tour.
5. Application C V4-V6 but less than 30 inch corn.
6. Photos at 0 and 7-10 DA-C all plots each time.
7. Rainfall following the PRE application A was 0.73 inch over 2 days beginning 4 days later.  
Rainfall following the V2 application B was 2.61 inch over 9 days beginning 20 days later.  
Rainfall following the V4-V6 application C was 2.61 inch over 9 days beginning 10 days later.
8. Harvested 10-3-16, (2) 30 inch rows by 22 ft.