

# The Ohio State University

## BOLT technology herbicide programs in non-CE limited areas-northern USA university

Trial ID: 16 BOLT                      Location: Western Branch   Trial Year: 2016  
 Protocol ID: 16 BOLT                Investigator: Dr. Mark M. Loux  
 Project ID: US 156/16/01            Study Director: Bryan Reeb  
    Sponsor Contact: Marsha Martin, DuPont

### General Trial Information

**Study Director:** Bryan Reeb  
**Investigator:** Dr. Mark M. Loux

**Latitude of LL Corner °:** 39.86014    N  
**Longitude of LL Corner °:** 83.67096    W  
**Altitude of LL Corner, Unit:** 1087.00 FT

**Conducted Under GLP:** No  
**Conducted Under GEP:** No

### Contacts

**Study Director:** Bryan Reeb

**Investigator:** Dr. Mark M. Loux

### Crop Description

**Crop 1:** GLXMA                      Glycine max  
**Variety:** P38T61BR  
**Description:** Pioneer

**BBCH Scale:** BSOY

**Planting Date:** 5-25-2016  
**Planting Method:** PLANTD planted  
**Planting Equipment:** FE            Field Equipment  
**Emergence Date:** 6-1-2016

**Planting Rate, Unit:** 175000 S/A  
**Depth, Unit:** 1    IN  
**Row Spacing, Unit:** 15    IN  
**Soil Temperature, Unit:** 67    F  
**Soil Moisture:** DRY                dry  
**Seed Bed:** MEDIUM                medium

### Pest Description

**Pest 1 Type:** W    **Code:** SETFA    *Setaria faberi*  
**Common Name:** Giant foxtail

**Pest 2 Type:** W    **Code:** ECHCG    *Echinochloa crus-galli*  
**Common Name:** Common barnyardgrass

**Pest 3 Type:** W    **Code:** AMBTR    *Ambrosia trifida*  
**Common Name:** Giant ragweed

**Pest 4 Type:** W    **Code:** AMARE    *Amaranthus retroflexus*  
**Common Name:** Redroot pigweed

**Pest 5 Type:** W    **Code:** CHEAL    *Chenopodium album*  
**Common Name:** common lambsquarters

**Pest 6 Type:** W    **Code:** SIDSP    *Sida spinosa*  
**Common Name:** Prickly sida

### Site and Design

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT<sup>2</sup>    **Treatments:** 10  
**Replications:** 3

**Site Type:** FIELD    field  
**Experimental Unit:** 1    PLOT            plot  
**Tillage Type:** CONTIL    conventional-till  
**Study Design:** RACOBL    Randomized Complete Block (RCB)

### Soil Description

**Description Name:** F-8 East  
**% OM:** 2.4                      **Texture:** SICL silty clay loam  
**pH:** 6.2                         **Soil Name:** Kokomo  
**CEC:** 16                        **Fert. Level:** G good  
**Soil Drainage:** G good

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### Application Description

	A	B
Application Date:	5-25-2016	6-28-2016
Appl. Start Time:	10:30 AM	8:30 AM
Appl. Stop Time:	10:45 AM	9:00 AM
Interval to Prev. Appl., Unit:		34 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	POST 2-4"WDS
Application Placement:	BROSOL	BROFOL
Applied By:	LAMB	LAMB/ACKLEY
Air Temperature, Unit:	79 F	70 F
% Relative Humidity:	47	72
Wind Velocity, Unit:	9 MPH	5 MPH
Wind Direction:	SSW	NW
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	66 F	72 F
Soil Moisture:	DRY	MOIST
% Cloud Cover:	75	0
Next Moisture Occurred On:	5-29-2016	7-1-2016
Time to Next Moisture, Unit:	4 D	2 DAYS

### Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH
Stage Majority, Percent:		14 100
Height, Unit:		8 IN

### Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	SETFA W	SETFA W
Stage Majority, Percent:		23 60
Stage Minimum, Percent:		25 40
Stage Maximum, Percent:		23 60
Height, Unit:		8 IN
Height Minimum, Maximum:		6 10
Density, Unit:		40 m2
Pest 2 Code, Type, Scale:	ECHCG W	ECHCG W
Stage Majority, Percent:		23 60
Stage Minimum, Percent:		25 40
Stage Maximum, Percent:		23 60
Height, Unit:		5 IN
Height Minimum, Maximum:		4 6
Density, Unit:		70 m2
Pest 3 Code, Type, Scale:	AMBTR W	AMBTR W
Stage Majority, Percent:		19 100
Height, Unit:		12 IN
Height Minimum, Maximum:		8 18
Density, Unit:		3 m2
Pest 4 Code, Type, Scale:	AMARE W	AMARE W
Density, Unit:		15 m2
Pest 5 Code, Type, Scale:	CHEAL W	CHEAL W
Density, Unit:		7 m2
Pest 6 Code, Type, Scale:	SIDSP W	SIDSP W
Density, Unit:		5 m2

### Application Equipment

	A	B
Appl. Equipment:	10' BACKPACK	10' BACKPACK
Equipment Type:	BACCAI	BACCAI
Operation Pressure, Unit:	50 PSI	44 PSI
Nozzle Type:	AIXR	AIXR
Nozzle Size:	11015	11015
Nozzle Spacing, Unit:	18 IN	18 IN
Nozzles/Row:	6	6
Boom Length, Unit:	10 FT	10 FT
Boom Height, Unit:	20 IN	20 IN
Ground Speed, Unit:	3 MPH	3 MPH
Carrier:	WATER	WATER
Spray Volume, Unit:	15 gal/ac	15 gal/ac
Mix Size, Unit:	2 liters	2 liters
Propellant:	COMCO2	COMCO2

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed					
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE					
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>					
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	Common lambsqu>	Redroot pigweed					
Rating Date	6-15-2016	6-15-2016	6-15-2016	6-15-2016	6-15-2016					
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO					
Rating Unit	%	%	%	%	%					
Number of Subsamples	1	1	1	1	1					
SE Group No.	1	2	19	4	5					
Days After First/Last Applic.	21 21	21 21	21 21	21 21	21 21					
Trt-Eval Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A	21 DA-A					
Plant-Eval Interval	21 DP-1	21 DP-1	21 DP-1	21 DP-1	21 DP-1					
Days After Emergence	14 DE-1	14 DE-1	14 DE-1	14 DE-1	14 DE-1					
Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	1*	2*	3*	4*	5*	6*
1	1.25oz Basis Blend				0.0 -	96.0 a	85.7 a	23.3 -	99.3 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
2	1.25 oz Basis Blend				0.0 -	86.3 a	82.7 a	36.7 -	93.3 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	Valor SX	2 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
3	1.25 oz Basis Blend				3.3 -	88.3 a	86.7 a	50.0 -	100.0 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	3.5 oz Envive									
	Flumioxazin	2 oz/a		A						
	Chlorimuron	1.28 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
4	1.25 oz Basis Blend				2.7 -	90.0 a	90.0 a	50.0 -	100.0 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	7.5 oz Canopy Blend									
	Chlorimuron	2.48 oz/a		A						
	Metribuzin	5 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
5	4 oz Diligent				0.0 -	83.3 a	80.0 a	41.7 -	100.0 a	100.0 a
	Flumioxazin	1.98 oz/a		A						
	Rimsulfuron	1 oz/a		A						
	Chlorimuron	1 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.25 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed					
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE					
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>					
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	Common lambsqu>	Redroot pigweed					
Rating Date	6-15-2016	6-15-2016	6-15-2016	6-15-2016	6-15-2016					
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO					
Rating Unit	%	%	%	%	%					
Number of Subsamples	1	1	1	1	1					
SE Group No.	1	2	19	4	5					
Days After First/Last Applic.	21 21	21 21	21 21	21 21	21 21					
Trt-Eval Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A	21 DA-A					
Plant-Eval Interval	21 DP-1	21 DP-1	21 DP-1	21 DP-1	21 DP-1					
Days After Emergence	14 DE-1	14 DE-1	14 DE-1	14 DE-1	14 DE-1					
Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	1*	2*	3*	4*	5*	6*
6	3.5 oz Envide			A	1.7 -	76.0 a	76.0 a	40.0 -	100.0 a	100.0 a
	Flumioxazin	1.98 oz/a		A						
	Chlorimuron	1.28 oz/a		A						
	Thifensulfuron	0.2 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.25 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
7	Valor SX	2 oz/a		A	0.0 -	80.0 a	66.7 a	10.0 -	90.0 a	100.0 a
	Roundup PowerMax	22 oz/a		B						
	1.25 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
8	Non-BOLT				3.3 -	83.0 a	79.7 a	33.3 -	100.0 a	100.0 a
	Valor XLT 4oz									
	Flumioxazin	2.35 oz/a		A						
	Chlorimuron	1.65 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	N PAK AMS	5 % v/v		B						
9	Untreated Check				0.0 -	0.0 b	0.0 b	0.0 -	0.0 b	0.0 b
10	Authority MTZ	16 oz/a		A	1.7 -	83.3 a	70.0 a	26.7 -	100.0 a	100.0 a
	Roundup PowerMax	22 oz/a		B						
	N PAK AMS	5 % v/v		B						
	LSD P=.05				5.27	22.60	27.84	37.98	10.77	.
	Standard Deviation				3.07	13.17	16.23	22.14	6.28	0.00
	CV				242.67	17.19	22.63	71.03	7.11	0.0
	Bartlett's X2				2.47	6.54	3.249	3.789	7.743	0.0
	P(Bartlett's X2)				0.65	0.587	0.918	0.804	0.021*	.
	Skewness				2.3012*	-1.8894*	-1.4186*	0.2936	-2.6148*	-2.8091*
	Kurtosis				4.5425*	3.0559*	1.72*	-0.7339	5.4883*	6.3081*
	Replicate F				0.490	2.400	2.124	5.062	2.034	0.000
	Replicate Prob(F)				0.6203	0.1192	0.1485	0.0180	0.1598	1.0000
	Treatment F				0.665	13.060	7.837	1.655	74.195	0.000
	Treatment Prob(F)				0.7295	0.0001	0.0001	0.1734	0.0001	1.0000

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Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	Common lambsqu>	Redroot pigweed
Rating Date	6-22-2016	6-22-2016	6-22-2016	6-22-2016	6-22-2016
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	7	8	9	10	11
Days After First/Last Applic.	28 28	28 28	28 28	28 28	28 28
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	28 DP-1	28 DP-1	28 DP-1	28 DP-1	28 DP-1
Days After Emergence	21 DE-1	21 DE-1	21 DE-1	21 DE-1	21 DE-1

Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit	Code	7*	8*	9*	10*	11*	12*
1	1.25oz Basis Blend					0.0 c	83.3 a	75.0 a	20.0 -	96.7 a	100.0 a
	Rimsulfuron	1 oz/a			A						
	Thifensulfuron	0.25 oz/a			A						
	Roundup PowerMax	22 oz/a			B						
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a			B						
	Thifensulfuron	0.16 oz/a			B						
	N PAK AMS	5 % v/v			B						
2	1.25 oz Basis Blend					0.7 bc	73.3 a	70.0 a	36.7 -	90.0 a	100.0 a
	Rimsulfuron	1 oz/a			A						
	Thifensulfuron	0.25 oz/a			A						
	Valor SX	2 oz/a			A						
	Roundup PowerMax	22 oz/a			B						
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a			B						
	Thifensulfuron	0.16 oz/a			B						
	N PAK AMS	5 % v/v			B						
3	1.25 oz Basis Blend					2.7 ab	79.0 a	75.7 a	43.3 -	100.0 a	100.0 a
	Rimsulfuron	1 oz/a			A						
	Thifensulfuron	0.25 oz/a			A						
	3.5 oz Envive										
	Flumioxazin	2 oz/a			A						
	Chlorimuron	1.28 oz/a			A						
	Roundup PowerMax	22 oz/a			B						
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a			B						
	Thifensulfuron	0.16 oz/a			B						
	N PAK AMS	5 % v/v			B						
4	1.25 oz Basis Blend					4.3 a	78.3 a	76.7 a	50.0 -	100.0 a	100.0 a
	Rimsulfuron	1 oz/a			A						
	Thifensulfuron	0.25 oz/a			A						
	7.5 oz Canopy Blend										
	Chlorimuron	2.48 oz/a			A						
	Metribuzin	5 oz/a			A						
	Roundup PowerMax	22 oz/a			B						
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a			B						
	Thifensulfuron	0.16 oz/a			B						
	N PAK AMS	5 % v/v			B						
5	4 oz Diligent					0.0 c	80.0 a	73.3 a	45.0 -	100.0 a	99.0 b
	Flumioxazin	1.98 oz/a			A						
	Rimsulfuron	1 oz/a			A						
	Chlorimuron	1 oz/a			A						
	Roundup PowerMax	22 oz/a			B						
	1.25 oz Synchrony										
	Chlorimuron	0.96 oz/a			B						
	Thifensulfuron	0.16 oz/a			B						
	N PAK AMS	5 % v/v			B						

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Pest Code		SETFA	ECHCG	AMBTR	CHEAL	AMARE				
Pest Scientific Name		Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>				
Pest Name		Giant foxtail	Common barnyar>	Giant ragweed	Common lambsqu>	Redroot pigweed				
Rating Date	6-22-2016	6-22-2016	6-22-2016	6-22-2016	6-22-2016	6-22-2016				
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
SE Group No.	7	8	9	10	11	12				
Days After First/Last Applic.	28 28	28 28	28 28	28 28	28 28	28 28				
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A				
Plant-Eval Interval	28 DP-1	28 DP-1	28 DP-1	28 DP-1	28 DP-1	28 DP-1				
Days After Emergence	21 DE-1	21 DE-1	21 DE-1	21 DE-1	21 DE-1	21 DE-1				
Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	7*	8*	9*	10*	11*	12*
6	3.5 oz Envide				1.7 bc	60.0 a	60.0 a	33.3 -	100.0 a	100.0 a
	Flumioxazin	1.98 oz/a		A						
	Chlorimuron	1.28 oz/a		A						
	Thifensulfuron	0.2 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.25 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
7	Valor SX	2 oz/a		A	0.0 c	60.0 a	56.7 a	13.3 -	90.0 a	100.0 a
	Roundup PowerMax	22 oz/a		B						
	1.25 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
8	Non-BOLT				2.7 ab	73.3 a	73.3 a	30.0 -	100.0 a	100.0 a
	Valor XLT 4oz									
	Flumioxazin	2.35 oz/a		A						
	Chlorimuron	1.65 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	N PAK AMS	5 % v/v		B						
9	Untreated Check				0.0 c	0.0 b	0.0 b	0.0 -	0.0 b	0.0 c
10	Authority MTZ	16 oz/a		A	2.7 ab	73.3 a	56.7 a	26.7 -	100.0 a	100.0 a
	Roundup PowerMax	22 oz/a		B						
	N PAK AMS	5 % v/v		B						
	LSD P=.05				2.11	24.63	29.27	38.74	12.40	0.94
	Standard Deviation				1.23	14.36	17.06	22.59	7.23	0.55
	CV				83.71	21.73	27.64	75.7	8.24	0.61
	Bartlett's X2				4.695	4.844	5.693	7.802	2.189	0.0
	P(Bartlett's X2)				0.454	0.774	0.682	0.35	0.335	.
	Skewness				0.818	-1.4986*	-1.046*	0.4415	-2.5369*	-2.8075*
	Kurtosis				-0.7887	2.0675*	1.1729	-0.1007	5.1577*	6.3021*
	Replicate F				2.941	0.629	0.644	2.452	3.128	1.000
	Replicate Prob(F)				0.0785	0.5445	0.5366	0.1143	0.0683	0.3874
	Treatment F				4.826	8.744	5.491	1.403	55.468	9978.779
	Treatment Prob(F)				0.0022	0.0001	0.0011	0.2580	0.0001	0.0001

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Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	Common lambsqu>	Redroot pigweed					
Rating Date	7-6-2016	7-6-2016	7-6-2016	7-6-2016	7-6-2016					
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO					
Rating Unit	%	%	%	%	%					
Number of Subsamples	1	1	1	1	1					
SE Group No.	13	14	15	16	17					
Days After First/Last Applic.	42 8	42 8	42 8	42 8	42 8					
Trt-Eval Interval										
Plant-Eval Interval	42 DP-1	42 DP-1	42 DP-1	42 DP-1	42 DP-1					
Days After Emergence	35 DE-1	35 DE-1	35 DE-1	35 DE-1	35 DE-1					
Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	13*	14*	15*	16*	17*	18*
1	1.25oz Basis Blend				0.0 -	96.7 ab	90.0 a	63.3 ab	100.0 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
2	1.25 oz Basis Blend				0.0 -	99.3 a	95.0 a	66.7 ab	100.0 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	Valor SX	2 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
3	1.25 oz Basis Blend				0.0 -	98.3 a	96.7 a	75.0 a	100.0 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	3.5 oz Envive									
	Flumioxazin	2 oz/a		A						
	Chlorimuron	1.28 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
4	1.25 oz Basis Blend				0.0 -	100.0 a	96.7 a	66.7 ab	100.0 a	100.0 a
	Rimsulfuron	1 oz/a		A						
	Thifensulfuron	0.25 oz/a		A						
	7.5 oz Canopy Blend									
	Chlorimuron	2.48 oz/a		A						
	Metribuzin	5 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.125 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						
5	4 oz Diligent				0.0 -	98.3 a	93.3 a	70.0 ab	100.0 a	100.0 a
	Flumioxazin	1.98 oz/a		A						
	Rimsulfuron	1 oz/a		A						
	Chlorimuron	1 oz/a		A						
	Roundup PowerMax	22 oz/a		B						
	1.25 oz Synchrony									
	Chlorimuron	0.96 oz/a		B						
	Thifensulfuron	0.16 oz/a		B						
	N PAK AMS	5 % v/v		B						

# The Ohio State University

## BOLT technology herbicide programs in non-CE limited areas-northern USA university

Trial ID: 16 BOLT Location: Western Branch Trial Year: 2016  
 Protocol ID: 16 BOLT Investigator: Dr. Mark M. Loux  
 Project ID: US 156/16/01 Study Director: Bryan Reeb  
 Sponsor Contact: Marsha Martin, DuPont

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE				
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>				
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	Common lambsqu>	Redroot pigweed				
Rating Date	7-6-2016	7-6-2016	7-6-2016	7-6-2016	7-6-2016				
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1				
SE Group No.	13	14	15	16	17				
Days After First/Last Applic.	42 8	42 8	42 8	42 8	42 8				
Trt-Eval Interval									
Plant-Eval Interval	42 DP-1	42 DP-1	42 DP-1	42 DP-1	42 DP-1				
Days After Emergence	35 DE-1	35 DE-1	35 DE-1	35 DE-1	35 DE-1				
Trt Treatment No. Name	Other Rate	Other Rate	Appl Unit Code	13*	14*	15*	16*	17*	18*
6 3.5 oz Envide				0.0 -	96.0 ab	78.3 ab	65.0 ab	100.0 a	100.0 a
Flumioxazin	1.98 oz/a		A						
Chlorimuron	1.28 oz/a		A						
Thifensulfuron	0.2 oz/a		A						
Roundup PowerMax	22 oz/a		B						
1.25 oz Synchrony									
Chlorimuron	0.96 oz/a		B						
Thifensulfuron	0.16 oz/a		B						
N PAK AMS	5 % v/v		B						
7 Valor SX	2 oz/a		A	0.0 -	98.3 a	83.3 ab	70.0 ab	100.0 a	100.0 a
Roundup PowerMax	22 oz/a		B						
1.25 oz Synchrony									
Chlorimuron	0.96 oz/a		B						
Thifensulfuron	0.16 oz/a		B						
N PAK AMS	5 % v/v		B						
8 Non-BOLT				0.0 -	98.3 a	90.0 a	63.3 ab	100.0 a	100.0 a
Valor XLT 4oz									
Flumioxazin	2.35 oz/a		A						
Chlorimuron	1.65 oz/a		A						
Roundup PowerMax	22 oz/a		B						
N PAK AMS	5 % v/v		B						
9 Untreated Check				0.0 -	0.0 c	0.0 c	0.0 c	0.0 b	0.0 b
10 Authority MTZ	16 oz/a		A	0.0 -	91.7 b	70.0 b	53.3 b	100.0 a	100.0 a
Roundup PowerMax	22 oz/a		B						
N PAK AMS	5 % v/v		B						
LSD P=.05				.	5.46	18.65	18.47	.	.
Standard Deviation				0.00	3.18	10.87	10.77	0.00	0.00
CV				0.0	3.63	13.7	18.15	0.0	0.0
Bartlett's X2				0.0	4.981	7.926	10.618	0.0	0.0
P(Bartlett's X2)				.	0.662	0.441	0.156	.	.
Skewness				.	-2.7392*	-1.9903*	-1.6826*	-2.8091*	-2.8091*
Kurtosis				.	6.0536*	3.2256*	3.1246*	6.3081*	6.3081*
Replicate F				0.000	1.315	2.567	1.064	0.000	0.000
Replicate Prob(F)				1.0000	0.2931	0.1045	0.3658	1.0000	1.0000
Treatment F				0.000	283.255	21.633	12.080	0.000	0.000
Treatment Prob(F)				1.0000	0.0001	0.0001	0.0001	1.0000	1.0000



# The Ohio State University

## BOLT technology herbicide programs in non-CE limited areas-northern USA university

Trial ID: 16 BOLT  
 Protocol ID: 16 BOLT  
 Project ID: US 156/16/01

Location: Western Branch Trial Year: 2016  
 Investigator: Dr. Mark M. Loux  
 Study Director: Bryan Reeb  
 Sponsor Contact: Marsha Martin, DuPont

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	common lambsqu>	Redroot pigweed
Rating Date	8-8-2016	8-8-2016	8-8-2016	8-8-2016	8-8-2016
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	21	22	23	24	25
Days After First/Last Applic.	75 41	75 41	75 41	75 41	75 41
Trt-Eval Interval					
Plant-Eval Interval	75 DP-1	75 DP-1	75 DP-1	75 DP-1	75 DP-1
Days After Emergence	68 DE-1	68 DE-1	68 DE-1	68 DE-1	68 DE-1

Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	19*	20*	21*	22*	23*	24*	25
1	1.25oz Basis Blend				0.0 -	100.0 a	100.0 a	86.7 abc	100.0 a	100.0 a	
	Rimsulfuron	1 oz/a		A							
	Thifensulfuron	0.25 oz/a		A							
	Roundup PowerMax	22 oz/a		B							
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a		B							
	Thifensulfuron	0.16 oz/a		B							
	N PAK AMS	5 % v/v		B							
2	1.25 oz Basis Blend				0.0 -	100.0 a	100.0 a	88.3 abc	100.0 a	100.0 a	
	Rimsulfuron	1 oz/a		A							
	Thifensulfuron	0.25 oz/a		A							
	Valor SX	2 oz/a		A							
	Roundup PowerMax	22 oz/a		B							
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a		B							
	Thifensulfuron	0.16 oz/a		B							
	N PAK AMS	5 % v/v		B							
3	1.25 oz Basis Blend				0.0 -	100.0 a	100.0 a	93.3 ab	100.0 a	100.0 a	
	Rimsulfuron	1 oz/a		A							
	Thifensulfuron	0.25 oz/a		A							
	3.5 oz Envive										
	Flumioxazin	2 oz/a		A							
	Chlorimuron	1.28 oz/a		A							
	Roundup PowerMax	22 oz/a		B							
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a		B							
	Thifensulfuron	0.16 oz/a		B							
	N PAK AMS	5 % v/v		B							
4	1.25 oz Basis Blend				0.0 -	100.0 a	100.0 a	83.3 bc	100.0 a	100.0 a	
	Rimsulfuron	1 oz/a		A							
	Thifensulfuron	0.25 oz/a		A							
	7.5 oz Canopy Blend										
	Chlorimuron	2.48 oz/a		A							
	Metribuzin	5 oz/a		A							
	Roundup PowerMax	22 oz/a		B							
	1.125 oz Synchrony										
	Chlorimuron	0.96 oz/a		B							
	Thifensulfuron	0.16 oz/a		B							
	N PAK AMS	5 % v/v		B							
5	4 oz Diligent				0.0 -	100.0 a	100.0 a	88.3 abc	100.0 a	100.0 a	
	Flumioxazin	1.98 oz/a		A							
	Rimsulfuron	1 oz/a		A							
	Chlorimuron	1 oz/a		A							
	Roundup PowerMax	22 oz/a		B							
	1.25 oz Synchrony										
	Chlorimuron	0.96 oz/a		B							
	Thifensulfuron	0.16 oz/a		B							
	N PAK AMS	5 % v/v		B							

# The Ohio State University

## BOLT technology herbicide programs in non-CE limited areas-northern USA university

Trial ID: 16 BOLT  
 Protocol ID: 16 BOLT  
 Project ID: US 156/16/01

Location: Western Branch Trial Year: 2016  
 Investigator: Dr. Mark M. Loux  
 Study Director: Bryan Reeb  
 Sponsor Contact: Marsha Martin, DuPont

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed					
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE					
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>					
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	common lambsqu>	Redroot pigweed					
Rating Date	8-8-2016	8-8-2016	8-8-2016	8-8-2016	8-8-2016					
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO					
Rating Unit	%	%	%	%	%					
Number of Subsamples	1	1	1	1	1					
SE Group No.	21	22	23	24	25					
Days After First/Last Applic.	75 41	75 41	75 41	75 41	75 41					
Trt-Eval Interval										
Plant-Eval Interval	75 DP-1	75 DP-1	75 DP-1	75 DP-1	75 DP-1					
Days After Emergence	68 DE-1	68 DE-1	68 DE-1	68 DE-1	68 DE-1					
Trt Treatment No. Name	Other Rate	Other Rate	Appl Unit Code	19*	20*	21*	22*	23*	24*	25
6 3.5 oz Envide				0.0 -	100.0 a	100.0 a	86.7 abc	100.0 a	100.0 a	
Flumioxazin	1.98 oz/a		A							
Chlorimuron	1.28 oz/a		A							
Thifensulfuron	0.2 oz/a		A							
Roundup PowerMax	22 oz/a		B							
1.25 oz Synchrony										
Chlorimuron	0.96 oz/a		B							
Thifensulfuron	0.16 oz/a		B							
N PAK AMS	5 % v/v		B							
7 Valor SX	2 oz/a		A	0.0 -	100.0 a	100.0 a	95.0 a	100.0 a	100.0 a	
Roundup PowerMax	22 oz/a		B							
1.25 oz Synchrony										
Chlorimuron	0.96 oz/a		B							
Thifensulfuron	0.16 oz/a		B							
N PAK AMS	5 % v/v		B							
8 Non-BOLT				0.0 -	100.0 a	100.0 a	85.0 abc	100.0 a	100.0 a	
Valor XLT 4oz										
Flumioxazin	2.35 oz/a		A							
Chlorimuron	1.65 oz/a		A							
Roundup PowerMax	22 oz/a		B							
N PAK AMS	5 % v/v		B							
9 Untreated Check				0.0 -	0.0 b	0.0 b	0.0 d	0.0 b	0.0 b	
10 Authority MTZ	16 oz/a		A	0.0 -	100.0 a	100.0 a	81.7 c	100.0 a	100.0 a	
Roundup PowerMax	22 oz/a		B							
N PAK AMS	5 % v/v		B							
LSD P=.05							10.66			
Standard Deviation				0.00	0.00	0.00	6.21	0.00	0.00	
CV				0.0	0.0	0.0	7.88	0.0	0.0	
Bartlett's X2				0.0	0.0	0.0	7.531	0.0	0.0	
P(Bartlett's X2)							0.481			
Skewness					-2.8091*	-2.8091*	-2.5303*	-2.8091*	-3.5905*	
Kurtosis					6.3081*	6.3081*	5.3567*	6.3081*	11.6955*	
Replicate F				0.000	0.000	0.000	0.281	0.000	0.000	
Replicate Prob(F)				1.0000	1.0000	1.0000	0.7586	1.0000	1.0000	
Treatment F				0.000	0.000	0.000	60.914	0.000	0.000	
Treatment Prob(F)				1.0000	1.0000	1.0000	0.0001	1.0000	1.0000	

# The Ohio State University

## BOLT technology herbicide programs in non-CE limited areas-northern USA university

Trial ID: 16 BOLT                      Location: Western Branch   Trial Year: 2016  
Protocol ID: 16 BOLT                Investigator: Dr. Mark M. Loux  
Project ID: US 156/16/01            Study Director: Bryan Reeb  
Sponsor Contact: Marsha Martin, DuPont

Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

SETFA, Setaria faberi, = US  
ECHCG, Echinochloa crus-galli, = US  
AMBTR, Ambrosia trifida, = US  
CHEAL, Chenopodium album, = US  
AMARE, Amaranthus retroflexus, = US

Rating Type

PHYGEN = phytotoxicity - general / injury  
CONTRO = control / burndown or knockdown

Rating Unit

% = percent

Plant-Eval Interval

21 DP-1 = 1 GLXMA 5-25-2016  
28 DP-1 = 1 GLXMA 5-25-2016  
42 DP-1 = 1 GLXMA 5-25-2016  
75 DP-1 = 1 GLXMA 5-25-2016