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Sharpen as a tank mix partner for Harness and Harness Xtra.

Trial ID: 10S-THP-CTC-60 Protocol ID: 10S-THP-CTC-60
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Monsanto - John Willis

General Trial Information

Study Director: White/Marquardt **Title:** Research Associate
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 3-18-2010

Trial Location

City: Lafayette
State/Prov.: IN
Postal Code: 47909
Country: USA

Personnel

Study Director: White/Marquardt **Title:** Research Associate
Affiliation: Purdue University
Address: 915 W State Street
Location: West Lafayette, IN, USA
Postal Code: 47907 **E-mail:** mdwhite@purdue.edu
Phone No.: 765-494-0891

Investigator: Dr. Bill Johnson **Title:** Professor
Affiliation: Purdue University
Address: 915 W State Street
Location: West Lafayette, IN, USA
Postal Code: 47907 **E-mail:** wj@purdue.edu
Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

Cooperator/Landowner

Cooperator: Throckmorton Purdue Ag Center **Role:** Purdue Ag Center
Organization: Purdue University
Address 1: 8343 US 231 S

City: Lafayette
State/Prov.: IN
Postal Code: 47909 **E-mail:** jayyoung@purdue.edu
Country: USA United States
Phone No.: 765-538-3422
Fax No.: 765-538-3423

Crop Description

Crop 1: ZEAMD Zea mays indentata Dent corn
Variety: Dekalb DKC 61-19 **Description:** RR/VT3
BBCH Scale: BCOR **Planting Date:** 4-19-2010
Rate, Unit: 32000 S/A
Depth, Unit: 1.5 IN
Row Spacing, Unit: 30 IN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 60 F
Soil Moisture: DRY dry **Emergence Date:** 5-2-2010

Pest Description

Pest 1 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed

Pest 2 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail

Pest 3 Type: W **Code:** TAROF Taraxacum officinale
Common Name: Common dandelion

Pest 4 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: Velvetleaf

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

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Site and Design

Plot Width, Unit: 10 FT
Plot Length, Unit: 30 FT
Plot Area, Unit: 300 FT²
Replications: 4

Site Type: FIELD field
Experimental Unit: 1 PLOT plot
Tillage Type: CONTIL conventional-till
Study Design: RACOB� Randomized Complete Block (RCB)
Untreated Arrangement: INCLUDED single control randomized in each block

Trial Initiation Comments:
 Yields

Soil Description

Description Name: TPAC -Field 4A
% OM: 3.1 **Texture:** SIL silt loam
pH: 6 **Soil Name:** Toronto-Millbrook
CEC: 11.1

Application Description

	A	B
Application Date:	4-20-2010	6-1-2010
Time of Day:		9:30 AM
Application Method:	SPRAY	SPRAY
Application Timing:	ATPLAN	MIPOWE
Application Placement:	FOLIAR	FOLIAR
Applied By:	RH	RT/RH
Air Temperature, Unit:	55 F	69 F
% Relative Humidity:	57	86
Wind Velocity, Unit:	2 MPH	1.5 MPH
Wind Direction:	SE	NE
Dew Presence (Y/N):	N no	Y yes
Soil Temperature, Unit:	60 F	70 F
Soil Moisture:	DRY	WET
% Cloud Cover:	80	100

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	ZEAMD BCOR	ZEAMD BCOR

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Pest Stage At Each Application				
	A		B	
Pest 1 Code, Type, Scale:	AMBTR	W	AMBTR	W
Stage Majority, Percent:			45	100
Height, Unit:			6	IN
Density, Unit:	0	YD2	7	YD2
Pest 2 Code, Type, Scale:	SETFA	W	SETFA	W
Stage Majority, Percent:			45	100
Height, Unit:			5	IN
Height Minimum, Maximum:			2	8
Density, Unit:	0	YD2	100	YD2
Pest 3 Code, Type, Scale:	TAROF	W	TAROF	W
Stage Majority, Percent:			45	100
Height, Unit:			2	IN
Density, Unit:	0	YD2	18	YD2
Pest 4 Code, Type, Scale:	ABUTH	W	ABUTH	W
Stage Majority, Percent:			45	100
Height, Unit:			4.5	IN
Height Minimum, Maximum:			1	8
Density, Unit:	0	YD2	7	YD2
Pest 5 Code, Type, Scale:	CHEAL	W	CHEAL	W
Stage Majority, Percent:			45	100
Height, Unit:			1.75	IN
Height Minimum, Maximum:			0.5	3
Density, Unit:	0	YD2	8	YD2

Application Equipment				
	A		B	
Appl. Equipment:	CO2	BKPK	CO2	BKPK
Equipment Type:	SPRBAC		SPRBAC	
Operating Pressure, Unit:	17	PSI	17	PSI
Nozzle Type:	FLAT	FAN	FLAT	FAN
Nozzle Size:	XR	110 02	XR	110 02
Nozzle Spacing, Unit:	15	IN	15	IN
Nozzles/Row:	8		8	
Boom Length, Unit:	10	FT	10	FT
Boom Height, Unit:	18	IN	18	IN
Ground Speed, Unit:	3	MPH	3	MPH
Carrier:	MEIGS		MEIGS	
Water Hardness (ppm CaCO3):	150		150	
Spray Volume, Unit:	15	gal/ac	15	gal/ac
Mix Size, Unit:	1.8	liters	1.8	liters
Propellant:	CO2		CO2	
Tank Mix (Y/N):	N	no	N	no

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Sharpen as a tank mix partner for Harness and Harness Xtra.

Trial ID: 10S-THP-CTC-60 Protocol ID: 10S-THP-CTC-60
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Monsanto - John Willis

Pest Type					W Weed SETFA Setaria faberi Giant foxtail	W Weed TAROF Taraxacum offi> Common dandel>	W Weed AMBTR Ambrosia trifi> Giant ragweed	W Weed ABUTH Abutilon theop> Velvetleaf		
Pest Code										
Pest Scientific Name										
Pest Name										
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX						
BBCH Scale	BCOR	BCOR	BCOR	BCOR						
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays						
Crop Name	Corn	Corn	Corn	Corn						
Crop Variety										
Description										
Rating Date	5-4-2010	5-4-2010	5-4-2010	5-4-2010	5-28-2010	5-28-2010	5-28-2010	5-28-2010		
Rating Type	PHYCHL	PHYLMA	PHYLCU	EMEDEL	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit					%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1	1		
Crop Stage Majority	V1-3"				V5-10"					
Pest Stage Majority					1-6"	6"	12"	5"		
Pest Density, Unit					70 YD2	4 YD2	4 YD2	5 YD2		
Assessed By										
Trt Treatment	Rate	Appl								
No. Name	Rate Unit	Code	1	2	3	4	5	6	7	8
1 Untreated Check			0.0 a	1.3 a	1.3 a	2.0 a	0.0 b	0.0 d	0.0 c	0.0 b
2 Integrity (5.57 SC) Roundup PowerMax 4.5 SL AMS - Liquid	13 oz ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A B	1.3 a	1.5 a	1.3 a	5.0 a	98.0 a	50.0 abc	81.0 a	99.0 a
3 Integrity (5.57 SC) Roundup PowerMax 4.5 SL AMS - Liquid	16 oz ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A B	2.5 a	1.5 a	0.0 a	7.5 a	99.0 a	55.0 abc	70.0 a	99.0 a
4 Harness Xtra 5.6 (5.6 SC) Roundup PowerMax 4.5 SL AMS - Liquid	2.1 lb ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A B	3.0 a	2.5 a	2.0 a	2.5 a	99.0 a	57.3 abc	45.0 b	99.0 a
5 Guardsman Max (5 SC) Roundup PowerMax 4.5 SL AMS - Liquid	1.25 lb ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A B	1.3 a	0.0 a	0.8 a	1.8 a	98.0 a	17.5 cd	42.5 b	86.8 a
6 Harness Xtra (6 SC) Sharpen 2.85 SC Roundup PowerMax 4.5 SL AMS - Liquid	1.8 lb ai/a 2 oz ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A A B	0.0 a	0.8 a	1.3 a	3.3 a	99.0 a	65.0 ab	94.5 a	99.0 a
7 Harness Xtra (6 SC) Sharpen 2.85 SC Roundup PowerMax 4.5 SL AMS - Liquid	1.8 lb ai/a 3 oz ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A A B	0.0 a	1.3 a	1.8 a	5.8 a	99.0 a	84.8 a	86.0 a	99.0 a
8 Harness (7 EC) Sharpen 2.85 SC Roundup PowerMax 4.5 SL AMS - Liquid	1.31 lb ai/a 2 oz ai/a 0.75 lb ae/a 17 lb ai/100 gal B	A A B	2.0 a	0.0 a	0.0 a	0.8 a	99.0 a	37.5 bcd	27.5 b	91.8 a

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Pest Type					W Weed SETFA Setaria faberi Giant foxtail	W Weed TAROF Taraxacum offi> Common dandel>	W Weed AMBTR Ambrosia trifi> Giant ragweed	W Weed ABUTH Abutilon theop> Velvetleaf			
Pest Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX							
Pest Scientific Name											
Pest Name											
Crop Code	BCOR	BCOR	BCOR	BCOR							
BBCH Scale											
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays							
Crop Name	Corn	Corn	Corn	Corn							
Crop Variety											
Description											
Rating Date	5-4-2010	5-4-2010	5-4-2010	5-4-2010	5-28-2010	5-28-2010	5-28-2010	5-28-2010			
Rating Type	PHYCHL	PHYLMA	PHYLCU	EMEDEL	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit					%	%	%	%			
Number of Subsamples	1	1	1	1	1	1	1	1			
Crop Stage Majority	V1-3"				V5-10"						
Pest Stage Majority					1-6"	6"	12"	5"			
Pest Density, Unit					70 YD2	4 YD2	4 YD2	5 YD2			
Assessed By											
Trt No.	Treatment Name	Rate	Appl Code								
		Rate Unit		1	2	3	4	5	6	7	8
9	Untreated Check	0.0 a		0.0 a	0.0 a	0.0 a	0.0 a	0.0 b	0.0 d	0.0 c	0.0 b
LSD (P=.05)		3.23		3.38	3.16	6.61	1.40	29.25	18.67	13.07	
Standard Deviation		2.21		2.32	2.17	4.53	0.96	20.04	12.79	8.95	
CV		199.23		238.21	236.48	142.98	1.25	49.14	25.78	11.97	
Bartlett's X2		0.618		6.426	1.856	11.944	0.0	5.352	7.926	0.776	
P(Bartlett's X2)		0.961		0.267	0.869	0.102	.	0.50	0.244	0.378	
Replicate F		0.060		0.530	0.353	5.220	0.640	2.427	3.318	2.108	
Replicate Prob(F)		0.9801		0.6660	0.7876	0.0065	0.5967	0.0902	0.0369	0.1258	
Treatment F		1.149		0.553	0.505	1.183	8186.161	8.663	31.245	90.715	
Treatment Prob(F)		0.3682		0.8050	0.8402	0.3494	0.0001	0.0001	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Column 1: US; phytotoxicity - chlorosis; V1-3"
 Column 2: US; phytotoxicity - leaf malformation
 Column 3: US; phytotoxicity - leaf curl
 Column 4: US; emergence delay
 Column 5: Weed or volunteer crop; US; control / burndown or knockdown; percent; V5-10"; 1-6"; per square yard
 Column 6: Weed or volunteer crop; US; control / burndown or knockdown; percent; 6"; per square yard
 Column 7: Weed or volunteer crop; US; control / burndown or knockdown; percent; 12"; per square yard
 Column 8: Weed or volunteer crop; US; control / burndown or knockdown; percent; 5"; per square yard
 Column 9: Weed or volunteer crop; US; control / burndown or knockdown; percent; 0.5-4"; per square yard
 Column 10: Weed or volunteer crop; US; control / burndown or knockdown; percent; V11; 24"; per square yard; MW
 Column 11: Weed or volunteer crop; US; control / burndown or knockdown; percent; 40"; per square yard; MW
 Column 12: Weed or volunteer crop; US; control / burndown or knockdown; percent; 30"; per square yard; MW
 Column 13: Weed or volunteer crop; US; control / burndown or knockdown; percent; 20"; per square yard; MW
 Column 14: Weed or volunteer crop; US; control / burndown or knockdown; percent; MW
 Column 15: Weed or volunteer crop; US; control / burndown or knockdown; percent; VT; 36"; per square yard; MW
 Column 16: Weed or volunteer crop; US; control / burndown or knockdown; percent; 96"; per square yard; MW
 Column 17: Weed or volunteer crop; US; control / burndown or knockdown; percent; MW
 Column 18: US; yield; bushel 56 lb
 Column 19: US; moisture content; percent

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Pest Type	W Weed CHEAL	W Weed SETFA	W Weed AMBTR	W Weed ABUTH	W Weed CHEAL	W Weed TAROF		
Pest Code	Chenopodium al>	Setaria faberi	Ambrosia trifi>	Abutilon theop>	Chenopodium al>	Taraxacum offi>		
Pest Scientific Name	Common lambsqu>	Giant foxtail	Giant ragweed	Velvetleaf	Common lambsqu>	Common dandel>		
Pest Name								
Crop Code								
BBCH Scale								
Crop Scientific Name								
Crop Name								
Crop Variety								
Description								
Rating Date	5-28-2010	6-23-2010	6-23-2010	6-23-2010	6-23-2010	6-23-2010		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority		V11						
Pest Stage Majority	0.5-4"	24"	40"	30"	20"			
Pest Density, Unit	40 YD2	100 YD2	10 YD2	5 YD2	5 YD2			
Assessed By		MW	MW	MW	MW	MW		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	9	10	11	12	13	14
1 Untreated Check			0.0 b	0.0 b	0.0 c	0.0 b	0.0 b	0.0 b
2 Integrity (5.57 SC)	13 oz ai/a	A	99.0 a	93.0 a	91.8 a	98.0 a	99.0 a	74.8 a
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						
3 Integrity (5.57 SC)	16 oz ai/a	A	99.0 a	96.5 a	88.5 a	99.0 a	97.5 a	70.0 a
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						
4 Harness Xtra 5.6 (5.6 SC)	2.1 lb ai/a	A	99.0 a	93.0 a	82.5 ab	96.8 a	98.0 a	82.0 a
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						
5 Guardsman Max (5 SC)	1.25 lb ai/a	A	99.0 a	91.3 a	90.0 a	95.8 a	97.0 a	57.5 a
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						
6 Harness Xtra (6 SC)	1.8 lb ai/a	A	99.0 a	92.5 a	93.5 a	99.0 a	99.0 a	63.8 a
Sharpen 2.85 SC	2 oz ai/a	A						
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						
7 Harness Xtra (6 SC)	1.8 lb ai/a	A	99.0 a	92.5 a	91.0 a	99.0 a	99.0 a	81.0 a
Sharpen 2.85 SC	3 oz ai/a	A						
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						
8 Harness (7 EC)	1.31 lb ai/a	A	99.0 a	91.3 a	78.8 b	95.3 a	96.3 a	52.5 a
Sharpen 2.85 SC	2 oz ai/a	A						
Roundup PowerMax 4.5 SL	0.75 lb ae/a	B						
AMS - Liquid	17 lb ai/100 gal	B						

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	W Weed CHEAL Chenopodium al> Common lambsqu>	W Weed SETFA Setaria faberi Giant foxtail	W Weed AMBTR Ambrosia trifi> Giant ragweed	W Weed ABUTH Abutilon theop> Velvetleaf	W Weed CHEAL Chenopodium al> Common lambsqu>	W Weed TAROF Taraxacum offi> Common dandel>				
Pest Type										
Pest Code										
Pest Scientific Name										
Pest Name										
Crop Code										
BBCH Scale										
Crop Scientific Name										
Crop Name										
Crop Variety										
Description										
Rating Date	5-28-2010	6-23-2010	6-23-2010	6-23-2010	6-23-2010	6-23-2010				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority		V11								
Pest Stage Majority	0.5-4"	24"	40"	30"	20"					
Pest Density, Unit	40 YD2	100 YD2	10 YD2	5 YD2	5 YD2					
Assessed By		MW	MW	MW	MW	MW				
Trt Treatment	Rate	Appl								
No. Name	Rate Unit	Code	9	10	11	12	13	14		
9 Untreated Check	0.0 b		0.0 b		0.0 c		0.0 b		0.0 b	
LSD (P=.05)	0.00	4.35	7.83	3.63	2.55	20.68				
Standard Deviation	0.00	2.98	5.37	2.49	1.74	14.17				
CV	0.0	4.13	7.84	3.28	2.29	26.48				
Bartlett's X2	0.0	2.775	1.75	1.878	2.75	1.968				
P(Bartlett's X2)	.	0.837	0.941	0.598	0.432	0.923				
Replicate F	0.000	0.408	2.836	1.273	2.274	5.133				
Replicate Prob(F)	1.0000	0.7488	0.0594	0.3062	0.1057	0.0069				
Treatment F	0.000	754.536	212.088	1196.197	2455.229	20.277				
Treatment Prob(F)	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001				

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Trt No.	Treatment Name	Rate	Unit	Appl Code	15	16	17	18	19
1	Untreated Check				0.0 b	0.0 c	0.0 b	39.70 b	12.75 a
2	Integrity (5.57 SC)	13 oz ai/a		A	93.8 a	93.3 a	89.5 a	192.33 a	13.60 a
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					
3	Integrity (5.57 SC)	16 oz ai/a		A	94.3 a	93.5 a	79.8 a	219.00 a	13.70 a
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					
4	Harness Xtra 5.6 (5.6 SC)	2.1 lb ai/a		A	88.8 a	80.0 b	94.3 a	198.48 a	13.43 a
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					
5	Guardsman Max (5 SC)	1.25 lb ai/a		A	88.8 a	83.8 ab	78.5 a	202.78 a	13.95 a
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					
6	Harness Xtra (6 SC)	1.8 lb ai/a		A	92.5 a	93.5 a	80.0 a	209.60 a	13.53 a
	Sharpen 2.85 SC	2 oz ai/a		A					
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					
7	Harness Xtra (6 SC)	1.8 lb ai/a		A	90.0 a	91.0 a	93.3 a	196.95 a	13.70 a
	Sharpen 2.85 SC	3 oz ai/a		A					
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					
8	Harness (7 EC)	1.31 lb ai/a		A	90.0 a	86.3 ab	82.3 a	202.15 a	13.78 a
	Sharpen 2.85 SC	2 oz ai/a		A					
	Roundup PowerMax 4.5 SL	0.75 lb ae/a		B					
	AMS - Liquid	17 lb ai/100 gal		B					

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Pest Type	W Weed	W Weed	W Weed		
Pest Code	SETFA	AMBTR	TAROF		
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Taraxacum offi>		
Pest Name	Giant foxtail	Giant ragweed	Common dandel>		
Crop Code				ZEAMD	ZEAMD
BBCH Scale				BCOR	BCOR
Crop Scientific Name				Zea mays inden>	Zea mays inden>
Crop Name				Dent corn	Dent corn
Crop Variety					
Description					
Rating Date	7-7-2010	7-7-2010	7-7-2010	9-29-2010	9-29-2010
Rating Type	CONTRO	CONTRO	CONTRO	YIELD	MOICON
Rating Unit	%	%	%	BU56LB	%
Number of Subsamples	1	1	1	1	1
Crop Stage Majority	VT				
Pest Stage Majority	36"	96"			
Pest Density, Unit	100 YD2	10 YD2			
Assessed By	MW	MW	MW		
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	15	16	17
9 Untreated Check	0.0 b	0.0 c	0.0 b	29.68 b	12.88 a
LSD (P=.05)	4.11	7.99	17.16	27.069	1.508
Standard Deviation	2.82	5.47	11.76	18.547	1.033
CV	3.97	7.93	17.71	11.2	7.66
Bartlett's X2	2.139	8.366	3.187	5.087	45.921
P(Bartlett's X2)	0.83	0.212	0.785	0.748	0.001*
Replicate F	0.737	2.000	1.900	7.635	0.849
Replicate Prob(F)	0.5400	0.1409	0.1567	0.0009	0.4807
Treatment F	816.263	207.578	41.994	64.842	0.620
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.7527