

# Purdue University

## Weed control with Realm Q in corn.

Trial ID: 10S-THP-CTC-63      Protocol ID: 10S-THP-CTC-63  
 Location: Throckmorton      Study Director: White/Marquardt  
 Project ID:      Investigator: Dr. Bill Johnson  
 Sponsor Contact: DuPont - Helen Flanigan

### 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:** Pioneer 33W84      **Description:** HXX, LL, RR2  
**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:** SETFA Setaria faberi  
**Common Name:** Giant foxtail

**Pest 2 Type:** W      **Code:** AMBTR Ambrosia trifida  
**Common Name:** Giant ragweed

**Pest 3 Type:** W      **Code:** ABUTH Abutilon theophrasti  
**Common Name:** Velvetleaf

**Pest 4 Type:** W      **Code:** CHEAL Chenopodium album  
**Common Name:** Common lambsquarters

**Pest 5 Type:** W      **Code:** THLSS Thlaspi sp.  
**Common Name:** Pennycress

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## Site and Design

**Plot Width, Unit:** 10 FT      **Site Type:** FIELD    field  
**Plot Length, Unit:** 30 FT    **Experimental Unit:** 1    PLOT            plot  
**Plot Area, Unit:** 300 FT<sup>2</sup>    **Tillage Type:** CONTIL    conventional-till  
**Replications:** 4                **Study Design:** RACOBL    Randomized Complete Block (RCB)

## 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
<b>Application Date:</b>	4-20-2010	5-19-2010
<b>Application Method:</b>	SPRAY	SPRAY
<b>Application Timing:</b>	ATPLAN	POSPOS
<b>Applied By:</b>	AR	MH
<b>Air Temperature, Unit:</b>	55 F	62 F
<b>% Relative Humidity:</b>	57	75
<b>Wind Velocity, Unit:</b>	2 MPH	5 MPH
<b>Wind Direction:</b>	SE	NE
<b>Dew Presence (Y/N):</b>	N no	Y yes
<b>Soil Temperature, Unit:</b>	60 F	58 F
<b>Soil Moisture:</b>	DRY	WET
<b>% Cloud Cover:</b>	80	10

### Crop Stage At Each Application

	A	B
<b>Crop 1 Code, BBCH Scale:</b>	ZEAMD BCOR	ZEAMD BCOR
<b>Stage Scale Used:</b>		BBCH
<b>Stage Majority, Percent:</b>		V3
<b>Stage Minimum, Percent:</b>		V2    15
<b>Stage Maximum, Percent:</b>		V3    85
<b>Height, Unit:</b>		4    IN
<b>Height Minimum, Maximum:</b>		3    5

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Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale:	SETFA W	SETFA W
Stage Majority, Percent:		45 100
Height, Unit:		3 IN
Height Minimum, Maximum:		1 6
Density, Unit:		37.5 FT2
Pest 2 Code, Type, Scale:	AMBTR W	AMBTR W
Stage Majority, Percent:		45 100
Height, Unit:		3.5 IN
Height Minimum, Maximum:		1 6
Density, Unit:		5.5 YD2
Pest 3 Code, Type, Scale:	ABUTH W	ABUTH W
Stage Majority, Percent:		45 100
Height, Unit:		1.5 IN
Height Minimum, Maximum:		1 2
Density, Unit:		2 YD2
Pest 4 Code, Type, Scale:	CHEAL W	CHEAL W
Stage Majority, Percent:		45 100
Height, Unit:		2 IN
Height Minimum, Maximum:		1 3
Density, Unit:		3 YD2
Pest 5 Code, Type, Scale:	THLSS W	THLSS W
Stage Majority, Percent:		45 100
Height, Unit:		1.5 IN
Height Minimum, Maximum:		1 2
Density, Unit:		3.5 YD2

Application Equipment		
	A	B
Appl. Equipment:	CO2 Backpack	CO2 BKPCK
Equipment Type:		SPRBAC
Operating Pressure, Unit:	17 PSI	17 PSI
Nozzle Type:	Flat Fan	FLAT FAN
Nozzle Size:	XR11002	XR 110 02
Nozzle Spacing, Unit:	15 IN	15 IN
Nozzles/Row:	6	8
Boom Length, Unit:	7.5 FT	10 FT
Boom Height, Unit:	18 IN	24 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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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	SETFA	AMBTR	CHEAL	ABUTH	SETFA	AMBTR	ABUTH			
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Chenopodium ai>	Abutilon theop>	Setaria faberi	Ambrosia trifi>	Abutilon theop>			
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>	Velvetleaf	Giant foxtail	Giant ragweed	Velvetleaf			
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX			
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR			
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays			
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn			
Crop Variety										
Description										
Rating Date	5-26-2010	5-26-2010	5-26-2010	5-26-2010	6-4-2010	6-4-2010	6-4-2010			
Rating Type	PHYNLS	FLASH			CONTRO	CONTRO	CONTRO			
Rating Unit					%	%	%			
Number of Subsamples	1	1	1	1	1	1	1			
Crop Stage Majority	V4	V4	V4	V4	V6-23"	V6-23"	V6-23"			
Pest Stage Majority	1-7"	2-12"	1-2"		20"	24"	10"			
Pest Density, Unit	200 YD2	6 YD2	8 YD2	7 YD2	200 YD2	10 YD2	4 YD2			
Assessed By	MW	MW	MW	MW	MW	MW	MW			
Trt Treatment	Rate	Appl								
No. Name	Rate	Unit	Code	1	2	3	4	5	6	7
7 Resolve (25 SG)	0.25 oz ai/a	A		2.0 a	0.0 a			91.3 a	87.5 a	99.0 a
Isoxaflutole (75 SG)	0.5 oz ai/a	A								
Resolve (25 SG)	0.3 oz ai/a	B								
Isoxadifen (50 WG)	0.15 oz ai/a	B								
Mesotrione (50 WG)	1.25 oz ai/a	B								
COC	1 % v/v	B								
AMS - Liquid	2 lb ai/a	B								
8 Steadfast (75 WG)	0.5625 oz ai/a	B		4.5 a	0.0 a			90.0 a	88.5 a	98.0 a
Isoxadifen (50 WG)	0.125 oz ai/a	B								
Mesotrione (50 WG)	1.25 oz ai/a	B								
COC	1 % v/v	B								
AMS - Liquid	2 lb ai/a	B								
9 Untreated Check				3.0 a	0.0 a			0.0 c	0.0 b	0.0 b
LSD (P=.05)				3.19	2.40			4.64	9.31	1.00
Standard Deviation				2.19	1.64			3.17	6.37	0.68
CV				62.54	227.77			4.49	9.28	0.89
Bartlett's X2				6.678	2.865			6.428	1.234	0.0
P(Bartlett's X2)				0.572	0.413			0.377	0.942	
Replicate F				20.383	0.808			1.154	1.708	0.978
Replicate Prob(F)				0.0001	0.5021			0.3488	0.1933	0.4203
Treatment F				1.435	1.650			642.836	149.714	16401.230
Treatment Prob(F)				0.2330	0.1629			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: Weed or volunteer crop; US; US; phytotoxicity - necrosis, leaf spot; V4; 1-7"; per square yard; MW
Column 2: Weed or volunteer crop; US; US; FLASH; V4; 2-12"; per square yard; MW
Column 3: Weed or volunteer crop; US; US; V4; 1-2"; per square yard; MW
Column 4: Weed or volunteer crop; US; US; V4; per square yard; MW
Column 5: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V6-23"; 20"; per square yard; MW
Column 6: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V6-23"; 24"; per square yard; MW
Column 7: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V6-23"; 10"; per square yard; MW
Column 8: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V6-23"; 8"; per square yard; MW
Column 9: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V6-23"; 8"; per square yard; MW
Column 10: US; FLASH; V6-23"; MW
Column 11: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V7; 30"; per square yard; MW
Column 12: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V7; 42"; per square yard; MW
Column 13: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V7; 14"; per square yard; MW
Column 14: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; V7; 24"; per square yard; MW
Column 15: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; R1-SILK; 48"; per square yard; MW
Column 16: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; R1-SILK; 96"; per square yard; MW

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Pest Type	W Weed	W Weed		W Weed	W Weed	W Weed	W Weed				
Pest Code	CHEAL	AMARE		SETFA	AMBTR	AMARE	CHEAL				
Pest Scientific Name	Chenopodium al>	Amaranthus ret>		Setaria faberi	Ambrosia trifi>	Amaranthus ret>	Chenopodium al>				
Pest Name	Common lambsqu>	Redroot pigweed		Giant foxtail	Giant ragweed	Redroot pigweed	Common lambsqu>				
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX				
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR				
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays				
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn				
Crop Variety											
Description											
Rating Date	6-4-2010	6-4-2010	6-4-2010	6-17-2010	6-17-2010	6-17-2010	6-17-2010				
Rating Type	CONTRO	CONTRO	FLASH	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%		%	%	%	%				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority	V6-23"	V6-23"	V6-23"	V7	V7	V7	V7				
Pest Stage Majority	8"	8"		30"	42"	14"	24"				
Pest Density, Unit	6 YD2	3 YD2		200 YD2	6 YD2	3 YD2	2 YD2				
Assessed By	MW	MW	MW	MW	MW	MW	MW				
Trt No.	Treatment Name	Rate	Appl Unit	Code	8	9	10	11	12	13	14
1	Untreated Check	0.0	b		0.0 b	0.0 b	0.0 a	0.0 d	0.0 b	0.0 b	0.0 b
2	Resolve (25 SG) Isoxadifen (50 WG) Mesotrione (50 WG) COC AMS - Liquid	0.3 oz ai/a 0.15 oz ai/a 1.25 oz ai/a 1 % v/v 2 lb ai/a	B B B B B		96.8 a	95.5 a	3.3 a	68.8 c	82.3 a	96.8 a	98.0 a
3	Cinch ATZ (5.5 SC) Resolve (25 SG) Isoxadifen (50 WG) Mesotrione (50 WG) COC AMS - Liquid	1.38 lb ai/a 0.3 oz ai/a 0.15 oz ai/a 1.25 oz ai/a 1 % v/v 2 lb ai/a	A B B B B B		99.0 a	99.0 a	2.0 a	95.0 a	88.8 a	99.0 a	99.0 a
4	Resolve (25 SG) Isoxadifen (50 WG) Mesotrione (50 WG) Abundit (3 SL) AMS - Liquid	0.3 oz ai/a 0.15 oz ai/a 1.25 oz ai/a 0.75 lb ae/a 2 lb ai/a	B B B B B		99.0 a	99.0 a	3.0 a	86.3 ab	81.3 a	99.0 a	99.0 a
5	Resolve (25 SG) Isoxadifen (50 WG) Mesotrione (50 WG) Ignite 280 (2.34 SL) AMS - Liquid	0.3 oz ai/a 0.15 oz ai/a 1.25 oz ai/a 0.402 lb ai/a 2 lb ai/a	B B B B B		98.7 a	99.0 a	1.3 a	85.8 ab	81.9 a	96.3 a	99.0 a
6	Resolve (25 SG) Isoxadifen (50 WG) Mesotrione (50 WG) Atrazine COC AMS - Liquid	0.3 oz ai/a 0.15 oz ai/a 1.25 oz ai/a 16 oz ai/a 1 % v/v 2 lb ai/a	B B B B B B		99.0 a	99.0 a	1.3 a	87.5 ab	92.3 a	99.0 a	99.0 a

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Pest Type	W Weed	W Weed		W Weed	W Weed	W Weed	W Weed		
Pest Code	CHEAL	AMARE		SETFA	AMBTR	AMARE	CHEAL		
Pest Scientific Name	Chenopodium al>	Amaranthus ret>		Setaria faberi	Ambrosia trifi>	Amaranthus ret>	Chenopodium al>		
Pest Name	Common lambsqu>	Redroot pigweed		Giant foxtail	Giant ragweed	Redroot pigweed	Common lambsqu>		
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays		
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn		
Crop Variety									
Description									
Rating Date	6-4-2010	6-4-2010	6-4-2010	6-17-2010	6-17-2010	6-17-2010	6-17-2010		
Rating Type	CONTRO	CONTRO	FLASH	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%		%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	V6-23"	V6-23"	V6-23"	V7	V7	V7	V7		
Pest Stage Majority	8"	8"		30"	42"	14"	24"		
Pest Density, Unit	6 YD2	3 YD2		200 YD2	6 YD2	3 YD2	2 YD2		
Assessed By	MW	MW	MW	MW	MW	MW	MW		
Trt Treatment	Rate	Appl							
No. Name	Rate	Unit Code	8	9	10	11	12	13	14
7 Resolve (25 SG)	0.25 oz ai/a	A	99.0 a	99.0 a	1.3 a	86.3 ab	92.3 a	98.0 a	99.0 a
Isoxaflutole (75 SG)	0.5 oz ai/a	A							
Resolve (25 SG)	0.3 oz ai/a	B							
Isoxadifen (50 WG)	0.15 oz ai/a	B							
Mesotrione (50 WG)	1.25 oz ai/a	B							
COC	1 % v/v	B							
AMS - Liquid	2 lb ai/a	B							
8 Steadfast (75 WG)	0.5625 oz ai/a	B	99.0 a	99.0 a	2.5 a	81.3 b	87.3 a	94.8 a	99.0 a
Isoxadifen (50 WG)	0.125 oz ai/a	B							
Mesotrione (50 WG)	1.25 oz ai/a	B							
COC	1 % v/v	B							
AMS - Liquid	2 lb ai/a	B							
9 Untreated Check			0.0 b	0.0 b	0.0 a	0.0 d	0.0 b	0.0 b	0.0 b
LSD (P=.05)	2.22		3.41	2.90	8.25	11.10	3.84	1.00	
Standard Deviation	1.52		2.33	1.99	5.64	7.59	2.62	0.68	
CV	1.98		3.05	123.49	8.59	11.27	3.46	0.89	
Bartlett's X2	0.0		0.0	0.139	10.452	8.845	2.236	0.0	
P(Bartlett's X2)	.		.	1.00	0.063	0.182	0.525	.	
Replicate F	1.232		1.000	1.768	1.504	1.652	0.511	0.978	
Replicate Prob(F)	0.3208		0.4098	0.1801	0.2399	0.2051	0.6784	0.4203	
Treatment F	3275.234		1387.000	1.407	180.293	102.399	1077.641	16401.230	
Treatment Prob(F)	0.0001		0.0001	0.2439	0.0001	0.0001	0.0001	0.0001	

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Pest Type		W Weed	W Weed		
Pest Code		SETFA	AMBTR		
Pest Scientific Name		Setaria faberi	Ambrosia trifida		
Pest Name		Giant foxtail	Giant ragweed		
Crop Code		ZEAMX	ZEAMX		
BBCH Scale		BCOR	BCOR		
Crop Scientific Name		Zea mays	Zea mays		
Crop Name		Corn	Corn		
Crop Variety					
Description					
Rating Date		7-12-2010	7-12-2010		
Rating Type		CONTRO	CONTRO		
Rating Unit		%	%		
Number of Subsamples		1	1		
Crop Stage Majority		R1-SILK	R1-SILK		
Pest Stage Majority		48"	96"		
Pest Density, Unit		200 YD2	15 YD2		
Assessed By		MW	MW		
Trt No.	Treatment Name	Rate	Appl Code		
		Rate	Unit	Code	
1	Untreated Check	0.0	d	15	16
2	Resolve (25 SG)	0.3 oz ai/a	B	82.5	c
	Isoxadifen (50 WG)	0.15 oz ai/a	B		
	Mesotrione (50 WG)	1.25 oz ai/a	B		
	COC	1 % v/v	B		
	AMS - Liquid	2 lb ai/a	B		
3	Cinch ATZ (5.5 SC)	1.38 lb ai/a	A	96.0	a
	Resolve (25 SG)	0.3 oz ai/a	B		
	Isoxadifen (50 WG)	0.15 oz ai/a	B		
	Mesotrione (50 WG)	1.25 oz ai/a	B		
	COC	1 % v/v	B		
	AMS - Liquid	2 lb ai/a	B		
4	Resolve (25 SG)	0.3 oz ai/a	B	88.8	bc
	Isoxadifen (50 WG)	0.15 oz ai/a	B		
	Mesotrione (50 WG)	1.25 oz ai/a	B		
	Abundit (3 SL)	0.75 lb ae/a	B		
	AMS - Liquid	2 lb ai/a	B		
5	Resolve (25 SG)	0.3 oz ai/a	B	86.6	bc
	Isoxadifen (50 WG)	0.15 oz ai/a	B		
	Mesotrione (50 WG)	1.25 oz ai/a	B		
	Ignite 280 (2.34 SL)	0.402 lb ai/a	B		
	AMS - Liquid	2 lb ai/a	B		
6	Resolve (25 SG)	0.3 oz ai/a	B	92.5	ab
	Isoxadifen (50 WG)	0.15 oz ai/a	B		
	Mesotrione (50 WG)	1.25 oz ai/a	B		
	Atrazine	16 oz ai/a	B		
	COC	1 % v/v	B		
	AMS - Liquid	2 lb ai/a	B		
				97.0	a



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Pest Type	W Weed	W Weed				
Pest Code	SETFA	AMBTR				
Pest Scientific Name	Setaria faberi	Ambrosia trifida				
Pest Name	Giant foxtail	Giant ragweed				
Crop Code	ZEAMX	ZEAMX				
BBCH Scale	BCOR	BCOR				
Crop Scientific Name	Zea mays	Zea mays				
Crop Name	Corn	Corn				
Crop Variety						
Description						
Rating Date	7-12-2010	7-12-2010				
Rating Type	CONTRO	CONTRO				
Rating Unit	%	%				
Number of Subsamples	1	1				
Crop Stage Majority	R1-SILK	R1-SILK				
Pest Stage Majority	48"	96"				
Pest Density, Unit	200 YD2	15 YD2				
Assessed By	MW	MW				
Trt No.	Treatment Name	Rate	Appl Unit	Code	15	16
7	Resolve (25 SG)	0.25 oz ai/a	A		92.5 ab	97.0 a
	Isoxaflutole (75 SG)	0.5 oz ai/a	A			
	Resolve (25 SG)	0.3 oz ai/a	B			
	Isoxadifen (50 WG)	0.15 oz ai/a	B			
	Mesotrione (50 WG)	1.25 oz ai/a	B			
	COC	1 % v/v	B			
	AMS - Liquid	2 lb ai/a	B			
8	Steadfast (75 WG)	0.5625 oz ai/a	B		86.3 bc	92.5 ab
	Isoxadifen (50 WG)	0.125 oz ai/a	B			
	Mesotrione (50 WG)	1.25 oz ai/a	B			
	COC	1 % v/v	B			
	AMS - Liquid	2 lb ai/a	B			
9	Untreated Check				0.0 d	0.0 c
LSD (P=.05)					5.21	4.75
Standard Deviation					3.56	3.25
CV					5.12	4.45
Bartlett's X2					6.613	9.297
P(Bartlett's X2)					0.358	0.158
Replicate F					1.100	4.362
Replicate Prob(F)					0.3692	0.0143
Treatment F					494.634	652.253
Treatment Prob(F)					0.0001	0.0001