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Ignite single application vs sequential application timings.

Trial ID: 10S-THP-CTS-49 Protocol ID: 10S-THP-CTS-49
Location: Throckmorton Study Director: White/Marquardt
Project ID: Investigator: Dr. Bill Johnson
Sponsor Contact: Bayer - Dave Lamore

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: 3-17-2010

Trial Location

City: Lafayette USA 49.376656 **-** 24.53833
State/Prov.: IN -124.715843 **-** -66.968887
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:** wgj@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
Phone No.: 765-538-3422
City: Lafayette **Fax No.:** 765-538-3423
State/Prov: IN
Postal Code: 47909 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: BECKS 284L **Description:** Liberty Link
BBCH Scale: BSOY **Planting Date:** 5-28-2010
Row Spacing, Unit: 15 IN
Emergence Date: 6-3-2010

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:** IPOHE Ipomoea hederacea
Common Name: Ivyleaf morningglory

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

Pest 5 Type: W **Code:** AMARE Amaranthus retroflexus
Common Name: Redroot pigweed

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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 FT2 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Soil Description

Description Name: TPAC - Field 4B
% OM: 2.9 **Texture:** SIL silt loam
pH: 6.2 **Soil Name:** Toronto-Millbrook
CEC: 13.3

Application Description

	A	B	C	D
Application Date:	6-17-2010	6-25-2010	6-30-2010	7-7-2010
Time of Day:	7:45 AM	8:20 AM	7:35-7:40	7:30 AM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	EEP	EAPOWE	MIPOWE	LAPOWE
Application Placement:	FOLIAR	FOLIAR	FOLIAR	FOLIAR
Applied By:	CB	CB	MH	MH
Air Temperature, Unit:	82 F	74 F	57 F	77 F
% Relative Humidity:	71	70	72.5	74
Wind Velocity, Unit:	1 MPH	1 MPH	2.3 MPH	0.8 MPH
Wind Direction:	N	S	SE	N
Dew Presence (Y/N):	Y yes	Y yes	Y yes	Y yes
Soil Temperature, Unit:	75 F	70 F	69 F	80 F
Soil Moisture:	WET	WET	WET	DRY
% Cloud Cover:	50	0	5	15

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:	V2	V2	V4	V4
Height, Unit:	5 IN	8 IN	13 IN	22 IN
Height Minimum, Maximum:	4 6	7 9	12 14	22 22

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Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W	AMBTR W
Height, Unit:	6 IN	7 IN	10 IN	19 IN
Height Minimum, Maximum:	5 7	6 8	4 16	10 28
Density, Unit:	50 YD2	10 YD2	15 YD2	20 YD2
Pest 2 Code, Type, Scale:	SETFA W	SETFA W	SETFA W	SETFA W
Height, Unit:	5 IN	8 IN	12 IN	14 IN
Height Minimum, Maximum:	4 6	6 10	7 17	6 22
Density, Unit:	50 YD2	30 YD2	12 YD2	80 YD2
Pest 3 Code, Type, Scale:	IPOHE W	IPOHE W	IPOHE W	IPOHE W
Height, Unit:	4 IN	4 IN	4 IN	
Height Minimum, Maximum:	3 5	3 5	3 5	
Density, Unit:	4 YD2	5 YD2	7 YD2	
Pest 4 Code, Type, Scale:	ABUTH W	ABUTH W	ABUTH W	ABUTH W
Height, Unit:			8 IN	15.5 IN
Height Minimum, Maximum:			7 10	3 28
Density, Unit:			9 YD2	4 YD2
Pest 5 Code, Type, Scale:	AMARE W	AMARE W	AMARE W	AMARE W
Height, Unit:				9 IN
Height Minimum, Maximum:				6 12
Density, Unit:				30 YD2

Application Equipment

	A	B	C	D
Appl. Equipment:	CO2 BKPK	CO2 BKPK	CO2 BKPK	CO2 BKPK
Equipment Type:	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operating Pressure, Unit:	17 PSI	17 PSI	17 PSI	17 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	XR 110 02	XR 110 02	XR 110 02	XR 110 02
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN	15 IN
Nozzles/Row:	8	8	8	8
Boom Length, Unit:	10 FT	10 FT	10 FT	10 FT
Boom Height, Unit:	18 IN	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH	3 MPH
Carrier:	H20	MEIGS	MEIGS	MEIGS
Water Hardness (ppm CaCO3):	150	150	150	150
Spray Volume, Unit:	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac
Mix Size, Unit:	1.8 liters	1.8 liters	1.8 liters	1.8 liters
Propellant:	C02	CO2	CO2	CO2
Tank Mix (Y/N):	N no	N no	N no	N no

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Trial ID: 10S-THP-CTS-49 Protocol ID: 10S-THP-CTS-49
Location: Throckmorton Study Director: White/Marquardt
Project ID: Investigator: Dr. Bill Johnson
Sponsor Contact: Bayer - Dave Lamore

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6	7
	Pest Type				W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	
	Pest Code				SETFA	AMBTR	AMARE	IPOHE	ABUTH		
	Pest Scientific Name				Setaria faberi	Ambrosia trifi>	Amaranthus ret>	Ipomoea hedera>	Abutilon theop>		
	Pest Name				Giant foxtail	Giant ragweed	Redroot pigweed	Ivyleaf mornin>	Velvetleaf	VOLUNTEER CORN	
	Crop Code				GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	BBCH Scale				BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
	Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
	Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety										
	Description										
	Rating Date				7-19-2010	7-19-2010	7-19-2010	7-19-2010	7-19-2010	7-19-2010	7-19-2010
	Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	STUNT
	Rating Unit				%	%	%	%	%	%	%
	Number of Subsamples				1	1	1	1	1	1	1
	Crop Stage Majority				R1						
	Pest Stage Majority				40"	60"	30"	24"	30"		
	Pest Density, Unit				50 YD2	8 YD2	100 YD2	3 YD2	5 YD2		
	Assessed By				MW	MW	MW	MW	MW	MW	MW
1	Untreated Check				0.0 c	0.0 d	0.0 e	0.0 b	0.0 c	0.0 c	0.0 a
2	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	88.8 ab	65.0 c	27.5 d	96.8 a	82.0 ab	72.3 ab	0.0 a
	AMS - Liquid	8.5	lb ai/100 gal	A							
3	Ignite 280 (2.34 SL)	0.53	lb ai/a	A	92.3 ab	78.5 abc	32.5 d	91.8 a	67.3 ab	82.0 ab	3.3 a
	AMS - Liquid	8.5	lb ai/100 gal	A							
4	Ignite 280 (2.34 SL)	0.66	lb ai/a	A	91.3 ab	65.0 c	46.3 cd	77.0 a	74.5 ab	72.0 ab	0.0 a
	AMS - Liquid	8.5	lb ai/100 gal	A							
5	Ignite 280 (2.34 SL)	0.53	lb ai/a	C	95.0 ab	93.3 ab	88.8 a	95.5 a	87.0 ab	93.0 a	3.3 a
	AMS - Liquid	8.5	lb ai/100 gal	C							
6	Ignite 280 (2.34 SL)	0.66	lb ai/a	C	89.3 ab	92.0 ab	82.5 a	91.8 a	96.8 ab	99.0 a	5.0 a
	AMS - Liquid	8.5	lb ai/100 gal	C							
7	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	97.0 a	94.3 ab	76.3 ab	99.0 a	52.5 b	32.5 bc	0.0 a
	AMS - Liquid	8.5	lb ai/100 gal	A							
	Ignite 280 (2.34 SL)	0.402	lb ai/a	B							
	AMS - Liquid	8.5	lb ai/100 gal	B							
8	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	95.3 ab	99.0 a	73.8 ab	94.3 a	79.5 ab	99.0 a	2.0 a
	AMS - Liquid	8.5	lb ai/100 gal	A							
	Ignite 280 (2.34 SL)	0.402	lb ai/a	C							
	AMS - Liquid	8.5	lb ai/100 gal	C							
9	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	94.8 ab	98.0 a	85.0 a	96.8 a	99.0 a	84.3 ab	7.5 a
	AMS - Liquid	8.5	lb ai/100 gal	A							
	Ignite 280 (2.34 SL)	0.402	lb ai/a	D							
	AMS - Liquid	8.5	lb ai/100 gal	D							
10	Ignite 280 (2.34 SL)	0.402	lb ai/a	B	82.5 b	73.8 bc	67.5 ab	99.0 a	85.8 ab	86.8 ab	1.3 a
	Flexstar (1.88 L)	0.235	lb ai/a	B							
	AMS - Liquid	8.5	lb ai/100 gal	B							

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Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	
Pest Code			SETFA	AMBTR	AMARE	IPOHE	ABUTH		
Pest Scientific Name			Setaria faberi	Ambrosia trifi>	Amaranthus ret>	Ipomoea hedera>	Abutilon theop>		
Pest Name			Giant foxtail	Giant ragweed	Redroot pigweed	Ivyleaf mornin>	Velvetleaf	VOLUNTEER CORN	
Crop Code			GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale			BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name			Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name			Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Crop Variety									
Description									
Rating Date			7-19-2010	7-19-2010	7-19-2010	7-19-2010	7-19-2010	7-19-2010	7-19-2010
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	STUNT
Rating Unit			%	%	%	%	%	%	%
Number of Subsamples			1	1	1	1	1	1	1
Crop Stage Majority			R1						
Pest Stage Majority			40"	60"	30"	24"	30"		
Pest Density, Unit			50 YD2	8 YD2	100 YD2	3 YD2	5 YD2		
Assessed By			MW	MW	MW	MW	MW	MW	MW
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6	7
11	Ignite 280 (2.34 SL)	0.402	lb ai/a	B	94.5 ab	57.5 c	55.0 bc	99.0 a	62.3 ab	99.0 a	1.3 a
	SelectMax (0.97 EC)	0.0606	lb ai/a	B							
	AMS - Liquid	8.5	lb ai/100 gal	B							
12	Ignite 280 (2.34 SL)	0.402	lb ai/a	B	86.3 ab	60.0 c	77.5 ab	82.0 a	79.5 ab	64.5 ab	5.0 a
	Cobra	0.125	lb ai/a	B							
	AMS - Liquid	8.5	lb ai/100 gal	B							
LSD (P=.05)					7.93	15.69	16.92	16.05	26.96	37.37	4.75
Standard Deviation					5.49	10.87	11.72	11.11	18.67	25.88	3.29
CV					6.54	14.89	19.74	13.04	25.88	35.13	138.54
Bartlett's X2					12.482	17.074	16.154	15.19	8.494	5.532	6.351
P(Bartlett's X2)					0.187	0.048*	0.095	0.034*	0.485	0.595	0.499
Replicate F					0.845	4.925	0.531	3.553	2.035	0.305	1.747
Replicate Prob(F)					0.4793	0.0062	0.6642	0.0247	0.1280	0.8217	0.1765
Treatment F					95.005	25.919	22.233	24.873	7.983	5.353	2.244
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0360

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; control / burndown or knockdown; percent; R1; 40"; per square yard; MW
Column 2: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; 60"; per square yard; MW
Column 3: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; 30"; per square yard; MW
Column 4: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; 24"; per square yard; MW
Column 5: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; 30"; per square yard; MW
Column 6: Weed or volunteer crop; US; control / burndown or knockdown; percent; MW
Column 7: US; STUNT; percent; MW
Column 8: US; STAND; percent; MW
Column 9: US; phytotoxicity - necrosis, leaf spot; percent; MW
Column 10: US; phytotoxicity - leaf malformation; percent; MW
Column 11: US; phytotoxicity - general / injury; percent; WGJ
Column 12: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; WGJ
Column 13: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; WGJ
Column 14: Weed or volunteer crop; US; US; control / burndown or knockdown; percent; WGJ
Column 15: US; yield; bushel 60 lb

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Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	8	9	10	11	12	13	14	15
	Pest Type								W Weed	W Weed	W Weed	
	Pest Code								SETFA	AMBTR	AMARE	
	Pest Scientific Name								Setaria faberi	Ambrosia trifi>	Amaranthus ret>	
	Pest Name								Giant foxtail	Giant ragweed	Redroot pigweed	
	Crop Code				GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	BBCH Scale				BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
	Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
	Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety											
	Description											
	Rating Date				7-19-2010	7-19-2010	7-19-2010	8-5-2010	8-5-2010	8-5-2010	8-5-2010	10-15-2010
	Rating Type				STAND	PHYNLS	PHYLMA	PHYGEN	CONTRO	CONTRO	CONTRO	YIELD
	Rating Unit				%	%	%	%	%	%	%	BU60LB
	Number of Subsamples				1	1	1	1	1	1	1	1
	Crop Stage Majority											
	Pest Stage Majority											
	Pest Density, Unit											
	Assessed By				MW	MW	MW	WGJ	WGJ	WGJ	WGJ	
1	Untreated Check				82.5 a	0.0 a	0.0 c	0.0 a	0.0 c	0.0 c	0.0 d	13.88 c
2	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	83.8 a	0.0 a	0.0 c	0.0 a	73.8 ab	42.5 b	27.5 bcd	27.80 b
	AMS - Liquid	8.5	lb ai/100 gal	A								
3	Ignite 280 (2.34 SL)	0.53	lb ai/a	A	88.8 a	0.0 a	0.8 c	0.0 a	59.8 b	68.8 ab	17.5 cd	28.50 b
	AMS - Liquid	8.5	lb ai/100 gal	A								
4	Ignite 280 (2.34 SL)	0.66	lb ai/a	A	90.0 a	0.0 a	0.0 c	0.0 a	86.3 ab	89.5 a	38.8 bc	33.63 ab
	AMS - Liquid	8.5	lb ai/100 gal	A								
5	Ignite 280 (2.34 SL)	0.53	lb ai/a	C	85.0 a	1.5 a	2.0 bc	0.0 a	96.5 a	95.8 a	91.8 a	43.58 ab
	AMS - Liquid	8.5	lb ai/100 gal	C								
6	Ignite 280 (2.34 SL)	0.66	lb ai/a	C	82.5 a	2.0 a	3.3 bc	0.0 a	94.3 a	98.0 a	90.5 a	44.35 ab
	AMS - Liquid	8.5	lb ai/100 gal	C								
7	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	91.3 a	0.0 a	1.3 bc	0.0 a	94.8 a	96.5 a	60.0 ab	43.30 ab
	AMS - Liquid	8.5	lb ai/100 gal	A								
	Ignite 280 (2.34 SL)	0.402	lb ai/a	B								
	AMS - Liquid	8.5	lb ai/100 gal	B								
8	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	83.8 a	0.8 a	1.5 bc	0.0 a	95.8 a	99.0 a	67.5 ab	41.68 ab
	AMS - Liquid	8.5	lb ai/100 gal	A								
	Ignite 280 (2.34 SL)	0.402	lb ai/a	C								
	AMS - Liquid	8.5	lb ai/100 gal	C								
9	Ignite 280 (2.34 SL)	0.402	lb ai/a	A	81.3 a	1.5 a	13.8 a	0.0 a	96.8 a	98.5 a	94.3 a	49.80 a
	AMS - Liquid	8.5	lb ai/100 gal	A								
	Ignite 280 (2.34 SL)	0.402	lb ai/a	D								
	AMS - Liquid	8.5	lb ai/100 gal	D								
10	Ignite 280 (2.34 SL)	0.402	lb ai/a	B	87.5 a	0.8 a	2.0 bc	0.0 a	81.0 ab	93.3 a	86.3 a	48.15 a
	Flexstar (1.88 L)	0.235	lb ai/a	B								
	AMS - Liquid	8.5	lb ai/100 gal	B								

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Trt No.	Treatment Name	Rate	Unit	Appl Code	8	9	10	11	12	13	14	15
	Pest Type								W Weed	W Weed	W Weed	
	Pest Code								SETFA	AMBTR	AMARE	
	Pest Scientific Name								Setaria faberi	Ambrosia trifi>	Amaranthus ret>	
	Pest Name								Giant foxtail	Giant ragweed	Redroot pigweed	
	Crop Code				GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	BBCH Scale				BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
	Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
	Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety											
	Description											
	Rating Date				7-19-2010	7-19-2010	7-19-2010	8-5-2010	8-5-2010	8-5-2010	8-5-2010	10-15-2010
	Rating Type				STAND	PHYNLS	PHYLMA	PHYGEN	CONTRO	CONTRO	CONTRO	YIELD
	Rating Unit				%	%	%	%	%	%	%	BU60LB
	Number of Subsamples				1	1	1	1	1	1	1	1
	Crop Stage Majority											
	Pest Stage Majority											
	Pest Density, Unit											
	Assessed By				MW	MW	MW	WGJ	WGJ	WGJ	WGJ	
11	Ignite 280 (2.34 SL)	0.402	lb ai/a	B	87.5 a	0.8 a	0.0 c	0.0 a	96.8 a	63.8 ab	57.5 ab	36.98 ab
	SelectMax (0.97 EC)	0.0606	lb ai/a	B								
	AMS - Liquid	8.5	lb ai/100 gal	B								
12	Ignite 280 (2.34 SL)	0.402	lb ai/a	B	82.5 a	0.0 a	4.5 b	0.0 a	94.3 a	62.5 ab	88.8 a	36.38 ab
	Cobra	0.125	lb ai/a	B								
	AMS - Liquid	8.5	lb ai/100 gal	B								
	LSD (P=.05)				8.98	1.83	2.38	0.00	21.79	29.72	28.97	10.520
	Standard Deviation				6.22	1.27	1.65	0.00	15.09	20.58	20.07	7.286
	CV				7.27	210.13	68.27	0.0	18.68	27.2	33.43	19.51
	Bartlett's X2				14.837	1.181	3.435	0.0	52.877	49.566	19.898	8.079
	P(Bartlett's X2)				0.19	0.947	0.842	.	0.001*	0.001*	0.03*	0.706
	Replicate F				2.960	0.633	2.347	0.000	1.970	1.878	2.273	2.951
	Replicate Prob(F)				0.0464	0.5988	0.0906	1.0000	0.1376	0.1526	0.0984	0.0469
	Treatment F				1.160	1.310	21.662	0.000	13.707	8.660	10.479	7.872
	Treatment Prob(F)				0.3505	0.2623	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001