

Purdue University

Pre Mixtures of Rimsulfuron and Dry Mesotrione Used in a Total Weed Control Program for Corn

Trial ID: 11S-THP-CTC-01 Protocol ID: 11S-THP-CTC-101
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: USA-11-006 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: Established
Initiation Date: 4-8-2011

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

Crop Description

Crop 1: ZEAMD Zea mays indentata Dent corn

Variety: Pioneer 33W84
BBCH Scale: BCOR

Description: HXX LL RR2
Planting Date: 5-12-2011

Planting Method: PLANTD planted
Depth, Unit: 1.5 IN

Rate, Unit: 34000 S/A

Row Spacing, Unit: 30 IN

Soil Moisture: DRY dry **Soil Temperature, Unit:** 70 F
Emergence Date: 5-22-2011

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:** AMARE *Amaranthus retroflexus*
Common Name: Redroot pigweed

Purdue University

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 ²	Tillage Type: CONTL conventional-till
Replications: 4	Study Design: RACOB Randomized Complete Block (RCB)
	Untreated Arrangement: INCLUDED single control randomized in each block

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
Application Date:	5-13-2011	6-7-2011
Time of Day:	8-8:15 AM	
Application Method:	SPRAY	SPRAY
Application Timing:	ATPLAN	MIPOCR
Application Placement:	FOLIAR	FOLIAR
Applied By:	MW	MW
Air Temperature, Unit:	68 F	88 F
% Relative Humidity:	62	63
Wind Velocity, Unit:	3.6 MPH	5 MPH
Wind Direction:	E	SW
Dew Presence (Y/N):	Y yes	Y yes
Soil Temperature, Unit:	70 F	80 F
Soil Moisture:	DRY	SLIWET
% Cloud Cover:	65	10

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale:	ZEAMD BCOR	ZEAMD BCOR
Stage Scale Used:		BBCH
Stage Majority, Percent:		V4
Height, Unit:		11 IN

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale:	SETFA W	SETFA W
Height, Unit:		4 IN
Density, Unit:		30 YD2
Pest 2 Code, Type, Scale:	AMBTR W	AMBTR W
Height, Unit:		6 IN
Density, Unit:		2 YD2
Pest 3 Code, Type, Scale:	ABUTH W	ABUTH W
Height, Unit:		2 IN
Density, Unit:		1 YD2
Pest 4 Code, Type, Scale:	AMARE W	AMARE W
Height, Unit:		0.5 IN
Density, Unit:		1 FT2

Purdue University

Application Equipment

	A	B
Appl. Equipment:	CO2 FORD	CO2 FORD
Equipment Type:	SPTRMO	SPTRMO
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	XR 100 02	XR 100 02
Nozzle Spacing, Unit:	20 IN	20 IN
Nozzles/Row:	6	6
Boom Length, Unit:	10 FT	10 FT
Boom Height, Unit:	20 IN	20 IN
Ground Speed, Unit:	2.1 MPH	2.1 MPH
Carrier:	MEIGS	MEIGS
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	2.5 liters	2.5 liters
Propellant:	CO2	CO2

Purdue University

Pre Mixtures of Rimsulfuron and Dry Mesotrione Used in a Total Weed Control Program for Corn

Trial ID: 11S-THP-CTC-01 Protocol ID: 11S-THP-CTC-101
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: USA-11-006 Investigator: Dr. Bill Johnson
 Sponsor Contact: DuPont - Helen Flanigan

Pest Type	W Weed SETFA	W Weed AMBTR		W Weed SETFA	W Weed AMBTR	W Weed AMARE					
Pest Code	Setaria faberi	Ambrosia trifi>		Setaria faberi	Ambrosia trifi>	Amaranthus ret>					
Pest Scientific Name	Giant foxtail	Giant ragweed		Giant foxtail	Giant ragweed	Redroot pigweed					
Pest Name	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX			
Crop Code	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR			
BBCH Scale	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays			
Crop Scientific Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn	Corn			
Crop Name	5-31-2011	5-31-2011	5-31-2011	6-6-2011	6-6-2011	6-6-2011	6-6-2011	6-6-2011			
Rating Date	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	PHYCHL	PHYNLS			
Rating Type	%	%	%	%	%	%	%	%			
Rating Unit	1	1	1	1	1	1	1	1			
Number of Subsamples	V1	V1	V1	V3	V3	V3	V3	V3			
Crop Stage Majority	0.5 IN	2 IN		4 IN	6 IN	1 IN					
Pest Stage Majority	10 FT2	2 FT2		5 FT2	2 FT2	4 FT2					
Pest Density, Unit	MW	MW	MW	MW	MW	MW	MW	MW			
Assessed By	18 18	18 18	18 18	24 24	24 24	24 24	24 24	24 24			
Days After First/Last Applic.	19 DP-1	19 DP-1	19 DP-1	25 DP-1	25 DP-1	25 DP-1	25 DP-1	25 DP-1			
Plant-Eval Interval	9 DE-1	9 DE-1	9 DE-1	15 DE-1	15 DE-1	15 DE-1	15 DE-1	15 DE-1			
Days After Emergence	Trt Treatment	Rate	Appl								
No. Name	Rate	Unit	Code	1	2	3	4	5	6	7	8
1 Untreated Check	0.0	c		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 Resolve (25 SG)	0.25	oz ai/a	A	57.5	10.0	0.0	83.8	78.8	99.0	1.3	1.3
Mesotrione (50 WG)	2.25	oz ai/a	A								
3 Resolve (25 SG)	0.375	oz ai/a	A	40.0	21.3	0.0	78.8	76.3	99.0	0.0	0.0
Mesotrione (50 WG)	2.25	oz ai/a	A								
4 Resolve (25 SG)	0.25	oz ai/a	A	0.0	15.0	0.0	66.3	71.3	99.0	0.0	0.0
Harmony SG (50 SG)	0.25	oz ai/a	A								
Mesotrione (50 WG)	2.25	oz ai/a	A								
5 Resolve (25 SG)	0.25	oz ai/a	A	72.5	73.8	0.0	81.3	92.5	99.0	0.0	0.0
Mesotrione (50 WG)	2.25	oz ai/a	A								
AAtrex	1	lb ai/a	A								
6 Resolve (25 SG)	0.375	oz ai/a	A	86.8	87.5	0.0	90.3	93.5	99.0	2.0	0.0
Mesotrione (50 WG)	2.25	oz ai/a	A								
AAtrex	1	lb ai/a	A								
7 Resolve (25 SG)	0.25	oz ai/a	A	91.3	83.8	0.0	89.8	94.8	99.0	3.8	0.0
Harmony SG (50 SG)	0.25	oz ai/a	A								
Mesotrione (50 WG)	2.25	oz ai/a	A								
AAtrex	1	lb ai/a	A								
8 Resolve (25 SG)	0.25	oz ai/a	A	72.5	76.3	0.0	86.8	92.5	99.0	3.0	0.0
Mesotrione (50 WG)	2.25	oz ai/a	A								
AAtrex	1	lb ai/a	A								
Abundit (3 SL)	0.75	lb ae/a	B								
AMS - Liquid	13.3	lb ai/100 gal	B								
9 Resolve (25 SG)	0.375	oz ai/a	A	89.8	86.5	0.0	92.8	93.5	99.0	0.8	1.3
Mesotrione (50 WG)	2.25	oz ai/a	A								
AAtrex	1	lb ai/a	A								
Abundit (3 SL)	0.75	lb ae/a	B								
AMS - Liquid	13.3	lb ai/100 gal	B								

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.

Purdue University

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	SETFA	AMBTR		SETFA	AMBTR	AMARE				
Pest Scientific Name	Setaria faberi	Ambrosia trifi>		Setaria faberi	Ambrosia trifi>	Amaranthus ret>				
Pest Name	Giant foxtail	Giant ragweed		Giant foxtail	Giant ragweed	Redroot pigweed				
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays		
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn	Corn		
Rating Date	5-31-2011	5-31-2011	5-31-2011	6-6-2011	6-6-2011	6-6-2011	6-6-2011	6-6-2011		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO	PHYCHL	PHYNLS		
Rating Unit	%	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1	1		
Crop Stage Majority	V1	V1	V1	V3	V3	V3	V3	V3		
Pest Stage Majority	0.5 IN	2 IN		4 IN	6 IN	1 IN				
Pest Density, Unit	10 FT2	2 FT2		5 FT2	2 FT2	4 FT2				
Assessed By	MW	MW	MW	MW	MW	MW	MW	MW		
Days After First/Last Applic.	18 18	18 18	18 18	24 24	24 24	24 24	24 24	24 24		
Plant-Eval Interval	19 DP-1	19 DP-1	19 DP-1	25 DP-1	25 DP-1	25 DP-1	25 DP-1	25 DP-1		
Days After Emergence	9 DE-1	9 DE-1	9 DE-1	15 DE-1	15 DE-1	15 DE-1	15 DE-1	15 DE-1		
Trt Treatment	Rate	Appl								
No. Name	Rate Unit	Code	1	2	3	4	5	6		
			7	8						
10 Resolve (25 SG)	0.25 oz ai/a	A	90.5 a	81.3 a	0.0 a	89.0 a	93.0 ab	74.3 a	1.8 a	0.8 a
Harmony SG (50 SG)	0.25 oz ai/a	A								
Mesotrione (50 WG)	2.25 oz ai/a	A								
AAtrex	1 lb ai/a	A								
Abundit (3 SL)	0.75 lb ae/a	B								
AMS - Liquid	13.3 lb ai/100 gal	B								
11 Lumax (3.95 SC)	2.96 lb ai/a	A	94.8 a	82.5 a	0.0 a	97.0 a	94.8 a	99.0 a	1.3 a	0.0 a
12 Lumax (3.95 SC)	2.96 lb ai/a	A	80.0 a	55.0 a	0.0 a	97.5 a	86.3 ab	99.0 a	3.3 a	0.0 a
Abundit (3 SL)	0.75 lb ae/a	B								
AMS - Liquid	13.3 lb ai/100 gal	B								
LSD (P=.05)	24.46	25.91	0.00	14.76	11.12	20.63	3.11	1.65		
Standard Deviation	16.94	17.95	0.00	10.22	7.70	14.29	2.15	1.14		
CV	26.21	32.01	0.0	12.87	9.56	16.11	151.99	420.76		
Bartlett's X2	32.196	18.153	0.0	21.85	31.633	0.0	2.556	0.884		
P(Bartlett's X2)	0.001*	0.052	.	0.016*	0.001*	.	0.923	0.643		
Replicate F	1.707	3.310	0.000	3.634	5.767	1.000	1.402	0.358		
Replicate Prob(F)	0.1845	0.0319	1.0000	0.0227	0.0028	0.4051	0.2596	0.7835		
Treatment F	16.195	14.566	0.000	26.753	47.855	16.273	1.592	0.786		
Treatment Prob(F)	0.0001	0.0001	1.0000	0.0001	0.0001	0.0001	0.1473	0.6517		

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.

Purdue University

Pest Type	W Weed	W Weed	W Weed		
Pest Code	SETFA	AMBTR	IPOHE		
Pest Scientific Name	Setaria faberi	Ambrosia trifida	Ipomoea hederacea		
Pest Name	Giant foxtail	Giant ragweed	Ivyleaf morning glory		
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays
Crop Name	Corn	Corn	Corn	Corn	Corn
Rating Date	7-7-2011	7-7-2011	7-7-2011	10-25-2011	10-25-2011
Rating Type	CONTRO	CONTRO	CONTRO	MOICON	YIELD
Rating Unit				%	bu/ac
Number of Subsamples	1	1	1	1	1
Crop Stage Majority					
Pest Stage Majority	36 IN	7 FT	10 IN		
Pest Density, Unit	20 FT2	7 FT2	2 FT2		
Assessed By	MW	MW	MW		
Days After First/Last Applic.	55 30	55 30	55 30	165 140	165 140
Plant-Eval Interval	56 DP-1	56 DP-1	56 DP-1	166 DP-1	166 DP-1
Days After Emergence	46 DE-1	46 DE-1	46 DE-1	156 DE-1	156 DE-1
Trt No.	Treatment	Rate	Appl		
	Name	Rate Unit	Code	9	10
1	Untreated Check			0.0 d	0.0 b
2	Resolve (25 SG) Mesotrione (50 WG)	0.25 oz ai/a 2.25 oz ai/a	A A	62.5 c	80.0 a
3	Resolve (25 SG) Mesotrione (50 WG)	0.375 oz ai/a 2.25 oz ai/a	A A	63.8 c	78.8 a
4	Resolve (25 SG) Harmony SG (50 SG) Mesotrione (50 WG)	0.25 oz ai/a 0.25 oz ai/a 2.25 oz ai/a	A A A	66.3 c	76.3 a
5	Resolve (25 SG) Mesotrione (50 WG) AAtrex	0.25 oz ai/a 2.25 oz ai/a 1 lb ai/a	A A A	72.5 bc	83.8 a
6	Resolve (25 SG) Mesotrione (50 WG) AAtrex	0.375 oz ai/a 2.25 oz ai/a 1 lb ai/a	A A A	87.5 ab	92.5 a
7	Resolve (25 SG) Harmony SG (50 SG) Mesotrione (50 WG) AAtrex	0.25 oz ai/a 0.25 oz ai/a 2.25 oz ai/a 1 lb ai/a	A A A A	78.0 abc	85.0 a
8	Resolve (25 SG) Mesotrione (50 WG) AAtrex Abundit (3 SL) AMS - Liquid	0.25 oz ai/a 2.25 oz ai/a 1 lb ai/a 0.75 lb ae/a 13.3 lb ai/100 gal	A A A B B	90.0 ab	90.0 a
9	Resolve (25 SG) Mesotrione (50 WG) AAtrex Abundit (3 SL) AMS - Liquid	0.375 oz ai/a 2.25 oz ai/a 1 lb ai/a 0.75 lb ae/a 13.3 lb ai/100 gal	A A A B B	94.8 a	89.3 a
				11	12
				0.0 b	16.6788652 a
				74.8 a	16.0225007 a
				87.0 a	17.0800016 a
				86.0 a	16.8275011 a
				75.0 a	16.5525014 a
				98.0 a	16.7925012 a
				94.5 a	16.9350031 a
				97.5 a	16.4125020 a
				93.3 a	16.3575017 a
					178.08 a

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Purdue University

Pest Type	W Weed	W Weed	W Weed					
Pest Code	SETFA	AMBTR	IPOHE					
Pest Scientific Name	Setaria faberi	Ambrosia trifida	Ipomoea hederacea					
Pest Name	Giant foxtail	Giant ragweed	Ivyleaf morning					
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX			
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR			
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays			
Crop Name	Corn	Corn	Corn	Corn	Corn			
Rating Date	7-7-2011	7-7-2011	7-7-2011	10-25-2011	10-25-2011			
Rating Type	CONTRO	CONTRO	CONTRO	MOICON	YIELD			
Rating Unit				%	bu/ac			
Number of Subsamples	1	1	1	1	1			
Crop Stage Majority								
Pest Stage Majority	36 IN	7 FT	10 IN					
Pest Density, Unit	20 FT2	7 FT2	2 FT2					
Assessed By	MW	MW	MW					
Days After First/Last Applic.	55 30	55 30	55 30	165 140	165 140			
Plant-Eval Interval	56 DP-1	56 DP-1	56 DP-1	166 DP-1	166 DP-1			
Days After Emergence	46 DE-1	46 DE-1	46 DE-1	156 DE-1	156 DE-1			
Trt No.	Treatment Name	Rate	Appl Code	9	10	11	12	13
10	Resolve (25 SG)	0.25 oz ai/a	A	94.3 a	88.8 a	95.0 a	17.0125025 a	180.65 a
	Harmony SG (50 SG)	0.25 oz ai/a	A					
	Mesotrione (50 WG)	2.25 oz ai/a	A					
	AAtrex	1 lb ai/a	A					
	Abundit (3 SL)	0.75 lb ae/a	B					
	AMS - Liquid	13.3 lb ai/100 gal	B					
11	Lumax (3.95 SC)	2.96 lb ai/a	A	94.3 a	93.0 a	88.3 a	16.5225007 a	170.60 a
12	Lumax (3.95 SC)	2.96 lb ai/a	A	96.5 a	88.8 a	95.8 a	16.8325021 a	210.03 a
	Abundit (3 SL)	0.75 lb ae/a	B					
	AMS - Liquid	13.3 lb ai/100 gal	B					
LSD (P=.05)				13.93	10.67	16.38	0.66928870	36.943
Standard Deviation				9.65	7.39	11.35	0.46352457	25.585
CV				12.86	9.38	13.82	2.78	14.84
Bartlett's X2				36.395	14.895	27.316	7.104	10.164
P(Bartlett's X2)				0.001*	0.136	0.002*	0.791	0.516
Replicate F				2.253	3.051	2.289	8.851	0.462
Replicate Prob(F)				0.1006	0.0421	0.0966	0.0002	0.7105
Treatment F				31.161	47.261	22.715	1.762	7.992
Treatment Prob(F)				0.0001	0.0001	0.0001	0.1039	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.

Purdue University

Pre Mixures of Rimsulfuron and Dry Mesotrione Used in a Total Weed Control Program for Corn

Trial ID: 11S-THP-CTC-01

Protocol ID: 11S-THP-CTC-101

Location: Throckmorton
Project ID: USA-11-006Study Director: White/Marquardt
Investigator: Dr. Bill Johnson

Sponsor Contact: DuPont - Helen Flanigan

Pest Type

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

Pest Code

SETFA, Setaria faberi, = US

AMBTR, Ambrosia trifida, = US

AMARE, Amaranthus retroflexus, = US

IPOHE, Ipomoea hederacea, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

PHYCHL = phytotoxicity - chlorosis

PHYNLS = phytotoxicity - necrosis, leaf spot

MOICON = moisture content

YIELD = yield

Rating Unit

% = percent

bu/ac = bushels per acre

FT2 = per square foot

Plant-Eval Interval

19 DP-1 = 1 ZEAMD 5-12-2011

25 DP-1 = 1 ZEAMD 5-12-2011

56 DP-1 = 1 ZEAMD 5-12-2011

166 DP-1 = 1 ZEAMD 5-12-2011