

MSU Weed Science Research Program

Fall residual treatments in no-till winter wheat

Trial ID: WT02-11 Study Dir.: Sprague, Powell
 Conducted: MSU Crops B8 West Investigator: Christy Sprague

Date Planted: 10/8/2010 **Row Spacing:** 7.5 IN
Variety: Red Ruby **No. of Reps:** 4
Population: 2 million seeds/acre **% OM:** 3.0
Soil Type: Loam **pH:** 7.3
Plot Size: 10 X 30 FT **Design:** RANDOMIZED COMPLETE BLOCK

Tillage: No-till direct seeded into dry bean and wheat stubble.
Fertilizer: None at planting
 Topdressed wheat in the spring with 200#/A urea (90lb/A nitrogen).

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1.	THLAR	PENNYCRESS, FIELD	THLASPI ARVENSE L.
2.	CAPBP	SHEPHERDSPURSE	CAPSELLA BURSA-PASTORIS (L.) MEDIK.
3.	STEME	CHICKWEED, COMMON	STELLARIA MEDIA (L.) VILL./CYR.
4.	LAMAM	HENBIT	LAMIUM AMPLEXICAULE L.
5.	ERYRE	WALLFLOWER, BUSHY	ERYSIMUM REPANDUM HOEJER/L.
Crop	Code	Common Name	
1.	TRZAW	WHEAT, WINTER	

Application Description

	A	B	C	D
Application Timing:	7 EPP	3 EPP	PRE	EPOS
Date Treated:	10/1/2010	10/5/2010	10/8/2010	11/1/2010
Time Treated:	8:30 AM	11:15 AM	2:00 PM	4:30 PM
% Cloud Cover:	0	0	0	0
Air Temp., Unit:	55 F	56 F	77 F	47 F
% Relative Humidity:	74	60	45	44
Wind Speed/Unit/Dir:	4 mph NW	2 mph NE	7 mph W	3 mph NE
Soil Temp., Unit:	50 F	50 F	60 F	49 F
Soil/Leaf Surface M:	4 4	4 4	5 5	4 4
Soil Moist (1=w 5=d):	4	4	4	4

Crop Stage at Each Application

	A	B	C	D
Crop Name:	TRZAW	TRZAW	TRZAW	TRZAW
Height (In.):	-	-	-	2-3"
Stage (L):	-	-	-	2-3

Weed Stage at Each Application

	A	B	C	D
Weed 1 Name:	THLAR	THLAR	THLAR	THLAR
Height (In.):	1/8-1/2"	1/8-1/2"	1/4-1/2"	-
Stage (L):	6-10	6-10	6-10	-
Weed 2 Name:	CAPBP	CAPBP	CAPBP	CAPBP
Height (In.):	1/2"	1/2"	1/2"	-
Stage (L):	6-10	6-10	6-10	-
Weed 3 Name:	STEME	STEME	STEME	STEME
Height (In.):	1/2"	1/2"	1/2"	1/8"
Stage (L):	6	6	6	4-6
Weed 4 Name:	LAMAM	LAMAM	LAMAM	LAMAM
Height (In.):	-	-	-	-
Stage (L):	-	-	-	-
Weed 5 Name:	ERYRE	ERYRE	ERYRE	ERYRE
Height (In.):	-	-	-	-
Stage (L):	-	-	-	-

Application Equipment

Appl	Sprayer Type	Speed MPH	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Nozzle Width	Boom GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	22"	20"	100"	19	Water	28
B	Cub	3.8	AirMix	11003	22"	20"	100"	19	Water	28
C	Cub	3.8	AirMix	11003	22"	20"	100"	19	Water	28
D	Cub	3.8	AirMix	11003	22"	20"	100"	19	Water	28

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								TRZAW	THLAR	CAPBP	STEME	LAMAM
								injury	control	control	control	control
								percent	percent	percent	percent	percent
								10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
								20 DA-A	20 DA-A	20 DA-A	20 DA-A	20 DA-A
								# Subsamples, Dec.				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	0.0	99.0	99.0	99.0	99.0
1	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
2	Valor	51	WG	2	oz/a	7 EPP	A	0.0	99.0	99.0	99.0	99.0
2	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A					
2	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
3	Fierce	76	WG	3	oz/a	7 EPP	A	0.0	99.0	99.0	99.0	99.0
3	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A					
3	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
4	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	0.0	99.0	99.0	99.0	99.0
4	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
4	Valor	51	WG	2	oz/a	EPOS	D					
5	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	0.0	99.0	99.0	99.0	99.0
5	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
5	Valor	51	WG	2	oz/a	EPOS	D					
5	Affinity BroadSpec	50	WG	0.6	oz/a	EPOS	D					
5	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D					
6	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	0.0	99.0	99.0	99.0	99.0
6	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
6	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D					
6	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D					
7	Valor	51	WG	2	oz/a	7 EPP	A	3.8	99.0	99.0	99.0	99.0
7	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A					
7	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
7	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D					
7	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D					
8	Fierce	76	WG	3	oz/a	7 EPP	A	2.5	99.0	99.0	99.0	99.0
8	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A					
8	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
8	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D					
8	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D					
9	Rage D-Tech	4.06	L	16	fl oz/a	7 EPP	A	1.3	99.0	99.0	99.0	99.0
9	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A					
9	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A					
10	Rage D-Tech	4.06	L	8	fl oz/a	3 EPP	B	1.3	99.0	99.0	99.0	99.0
10	Roundup PowerMax	4.5	L	22	fl oz/a	3 EPP	B					
10	Ammonium Sulfate		DF	17	lb/100 gal	3 EPP	B					
11	Untreated							0.0	0.0	0.0	0.0	0.0
12	Authority MTZ	45	DF	5.5	oz/a	PRE	C	36.3	99.0	99.0	99.0	99.0
12	Roundup PowerMax	4.5	L	22	fl oz/a	PRE	C					
12	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C					
13	Authority MTZ	45	DF	11	oz/a	PRE	C	45.0	99.0	99.0	99.0	99.0
13	Roundup PowerMax	4.5	L	22	fl oz/a	PRE	C					
13	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C					
14	Authority MTZ	45	DF	5.5	oz/a	PRE	C	43.8	99.0	99.0	99.0	99.0
14	Gramoxone Inteon	3	L	24	fl oz/a	PRE	C					
14	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C					

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Weed Code	TRZAW	THLAR	CAPBP	STEME	LAMAM
Crop Code	injury	control	control	control	control
Rating Data Type	percent	percent	percent	percent	percent
Rating Unit	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
Rating Date	20 DA-A	20 DA-A	20 DA-A	20 DA-A	20 DA-A
Trt-Eval Interval					
# Subsamples, Dec.					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
15	Authority MTZ	45	DF	11	oz/a	PRE	C	50.0	99.0	99.0	99.0	99.0
15	Gramoxone Inteon	3	L	24	fl oz/a	PRE	C					
15	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C					

LSD (P=.05)	7.35	0.00	0.00	0.00	0.00
Standard Deviation	5.14	0.00	0.00	0.00	0.00
CV	41.98	0.0	0.0	0.0	0.0

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

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Weed Code	TRZAW	THLAR	CAPBP	STEME	LAMAM	ERYRE
Crop Code	injury	control	control	control	control	control
Rating Data Type	percent	percent	percent	percent	percent	percent
Rating Unit	5/9/2011	5/9/2011	5/9/2011	5/9/2011	5/9/2011	5/9/2011
Rating Date	220 DA-A	220 DA-A	220 DA-A	220 DA-A	220 DA-A	220 DA-A
Trt-Eval Interval						
# Subsamples, Dec.						

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
1	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	0.0	93.3	82.5	94.5	93.3	91.0
1	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
2	Valor	51	WG	2	oz/a	7 EPP	A	26.3	99.0	96.8	99.0	99.0	99.0
2	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A						
2	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
3	Fierce	76	WG	3	oz/a	7 EPP	A	45.0	99.0	99.0	99.0	99.0	99.0
3	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A						
3	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
4	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	32.5	99.0	99.0	99.0	99.0	99.0
4	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
4	Valor	51	WG	2	oz/a	EPOS	D						
5	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	45.0	99.0	99.0	99.0	99.0	99.0
5	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
5	Valor	51	WG	2	oz/a	EPOS	D						
5	Affinity BroadSpec	50	WG	0.6	oz/a	EPOS	D						
5	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D						
6	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	10.0	99.0	99.0	99.0	99.0	99.0
6	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
6	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D						
6	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D						
7	Valor	51	WG	2	oz/a	7 EPP	A	13.8	99.0	99.0	99.0	99.0	99.0
7	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A						
7	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
7	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D						
7	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D						
8	Fierce	76	WG	3	oz/a	7 EPP	A	47.5	99.0	99.0	99.0	99.0	99.0
8	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A						
8	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
8	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D						
8	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D						
9	Rage D-Tech	4.06	L	16	fl oz/a	7 EPP	A	0.0	89.8	92.3	87.3	88.5	95.5
9	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A						
9	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A						
10	Rage D-Tech	4.06	L	8	fl oz/a	3 EPP	B	12.5	94.3	94.3	82.5	87.3	92.0
10	Roundup PowerMax	4.5	L	22	fl oz/a	3 EPP	B						
10	Ammonium Sulfate		DF	17	lb/100 gal	3 EPP	B						
11	Untreated							0.0	0.0	0.0	0.0	0.0	0.0
12	Authority MTZ	45	DF	5.5	oz/a	PRE	C	25.0	98.0	99.0	96.8	99.0	96.8
12	Roundup PowerMax	4.5	L	22	fl oz/a	PRE	C						
12	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C						
13	Authority MTZ	45	DF	11	oz/a	PRE	C	30.0	99.0	98.0	98.0	99.0	99.0
13	Roundup PowerMax	4.5	L	22	fl oz/a	PRE	C						
13	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C						
14	Authority MTZ	45	DF	5.5	oz/a	PRE	C	20.0	91.0	99.0	87.5	99.0	98.0
14	Gramoxone Inteon	3	L	24	fl oz/a	PRE	C						
14	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C						

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Trial ID: WT02-11 Study Dir.: Sprague, Powell
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Weed Code	THLAR	CAPBP	STEME	LAMAM	ERYRE
Crop Code	TRZAW				
Rating Data Type	injury	control	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Rating Date	5/9/2011	5/9/2011	5/9/2011	5/9/2011	5/9/2011
Trt-Eval Interval	220 DA-A	220 DA-A	220 DA-A	220 DA-A	220 DA-A
# Subsamples, Dec.					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
15	Authority MTZ	45	DF	11	oz/a	PRE	C	50.0	99.0	99.0	96.8	99.0	99.0
15	Gramoxone Inteon	3	L	24	fl oz/a	PRE	C						
15	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C						

LSD (P=.05)	15.35	5.78	6.04	7.68	5.10	5.44
Standard Deviation	10.74	4.05	4.23	5.37	3.57	3.81
CV	45.06	4.47	4.68	6.03	3.94	4.19

Means followed by same letter do not significantly differ (P=.05, LSD)
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Weed Code

Crop Code

Rating Data Type

Rating Unit

Rating Date

Trt-Eval Interval

Subsamples, Dec.

TRZAW TRZAW
 moisture yield
 percent bu/acre
 7/14/2011 7/14/2011
 286 DA-A 286 DA-A
 1 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	13.1	90.0
1	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
2	Valor	51	WG	2	oz/a	7 EPP	A	13.1	88.5
2	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A		
2	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
3	Fierce	76	WG	3	oz/a	7 EPP	A	13.4	78.3
3	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A		
3	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
4	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	13.2	86.1
4	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
4	Valor	51	WG	2	oz/a	EPOS	D		
5	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	13.2	80.2
5	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
5	Valor	51	WG	2	oz/a	EPOS	D		
5	Affinity BroadSpec	50	WG	0.6	oz/a	EPOS	D		
5	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D		
6	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A	13.1	88.4
6	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
6	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D		
6	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D		
7	Valor	51	WG	2	oz/a	7 EPP	A	13.8	83.0
7	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A		
7	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
7	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D		
7	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D		
8	Fierce	76	WG	3	oz/a	7 EPP	A	13.4	80.9
8	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A		
8	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
8	Affinity BroadSpec	50	WG	0.75	oz/a	EPOS	D		
8	Activator 90 (NIS)		L	0.25	% v/v	EPOS	D		
9	Rage D-Tech	4.06	L	16	fl oz/a	7 EPP	A	13.6	88.6
9	Roundup PowerMax	4.5	L	22	fl oz/a	7 EPP	A		
9	Ammonium Sulfate		DF	17	lb/100 gal	7 EPP	A		
10	Rage D-Tech	4.06	L	8	fl oz/a	3 EPP	B	13.2	92.0
10	Roundup PowerMax	4.5	L	22	fl oz/a	3 EPP	B		
10	Ammonium Sulfate		DF	17	lb/100 gal	3 EPP	B		
11	Untreated							13.8	87.5
12	Authority MTZ	45	DF	5.5	oz/a	PRE	C	13.3	85.7
12	Roundup PowerMax	4.5	L	22	fl oz/a	PRE	C		
12	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C		
13	Authority MTZ	45	DF	11	oz/a	PRE	C	13.7	79.9
13	Roundup PowerMax	4.5	L	22	fl oz/a	PRE	C		
13	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C		
14	Authority MTZ	45	DF	5.5	oz/a	PRE	C	13.4	82.6
14	Gramoxone Inteon	3	L	24	fl oz/a	PRE	C		
14	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C		

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Weed Code

Crop Code

Rating Data Type

Rating Unit

Rating Date

Trt-Eval Interval

Subsamples, Dec.

TRZAW TRZAW
moisture yield
percent bu/acre
7/14/2011 7/14/2011
286 DA-A 286 DA-A
1 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
15	Authority MTZ	45	DF	11	oz/a	PRE	C	13.5	79.0
15	Gramoxone Inteon	3	L	24	fl oz/a	PRE	C		
15	Ammonium Sulfate		DF	17	lb/100 gal	PRE	C		

LSD (P=.05)	0.73	8.74
Standard Deviation	0.51	6.11
CV	3.79	7.22

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