

MSU Weed Science Research Program

Herbicide and 28% nitrogen interactions in winter wheat

Trial ID: WT01-09 Study Dir.: Sprague and Powell
 Conducted: T-12W Investigator: Christy Sprague

Date Planted: Oct/09/2008 **Row Spacing:** 7.5 IN
Variety: Red Ruby **No. of Reps:** 4
Population: 2 mil seeds/acre **% OM:** 3.8
Soil Type: Loam **pH:** 6.5
Plot Size: 10 X 35 FT **Design:** RANDOMIZED COMPLETE BLOCK

Tillage: Previous crop - dry beans
 Fall chisel plowed 9/11/08
 Soil finished 10/9/08
Fertilizer: Spread urea 100lb acre (45lb N) 3/13/09

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1.	AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
2.	STEME	CHICKWEED, COMMON	STELLARIA MEDIA (L.)
3.	THLAR	PENNYCRESS, FIELD	THLASPI ARVENSE L.
4.	BRAKA	MUSTARD, WILD	BRASSICA KABER
Crop	Code	Common Name	
1.	TRZAW	WHEAT, WINTER	

Application Description

	A	B	C
Application Timing:	POST	28% N	LPOST
Date Treated:	Apr/24/2009	May/04/2009	May/06/2009
Time Treated:	1:45 pm	12:30 pm	11:30 am
% Cloud Cover:	10	25	100
Air Temp., Unit:	80 F	64 F	70 F
% Relative Humidity:		35	50
Wind Speed/Unit/Dir:	6 mph SW	4 mph E	4 mph SE
Soil Temp., Unit:	56 F	56 F	56 F
Soil/Leaf Surface M:	4 5	4 5	4 5
Soil Moist (1=w 5=d):	3	3	3

Crop Stage at Each Application

	A	B	C
Crop Name:	TRZAW	TRZAW	TRZAW
Height (In.):	2-4.5	10-12	13-15
Stage (L):	Fekes 5	Fekes 6	Fekes 6

Weed Stage at Each Application

	A	B	C
Weed 1 Name:	AMBEL	AMBEL	AMBEL
Height (In.):	1/8	-	1/4-1
Stage (L):	coty	-	2-4
Weed 2 Name:	STEME	STEME	STEME
Height (In.):	4	-	6
Stage (L):	flower	-	flower
Weed 3 Name:	THLAR	THLAR	THLAR
Height (In.):	1	-	15
Stage (L):	2	-	flower
Weed 4 Name:	BRAKA	BRAKA	BRAKA
Height (In.):	-	-	2-14
Stage (L):	-	-	flower

Application Equipment

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Nozzle	Boom			
	Type	MPH	Type	Size	Height	Spacing	Width	GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	27"	20"	120"	19	Water	28
B	Cub	3.8	AirMix	11003	26"	20"	120"	19	28%/Water	28
C	Cub	3.8	AirMix	11003	29"	20"	120"	19	28%/Water	28

Comments: Wheat planted with JD 1560 drill at 2 million seeds/acre.
 9.5 gpa 28% N = 19 gpa application rate, 50% 28%N, 50% water.

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Weed Code									AMBEL		
Crop Code					TRZAW	TRZAW	TRZAW	TRZAW		TRZAW	
Rating Data Type					injury	injury	injury	injury	control	moisture	
Rating Unit					percent	percent	percent	percent	percent	percent	
Rating Date					Apr/27/2009	May/01/2009	May/11/2009	May/18/2009	May/18/2009	Jul/21/2009	
Trt-Eval Interval					3 DA-A	7 DA-A	17 DA-A	24 DA-A	24 DA-A	88 DA-A	
ARM Action Codes											
# Subsamples, Dec.										1	
Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	Appl Code	1	2	3	4	5	6
1	Nitrogen (28%) Untreated	19	gal/a	28% N B POST A		0.0	0.0	3.5	0.0	0.0	15.3
2	Nitrogen (28%) 28% UAN (50% carrier)	9.5	gal/a	28% N B POST A		0.0	0.0	0.0	0.0	24.8	16.0
3	28% UAN (100% carrier)	19	gal/a	POST A		0.0	0.0	0.0	0.0	0.0	15.5
4	Nitrogen (28%) 2,4-D Amine	19	gal/a	28% N B POST A		0.0	0.0	4.0	0.0	85.5	15.7
5	Nitrogen (28%) 2,4-D Amine	9.5	gal/a	28% N B POST A		0.0	0.0	0.0	0.0	82.3	15.8
6	28% UAN (50% carrier) 2,4-D Amine	9.5	gal/a	POST A POST A		0.0	0.0	0.0	0.0	52.5	15.9
7	28% UAN (100% carrier) Nitrogen (28%)	19	gal/a	POST A 28% N B		0.0	0.0	4.0	0.0	93.3	15.8
8	2,4-D Ester Nitrogen (28%)	1	pt/a	POST A 28% N B		0.0	0.0	0.0	0.0	97.5	16.2
9	2,4-D Ester 28% UAN (50% carrier)	9.5	gal/a	POST A POST A		0.0	0.8	0.0	0.0	61.3	15.8
10	2,4-D Ester 28% UAN (100% carrier)	1	pt/a	POST A POST A		0.0	0.0	0.0	0.0	61.3	15.8
10	Nitrogen (28%) Affinity BroadSpec	19	gal/a	28% N B POST		0.0	2.5	2.8	1.3	95.3	15.6
	[Express SG]	0.75	oz/a	POST A							
	[Harmony SG]	0.375	oz/a	POST A							
	Activator 90	0.25	% v/v	POST A							
11	Nitrogen (28%) Affinity BroadSpec	9.5	gal/a	28% N B POST		6.0	8.5	0.0	1.3	96.0	15.5
	[Express SG]	0.75	oz/a	POST A							
	[Harmony SG]	0.375	oz/a	POST A							
	Activator 90	0.25	% v/v	POST A							
	28% UAN (50% carrier)	9.5	gal/a	POST A							
12	Affinity BroadSpec	0.75	oz/a	POST		20.0	17.5	0.0	2.5	81.3	16.7
	[Express SG]	0.375	oz/a	POST A							
	[Harmony SG]	0.375	oz/a	POST A							
	Activator 90	0.25	% v/v	POST A							
	28% UAN (100% carrier)	19	gal/a	POST A							
13	Nitrogen (28%) Huskie	19	gal/a	28% N B POST A		0.0	0.0	2.8	0.0	95.8	15.5
	Activator 90	11	fl oz/a	POST A							
	28% UAN	0.25	% v/v	POST A							
	28% UAN	2	qt/a	POST A							
14	Nitrogen (28%) Huskie	9.5	gal/a	28% N B POST A		8.0	4.5	0.8	0.0	98.5	15.5
	Activator 90	11	fl oz/a	POST A							
	28% UAN (50% carrier)	0.25	% v/v	POST A							
15	Huskie Activator 90	11	fl oz/a	POST A POST A		22.5	10.5	0.8	0.0	94.5	14.5
	28% UAN (100% carrier)	0.25	% v/v	POST A							
	28% UAN (100% carrier)	19	gal/a	POST A							
16	Nitrogen (28%) 28% UAN (50% carrier)	9.5	gal/a	28% N B LPOS C				2.3	0.0	0.0	15.6
17	28% UAN (100% carrier)	9.5	gal/a	LPOS C				3.0	0.0	0.0	15.9
18	Nitrogen (28%) 2,4-D Ester	19	gal/a	28% N B LPOS C				4.0	0.0	94.5	16.0
19	Nitrogen (28%) 2,4-D Ester	1	pt/a	LPOS C LPOS C				3.0	0.0	92.3	17.2
	28% UAN (50% carrier)	9.5	gal/a	LPOS C							
20	2,4-D Ester 28% UAN (100% carrier)	1	pt/a	LPOS C LPOS C				5.0	0.0	90.0	15.9

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Weed Code	TRZAW	TRZAW	TRZAW	TRZAW	AMBEL	TRZAW
Crop Code	injury	injury	injury	injury	control	moisture
Rating Data Type	percent	percent	percent	percent	percent	percent
Rating Unit	percent	percent	percent	percent	percent	percent
Rating Date	Apr/27/2009	May/01/2009	May/11/2009	May/18/2009	May/18/2009	Jul/21/2009
Trt-Eval Interval	3 DA-A	7 DA-A	17 DA-A	24 DA-A	24 DA-A	88 DA-A
ARM Action Codes						
# Subsamples, Dec.						1

Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code	1	2	3	4	5	6
21	Nitrogen (28%)	19	gal/a	28% N	B			6.0	16.3	85.0	15.6
	Affinity BroadSpec	0.75	oz/a	LPOS							
	[Express SG]	0.375	oz/a	LPOS	C						
	[Harmony SG]	0.375	oz/a	LPOS	C						
	Activator 90	0.25	% v/v	LPOS	C						
22	Nitrogen (28%)	9.5	gal/a	28% N	B			17.5	23.8	92.5	15.3
	Affinity BroadSpec	0.75	oz/a	LPOS							
	[Express SG]	0.375	oz/a	LPOS	C						
	[Harmony SG]	0.375	oz/a	LPOS	C						
	Activator 90	0.25	% v/v	LPOS	C						
	28% UAN (50% carrier)	9.5	gal/a	LPOS	C						
23	Affinity BroadSpec	0.75	oz/a	LPOS				31.3	25.0	87.5	15.7
	[Express SG]	0.375	oz/a	LPOS	C						
	[Harmony SG]	0.375	oz/a	LPOS	C						
	Activator 90	0.25	% v/v	LPOS	C						
	28% UAN (100% carrier)	19	gal/a	LPOS	C						
24	Nitrogen (28%)	19	gal/a	28% N	B			4.0	0.0	99.0	15.5
	Huskie	11	fl oz/a	LPOS	C						
	Activator 90	0.25	% v/v	LPOS	C						
	28% UAN	2	qt/a	LPOS	C						
25	Nitrogen (28%)	9.5	gal/a	28% N	B			17.5	2.5	99.0	16.1
	Huskie	11	fl oz/a	LPOS	C						
	Activator 90	0.25	% v/v	LPOS	C						
	28% UAN (50% carrier)	9.5	gal/a	LPOS	C						
26	Huskie	11	fl oz/a	LPOS	C			25.0	6.8	99.0	14.9
	Activator 90	0.25	% v/v	LPOS	C						
	28% UAN (100% carrier)	19	gal/a	LPOS	C						
27	Nitrogen (28%)	19	gal/a	28% N	B	30.0	36.3	12.5	0.0	97.0	16.4
	Banvel	4	fl oz/a	POST	A						
28	Nitrogen (28%)	19	gal/a	28% N	B	0.0	0.0	3.5	0.0	97.5	15.7
	Huskie	11	fl oz/a	POST	A						
	Activator 90	0.25	% v/v	POST	A						
	28% UAN	2	qt/a	POST	A						
LSD (P=.05)						1.99	3.03	2.78	4.46	16.81	1.23
Standard Deviation						1.40	2.12	1.96	3.15	11.89	0.87
CV						27.42	44.72	35.94	111.44	15.92	5.51

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Weed Code AMBEL
 Crop Code TRZAW
 Rating Data Type yield control
 Rating Unit bu/acre percent
 Rating Date Jul/21/2009 Aug/07/2009
 Trt-Eval Interval at 13% M 105 DA-A
 ARM Action Codes TY1
 # Subsamples, Dec. 1

Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	Appl Code	7	8
1	Nitrogen (28%) Untreated	19	gal/a	28% N B POST A		101.6	0.0
2	Nitrogen (28%) 28% UAN (50% carrier)	9.5	gal/a	28% N B POST A		104.4	0.0
3	28% UAN (100% carrier)	19	gal/a	POST A		96.5	0.0
4	Nitrogen (28%) 2,4-D Amine	19	gal/a	28% N B POST A		104.9	75.0
5	Nitrogen (28%) 2,4-D Amine 28% UAN (50% carrier)	9.5	gal/a	28% N B POST A POST A		100.5	77.5
6	2,4-D Amine 28% UAN (100% carrier)	1	pt/a	POST A POST A		101.1	35.0
7	Nitrogen (28%) 2,4-D Ester	19	gal/a	28% N B POST A		101.9	82.5
8	Nitrogen (28%) 2,4-D Ester 28% UAN (50% carrier)	9.5	gal/a	28% N B POST A POST A		101.6	81.0
9	2,4-D Ester 28% UAN (100% carrier)	1	pt/a	POST A POST A		99.5	55.0
10	Nitrogen (28%) Affinity BroadSpec [Express SG] [Harmony SG] Activator 90	19	gal/a	28% N B POST POST A POST A POST A		102.4	80.0
11	Nitrogen (28%) Affinity BroadSpec [Express SG] [Harmony SG] Activator 90 28% UAN (50% carrier)	9.5	gal/a	28% N B POST POST A POST A POST A POST A		103.7	60.0
12	Affinity BroadSpec [Express SG] [Harmony SG] Activator 90 28% UAN (100% carrier)	0.75	oz/a	POST POST A POST A POST A POST A		93.2	61.3
13	Nitrogen (28%) Huskie Activator 90 28% UAN	19	gal/a	28% N B POST A POST A POST A		103.5	81.3
14	Nitrogen (28%) Huskie Activator 90 28% UAN (50% carrier)	9.5	gal/a	28% N B POST A POST A POST A		103.9	78.5
15	Huskie Activator 90 28% UAN (100% carrier)	11	fl oz/a	POST A POST A POST A		102.3	77.3
16	Nitrogen (28%) 28% UAN (50% carrier)	9.5	gal/a	28% N B LPOS C		101.8	0.0
17	28% UAN (100% carrier)	19	gal/a	LPOS C		105.1	0.0
18	Nitrogen (28%) 2,4-D Ester	19	gal/a	28% N B LPOS C		98.5	98.0
19	Nitrogen (28%) 2,4-D Ester 28% UAN (50% carrier)	9.5	gal/a	28% N B LPOS C LPOS C		100.5	98.0
20	2,4-D Ester 28% UAN (100% carrier)	1	pt/a	LPOS C LPOS C		103.2	94.8

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Weed Code AMBEL
 Crop Code TRZAW
 Rating Data Type yield control
 Rating Unit bu/acre percent
 Rating Date Jul/21/2009 Aug/07/2009
 Trt-Eval Interval at 13% M 105 DA-A
 ARM Action Codes TY1
 # Subsamples, Dec. 1

Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code	7	8
21	Nitrogen (28%)	19	gal/a	28% N	B	96.2	72.5
	Affinity BroadSpec	0.75	oz/a	LPOS			
	[Express SG]	0.375	oz/a	LPOS	C		
	[Harmony SG]	0.375	oz/a	LPOS	C		
	Activator 90	0.25	% v/v	LPOS	C		
22	Nitrogen (28%)	9.5	gal/a	28% N	B	95.6	72.5
	Affinity BroadSpec	0.75	oz/a	LPOS			
	[Express SG]	0.375	oz/a	LPOS	C		
	[Harmony SG]	0.375	oz/a	LPOS	C		
	Activator 90	0.25	% v/v	LPOS	C		
	28% UAN (50% carrier)	9.5	gal/a	LPOS	C		
23	Affinity BroadSpec	0.75	oz/a	LPOS		100.4	38.8
	[Express SG]	0.375	oz/a	LPOS	C		
	[Harmony SG]	0.375	oz/a	LPOS	C		
	Activator 90	0.25	% v/v	LPOS	C		
	28% UAN (100% carrier)	19	gal/a	LPOS	C		
24	Nitrogen (28%)	19	gal/a	28% N	B	100.6	89.8
	Huskie	11	fl oz/a	LPOS	C		
	Activator 90	0.25	% v/v	LPOS	C		
	28% UAN	2	qt/a	LPOS	C		
25	Nitrogen (28%)	9.5	gal/a	28% N	B	97.0	98.0
	Huskie	11	fl oz/a	LPOS	C		
	Activator 90	0.25	% v/v	LPOS	C		
	28% UAN (50% carrier)	9.5	gal/a	LPOS	C		
26	Huskie	11	fl oz/a	LPOS	C	99.5	98.0
	Activator 90	0.25	% v/v	LPOS	C		
	28% UAN (100% carrier)	19	gal/a	LPOS	C		
27	Nitrogen (28%)	19	gal/a	28% N	B	100.3	89.5
	Banvel	4	fl oz/a	POST	A		
28	Nitrogen (28%)	19	gal/a	28% N	B	98.9	85.0
	Huskie	11	fl oz/a	POST	A		
	Activator 90	0.25	% v/v	POST	A		
	28% UAN	2	qt/a	POST	A		
LSD (P=.05)						6.81	19.67
Standard Deviation						4.82	13.91
CV						4.78	21.89

ARM Action Codes

TY1 = 4.148571*[C9]*(100-@MVAVGREP([C6]))/87