Project Title: Grain yield and quality response of new barley and spring wheat cultivars to nitrogen fertilizer.

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Objectives: To compare the response of new barley and spring wheat varieties to nitrogen (N) fertilization.

Results:

Barley – Soil test and site characteristics are tabulated in Table 1. Grain yield and quality results are shown by location in Tables 2 thru 6. The Ethridge location was lost due to a planter malfunction. The Sunburst location was the only one that had acceptable malting barley quality. Most locations had low yields, high protein content, low plump and test weight, and high thin kernels typical of a hot and dry growing season. The only feed barley, Champion, was the highest yielding variety at all locations including the irrigated location.

Spring Wheat – Soil Test and site characteristics are tabulated in Table 1. Grain yield and quality results are presented in Tables 7 thru 13. Grain yield and protein content are about what one would expect from a dry and hot season: low variable yields, high protein content, and lower test weights. As the result, very little differences were noted in grain yields; however, the soft white variety did have lower protein content.

Table 1. Site characteristics and soil test results by location. Western Triangle Ag. Research Center. 2007.

Site Characteristics						
Character	**Cut Bank**	**Ethridge**	**Joplin**	**Sunburst**	**WTARC i**	**WTARC**
Planting Date	4/26	4/16	5/1	4/27	4/28	4/30
Harvest Date	8/2		7/26	8/14	8/7	7/31
Previous Crop	Chem. Fallow	Chem. Fallow	Chem. Fallow	Chem. Fallow	Conv. Fallow	Conv. Fallow
Growing Season Precipitation (inches)	1.6	1.2	2.9	2.3	3.0	2.9
Spray Date	6/4			6/4	6/10	
Soil Test Results						
Test	**Cut Bank**	**Ethridge**	**Joplin**	**Sunburst**	**WTARC i**	**WTARC**
pH	6.9	8.0	7.8	6.6	8.1	7.9
O.M. (%)	2.8	2.4	1.6	2.8	2.2	2.4
P (ppm)	38	13	16	29	18	17
K (ppm)	491	477	454	414	340	283
EC (mmhos/cm)	0.26	0.31	0.25	0.25	0.32	0.43
NO_3-N (0-3', lb/ac)	70	101	96	20	78	77

ND=Not determined. **=Bronate Advanced @ 1.6 pt/a tank mixed with Achieve SC @ 8oz/a. *=Soil sample to two feet depth.

Table 2. Effect of nitrogen and variety on agronomic characteristics of dryland barley. Cut Bank location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight	Plump	Thins
	lbs/ac	bu/ac	%	lb/bu	%	%
Champion	0	51.0	13.3	47.3	11.0	43.3
Champion	30	55.3	13.8	46.5	12.0	42.3
Champion	60	54.5	15.0	47.0	6.0	53.3
Champion	90	54.0	14.8	46.0	7.8	46.3
Harrington	0	43.0	13.4	44.8	40.5	21.0
Harrington	30	42.5	15.2	43.3	27.0	31.5
Harrington	60	37.3	16.3	43.0	22.8	37.5
Harrington	90	37.0	17.5	43.0	18.5	43.3
Hockett	0	48.0	12.8	46.8	46.3	20.0
Hockett	30	45.3	14.2	46.3	31.0	29.8
Hockett	60	47.8	15.1	45.3	26.8	31.8
Hockett	90	46.3	15.8	45.8	29.0	31.3
Metcalfe	0	42.0	15.0	44.3	27.5	27.5
Metcalfe	30	41.3	15.7	43.8	23.0	33.3
Metcalfe	60	42.3	17.5	43.3	22.5	33.5
Metcalfe	90	41.3	16.7	43.8	24.8	30.3
Tradition	0	46.3	13.2	44.0	25.3	30.5
Tradition	30	47.0	14.8	42.8	14.0	47.3
Tradition	60	45.0	15.7	41.5	11.0	53.3
Tradition	90	42.0	16.8	40.0	8.8	63.3
Variety Summary						
Champion		53.7 a	14.2 a	46.7 a	9.2 c	46.1 a
Harrington		39.8 d	15.6 c	43.6 b	27.1 ab	33.4 b
Hockett		46.9 b	14.5 a	46.0 a	33.2 a	28.1 b
Metcalfe		41.8 cd	16.2 d	43.7 b	24.4 b	31.0 b
Tradition		45.0 bc	15.1 b	42.2 c	14.8 c	48.4 a
Nitrogen Summary						
0		46.1 a	13.5 a	45.5 a	30.1 a	28.3 c
30		46.3 a	14.8 b	44.5 b	21.3 b	36.7 b
60		45.3 a	15.9 c	44.0 bc	17.8 c	41.8 a
90		44.1 a	16.3 c	43.6 c	17.8 c	42.7 a
Linear contrast p-value		0.027	0.000	0.000	0.000	0.000
Quadratic cont. p-value		0.279	0.090	0.111	0.000	0.014
Statistical Summary						
Mean		45.6	15.1	44.4	21.7	37.4
CV (%)		6.5	7.4	2.0	24.0	17.2
Interaction p-value		0.074	0.641	0.167	0.019	0.004

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 3. Effect of nitrogen and variety on agronomic characteristics of dryland barley. Joplin location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight	Plump	Thins
	lbs/ac	bu/ac	%	lb/bu	%	%
Champion	0	51.8	15.6	44.8	3.3	68.5
Champion	20	57.5	15.5	45.8	4.3	65.0
Champion	40	54.5	16.2	45.5	5.5	68.8
Champion	60	54.6	16.1	46.0	6.2	60.6
Harrington	0	42.5	17.6	40.0	3.0	74.8
Harrington	20	41.5	17.8	41.0	3.8	75.5
Harrington	40	40.8	18.4	40.7	2.4	81.1
Harrington	60	40.0	18.6	39.5	6.5	70.3
Hockett	0	45.5	16.5	42.0	4.8	65.5
Hockett	20	45.3	16.5	42.4	4.7	67.6
Hockett	40	48.3	16.5	43.0	8.0	60.5
Hockett	60	46.3	17.0	42.0	6.3	65.3
Metcalfe	0	41.5	19.1	39.8	6.0	70.0
Metcalfe	20	38.8	19.6	40.0	1.8	78.5
Metcalfe	40	43.5	19.6	40.8	4.3	69.8
Metcalfe	60	39.8	20.1	40.5	4.8	72.0
Tradition	0	49.2	16.5	38.3	3.1	76.6
Tradition	20	47.8	16.9	39.5	3.8	74.8
Tradition	40	46.8	17.4	38.8	2.5	81.8
Tradition	60	47.8	17.9	38.3	1.8	82.8
Variety Summary						
Champion		54.6 a	15.9 a	45.5 a	4.8 a	65.7 bc
Harrington		41.2 c	18.1 c	40.3 c	3.9 a	75.4 ab
Hockett		46.3 b	16.6 b	42.4 b	5.9 a	64.7 c
Metcalfe		40.9 c	19.6 d	40.3 c	4.2 a	72.6 abc
Tradition		47.9 b	17.2 b	38.8 d	2.8 a	79.0 a
Nitrogen Summary						
0		46.1 a	17.1 a	41.1 a	4.0 a	71.1 a
20		46.2 a	17.3 a	41.7 a	3.6 a	72.3 a
40		46.8 a	17.6 b	41.7a	4.5 a	72.4 a
60		45.7 a	17.9 c	41.3 a	5.1 a	70.2 a
Linear contrast p-value		0.867	0.001	0.645	0.229	0.767
Quadratic cont. p-value		0.520	0.577	0.351	0.532	0.393
Statistical Summary						
Mean		46.2	17.5	41.5	4.3	71.5
CV (%)		8.7	2.4	2.9	78.1	12.3
Interaction p-value		0.654	0.476	0.829	0.626	0.550

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 4. Effect of nitrogen and variety on agronomic characteristics of dryland barley. Sunburst location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight	Plump	Thins
	lbs/ac	bu/ac	%	lb/bu	%	%
Champion	0	25.8	10.3	51.0	85.8	3.8
Champion	40	52.0	10.4	49.5	58.5	10.8
Champion	80	60.5	12.3	48.0	52.8	12.8
Champion	120	63.8	13.6	47.5	51.3	13.8
Harrington	0	21.5	11.4	49.3	93.3	1.8
Harrington	40	40.5	11.6	47.8	84.0	4.3
Harrington	80	48.5	13.4	45.5	75.8	7.5
Harrington	120	47.8	14.9	45.8	77.0	7.5
Hockett	0	22.8	11.2	50.8	93.5	2.3
Hockett	40	43.5	11.0	19.8	83.8	4.3
Hockett	80	51.5	12.7	48.5	73.5	8.0
Hockett	120	49.8	14.3	48.0	69.5	10.0
Metcalfe	0	17.0	11.8	49.3	90.5	2.3
Metcalfe	40	38.0	12.1	47.8	79.3	5.8
Metcalfe	80	43.0	13.9	46.5	73.5	7.8
Metcalfe	120	41.5	16.0	45.8	69.8	9.5
Tradition	0	16.3	11.3	48.3	83.3	4.0
Tradition	40	39.5	11.2	47.5	69.0	8.3
Tradition	80	40.0	12.7	46.3	59.8	15.0
Tradition	120	45.8	14.3	45.3	52.3	19.5
Variety Summary						
Champion		50.6 a	11.6 a	48.9 b	62.0 b	10.1 a
Harrington		39.6 b	12.8 b	47.1 b	82.4 a	5.3 b
Hockett		41.8 b	12.3 b	49.2 a	79.9 a	6.0 b
Metcalfe		34.9 c	13.4 c	47.3 b	78.3 a	6.4 b
Tradition		35.4 c	12.4 b	46.6 b	66.1 b	11.7 a
Nitrogen Summary						
0		20.6 c	11.2 a	49.6 a	89.2 a	2.8 a
40		42.7 b	11.3 a	48.3 b	74.9 b	6.6 b
80		48.7 a	13.0 b	46.9 c	67.0 c	10.2 a
120		49.8 a	14.6 c	46.5 c	63.9 c	12.0 a
Linear p-value		0.000	0.000	0.000	0.000	0.000
Quadratic cont. p-value		0.000	0.000	0.027	0.000	0.106
Statistical Summary						
Mean		40.4	12.5	47.8	73.7	7.9
CV (%)		9.4	3.4	2.3	10.4	51.6
Interaction p-value		0.042	0.679	0.975	0.392	0.593

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 5. Effect of nitrogen and variety on agronomic characteristics of dryland barley. WTARC-Dryland. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight	Plump	Thins
	lbs/ac	bu/ac	%	lb/bu	%	%
Champion	0	60.8	12.1	49.8	23.5	22.5
Champion	30	69.0	12.9	50.0	33.3	17.3
Champion	60	67.8	13.8	49.8	31.3	17.8
Champion	90	70.5	14.1	49.8	33.8	20.0
Harrington	0	57.0	12.9	46.5	60.0	9.3
Harrington	30	56.8	13.7	46.3	55.0	13.8
Harrington	60	53.0	15.1	44.5	40.8	18.3
Harrington	90	50.5	15.5	44.5	40.8	18.5
Hockett	0	57.0	12.6	50.0	67.5	9.8
Hockett	30	60.5	13.2	49.5	66.0	8.8
Hockett	60	61.5	14.2	49.3	56.5	13.3
Hockett	90	57.3	14.6	48.5	51.3	15.8
Metcalfe	0	59.8	13.3	47.3	59.0	10.8
Metcalfe	30	55.8	14.9	45.5	53.0	13.8
Metcalfe	60	52.0	15.8	45.3	48.8	16.5
Metcalfe	90	55.0	15.7	46.5	55.8	11.8
Tradition	0	57.0	13.1	44.8	29.8	26.8
Tradition	30	57.0	14.6	44.3	19.5	37.8
Tradition	60	56.3	15.3	44.0	16.3	41.8
Tradition	90	54.3	15.8	43.0	16.0	43.8
Variety Summary						
Champion		66.9 a	13.2 a	49.8 a	30.4 b	19.2 b
Harrington		54.2 b	14.3 b	45.6 b	49.0 a	14.9 bc
Hockett		59.0 b	13.6 a	49.4 a	60.4 a	11.8 c
Metcalfe		55.7 b	14.9 b	45.8 b	54.1 a	12.9 bc
Tradition		56.1 b	14.7 b	44.1 c	20.4 b	37.5 a
Nitrogen Summary						
0		58.1 a	12.8 a	47.7 a	48.0 a	15.8 b
30		59.7 a	13.9 b	47.1 b	45.3 ab	17.9 ab
60		58.0 a	14.8 c	46.5 bc	38.8 c	21.3 a
90		57.6 a	15.1 d	46.3 c	39.4 bc	21.9 a
Linear contrast p-value		0.313	0.000	0.000	0.002	0.002
Quadratic cont. p-value		0.249	0.000	0.565	0.441	0.549
Statistical Summary						
Mean		58.4	14.2	46.9	42.9	19.2
CV (%)		6.9	3.0	2.0	22.9	34.6
Interaction p-value		0.014	0.189	0.506	0.172	0.263

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 6. Effect of nitrogen and variety on agronomic characteristics of irrigated barley. WTARC location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight	Plump	Thins
	lbs/ac	bu/ac	%	lb/bu	%	%
Champion	0	100.8	9.4	53.3	85.8	3.3
Champion	50	116.3	10.0	53.3	87.8	4.0
Champion	100	119.8	10.7	52.5	83.8	5.8
Champion	150	116.8	11.0	52.3	82.0	5.8
Harrington	0	98.5	10.5	49.0	86.5	4.5
Harrington	50	105.0	10.8	48.8	84.8	5.5
Harrington	100	105.0	11.7	47.5	77.0	9.0
Harrington	150	107.0	12.3	47.3	76.0	8.5
Hockett	0	89.8	9.5	51.5	88.8	3.5
Hockett	50	94.0	40.5	51.5	87.5	5.0
Hockett	100	103.8	11.6	50.3	80.8	9.5
Hockett	150	108.5	12.2	49.8	78.5	10.3
Merit	0	104.5	9.9	49.5	83.5	4.5
Merit	50	112.3	11.3	48.8	80.5	7.8
Merit	100	110.3	11.4	48.5	82.8	6.0
Merit	150	115.0	12.2	47.3	79.8	7.0
Metcalfe	0	93.0	9.8	51.0	88.8	3.5
Metcalfe	50	102.3	10.9	49.8	82.3	6.8
Metcalfe	100	103.5	12.0	48.8	79.3	8.0
Metcalfe	150	102.0	11.8	50.3	83.8	5.8
Tradition	0	97.3	10.0	50.5	89.8	1.5
Tradition	50	110.0	11.3	50.0	89.3	2.3
Tradition	100	106.8	12.1	49.8	88.0	2.8
Tradition	150	122.0	12.9	50.0	86.3	2.8
Variety Summary						
Champion		113.4 c	10.3 a	52.8 c	84.8 b	4.7 b
Harrington		103.9 abc	11.3 b	48.1 a	81.1 c	6.9 a
Hockett		99.0 a	10.9 ab	50.8 b	83.9 bc	7.1 a
Merit		110.5 c	11.2 b	48.5 a	81.6 bc	6.3 a
Metcalfe		100.2 ab	11.1 b	49.9 b	83.5 bc	6.0 ab
Tradition		109.0 bc	11.6 b	50.1 b	88.3 a	2.3 c
Nitrogen Summary						
0		97.3 c	9.8 a	50.8 a	87.2 a	3.5 c
50		106.6 b	10.8 b	50.3 a	85.3 a	5.2 b
100		108.2 ab	11.6 c	49.5 b	81.9 b	6.8 a
150		111.9 a	12.1 d	49.4 b	81.0 b	6.7 a
Linear contrast p-value		0.001	0.001	0.001	0.001	0.001
Quadratic cont. p-value		0.109	0.134	0.341	0.528	0.009
Statistical Summary						
Mean		106.0	11.1	50.0	83.9	5.5
CV (%)		8.0	6.9	1.9	4.4	31.1
Interaction p-value		0.594	0.870	0.410	0.051	0.012

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 8. Effect of nitrogen and variety on agronomic characteristics of dryland spring wheat. Cut Bank location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight
	lbs/ac	bu/ac	%	lb/bu
Choteau	0	25.5	14.5	56.0
Choteau	50	25.0	15.3	54.0
Choteau	100	26.3	16.8	53.5
Choteau	150	29.3	17.0	54.5
Corbin	0	28.3	14.9	55.8
Corbin	50	26.0	17.2	53.3
Corbin	100	26.0	17.9	53.0
Corbin	150	26.0	18.5	53.0
McNeal	0	26.8	13.8	55.0
McNeal	50	29.0	16.0	53.3
McNeal	100	19.3	16.8	53.3
McNeal	150	31.3	16.8	53.3
Nick	0	26.8	13.6	53.8
Nick	50	26.8	14.8	51.8
Nick	100	28.0	15.4	52.3
Nick	150	28.5	15.6	52.8
Vida	0	26.0	14.3	54.5
Vida	50	29.3	15.7	54.3
Vida	100	28.8	16.9	53.3
Vida	150	28.8	16.7	54.3
Variety Summary				
Choteau		26.5 a	15.9 b	54.5 a
Corbin		26.6 a	17.1 c	53.8 ab
McNeal		29.1 a	15.8 b	53.7 b
Nick		27.5 a	14.9 a	52.6 c
Vida		28.2 a	15.9 b	54.1 ab
Nitrogen Summary				
0		26.7 a	14.2 a	55.0 a
50		27.2 a	15.8 b	53.3 b
100		27.7 ab	16.8 c	53.1 b
150		28.8 b	16.9 c	53.6 b
Linear contrast p-value		0.002	0.001	0.001
Quadratic cont. p-value		0.561	0.001	0.001
Statistical Summary				
Mean		27.6	15.9	53.7
CV (%)		7.6	4.2	1.7
Interaction p-value		0.112	0.381	0.338

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 9. Effect of nitrogen and variety on agronomic characteristics of dryland spring wheat. Ethridge location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight
	lbs/ac	bu/ac	%	lb/bu
Choteau	0	21.5	12.2	59.0
Choteau	30	25.3	14.1	60.3
Choteau	60	25.5	14.8	59.8
Choteau	90	25.0	15.4	59.8
Corbin	0	24.5	11.7	61.3
Corbin	30	27.3	13.3	60.8
Corbin	60	28.0	14.4	59.8
Corbin	90	27.0	15.2	59.3
McNeal	0	24.5	11.8	58.0
McNeal	30	25.0	13.5	57.3
McNeal	60	27.0	15.1	57.5
McNeal	90	24.5	15.2	56.8
Nick	0	30.5	10.1	58.5
Nick	30	31.5	11.8	57.8
Nick	60	33.0	12.8	58.5
Nick	90	32.8	13.3	58.5
Vida	0	24.8	11.2	59.0
Vida	30	27.5	13.4	58.0
Vida	60	28.0	14.4	56.0
Vida	90	26.5	15.0	56.3
Variety Summary				
Choteau		24.1 a	14.1c	59.7 b
Corbin		26.7 b	13.6 cb	60.3 b
McNeal		25.3 ab	13.9 cb	57.4 a
Nick		31.9 c	12.0 a	58.3 a
Vida		26.7 b	13.5 b	57.3 a
Nitrogen Summary				
0		25.2 a	11.4 a	59.2 c
30		27.3 cb	13.2 b	58.8 bc
60		28.3 c	14.3 c	58.3 ab
90		27.0 b	14.8 d	58.1 a
Linear contrast p-value		0.001	0.001	0.001
Quadratic cont. p-value		0.001	0.001	0.685
Statistical Summary				
Mean		26.9	13.4	58.6
CV (%)		6.2	3.7	1.4
Interaction p-value		0.780	0.888	0.001

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 10. Effect of nitrogen and variety on agronomic characteristics of dryland spring wheat. Joplin location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight
	lbs/ac	bu/ac	%	lb/bu
Choteau	0	26.3	16.5	56.0
Choteau	30	26.3	17.2	54.8
Choteau	60	25.0	17.4	55.0
Choteau	90	26.3	17.6	54.3
Corbin	0	28.3	17.7	55.3
Corbin	30	28.5	18.2	54.5
Corbin	60	28.3	19.0	53.8
Corbin	90	25.3	19.2	53.5
McNeal	0	28.3	16.9	53.8
McNeal	30	29.5	17.9	53.3
McNeal	60	28.3	18.8	52.3
McNeal	90	31.0	18.7	52.8
Nick	0	36.0	14.0	55.8
Nick	30	35.8	15.0	53.8
Nick	60	34.0	15.5	53.3
Nick	90	33.0	15.5	53.5
Vida	0	33.5	15.8	55.5
Vida	30	34.3	16.4	55.0
Vida	60	31.3	17.4	53.8
Vida	90	32.3	17.4	53.5
Variety Summary				
Choteau		25.9	17.2 cb	55.1 a
Corbin		27.6	18.5 d	54.3 a
McNeal		29.3	18.1 cd	53.0 a
Nick		34.7	15.0 a	54.1 a
Vida		32.8	16.7 b	54.4 a
Nitrogen Summary				
0		30.5 a	16.2 a	55.3 a
30		30.8 a	17.0 b	54.2 b
60		29.4 a	17.6 c	53.6 c
90		29.7 a	17.7 c	53.6 c
Linear contrast p-value		0.051	0.000	0.000
Quadratic cont. p-value		0.832	0.000	0.017
Statistical Summary				
Mean		30.1	17.1	54.2
CV (%)		6.8	2.3	1.5
Interaction p-value		0.262	0.566	0.752

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 11. Effect of nitrogen and variety on agronomic characteristics of dryland spring wheat. Sunburst location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight
	lbs/ac	bu/ac	%	lb/bu
Choteau	0	17.3	12.0	61.3
Choteau	70	34.0	13.1	58.5
Choteau	140	28.8	15.2	58.0
Choteau	210	28.8	15.5	58.3
Corbin	0	20.0	11.3	62.3
Corbin	70	36.8	13.1	59.3
Corbin	140	38.3	15.9	57.3
Corbin	210	36.5	16.4	57.0
McNeal	0	15.0	12.0	60.0
McNeal	70	33.0	13.5	56.8
McNeal	140	32.5	15.2	56.3
McNeal	210	33.3	15.4	56.8
Nick	0	19.8	10.1	60.0
Nick	70	37.0	11.8	57.5
Nick	140	37.8	13.3	57.3
Nick	210	30.8	13.5	58.0
Vida	0	18.8	11.1	61.0
Vida	70	34.3	12.5	59.0
Vida	140	39.8	14.2	57.8
Vida	210	31.5	14.6	57.3
Variety Summary				
Choteau		27.2 a	14.0 c	59.0 a
Corbin		32.9 a	14.2 c	58.9 a
McNeal		28.4 a	14.0 c	57.4 b
Nick		31.3 a	12.1 a	58.2 ab
Vida		31.1 a	13.1 b	58.8 a
Nitrogen Summary				
0		18.1 a	11.3 a	60.9 a
70		35.0 c	12.8 b	58.2 b
140		35.5 c	14.8 c	57.3 c
210		32.2 b	15.1 d	57.4 c
Linear p-value		0.001	0.001	0.001
Quadratic cont. p-value		0.001	0.001	0.001
Statistical Summary				
Mean		30.2	13.5	58.5
CV (%)		12.0	3.1	1.0
Interaction p-value		0.121	0.002	0.001

Means with the same letter are not significantly different accord to the LSD (p=0.05).

Table 12. Effect of nitrogen and variety on agronomic characteristics of dryland spring wheat. WTARC-Dryland. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight
	lbs/ac	bu/ac	%	lb/bu
Choteau	0	34.0	15.1	59.5
Choteau	50	33.3	14.6	58.3
Choteau	100	32.0	15.8	58.5
Choteau	150	32.8	15.6	57.8
Corbin	0	37.0	14.5	60.0
Corbin	50	35.8	15.4	58.3
Corbin	100	37.5	15.6	58.8
Corbin	150	37.0	15.2	58.0
McNeal	0	34.8	14.5	57.5
McNeal	50	36.8	14.7	57.0
McNeal	100	34.0	15.5	56.0
McNeal	150	36.8	15.2	56.5
Nick	0	37.3	13.0	57.5
Nick	50	38.3	13.5	57.0
Nick	100	40.8	14.0	57.3
Nick	150	39.8	13.4	57.5
Outlook	0	34.8	14.4	58.3
Outlook	50	36.5	14.9	56.8
Outlook	100	35.8	15.2	56.8
Outlook	150	34.3	14.6	55.5
Vida	0	36.3	13.4	58.8
Vida	50	38.0	14.2	58.0
Vida	100	36.3	14.9	57.3
Vida	150	36.0	14.3	57.0
Variety Summary				
Choteau		33.1 a	15.3 c	58.5 a
Corbin		36.7 a	15.2 c	58.8 a
McNeal		35.6 a	15.0 c	56.8 a
Nike		38.9 a	13.5 a	57.4 a
Outlook		35.3 a	14.8 bc	56.9 a
Vida		36.6 a	14.2 ab	57.7 a
Nitrogen Summary				
0		35.8 a	14.2 a	58.6 a
50		36.3 a	14.6 ab	57.5 b
100		36.0 a	15.2 c	57.5 b
150		36.1 a	14.7 bc	57.1 b
Linear contrast p-value		0.769	0.004	0.000
Quadratic cont. p-value		0.595	0.012	0.098
Statistical Summary				
Mean		36.1	14.6	57.7
CV (%)		9.0	5.6	4.63
Interaction p-value		0.911	0.980	0.354

Means with the same letter are not significantly different accord to the LSD (p=0.05

Table 13. Effect of nitrogen and variety on agronomic characteristics of spring wheat. WTARC-irrigated location. Western Triangle Ag. Research Center. 2007.

Variety	N Rate	Grain yield	Grain Protein	Test Weight
	lbs/ac	bu/ac	%	lb/bu
Choteau	0	67.8	12.2	61.5
Choteau	100	81.5	14.4	60.5
Choteau	200	83.5	15.3	60.8
Choteau	300	72.5	15.6	59.8
Corbin	0	67.5	11.3	63.0
Corbin	100	74.8	13.7	61.8
Corbin	200	94.0	14.7	62.0
Corbin	300	89.0	14.9	60.8
McNeal	0	55.8	11.5	60.8
McNeal	100	73.5	13.7	61.0
McNeal	200	67.5	14.9	60.3
McNeal	300	73.0	15.0	59.8
Nick	0	65.3	9.3	60.8
Nick	100	79.5	11.3	61.5
Nick	200	90.3	12.1	62.0
Nick	300	88.3	12.3	61.3
Outlook	0	54.0	11.7	60.0
Outlook	100	56.5	13.5	60.1
Outlook	200	63.0	14.8	59.3
Outlook	300	67.0	15.0	59.0
Vida	0	68.5	12.6	60.3
Vida	100	77.8	14.0	58.8
Vida	200	72.8	15.0	58.0
Vida	300	71.0	15.1	57.8
Variety Summary				
Choteau		76.3 ab	14.4 c	60.5 b
Corbin		81.2 a	13.7 b	61.8 a
McNeal		67.3 cd	13.8 b	60.3 b
Nike		80.8 a	11.3 a	61.4 a
Outlook		60.1 d	13.7 b	59.5 c
Vida		72.5 bc	14.2 cb	
Nitrogen Sumary				
0		63.1 a	11.4 a	61.0 a
100		73.9 b	13.5 b	60.6 b
200		78.5 c	14.5 c	60.2 c
300		76.7 bc	14.6 c	59.7 d
Statistical Summary				
Linear contrast p-value		0.000	0.000	0.000
Quadratic cont. p-value		0.000	0.274	0.000
Mean		73.0	60.4	60.4
CV (%)		7.7	0.82	0.7
Interaction p-value		0.001	0.000	0.001

Means with the same letter are not significantly different accord to the LSD (p=0.05