

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

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Objectives: To compare the response of new spring wheat varieties to nitrogen (N) fertilization when applied at planting and flowering.

Results:

Grain yield and quality results are presented in Table 1 and Figures 1 and 2. Excellent grain yield, grain protein, and variety differences were measured this year. Grain yields averaged between 57 and 90 bu/acre and grain protein averaged 11.0 to 14.4 %. Choteau was the top yielding variety because McNeal suffered extensive sawfly damage while Vida had moderate sawfly damage.

Table 1. Effect of nitrogen and variety on agronomic characteristics of spring wheat. Western Triangle Ag. Research Center. 2008.

Variety	Initial N Rate	Topdress N Rate	Grain yield	Grain Protein	Test Weight	Total Yield
	lbs/ac		bu/ac	%	lb/bu	cwt/ac
Choteau	0	0	57.3	10.7	60.1	80.5
Choteau	80	0	80.6	12.0	60.4	117.7
Choteau	160	0	91.7	13.4	60.4	122.7
Choteau	240	0	86.5	14.9	59.5	128.7
Choteau	0	40	59.3	11.9	60.4	89.7
Choteau	80	40	78.0	13.3	60.2	119.9
Choteau	160	40	89.2	14.1	60.0	137.1
Choteau	240	40	88.9	15.0	59.8	141.7
McNeal	0	0	52.2	10.2	61.0	74.3
McNeal	80	0	78.0	11.6	61.4	131.2
McNeal	160	0	77.1	13.5	61.1	130.1
McNeal	240	0	87.1	14.1	60.8	141.5
McNeal	0	40	51.5	11.7	60.7	75.6
McNeal	80	40	76.6	12.6	61.2	115.0
McNeal	160	40	78.5	13.2	61.0	131.5
McNeal	240	40	87.6	14.3	60.8	139.7
Vida	0	0	61.3	10.3	61.0	75.4
Vida	80	0	77.5	12.0	60.9	129.5
Vida	160	0	78.1	12.1	60.1	129.7
Vida	240	0	94.9	14.1	59.7	143.5
Vida	0	40	60.5	11.4	61.1	86.8
Vida	80	40	82.3	12.5	60.8	136.4
Vida	160	40	75.9	12.5	60.1	116.4
Vida	240	40	91.9	14.3	58.7	136.7
Variety Summary						
Choteau			79.0 a	13.1 a	61.0 a	117.2 a
McNeal			73.7 a	12.7 ab	60.3 b	117.4 a
Vida			77.7 a	12.2 b	60.1 b	119.3 a
N Summary						
0			57.1 c	11.0 d	60.7 bc	79.9 c
80			78.6 b	12.3 c	60.8 c	124.7 b
160			81.9 b	13.1 b	60.4 b	128.5 ab
240			89.4 a	14.4 a	59.9 a	138.9 a
Flowering N Summary						
0			76.3 a	12.2 a	60.5 a	117.2 a
40			77.2 a	13.1 b	60.4 a	118.8 a

Means with the same letter are not significantly different accord to the LSD (p=0).

Table 1. Continued.

	Grain yield	Grain Protein	Test Weight	Total Yield
	bu/ac	%	lb/bu	cwt/ac
Statistical Summary				
Mean	76.8	12.7	60.5	118.0
CV (%)	7.7	3.1	0.6	15.0
N rate x variety, p-value	0.070	0.375	0.008	0.663
N rate x N top, p-value	0.674	0.002	0.486	0.626
N rate x N top x variety, p-value	0.783	0.161	0.018	0.988

Figure 1. Effect of variety and N rate on spring wheat yield.

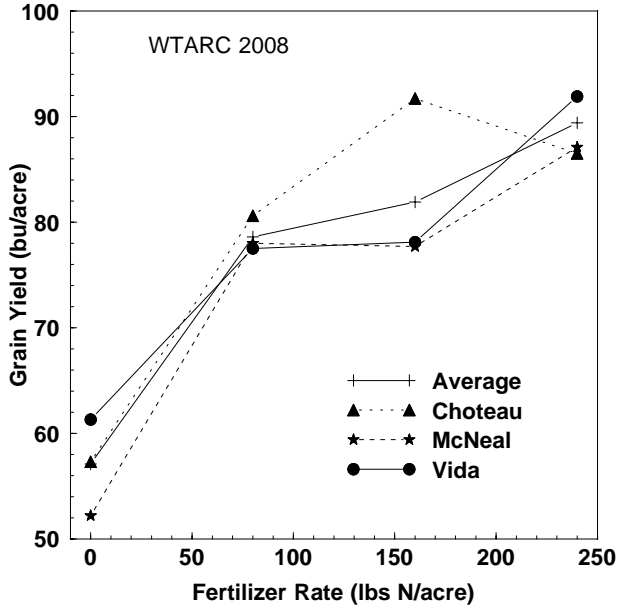


Figure 2. Effect of variety and N rate on spring wheat grain protein content.

