

## **HRS Wheat Variety Response to N Timing and Seeding Rate, Carrington, 2005**

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The dryland trial was established with 'Briggs' and 'Granite' HRS wheat planted at 1 and 1.75 million pure live seeds (PLS)/acre (A) on April 28 at the NDSU Carrington Research Extension Center. Experimental design was a randomized complete block with a split-split plot arrangement and four replications. Soil N level at the 0-2 ft depth was 53 lb/acre. Nitrogen treatments included: 1) 100 lb/acre as PPI urea on April 27, 2) 50 lb/acre as PPI urea on April 27 and 50 lb/acre as POST UAN applied by steam nozzles on June 11 at 4-leaf stage, and 3) 100 lb/acre as POST UAN applied by steam nozzles on June 11 at 4-leaf stage. A total of 0.79 inches of rain was received within 3 days of application of the POST N. Folicur at 4 fl oz/A + NIS (Induce) at 0.125% v/v was applied to wheat at Feekes 10.51. The trial was harvested with a plot combine on August 8.

N application timing did not impact seed yield or quality, except protein with PPI N was 0.5 percentage points higher than POST N (Table 1). Established plant stands were 1,190,000 and 1,687,200 plants/A with seeding rates of 1.0 and 1.75 million PLS/acre, respectively. Across varieties, seed yield increased 2.7 bu/acre (4.5%) and test weight increased 0.4 lb/bu with the higher seeding rate. However, yield and quality were similar between seeding rates for each variety (Table 2). Variety yield was similar among N timings but 'Granite' test weight improved with PPI or PPI/POST N compared to POST N. Flag leaf N concentration was similar among varieties and N application timings.

**Table 1. HRS wheat variety response to N timing and seeding rate, Carrington, 2005 (main factors).**

Treatment	Plants/A 5/20 (x1000)	Spikes/A (x1000)	Plant height (in)	Lodge (0 - 9)	Grain yield (bu/A)	Test weight (lb/bu)	250 KWT (grams)	Protein (%)	Flag leaf N (%)
<b>Variety</b>									
Briggs	1528.3	2137.2	33.7	1	64.5	60.8	7.70	14.8	
Granite	1349.0	1829.5	31.6	0	53.0	60.4	6.40	15.8	
LSD 0.05	**	**	1.9	1	1.9	0.3	0.15	0.02	
<b>N timing</b>									
PPI	1456.9	19741.6	31.7	0	59.8	60.5	7.20	15.6	4.6
PPI/POST	1345.3	2000.6	33.1	1	57.4	60.7	6.90	15.3	4.4
POST	1513.7	2007.8	33.1	1	59.1	60.7	7.10	15.1	4.6
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	0.4	NS
<b>Seeding Rate</b>									
1.0 mil pls/A	1190.0	1926.0	32.8	0	57.4	60.4	7.10	15.4	
1.75 mil pls/A	1687.2	2040.8	32.5	1	60.1	60.8	7.00	15.2	
LSD 0.05	**	*	NS	NS	1.1	0.3	NS	NS	

**Table 2. HRS wheat variety response to N timing and seeding rate, Carrington, 2005 (interactions).**

Treatment	Plants/A 5/20 (x1000/A)	Spikes/A (x1000/A)	Plant height (in)	Lodge (0 - 9)	Grain yield (bu/A)	Test weight (lb/bu)	250 KWT (grams)	Protein (%)	
<b>VarxSeed</b>									
Briggs 1	1255.8	2137.2	33.8	1	63.0	60.7	7.80	14.9	
Briggs 1.75	1800.8	2137.2	33.7	1	65.9	61.0	7.70	14.8	
Granite 1	1124.1	1714.5	31.8	0	51.8	60.1	6.40	15.9	
Granite 1.75	1573.8	1944.4	31.4	0	54.3	60.7	6.40	15.7	
LSD 0.05	NS	*	NS	NS	NS	NS	NS	NS	
<b>VarxN timing</b>									
Briggs PPI	1417.4	2182.3	34.6	1	63.0	60.7	7.60	15.2	4.6
Briggs PPI/POST	1578.8	2219.0	34.4	1	64.4	60.9	7.70	14.7	4.3
Briggs POST	1588.7	2110.5	32.1	0	65.9	61.0	7.80	14.7	4.5
Granite PPI	1273.1	1819.0	31.7	0	51.7	60.6	6.20	16.0	4.5
Granite PPI/POST	1448.7	1896.5	31.8	0	53.8	60.5	6.50	15.9	4.4
Granite POST	1325.0	1772.8	31.3	0	53.6	60.0	6.50	15.5	4.7
LSD 0.05	NS	NS	3.4	1	NS	0.5	NS	NS	NS
<b>SeedxN timing</b>									
1 PPI	1058.4	1945.6	33.1	0	56.1	60.4	7.00	15.6	
1 PPI/POST	1267.4	1958.4	33.3	1	57.9	60.5	7.20	15.4	
1 POST	1244.0	1873.8	31.9	1	58.0	60.3	7.20	15.3	
1.75 PPI	1632.1	2055.7	33.2	1	58.6	60.9	6.90	15.6	
1.75 PPI/POST	1760.0	2057.2	32.9	1	60.3	61.0	7.10	15.2	
1.75 POST	1669.8	2009.5	31.6	0	61.5	60.6	7.10	14.9	
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	
mean	1438.6	1983.4	32.6	0.5	58.7	60.6	7.07	15.3	4.5
C.V.%	10.7	8.1	1.9	154.6	3.1	0.9	1.8	2.7	5