

Title: Evaluation of spring wheat near isogenic lines (NILs) for tiller production and grain protein

Objective: To generate preliminary agronomic performance data on NILs with improved competitive traits

Results:

The 2017 growing season was characterized by high temperatures and low rainfall, which restricts the interpretation of this non-replicated trial. Within the tiller lines yields ranged from 38.21 for tiller 20 to 49.62 for tiller 15. Protein varied from a low of 14.4 for tiller 2 to a high of 16.39 for tiller 19. Test weights ranged from a high of 59.9 for tiller 15 and tiller 20 to a low of 57.2 for tiller 1. Thousand kernel weights ranged from a high of 39.3 for tiller 19 to a low of 30.2 for tiller 16. Falling numbers were high and varied from 511 for tiller 1 to 438 for tiller 16.

Within the protein lines, yields ranged from 26.5 for HGPC 14 to 39.98 for HGPC 4. Protein varied from a low of 13.83 for HGPC 13 to a high of 16.98 for HGPC 5. In contrast, test weights ranged from a low of 54.7 for HGPC 5 to a high of 60.2 for HGPC 13. Thousand kernel weight ranged from a low of 26.4 for HGPC 11 to a high of 36.1 for HGPC 3. Falling numbers ranged from a low of 383 for HGPC 5 to a high of 543 for HGPC 7.

Table 1. Agronomic performance of spring wheat NILs, Kalispell 2017

NIL		YLD bu/A	PRO %	TWT lb/bu	TKW g	FN sec
tiller 1	2	42.37	14.64	57.2	37.4	511
tiller 2	1	38.38	14.50	58.6	38.7	473
tiller 15	2	49.62	14.46	59.9	31.9	465
tiller 16	1	43.94	14.86	59.4	30.2	438
tiller 19	2	38.30	16.39	58.1	39.3	460
tiller 20	1	38.21	16.02	59.9	37.9	489
HGPC 1	Y	28.22	16.09	59.5	30.7	408
HGPC 2	N	32.65	16.20	59.1	30.4	404
HGPC 3	Y	34.80	14.79	57.2	36.1	481
HGPC 4	N	39.98	15.87	55.1	30.8	427
HGPC 5	Y	33.51	16.98	54.7	27.1	383
HGPC 6	N	37.63	15.12	56.5	30.0	486
HGPC 7	Y	37.18	15.48	56.6	32.4	543
HGPC 8	N	30.57	15.17	59.2	32.2	471
HGPC 9	Y	35.21	15.66	57.9	27.3	428
HGPC 10	N	32.26	14.68	59.7	30.4	428
HGPC 11	Y	36.88	15.83	57.3	26.4	423
HGPC 12	N	32.04	15.58	57.5	30.2	418
HGPC 13	N	33.27	13.83	60.2	29.7	428
HGPC 14	Y	26.51	15.34	59.4	27.7	416
HGPC 15	N	38.51	14.08	59.7	29.7	425
HGPC 16	Y	31.26	15.14	60.0	28.8	452
Mean		35.97	15.30	58.3	31.6	448

YLD: yield, PRO: protein, TWT: test weight, TKW: thousand kernel weight
 FN: falling number