

- PROJECT TITLE:** **Intrastate Winter Wheat Evaluation: Lodging and disease resistance**
- PROJECT LEADERS:** Bob Stougaard and Doug Holen, Kalispell, MT
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- OBJECTIVE:** To evaluate of Montana adapted cultivars for yield, lodging, quality, and disease resistance. Special attention to fully document dwarf bunt, stripe rust, and leaf rust reactions.
- RESULTS:** Overall yields were very good considering that winter survival ranged from 5% (BZ9W92-712-a) to 78% (Agassiz), with a mean of 48%. Yields for the 48 entries ranged from 126 (Promontory) to 71 (Roughrider) bu/A with an overall mean of 102. Test weights were good with 33% of the varieties below 60 lbs/bu. The mean test weight was 60.3 lbs/bu with a high of 62.7 (MT9524). Lodging throughout the nursery was significant with a handful of cultivars nearly flat (Roughrider, Agassiz, Norstar, and Winridge). Promontory, Quantum 1824, MT9524, MT9432, and Redwin displayed excellent lodging resistance. Winter condition were ideal for the germination and plant inoculation of TCK. Pronghorn, Yuma, Niobrara, Halt, and Roughrider were hit hardest by TCK and resulted in poor agronomic performance. Promontory, Blizzard, Quantum 566, Manning, Winridge, and Bonneville were least affected by TCK which resulted in all being located in the top 10 for yield. Moderate to high levels of leaf rust was present. Seventeen of the 48 cultivars showed no signs of infection while eight were highly infested.
- SUMMARY:** Yields and test weights were surprisingly good in relation to the poor growing season and heavy disease pressures present throughout. This crop year was beneficial to gathering good lodging and disease notes and specific variety responses to the detrimental conditions.
- FUTURE PLANS:** High yielding disease resistant cultivars will continue to be evaluated at Kalispell to identify those with the best potential for production in this region as well as document potential production problems for producers across the state.

Table 1. Agronomic data from the Intrastate Winter Wheat Nursery grown at the Northwestern Agricultural Research Center in Kalispell, MT.

Planted: September 25, 1996

Harvested: August 20, 1997

VARIETY	W SURV %	HD DATE JULIAN	HEIGHT INCH	LDG 0-9	YIELD BU/A	TWT LB/BU	LF RST 0-3 1/	TCK 0-3 1/	AGRO 0-9 2/
PROMONTORY	45.00	161.71	37.00	.33	126.05	59.10	2.00	-.05	6.90
KESTREL	48.33	163.91	45.27	3.18	123.89	60.10	.00	1.67	4.81
MORGAN	46.67	164.88	42.27	6.52	121.59	60.80	2.00	1.46	2.75
BLIZZARD	40.00	165.41	47.27	6.33	119.26	61.60	3.00	.22	4.01
BIGHORN	46.67	163.79	37.00	3.67	117.85	60.60	1.00	.94	5.90
QUANTUM 566	23.33	162.38	39.50	4.44	116.44	60.20	.00	-.16	4.30
MANNING	45.00	163.19	39.53	6.00	115.14	58.70	3.00	.27	4.29
MT9514	51.67	164.31	42.13	5.34	114.65	60.80	1.00	1.76	4.09
WINRIDGE	56.67	166.84	48.53	7.20	113.55	61.60	2.00	.25	3.77
BONNEVILLE	41.67	167.15	47.80	6.07	111.71	61.50	3.00	-.31	4.07
NEELEY	55.00	165.13	45.03	6.02	110.45	60.50	3.00	2.05	4.35
ROCKY	40.00	162.35	44.63	4.41	109.89	60.70	.00	1.94	4.51
ND9257	50.00	163.21	42.63	3.57	109.77	60.60	.00	2.35	4.71
ND9272	73.33	162.30	40.80	2.21	108.98	60.30	2.00	1.48	5.06
SD89153	55.00	161.83	42.77	3.33	108.73	62.40	1.00	1.33	4.24
ERHARDT	56.67	163.15	41.43	3.80	108.41	61.30	1.00	1.02	4.46
QUANTUM EXP. 1824	40.00	161.55	35.27	.54	108.14	58.50	.00	.53	6.37
NEKOTA	48.33	160.55	37.27	3.92	107.88	61.40	.00	1.73	4.52
HYBRITECH 542	61.67	161.13	43.43	4.70	107.33	60.70	2.00	2.42	3.30
PRONGHORN	45.00	159.03	42.03	4.12	106.68	60.80	.00	2.49	3.78
JUDITH	50.00	162.68	43.30	2.53	105.74	59.10	1.00	1.92	5.58
MT9524	55.00	163.02	45.03	.23	105.49	62.70	2.00	1.41	6.11
NUWEST	55.00	162.61	41.73	6.77	104.50	59.80	2.00	1.98	3.33
CENTURK	43.33	162.27	44.63	4.47	104.34	61.10	.00	1.80	3.48
MT 9432	43.33	163.21	44.10	.91	103.62	62.30	2.00	2.13	4.82
MCGUIRE	40.00	160.21	39.23	3.01	103.38	62.20	.00	.53	5.69
MT 9441	63.33	163.38	41.30	4.60	103.15	59.80	3.00	2.19	4.38
ALLIANCE	58.33	159.86	39.13	5.89	102.12	59.20	.00	2.28	2.65
VANGUARD	40.00	163.37	43.30	3.81	100.06	60.50	.00	1.54	4.67
S86-1533	70.00	161.42	40.17	4.18	99.30	59.50	.00	2.32	3.65
YUMA	43.33	159.91	34.53	3.52	98.43	58.90	1.00	2.61	3.95
REDWIN	43.33	165.38	46.87	1.07	98.17	61.60	3.00	1.93	4.72
VISTA	43.33	159.32	35.93	3.77	97.89	59.20	1.00	2.55	3.51
JULES	46.67	163.72	40.70	6.16	97.71	56.80	.00	2.31	3.08
TIBER	43.33	165.65	47.37	1.72	97.11	61.30	2.00	2.06	3.87
SD89119	46.67	161.55	42.23	6.54	94.92	60.60	1.00	1.86	3.03
MT 91192	70.00	164.50	42.00	4.26	94.60	58.10	2.00	2.35	5.09
RAMPART	20.00	164.73	44.20	5.42	94.35	60.70	2.00	1.10	3.71
NORSTAR	43.33	167.80	52.33	7.32	93.77	62.00	3.00	2.14	2.39
NIOBRARA	48.33	159.79	40.43	3.93	93.63	58.60	.00	2.82	3.95
AKRON	38.33	161.96	40.17	2.98	92.89	60.80	.00	1.72	4.03
HALT	46.67	159.01	35.43	2.08	88.23	57.30	1.00	2.73	3.90
MT 9222	36.67	163.28	39.93	1.91	86.25	60.50	3.00	1.76	4.30
ELKHORN	45.00	166.13	49.63	6.38	86.18	60.30	.00	1.89	3.29
AGASSIZ	78.33	163.25	46.73	8.70	76.52	60.30	3.00	2.16	1.51
BZ9W92-712-a	5.33	163.43	32.53	1.13	75.59	59.10	.00	.70	2.63
NORWIN	56.67	163.67	30.97	1.36	74.47	57.80	1.00	2.27	3.94
ROUGH RIDER	50.00	163.79	49.20	8.23	71.34	60.30	1.00	2.94	1.90
MEAN	47.8	163.0	42.0	4.1	102.3	60.3	1.3	1.7	4.1
C.V.	35.9	0.4	4.7	27.5	9.9	NA	NA	29.7	21.0
LSD (.05)	27.7	1.0	3.2	1.9	17.2	NA	NA	0.8	1.4

1/ DISEASE LEVELS: 1=LOW, 2=MODERATE, 3=HIGH

2/ AGRONOMIC SCALE BASED ON OVERALL APPEARANCE (POOR 0 TO 9 GOOD)