PROJECT TITLE: Advanced Yield Winter Wheat Evaluation: Lodging and disease resistance.

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OBJECTIVE:
To evaluate predominately Montana experimental cultivars for yield, lodging, quality, and disease resistance. With special attention and documentation given to dwarf bunt, stripe rust, and leaf rust reactions which are common production concerns in northwest Montana.

RESULTS:
Rhizoctonia Root Rot (Bare Patch) was identified in April throughout the nursery. Approximately 20% of the nursery area was affected, resulting in yields 60% of normal. Injury symptoms expressed were thin stands, reduced height, hastened maturity, and poor seed fill. True varietal resistance is not believed to exist and was not witnessed to any degree. Moderate to high infestations of Tan Spot were documented in May which also contributed to the low yields. Varietal susceptibility differences existed and were recorded. Documentation of genetic TCK responses was not possible as winter conditions were not conducive for spore germination and plant infection. Leaf and Stripe Rust were also absent in 1998.

SUMMARY:
The severity and randomness in which Rhizoctonia appeared across the nursery made measurements and determinations difficult. Winter and growing season climatic conditions were not conducive for the targeted disease documentation.

FUTURE PLANS:
Experimental winter wheat cultivars will continue to be evaluated at Kalispell to identify those with high yielding and disease resistance genetics for production in this region as well as across the state.

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

Planted: September 25, 1997 Harvested: July 31, 1998

VARIETY	YIELD BU/A	TEST WT LB/BU	MOIST PERCENT	HD DATE JULIAN	HEIGHT INCH	LODGE 0-9	RHIZOCT PERCENT 1/	TAN SPO 0-3 2/
MT9726	74.5	58.9	14.6	148.6	37.9	.33	13.3	1.00
MT9535	74.1	60.0	13.8	146.6	32.7	.00	18.3	2.00
NEELEY	68.1	58.7	14.2	152.6	36.2	2.00	15.0	3.00
MT 9426	67.0	58.7	14.0	147.3	30.0	.67	26.6	2.00
MT9513	66.6	60.2	13.7	149.3	35.0	.00	16.6	1.00
MTR9748	66.1	57.1	14.4	147.0	36.6	.67	23.3	1.33
MTW9752	66.1	58.1	13.7	146.0	36.0	.67	18.3	1.00
MTS97104	65.9	58.4	14.0	153.0	32.5	.67	23.3	2.33
MTW9727	65.8	61.1	14.8	148.0	36.1	.33	16.6	2.67
MT9712	64.1	57.6	13.2	144.6	34.1	2.00	21.6	1.67
MTS97110	63.6	58.5	15.4	151.0	33.4	.33	20.0	1.33
ND8955-A	63.2	59.5	14.5	146.6	34.7	1.67	11.6	1.33
MTW9722	62.7	60.4	14.3	147.0	34.1	.00	15.0	1.00
MTW9730	62.7	58.8	13.6	146.6	33.8	.33	21.6	1.00
MTW9724	62.7	58.9	15.2	146.3	32.5	1.33	26.6	1.33
ND9454	61.6	59.0	13.5	146.3	32.9	.33	13.3	3.00
KESTREL	60.8	57.8	14.6	148.3	34.5	1.00	21.6	2.67
MT 9403	60.5	58.7	15.1	147.0	33.0	.00	23.3	1.00
ERHARDT	60.4	60.6	14.5	147.6	33.2	.33	23.3	2.00
MT9729	59.8	59.7	15.2	148.0	36.3	.67	15.0	1.00
MT9717	59.5	60.5	14.2	147.6	33.8	.00	18.3	2.00
MT9526	58.9	59.4	16.6	152.3	36.2	.00	13.3	1.00
MTR9749	58.3	59.1	14.2	146.6	36.6	.00	11.6	2.00
RAMPART	57.5	59.9	12.8	146.0	34.1	2.00	20.0	2.00
MT9731	57.3	59.6	14.7	147.3	34.2	.33	30.0	1.00
MT9506	56.6	59.7	13.2	147.3	34.6	.33	25.0	2.33
ND9497	56.6	60.7	15.0	146.3	37.5	2.00	13.3	1.67
JUDITH	56.2	57.7	13.9	146.0	33.9	1.00	25.0	2.00
MTR9745	55.7	59.0	15.6	146.3	32.9	.67	16.6	1.67
MT9710	54.4	58.7	14.9	149.0	34.1	.33	25.0	.67
MT9523	54.0	60.3	13.7	146.6	33.7	.00	25.0	1.00
MTW9723	52.1	57.5	13.9	150.0	32.0	.00	41.6	1.00
MT9701	52.1	56.4	15.0	148.6	35.2	.00	35.0	1.00
ND9374	49.9	59.4	13.9	146.0	34.1	2.00	41.6	2.00
ND94108	48.8	58.2	13.7	146.6	34.5	2.00	33.3	1.33
MT9706	47.7	58.8	14.7	151.0	33.7	.67	35.0	3.00
MEAN	60.4	59.1	14.4	147.8	34.4	0.7	22.1	1.7
C.V.	14.5	1.6	5.2	0.5	5.3	68.5	66.8	26.6
LSD (.05)	14.2	1.6	1.2	1.3	2.9	24.0	24.0	0.7

1/ Rhizoctonia disease rating as percent of plot affected
2/ Tan Spot ratings 0=Highly Resistant, 3=Highly Susceptible