

TITLE: Spring Wheat

PROJECT: Small Grains Investigation MS 756

YEAR: 1980

PERSONNEL: Leader - Vern R. Stewart  
 Technician - Todd K. Keener  
 Cooperators - Montana Agricultural Experiment Station, MSU  
 USDA-SEA-AR  
 Montana Wheat Research and Marketing Committee

- OBJECTIVES:
1. To determine the adaptability of new and introduced spring wheat varieties and selections.
  2. To aid in the basic genetic research programs in spring wheat.

- 1980 EXPERIMENTS:
1. Private Variety Nursery
  2. Western Regional Spring Wheat Nursery

RESULTS AND DISCUSSION:

1980 private variety spring wheat yields this year were less than last year's. The two highest yielding varieties in this trial were both triticales. Test weights were not as high as expected which reflects the high moisture conditions at harvest time. Heading dates were earlier than last year, because of the early seeding date. Pondera and Marberg were the only varieties which showed total resistance to all three diseases observed (Table 1). Those two varieties also had less lodging as did the varieties of WS 108 and NK 5514.

Western Regional Spring Wheat Nursery -

The Utah and Idaho entries were the highest yielding lines in the Western Regional Spring Wheat Nursery (Table 2). Yields were about 29% less than last season because of hail. Test weights were 14% lower when compared to last season whereas the height means were about equal. The heading dates are earlier because of earlier planting dates and favorable weather in the spring. Lodging was severe in seven varieties (Table 2). Leaf rust (*Puccinia recondita* Rob ex Desm) was at a high level of infestation within the study. The variety ID 167 showed the most resistance to this disease and was the highest yielding entry in the test. Net blotch (*Helminthosporium teres* Sacc) was noted throughout certain varieties, however UT 541777 and Federation demonstrated total resistance. A nine year summary of spring wheat yields is given in Table 3.

Table 2. Agronomic data from the Western Regional Spring Wheat Nursery grown at the Northwestern Agricultural Research Center, Kalispell, MT in 1980. Field No. Y-2. Random block design, four replications.

Date seeded: April 22, 1980      Date harvested: September 29, 1980  
 Size of plot: 32 sq. ft.

C.I. or State No	Variety	Yield Bu/A	Test Wt Lbs/Bu	Heading Date	Hgt Ins	Ldging %	Leaf Rust %	Blotch %
ID 167	MRN/TBR66/3/TZPP/AN3//B <sup>2/</sup>	98.06	56.25	183.00	38.29	2.50	.50	11.25
UT881389	Bannock/Fremont <sup>2/</sup>	96.41	55.90	182.25	43.41	2.50	28.75	20.00
ID 134	BOR/3/II-60-101//TZPP/SN <sup>2/</sup>	95.57	54.72	179.75	37.50	28.75	4.25	20.00
ID 185	A7250S-A-8-1 <sup>3/</sup>	93.87	49.47	180.50	38.39	35.00	22.50	23.75
UT541774	Bannock/738-274 <sup>2/</sup>	92.18	55.32	179.75	39.27	.00	46.25	7.50
UT881292	Bannock/Fremont <sup>2/</sup>	91.69	55.98	181.25	43.50	11.25	32.50	27.50
WA 6510	K 6901495/MN <sub>3</sub> 26268 <sup>2/</sup>	90.74	55.92	183.50	38.09	2.50	3.25	21.25
ID 187	A7243S-A-3-1 <sup>3/</sup>	89.72	48.45	180.25	37.99	33.75	33.75	18.75
ID 183	ID0053/A6596S-A-21 <sup>1</sup> 3 <sup>/</sup>	87.98	55.32	181.50	37.60	.00	55.00	15.00
UT 25910	Rouge 66/Fremont <sup>2/</sup>	86.15	55.90	181.00	40.06	.00	50.00	21.25
ID 184	A6543S-14-1-3/A6596S <sup>3/</sup>	85.98	54.63	184.75	35.73	20.00	18.75	26.25
UT881235	Bannock/Fremont <sup>2/</sup>	85.25	58.05	178.00	48.33	72.50	47.50	6.25
UT541777	Bannock/738-274-1 <sup>2/</sup>	83.68	52.63	180.00	40.06	1.25	45.00	.00
CI 17267	Borah <sup>2/</sup>	82.39	55.65	178.75	35.24	2.50	16.25	13.75
WA 6748	K 6901496/Era <sup>2/</sup>	80.94	54.55	185.00	36.52	.00	12.50	21.25
UT541771	Bannock/738-274 <sup>1</sup> 2 <sup>/</sup>	80.89	54.32	182.75	39.17	.00	50.00	13.75
WA 6750	K71051/WA 5949 <sup>2/</sup>	80.51	54.07	184.25	35.93	1.25	6.25	11.25
UT881397	Bannock/Fremont <sup>2/</sup>	80.10	53.95	181.75	41.73	12.05	43.75	23.75
WA 6402	CI 14482/K6202578R21 <sup>3/</sup>	77.54	51.40	185.25	36.02	.00	8.75	17.50
ID 144	A7136S-5-2-3 <sup>3/</sup>	77.16	51.65	183.25	39.57	6.25	30.00	12.50
ID 166	ID 0042/A6546S-2-2 <sup>3/</sup>	76.99	54.35	179.00	34.45	53.75	15.00	20.00
UC 355	CI 13232/Ramona 50/ANZA	76.68	48.95	182.00	32.78	.00	40.00	32.50
ID 188	A72448-B-2-1 <sup>3/</sup>	76.66	48.95	182.50	37.20	5.00	25.00	15.00
WA 6751	ID49/WA 5947 <sup>3/</sup>	76.33	47.40	182.50	39.57	13.75	37.50	17.50
WA 6749	K 71051/WA 5949 <sup>3/</sup>	71.24	52.60	185.25	35.63	1.25	8.00	12.50
UC 353	Bluebird SIB/ANZA	70.95	51.45	180.25	34.45	.00	37.50	21.25
ID 162	Borah/ID 0033 <sup>2/</sup>	69.85	54.22	187.00	37.50	10.00	22.50	8.75
ID 172	Hyslop/Fielder <sup>3/</sup>	69.52	49.72	186.50	38.09	6.25	37.50	26.25
WA 6619	K 7105153/ID 55 <sup>3/</sup>	68.05	52.30	189.25	36.52	2.50	9.00	21.25
WA 6753	N 7000315/ID 65 <sup>3/</sup>	66.46	50.30	182.50	41.93	.00	55.00	23.75
ID 153	BOR/3/II-60-101//TZPP-SN <sup>2/</sup>	66.35	49.65	179.50	35.24	75.00	30.00	18.75
ID 165	Aberdeen Sel. 165 <sup>3/</sup>	62.51	51.07	184.25	35.24	62.50	38.75	7.50
WA 6752	K 7015152/ID 53 <sup>3/</sup>	62.06	47.90	188.25	38.19	12.50	23.75	16.50
CI 17425	Fieldwin, ID 87 <sup>3/</sup>	55.77	48.72	189.50	41.63	80.00	9.00	18.75
CI 4734	Federation <sup>3/</sup>	45.21	52.02	183.50	52.26	1.25	41.25	.00
WA 6615	VH070954/Fielder <sup>3/</sup>	37.61	46.82	191.50	46.85	87.50	57.50	27.50
WA 6616	VH070954/Fielder <sup>3/</sup>	34.46	50.90	191.25	47.34	72.50	57.50	5.50
$\bar{x}$		76.31	52.47	183.27	39.11	19.36	29.74	16.91
$F_{.01}$		10.63**	11.01**	45.56**	20.37**	11.73**	7.01**	1.61*
S.E. $\bar{x}$		4.70	.90	.51	.94	8.08	6.51	6.02
L.S.D. (.05)		13.17	2.51	1.44	2.64	22.66	18.24	16.87
C.V.%		6.16	1.71	.28	2.40	41.76	21.89	35.59

1/ Check variety

2/ Hard red wheat variety

3/ Soft white wheat variety

4/ F value for variety comparison

\* Indicates statistical significance at the .05 level

\*\* Indicates statistical significance at the .01 level

Table 3. Summary of the Western Regional Spring Wheat nursery grown at the Northwestern Agricultural Research Center, Kalispell, MT 1971-1980.

C.I. or State No.	Variety	1971	1972	1973	1974	1975	1976	1977	1979	1980	Ave.	Sta. Yrs.	% Borah
CI 4734	Federation	51.3	65.3	69.4	69.4	40.7	38.7	73.0	78.2	45.2	61.7	9	66
CI 17267	Borah	89.2	88.3	93.1	89.5	94.4	72.8	89.6	108.2	82.4	95.3	9	100
CI 17425	Fieldwin				107.2	78.6	71.9	97.9	107.2	55.8	81.5	6	97
ID 187	A 7243S-A-3-1								117.6	89.7	103.7	2	109
ID 183	ID0053/A6596S-A-21-1								116.6	88.0	102.3	2	107
ID 188	A7244S-B-2-1								116.3	76.7	96.5	2	101
ID 185	A7250S-A-8-1								114.8	93.9	104.4	2	109
ID 184	A6543S-14-1-3/A6596S								114.5	86.0	100.3	2	105
ID 144	A7136S-5-2-3								112.6	77.2	94.9	2	100
WA 6402	CI14482/K6202578R21								112.1	77.5	94.8	2	99
WA 6619	K7105153/ID55								110.1	68.1	89.1	2	93
ID 153	Bor/3/II-60-101//TZPP-SN								108.7	66.4	87.6	2	92
UT 881292	Bannock/Fremont								105.9	91.7	98.8	2	104
WA 6510	K6901495/MN26268								105.4	90.7	98.1	2	103
UT 881235	Bannock/Fremont								103.5	85.3	94.4	2	99
WA 6615	VH070954/Fielder								99.1	37.6	68.4	2	72
WA 6616	VH070954/Fielder								90.4	34.5	62.4	2	66
ID 167	MRN/TBR 66/3/TZPP/AN3//B									98.1	98.1	1	119
UT 881389	Bannock/Fremont									96.4	96.4	1	117
ID 134	Bor/3/II-60-101//TZPP/SN									95.6	95.6	1	116
UT 541774	Bannock/738-274-1									92.2	92.2	1	112
UT 25910	Rogue 66/Fremont									86.2	86.2	1	105
UT 541777	Bannock/738-274-1									83.7	83.7	1	102
WA 6748	K6901496/Era									80.9	80.9	1	98
UT 541771	Bannock/738-274-1									80.9	80.9	1	98
WA 6750	K71051/WA 5949									80.5	80.5	1	98
UT 881397	Bannock/Fremont									80.1	80.1	1	97
ID 166	ID 0042/A6546S-2-2									77.0	77.0	1	93
UC 355	CI 13232/Ramona 50/Anza									76.7	76.7	1	93
WA 6751	ID49/WA5947									76.3	76.3	1	93
WA 6749	K71051/WA5949									71.2	71.2	1	86
UC 353	Bluebird Sib/Anza									71.0	71.0	1	86
ID 162	Borah/ID0033									69.9	69.9	1	85
ID 172	Hyslop/Fielder									69.5	69.5	1	84
WA 6753	N 7000315/ID 65									66.5	66.5	1	81
ID 165	Aberdeen Sel. 165									62.5	62.5	1	76
WA 6752	K 7015152/ID 53									62.1	62.1	1	75