TITLE: Spring Wheat

PROJECT: Small Grains Investigations MS 756

YEAR: 1982

PERSONNEL: Leader - Vern R. Stewart
Technician - Todd K. Keener
Cooperators - Wheat Research Committee MAES
USDA-SEA-AR
Montana Wheat Research & Marketing Comm.

OBJECTIVES:

1. To determine the adaptability of new and introduced spring wheat varieties and selections.

2. To aid in basic genetic research programs in spring wheat.

EXPERIMENTS FOR 1982:

1. Private Variety Nursery
2. Western Regional Spring Wheat Nursery

RESULTS AND DISCUSSION:

Good yields were recorded from the Private Variety Nursery with five varieties yielding significantly higher than the check variety, Newana. Seven other varieties tested produced above the 100 bu/a mark. Thirteen varieties yielded significantly less than the check variety, eleven of those due to severe lodging problems. Test weights were above normal throughout the study and only three varied significantly from the check variety. Heading dates were about equal to last year with those dates and heights varying because of variety differences. The majority of the taller varieties (over 39.5 inches) were susceptible to lodging. All varieties were reported to have some level of tan spot (Pyrenophora trichostonia) with seven varieties having significantly less infection than Newana (15%).

Western Regional Spring Wheat Nursery - Excellent yields were harvested from the Western Regional Spring Wheat Nursery. Of the seven varieties producing yields significantly higher than the check (Owens) six were white. The Washington Potam 7/WA6021 K790 crosses were all significantly high yielders in this study. Almost three-fourths of this nursery yielded above 103 bu/a.

Test weights were slightly above normal (last 3 years average) with the average being 55.86 lbs/bu.

Tan spot was recorded in all varieties, but did not get above a 15% infection level as was reported in WA6826 and UT541777.

Lodging was most prevalent in those varieites which produced significantly less than the check. Two Idaho varieties (ID246 and ID172) were susceptible to lodging, yet still yielded satisfactorily.

Table 2. Agronomic data from the Western Regional Spring Wheat Nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT. in 1982. Field No. Y-4. Random block design, four replications.

Date seeded: April 22, 1982 Date harvested: September 16,1982 Plot size: 32 ft^2

		VARIETY		YIELD BU/A	TEST WT LB/BU	HEADING DATE	HEIGTH INCHES	% TAN SPOT	LODGING ANGLE	LODGING %
ID	236	0120FLR/5/BBII/4/7*SFL/3/	3/	131.31a	57.80	182.75a	42.72a	4.25	.00	.00
ID	247	COMPLEX PEDIGREE	2/	129.76a	57.08	181.75a	39.17a	2.00	.00	.00
WA	6919	POTAM 70/WA 6021,K790	3/	128.95a	58.02a	180.00	37.40	5.00	.00	.00
WA	6920	POTAM 70/WA 6021,K790	3/	127.59a	57.90	180.75	37.50	5.25	.00	.00
WA	6918	POTAM 70/WA 6021,K790	3/	127.02a	57.73	180.00	36.12	7.50	.75	6.25
WA	6917	POTAM 70/WA 6021,K790	3/	126.62a	58.58a	181.00	37.60	7.50	.00	.00
WA	6916	POTAM 70/WA 6021,K790	3/	126.57a	57.60	179.00b	36.52	6.25	.00	.00
ID	234	0120FLR/5/BBII/4/7*SFL/3/	3/	122.50	56.77	182.50a	42.42a	4.00	1.25	7.50
ID	235	0120FLR/5/BBII/4/7*SFL/3/	3/	122.10	56.75	183.75a	40.16a	4.00	.00	.00
ID	172	0120HYSLOP/FIELDER	3/	119.68	56.67	182.00a	37.60	5.00	.75	22.50
ID	224	0120FIELDER/5/BB II/4/7*S	3/	119.00	55.43b	182.75a	38.39a	6.25	.00	.00
ID	233	0120FLR/5/BBII/4/7*SFL/3/	3/	116.35	56.68	183.00a	42.13a	4.00	.00	.00
UT	209	UTAH W498-259/PROSPUR	2/	116.04	56.50	179.50	41.93a	5.50	.75	18.75
CI	17904	01200WENS 1/	3/	114.72	56.83	180.50	36.32	7.75	.00	.00
ID	246	COMPLEX PEDIGREE	3/	112.91	53.12b	178.75b	37.40	11.25	2.75a	36.25a
WA	6830	0120POTAM 70/WA6021	2/	112.30	55.38b	180.25	37.70	12.50	.00	.00
CI	17903	0122MCKAY	2/	112.01	57.45	180.75	37.70	9.00	.00	.00
WA	6826	0120POTAM 70/WA6021	2/	111.90	56.70	180.75	38.88a	15.00a	.00	.00
UT	541774	0122BANNOCK/738-274-1	2/	111.28	56.95	179.25b	38.29a	15.00a	.00	.00
WA	6831	0120POTAM 70/WA6021	2/	109.12	55.10b	180.75	37.30	11.25	.00	.00
UT	541777	0122BANNOCK/738-274-1	2/	107.72	56.00	178.75b	37.80	12.50	.00	.00
CI	17911	WAVERLY	3/	106.67	52.55b	181.00	35.73	7.75	.00	.00
ID	190	0120ID0046/7/ID0045/6/	3/	103.64b	55.35b	181.25	39.07a	12.50	.00	.00
UT	1655	UTAH W498-165/PRODAX	2/	99.91b	53.05b	180.75	38.48a	8.75	.75	24.75
ID	227	COMPLEX PEDIGREE	3/	99.65b	52.00b	181.25	36.61	11.25	.00	.00
UT	391	UTAH W498-165/PEAK 72	2/	98.79b	57.83	180.75	39.96a	4.00	2.00a	15.00
WA	6921	LIFN*2-N1220/POTAM 70	3/	98.29b	55.83	178.50b	37.11	12.50	3.00a	61.00a
ID	232	0120ID0118/OASIS/3/5*TWIN	3/	94.42b	51.52b	180.25	37.80	12.50	1.25	7.50
UT	2746	UTAH W498-165/BORAH	2/	89.51b	55.38b	180.50	36.42	6.50	2.50a	43.50a
ID	238	COMPLEX PEDIGREE	2/	85.34b	54.93b	177.25b	34.94	5.00	.75	24.75
SD	8015	JAMES/DAWN	2/	80.11b	57.90	176.75b	37.11	8.75	1.50	31.25
CI	4734	0120FEDERATION	3/	59.26b	50.25b	179.75	38.19	7.75	2.25a	48.50a

Table 2. (con't)

	YIELD	T.W.	HEADING	HT.	TAN SPOT	L.A.	LOD.%
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X	110.03	55.86	180.52	38.20	8.06	.63	10.86
F 5/	17.48**	28.78**	16.25**	7.73**	2.25**	1.92**	1.88*
S.E.X.	3.90	.39	.39	.70	2.39	.68	12.40
L.S.D.(.05)	10.94	1.11	1.10	1.96	6.71	1.90	34.82
C.V. %	3.58	.71	.22	1.82	29.62	106.98	114.17

1/ Check variety
2/ Hard red spring wheat variety
3/ Soft white spring wheat variety
4/ Tan spot (Pyrenophora trichostoma) Ocular rating, % flag leaf infected
5/ F value for variety comparison
* Indicates statistical significance at the .05 level
** Indicates statistical significance at the .01 level
a/ Values significantly greater than the check (.05 level)
b/ Values significantly less than the check (.05 level)

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Table 3. Summary of the Western Regional Spring Wheat Nursery yields grown at t[illegible] Northwestern Agricultural Research Center, Kalispell, MT 1979-1982.

C.I. or State No.	Variety	1979	1980	1981	1982	Ave.	Sta. Yrs.	% Owens
CI 4734	Federation	78.2	45.2	42.4	59.3	56.3	4	57
CI 17904	Owens (ID 0185)	114.8	93.9	73.5	114.7	99.2	4	100
CI 17903	Mckay (ID 0167)		98.1	93.9	112.0	101.3	3	108
UT 541774	Bannock/738-274-1		92.2	65.1	111.3	89.5	3	95
UT 541777	Bannock/738-274-1		83.7	65.5	107.7	85.6	3	91
ID 172	Hyslop/Fielder		69.5	51.6	119.7	80.3	3	85
WA 6831	Potam 70/WA 6021			95.0	109.1	102.1	2	108
WA 6830	Potam 70/WA 6021			94.1	112.3	103.2	2	110
WA 6826	Potam 70/WA 6021			92.0	111.9	102.0	2	108
ID 232	ID0118/Oasis/3/5*Twin/ID			83.7	94.4	89.1	2	95
ID 236	FLR/5/BBII/4/7*SFL/3/AS			74.2	131.3	102.8	2	109
ID 235	FLR/5/BBII/4/7*SFL/3/AS			73.4	122.1	97.8	2	104
ID 190	ID 0046/7/ID 0045/6/			70.6	103.6	87.1	2	93
ID 224	Fielder/5/BBII/4/7			66.5	119.0	92.8	2	99
ID 233	FLR/5/BBII/4/7*SFL			65.9	116.4	91.2	2	97
ID 234	FLR/5/BBII/4/7*SFL			61.3	122.5	91.9	2	98
ID 247	Complex Pedigree				129.8	129.8	1	113
WA 6919	Potam 70/WA 6021, K790				129.0	129.0	1	112
WA 6920	Potam 70/WA 6021, K790				127.6	127.6	1	11[illegible]
WA 6918	Potam 70/WA 6021, K790				127.0	127.0	1	1[illegible]
WA 6917	Potam 70/WA 6021, K790				126.6	126.6	1	110
WA 6916	Potam 70/WA 6021, K790				126.6	126.6	1	110
UT 209	Utah WA498-259/Prospur				116.0	116.0	1	101
ID 246	Complex Pedigree				112.9	112.9	1	98
CI 17911	Waverly				106.7	106.7	1	93
UT 1655	Utah W498-165/Prodax				99.9	99.9	1	87
ID 227	Complex Pedigree				99.7	99.7	1	87
UT 391	Utah W498-165/Peak 72				98.8	98.8	1	86
WA 6921	LIFN*2-N1220/Potam 70				98.3	98.3	1	86
UT 2746	Utah W498-165/Borah				89.5	89.5	1	78
ID 238	Complex Pedigree				85.3	85.3	1	74
SD 8015	James/Dawn				80.1	80.1	1	70