

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 varieties which produced significantly less than the check. Two Idaho varieties (ID246 and ID172) were susceptible to lodging, yet still yielded satisfactorily.

SPRING WHEAT VARIETIES

SPRING WHEAT VARIETIES RECOMMENDED FOR WESTERN MONTANA

Hard Red Varieties

1. Borah - non-irrigated and irrigated
2. Fortuna - dryland
3. Newana - dryland and irrigated
4. Pondera - dryland and irrigated
5. Marbers - dryland and irrigated

Soft White Varieties

1. Owens - dryland and irrigated

CHARACTERISTICS OF RECOMMENDED VARIETIES

Hard Red Varieties

1. Borah

- a. Bearded variety
- b. Very high yielding ability
- c. Semi-dwarf type
- d. Medium maturity
- e. Low to fair test weight
- f. Resistant to shattering
- g. Resistant to stripe rust
- h. Susceptible to leaf rust
- i. Resistant to stem rust

2. Fortuna

- a. Bearded variety
- b. Good yielding ability
- c. Medium to tall height
- d. Medium maturity
- e. High test weight
- f. Poor to fair lodging resistance
- g. Somewhat susceptible to shattering
- h. Resistant to most common races of stem rust
- i. Resistant to most common races of leaf rust
- j. Fair to good milling and baking quality

Recommended Spring Wheat Varieties (cont'd)

3. Newana

- a. High yielding ability
- b. Semi-dwarf variety
- c. High test weight
- d. High lodging resistance
- e. Good shattering resistance
- f. Resistance to stem rust
- g. Moderately susceptible to leaf rust

4. Fonders

- a. High yielding ability
- b. Semi-dwarf variety
- c. High test weight
- d. Mid-season maturity
- e. Resistance to stem and stripe rust
- f. Moderately resistance to leaf rust

5. Marbers

- a. Good yielding ability
- b. Semi-dwarf variety
- c. Good test weight
- d. Mid-season maturity
- e. Resistance to stem rust
- f. Moderately susceptible to leaf rust
- g. Moderately resistant to stripe rust

Soft White Varieties

1. Owens

- a. Bearded variety from Idaho
- b. Very high yielding ability
- c. Semi-dwarf type
- d. Medium maturity
- e. Fair test weight
- f. Good straw strength
- g. Good shattering resistance
- h. Resistant to stem and stripe rust

TABLE 1

Astronomic data from the Private Variety Spring Wheat Nursery grown on the 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 22, 1982
Size of plot: 32 sq. ft.

	VARIETY	YIELD BU/A	TEST WT LB/BU	HEADING DATE	HEIGHT INCHES	LODGING ANGLE	LODGING %	% TAN 3/ SPOT
CI 17903	0122MCKAY	117.26a	57.27	181.75	37.89a	.00	.00	3.00b
MN 70170	0122WALDRON/ERA	115.41a	57.68	180.00b	36.22	.00	.00	23.75
CI 17911	WAVERLY	114.21a	54.08b	182.50	36.02	.00	.00	10.50
NK 2631	012275S 2631	114.19a	57.50	182.50	40.75a	.00	.00	2.00b
NA 79561	NA 79561	110.79a	56.15	180.25b	35.93	.00	.00	10.50
CI 17904	01200WENS	109.77	56.52	181.00	37.50a	2.00	28.75	5.75
NA 18374	0122NHS 183-74	108.30	55.58	177.00b	34.35	.00	.00	12.50
CI 17691	0122WAMPUM (WA6105)	106.40	55.03b	181.25	41.63a	.00	.00	7.75
WB 1	0122AIM (WPB)	105.21	57.67	179.75b	35.73	.00	.00	23.75
AG 1	SOLAR	104.50	57.27	182.75a	37.70a	.00	.00	3.25b
NK 55114	75S 5511-4	104.00	58.22	181.00	38.48a	.00	.00	6.75
WS 4194	WS 4194	103.79	56.20	179.00b	39.17a	.50	2.50	2.25b
CI 17438	0124CANDO (DURUM)	99.51	55.77	181.50	33.17	.00	.00	14.25
CI 17430	0122NEWANA, MT 7156	98.02	56.73	181.50	34.45	.00	.00	15.00
AG 2634	0122WALERA	95.39	56.83	182.25	35.43	.00	.00	10.00
CI 17407	0122PRODAX/MT 34	90.71	53.80b	180.50	36.81	.75	5.00	12.50
CI 17789	0124VIC (DURUM)	90.71	57.18	180.75	44.09a	1.50	21.25	9.00
CI 15892	0124WARD (DURUM)	89.36	57.50	179.50b	42.32a	1.25	20.00	4.25b
CI 17829	0122MARBERG	88.17	56.25	177.75b	36.12	.50	18.75	25.00
CI 17790	0122LEN (ND543)	85.14b	56.40	179.00b	35.53	.00	.00	28.75a
CI 15930	0122OLAF	84.71b	55.65	178.50b	35.53	1.00	18.75	25.00
CI 17282	0124CROSBY	83.97b	56.40	179.75b	41.73a	2.50a	36.25a	4.00b
WS 4093	WS MP 4093	79.04b	54.18b	178.50b	34.15	4.00a	85.00a	32.50a
CI 17286	0122TIIGA	79.00b	57.48	181.00	42.32a	5.50a	95.75a	5.50
CI 10003	0122THATCHER	78.05b	55.75	179.75b	44.29a	6.00a	87.25a	6.75
CI 17910	0122ALEX (ND 550)	76.35b	56.30	180.50	42.13a	4.00a	72.25a	5.50
CI 17681	0122BUTTE	74.82b	57.10	178.50b	39.57a	4.25a	58.75a	10.50
RL 4352	COLUMBUS	73.30b	55.90	182.50	44.98a	6.25a	72.50a	11.50
SD 2868	CENTA	70.71b	55.58	177.25b	39.57a	6.75a	91.25a	3.25b
CANADA	LEADER	70.50b	55.23	180.75	39.57a	5.25a	72.25a	9.00
CI 13596	0122FORTUNA	66.31b	54.12	180.25b	40.85a	7.00a	93.25a	7.75
I 17429	0122LEW, MT 711	66.46b	52.52	181.75	42.72a	6.50a	89.75a	5.50

14

Table 1. (con't)

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X	92.33	56.31	180.33	38.65	2.05	30.29	11.16	
F 3/_	14.35**	3.88**	15.68**	17.45**	11.65**	12.67**	5.02**	
S.E.X	4.20	.55	.39	.80	.75	10.41	3.71	
L.S.D. (.05)	11.79	1.54	1.11	2.24	2.10	29.25	10.43	
C.V. %	4.55	.98	.22	2.07	36.52	34.38	33.27	

1/ Check variety

2/ Tan spot (*Pyrenophora trichostoma*) Ocular ratings, % flag leaf infected.

3/ F value for variety comparison

a/ Values significantly greater than the check at the .05 level

b/ Values significantly less than the check at the .05 level

** Indicates statistical significance at the .01 level

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