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TITLE: Spring Wheat

PROJECT: Small Grain Investigation MS 756

YEAR: 1979

PERSONNEL: Leader - Vern R. Stewart  
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 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.

1979 Experiments:

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

RESULTS AND DISCUSSIONS:

Private Variety Spring Wheat Nursery - The yields ranged from 77.49 bu/a to 111.52 bu/a with two varieties (TR5 and Thatcher) yielding significantly less than Newana. Test weights were slightly lower than in 1978. Four varieties had test weights significantly less than Newana. Five entries headed significantly earlier than Newana, whereas WS 122 and Fielder headed significantly later. Diseases were not an important factor in the study. However, Thatcher and Prodax showed susceptibility to leaf rust.

Western Regional Spring Wheat Nursery - Yields ranged from 78.18 bu/a to 129.77 bu/a with three varieties yielding significantly more than the check, Borah. Test weights were slightly higher than in previous years. All but four varieties had a significantly later heading date than Borah. Seventy-two percent of the entries were significantly greater in height than Borah. Leaf rust was severe on UT 25943, ID 184, and ID 183, where infection levels exceeded 50%. Moderate levels of infection were observed throughout the nursery (Table 2). Powdery mildew was high throughout the nursery.

## SPRING WHEAT VARIETIES

### SPRING WHEAT VARIETIES RECOMMENDED FOR WESTERN MONTANA

#### Hard Red Varieties

1. Norana - nonirrigated and irrigated
2. Borah - nonirrigated and irrigated
3. Thatcher - dryland and irrigated
4. Fortuna - dryland
5. Newana - dryland and irrigated
6. Pondera - dryland and irrigated
7. Marberg - dryland and irrigated

#### Soft White Varieties

1. Fielder - nonirrigated and irrigated
2. Fieldwin - dryland and irrigated

### CHARACTERISTICS OF RECOMMENDED VARIETIES

#### Hard Red Varieties

1. Norana
  - a. Bearded variety, developed in Montana
  - b. Very high yielding ability
  - c. Semi-dwarf type
  - d. Maturity - mid-season to late
  - e. Good test weight
  - f. Excellent straw strength
  - g. Good shattering resistance
  - h. Resistant to stem rust
  - i. Resistant to loose smut
  - j. Resistant to moderately resistant to stripe rust
  - k. Good milling and baking quality
2. 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
3. Thatcher
  - a. Beardless variety, developed in U.S.A.
  - b. Fair yielding ability
  - c. Medium height
  - d. Early maturity
  - e. Good test weight
  - f. Fair to good lodging resistance
  - g. Good shattering resistance
  - h. Susceptible to leaf rust
  - i. Resistant to stripe rust
  - j. Good milling and baking quality

Recommended Spring Wheat Varieties (con't)4. Fortuna

- a. Beardless variety, developed in North Dakota
- 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

5. Newana

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

6. Pondera

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

7. Marberg

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

Soft White Varieties1. Fielder

- a. Bearded variety, developed in Idaho
- b. Very high yielding ability
- c. Semi-dwarf type
- d. Medium to late maturity
- e. Fair test weight
- f. Good straw strength
- g. Good shattering resistance
- h. Moderately resistant to stripe rust
- i. Slight resistance to leaf rust

Recommended Spring Wheat Varieties (con't)2. Fieldwin

- a. High yielding ability
- b. Semi-dwarf variety
- c. Medium to late maturity
- d. Fair test weight
- e. Good straw strength
- f. Good shattering resistance
- g. Moderate resistance to stripe, stem and leaf rust
- h. Moderate resistance to powdery mildew

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Table 1. Agronomic data from the Private Variety Spring Wheat Nursery grown on the Northwestern Agricultural Research Center in 1979. Field No. Y-1. Random block design, four replications.

Date seeded: April 30, 1979      Date harvested: September 13, 1979  
 Size of plot: 32 sq. ft.

C.I. or State No.	Variety	Yield Bu/A	Test Wt. Lbs/Bu.	Heading Date	Height Inches	Leaf Rust	
						%	Sev.
TR 4	Yoco-Resel(Triticale)	111.52	49.55b	184.50b	37.11a	.00	.00
CI 17430	Newana, MT 7156 <sup>1/</sup>	<u>111.37</u>	<u>61.50</u>	188.25	33.66	.00	.00
MT 34	Prodax	107.71	58.72b	187.50	34.45	12.50	1.00
WS 122	MP-122	107.56	61.25	190.50a	37.60a	.00	.00
NA 7664	HS 7664	106.75	60.75	187.75	35.83	.00	.00
AG 1	Solar	106.16	62.25	189.25	34.55	.00	.00
CI 17268	Fielder	105.68	61.50	189.75a	38.68a	5.00	.50
CI 13596	Fortuna	105.22	62.47	186.00b	43.80a	.00	.00
TR 1	Navojoa (Triticale)	104.32	50.27b	183.00b	34.65	.00	.00
WS 114	MP-114	101.37	61.75	187.25	29.72b	.00	.00
CI 13986	Era	100.50	61.67	189.00	33.27	.00	.00
NK 55114	75S 5511-4	<u>99.57</u>	<u>62.42</u>	188.00	35.53	.00	.00
TR 5	Maya I-Arm(Triticale)	<u>94.48b</u>	50.40b	183.00b	35.93	.00	.00
CI 10003	Thatcher	77.49b	59.43b	186.25b	43.60a	17.50	2.25
$\bar{x}$		102.84	58.85	187.14	36.31	2.50	.27
$F_{2/}$		3.01**	96.75**	34.38**	20.46**	1.39NS	1.80NS
S.E. $\bar{x}$		4.98	.50	.40	.84	4.70	.48
L.S.D. (.05)		14.22	1.42	1.15	2.40	13.43	1.36
C.V. %		4.84	.84	.21	2.31	187.91	177.87

1/ Check variety

2/ 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