

TITLE: Spring Wheat

PROJECT: Small Grains Investigation MS 756

YEAR: 1980

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.

- 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.

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. Marberg - dryland and irrigated

Soft White Varieties

- 1. Fielder - non-irrigated and irrigated
- 2. Fieldwin - 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. 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

3. 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

Recommended Spring Wheat Varieties (con't)4. 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

5. 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

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

Table 1. Agronomic data from the Private Variety Spring Wheat Nursery grown on the Northwestern Agricultural Research Center in 1980. Field No. Y-2. Random block design, four replications.

Date seeded: April 22, 1980 Date harvested: September 12, 1980 Size of plot: 32 sq. ft.

C.I. or State No.	Variety	Yield Bu/A	Test Wt Lbs/Bu	Heading Date	Height Inches	% Blotch	Lodging %	Leaf Rust %	Stripe Rust %
TR 6	Mapache (Triticale)	109.82a	46.97b	179.25b	45.08a	9.00	7.50b	5.00	.25
TR 7	IA-IRA-BUI(Triticale)	108.17a	44.57b	179.75b	46.95a	17.50	2.50b	.00	.00
AG 1	Solar	97.54a	56.00	183.75a	38.68	6.25	75.00a	.25	26.25a
AG 2634	Walera	91.37	55.32	183.25a	38.78	15.00	85.00a	10.00	22.50a
NK 55114	75S 5511-4	90.32	58.32a	181.75	40.06	31.25	.00b	2.50	7.50
NA 18374	NHS 183-74	89.77	57.38	178.00b	38.78	27.50	2.50b	.00	22.50a
CI 13986	Era	88.70	55.22	183.50a	38.48	11.25	78.75a	.00	25.00a
CI 17430	Newana, MT 7156 ^{1/}	85.40	56.45	181.50	37.99	20.00	41.25	4.25	.00
NK 2631	75S 2631	84.95	54.82b	184.50a	39.86	5.00	75.00a	.00	67.50a
WS 108	MP 108	81.90	59.82a	180.50	37.60	40.00	.00b	15.00	.25
TR 1	Navojoa (Triticale)	81.03	47.90b	178.50b	39.57	32.50	5.00b	12.50	.00
CI 17790	Len (ND 543)	80.61	56.80	178.75b	38.58	41.25a	2.50b	.00	13.75
CI 13596	Fortuna	80.61	58.20a	179.00b	43.21a	32.50	83.75a	.00	.00
NA 7664	HS 7664	76.98	55.72	181.00	38.78	21.25	20.00	.25	.25
CI 17828	Pondera	76.63	56.77	179.00b	37.99	.00	.00b	.00	.00
NF 2634	75S 2634	75.52	54.92b	184.25a	36.81	16.25	66.25	.00	28.75a
CI 17829	Marberg	71.55b	54.82b	177.75b	38.88	.00	.00b	.00	.00
MT 34	Prodax	70.22b	50.20b	182.00	38.88	47.50a	86.25a	25.00a	.00
CI 10003	Thatcher	64.40b	55.63	178.00b	49.70a	5.00	53.75	33.75a	.00
SP 1	Speltz	36.52b	27.60b	188.00a	48.43a	28.75	96.75a	.50	.00
	\bar{x}	82.10	53.17	181.10	40.65	20.39	39.09	5.45	10.72
	F ₂ / ^{2/}	19.68**	227.62**	37.27**	8.41**	3.74**	18.43**	3.83**	9.97**
	S.E. \bar{x}	3.55	.48	.45	1.32	7.37	8.85	4.84	5.46
	L.S.D.	10.08	1.36	1.29	3.75	20.94	25.13	13.73	15.52
	C.V.%	4.32	.90	.25	3.25	36.17	22.64	88.72	50.95

1/ Check variety

2/ F value for treatment comparison

\bar{x} / Values significantly greater than the check at the .05 level

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

F* Indicates statistical significance at the .01 level