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 US 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 Varieties**

1. **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
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<th>C.I. or State No.</th>
<th>Variety</th>
<th>Yield (Bu/A)</th>
<th>Test Wt (Lbs/Bu)</th>
<th>Heading Date</th>
<th>Height (Inches)</th>
<th>% Blotch</th>
<th>Lodging %</th>
<th>Leaf Rust %</th>
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\[
x = 82.10 \\
F_{2/} = 19.68^{**} \\
S.E.\overline{x} = 3.55 \\
L.S.D. = 10.08 \\
C.V.\% = 4.32
\]

1/ Check variety 
2/ F value for treatment comparison 
ε/ Values significantly greater than the check at the .05 level 
ε/ Values significantly less than the check at the .01 level 
ε/ Indicates statistical significance at the .01 level