

Spring Wheat

This past season, the spring wheat research consisted of yield nurseries, milling and baking plots, and one selection nursery of advanced generation material.

The yield nurseries were as follows: (1) dryland advanced yield (2) irrigated advanced yield (3) uniform Western Regional White wheat and (4) off-station nurseries in Ravalli, Lake, and Mineral Counties.

Dryland Advanced Yield

The entries in this nursery consist of breeding material and standard varieties. The promising lines from breeding programs of other stations are included in this material.

Twenty-two entries replicated four times made up this nursery. It was located on the Station in field number A-1a. Yield and bushel weights were the only data obtained from this nursery.

Yields were somewhat below average for this field, because of weather conditions mentioned previously in this report. A mean of 30.4 bushels per acre was calculated. Statistical analysis of these data indicated no significant differences between varieties. Table IX shows complete data for this nursery.

Irrigated Advanced Yield

The entries and design of this nursery are the same as described for the dryland advanced yield nursery.

This nursery was located on the Station in field number Y-5. The mean of 49.9 is about seven bushels below a seven-year average for irrigation on the Station. Lodging was quite severe in some entries. Those with Rescue parentage were noticeably more susceptible to lodging.

C. I. 13220 and C. I. 13242 were the highest yielding entries, but not significantly higher than Thatcher, but significantly higher in yield than Lake, the lowest yielding entry. A C.V. of 4.74% indicates this is a good test. There is little difference in test weight of these entries. Table X gives complete data for this nursery.

Uniform Western Regional White Wheat

This nursery is grown throughout the western states of the United States. Entries are supplied by cooperators throughout the region concerned.

Thirteen entries of three replications made up this nursery. It was located on the Station in field number A-1a.

Yields were lower than normal and stripe rust was found on all entries

except Thatcher. Covered smut was found in all entries except Thatcher. These data for that reason are recorded, but are not to be used in summarization of data. It is felt, because of the smut factor, these data are unreliable. See Table XI.

Off-station Nurseries

The off-station nurseries were made up from entries that have shown promise in the advanced yield nursery. They consist of ten entries replicated four times. A discussion of each nursery follows of which there are three.

Ravalli County - Location of this trial was on the Bitterroot Stock Farm near Corvallis. Irrigation was somewhat uneven as were stands. Irrigation water seeped from the irrigation ditch, making one side of the nursery somewhat more moist than the rest. Volunteer alfalfa was a problem and, no doubt, contributed to the non-significant results obtained. Yields were low for irrigated barley. Table XIII gives complete data for this experiment.

Lake County - This nursery was located on the Walter Mangles farm near Pablo, Montana. Hail, during the growing season, caused severe damage to this test. Yields were very low (15.8 bushels per acre mean) and a very high C.V. Table XIII. These data should not be included in a summary table.

Mineral County - This dryland trial was grown on the Charles Frey Ranch near Tarkio, Montana. Extreme dry growing conditions caused very low yields. The mean being only 3.8 bushels per acre. No conclusive results can be drawn from these data. See Table XIV.

Milling and Baking Plots

These large plots are grown to secure seed enough for baking and milling tests. They were seeded in strips seven feet wide and 225 feet long. They were located in field number E-1 this past season.

Extreme dry conditions caused low yields of the plots. Only six to ten pounds of seed were obtained from each. No yield measurements were taken.

The following varieties and/or crosses were included in the trial: Selkirk, Centana, Thatcher, Lee, Rescue, 1953 x Lee B52-91, Rescue x 1831 B51-9, Ceres, and Canthatch.

Selection Nursery

This nursery consisted of advanced generation material of white wheats from the Idaho wheat breeding program.

Table XV shows the factors studied. It should be noted that stripe rust and late maturity of all these lines are recorded. Little promise is seen in any of these lines. Weak straw is a factor not in favor of these lines. Yield differences do exist between lines.

Table XI. Agronomic data from Uniform Western Regional White Wheat nursery (dryland) at Creston, Montana in 1960. Four row plots, four replications.

Planted: April 22, 1960

Harvested: August 18, 1960

Size of Plot: 16 feet

Variety or Cross	C. I. or N. No.	Height in Inches	Strip Rust 1-4	Lodg- ing %	Lodging			Total Grams	Ave. Bu. /acre	Bushel Wt. in Pounds	
					I	II	III				
Baart	1697	43	4	20	455	375	335	1165	29.1**	60.5	
Onas	6221	37	4	25	430	425	395	1250	31.3**	58.5	
Kenya x Lemhi ⁶	52Ab9702	13435	39	4	60	440	390	305	1135	28.4*	58.0
Kenhi	13268	39	3	25	475	370	266 ¹	1111	27.8*	56.5	
Idaed 59	13631	25	3	25	465	350	457	1272	31.8**	61.0	
Idaed 59-B	13632	33	3	—	445	365	340	1150	28.8**	60.6	
Lemhi	11415	36	4	75	270	270	170	710	17.8	—	
Lemhi 53	13258	40	4	75	410	335	370	1115	27.9*	57.5	
Idaed	11706	35	3	10	330	405	360	1095	27.4*	59.4	
Federation	4734	39	3	30	420	425	380	1225	30.6**	59.0	
Kenya x Lemhi ⁶ , 52Ab9781	13630	42	4	65	440	415	365	1220	30.5**	58.5	
Thatcher	10003	38	0	—	298	345	375	1018	25.5	59.3	
Onas 53	13257	40	3	35	510	440	365	1315	32.9**	59.2	

Note: Lemhi is used as a check

* Varieties yielding significantly more than the check (5%)

** Varieties yielding significantly more than the check (1%)

Mean Yield.....	37.9
S. E. \bar{x}	2.7469
L. S. D. (5%).....	8.0
L. S. D. (1%).....	10.9
C. V.	7.25%

Analysis of Variance

Source	D. F.	Mean Square	F
Replications	2	15767.5	6.97**
Varieties	12	7134.167	3.15**
Error	23	2263.69	
Total	37		