

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 IX. Agronomic data from dryland advanced yield spring wheat nursery at Creston, Montana in 1960. Four row plots, four replications.

Planted: April 22, 1960

Harvested: August 18, 1960

Size of Plot: 16 sq. ft.

Variety or Cross	C.I. or N. No.	Replications				Total Grams	Ave. Bu/A	Bu. Wt. in lbs.
		I	II	III	IV			
Lee	12488	250	340	255	270	1115	27.9	58.9
Thatcher x Lee	B55-5	240	390	255	275	1160	29.0	58.4
II-44-29 x Lee ³ II-53-562	13458	305	280	275	340	1200	30.0	59.3
Thatcher ² x Rescue	B57-191	350	290	245	270	1155	28.9	58.0
Selkirk	13100	320	355	300	330	1305	32.6	58.2
Pembina C. I. 229	13332	260	225	330	265	1080	27.0	58.5
Thatcher	10003	340	295	260	265	1160	29.0	59.0
Rescue N1315 x G.B.	B57-92	385	340	295	320	1340	33.5	58.5
Conley	13157	340	250	255	305	1150	28.8	58.3
Centana	12974	430	300	310	300	1340	33.5	59.5
Rescue	12435	340	285	380	265	1270	31.8	60.0
Thatcher ³ x Rescue	B57-196	325	295	270	345	1235	30.9	59.0
Lake	13413	370	245	225	245	1085	27.1	58.5
Rescue N1315 x G.B.	B57-173	370	325	365	250	1310	32.8	57.0
Minn. Sel II-53-404	13465	340	285	230	295	1150	28.8	60.0
Chinook	13220	325	310	310	230	1175	29.4	59.5
Canthatch C.T. 233	13345	286	335	270	255	1146	28.7	59.1
Rescue x 1831, B 51-9	13304	390	370	360	270	1390	34.8	60.0
Minn. Sel. II-53-525	13466	340	370	345	345	1400	35.0	58.1
Ceres	6900	332	275	282	275	1164	29.1	61.2
II-44-29 x Lee ³ II-53-567	13416	305	285	290	315	1195	29.9	59.2
1953 x Lee, B 52-91	13242	280	300	280	330	1190	29.8	60.0

Note: Thatcher is used as a check in this nursery.

Mean Yield..... 30.4
 S. E. \bar{x} 2.01061
 L. S. D. NS
 C. V. 6.62%

Analysis of Variance

Source	D.F.	Mean Square	F
Replication	3	7383.67	4.57**
Varieties	21	2262.81	1.40 N.S.
Error	63	1617.02	
Total	87		

Table X. Agronomic data from irrigated advanced yield spring wheat nursery at Creston, Montana in 1960. Four row plots, four replications.

Variety or Cross	C. I. or N. No.	Head- ing Date	Head- ing Ht.	Lod- ging %	Loose Smut	Replications				Total Grams	Ave. Bu. /A.	Bu. Wt. in lbs.
						I	II	III	IV			
Lee	12488	7-6	48	9		470	439	520	440	1869	46.7	58.0
Thatcher x Lee	B 55-5	7-7	44	2	x	460	470	480	475	1885	47.1	58.5
II-44-29 x Lee ³ II-53-562)	13458	7-8	48	63		520	400	460	490	1870	46.8	58.0
Thatcher ² x Rescue	B57-191	7-9	48	63		577	510	490	570	2147	53.7	58.0
Selkirk	13100	7-8	45	30		545	430	573	560	2108	52.7	58.5
Pembia C. I. 229	13332	7-7	46	17		530	430	480	440	1880	47.0	58.5
Thatcher	10003	7-7	47	14		576	390	615	440	2021	50.5	58.4
Rescue-N1315 x G B	B57-92	7-8	48	96		575	548	540	475	2138	53.5	57.4
Conley	13157	7-9	48	15		485	385	480	485	1835	45.9	58.6
Centana	12974	7-9	48	56		560	410	455	490	1915	47.9	60.0
Rescue	12435	7-9	49	90		500	515	560	415	1990	49.8	58.9
Thatcher ³ x Rescue	B57-196	7-9	46	20		575	520	475	545	2115	52.9	59.0
Lake	13413	7-12	47	54		490	355	470	490	1805	45.1	59.5
Rescue N1315 x G B	B57-173	7-8	46	83		450	485	510	475	1920	48.0	57.5
Minn. Sel. II-53-404	13465	7-6	45	50		535	475	605	610	2225	55.6	---
Chinook	13220	7-8	52	72		475	395	445	560	1875	46.9	59.0
Canthatch C. T. 233	13345	7-7	43	16		480	415	495	490	1880	47.0	59.4
Rescue x 1831, B51-9	13304	7-11	49	94		595	535	545	510	2185	54.6	59.2
Minn. Sel. II-53-525	13466	7-8	45	55		565	520	510	510	2105	52.6	59.5
Ceres	6900	7-9	50	76		575	450	375	543	1943	48.6	61.0
II-44-29 x Lee ³ II-53-567	13416	7-7	50	44		525	480	495	480	1980	49.5	58.5
1953 x Lee B52-91	13242	7-6	46	2		585	500	630	500	2215	55.4	60.0

Note: Thatcher is used as a check

Source	D.F.	Mean Square	F
Replications	3	20458.67	9.12**
Varieties	21	4547.81	2.03*
Error	63	2244.095	
Total	87		

Mean Yield.....	49.9
S. E. \bar{x}	2.36859
L. S. D. (5%).....	6.7
C. V.	4.74%