WINTER GRAIN IMPROVEMENT

Winter Wheat

Nine nurseries were seeded in the fall of 1953. One nursery containing 25 varieties was seeded on the station at Creston and eight off-station nurseries containing nine varieties each, except the nurseries located at Stillwater.

The station nursery, agronomic data shown in Table CVII, had a mean yield of 45.4 bushels per acre. Using Wasatch as a check C. I. 12696 was significantly higher in yield with 67.9 bushels per acre. This is a hard white wheat developed by the Washington State Experiment Station. This nursery was severly lodged at harvest time. Some smut was noted in some varieties while threshing but no readings were made on the amount of smut.

The hard red winter wheat nursery, grown in Flathead county in the Stillwater area was grown in cooperation with the USDA ARS. The purpose of this nursery is to find a drawf smut resistant variety of hard red winter wheat. Flecking of leaves was observed on all varieties. Rio had the highest rate of smut infection with 12%. C. I. 12696 was the highest yielding variety with 33.6 bushel per acre being significantly higher in yield then Wasatch which is used as a check. Table CVIII.

The western regional white wheat nursery grown in the Stillwater area was grown in cooperation with the USDA ARS. This nursery is grown for the purpose of finding white wheats adapted to the area and resistant to drawf smut. Table CIX shows agronomic data for this nursery. The mean yield of this nursery was 27.4 bushels per acre.

Wasatch was the highest yielding variety in the nursery grown in Lake county near Ronan, with 35.5 bushels per acre. The mean yield of this nursery was 30.7 bushels per acre, Table CX.

There were no significant results obtained from the nursery in Sanders county at Plains. The mean yield of this nursery was 33.6 bushels per acre, Table CXI.

Table CXII shows yield data from the nursery in Sanders county at Camas Praire. C. I. 12930 was the highest yielding variety with 26.9 bushels per acre. The mean yield was 23.5 bushels per acre.

The nursery in Mineral County had a mean yield of 30.7 bushels per acre. The results were not significant when analysed statistically. Table CXIII.

Table CXIV gives the data from the nursery grown in Missoula County near Frenchtown. The results when analysed statistically were not found to be significant. The mean yield of this nursery was 18.5 bushels per acre.

In the nursery at Lincoln County C. I. 12930 was significantly higher in yield than Wasatch which is used as a check. The yield of this variety was 21.9 bushels per acre. See Table CXV for complete data.

Table CXVI gives a summary of the varieties grown in Northwestern Montana in 1954.

Tables CXVII and CXVIII gives the annual and five year summary of yield data at Creston, Montana and six year summary of data for Northwestern Montana respectively.

Tables CXIX thru CXXIII shows the data of individual counties in Northwestern Montana 1950-1954.

Table CVII. Agronomic data from winter wheat nursery, dryland, Creston, Montana 1954. Three row plot, three replications.

Date Planted. September 21, 1953 Date Harvested. August 10, 1954 Size of Plot. 16 feet

Variety or Cross	C. I. or N No.	Heading Date	Plot Yield in Bushels Per Acre I	II	III	Total Bushels	Average Bushels Per Acre	Bushel Weight in Pounds
Yogo		6-21	51.1	39.7	44.0	134.8	44.9	60
Newturk		6-19	42.6	49.7	47.6	139.9	46.6	61
Karmont		6-19	52.5	42.0	41.2	135.7	45.2	62
Kharkof	1442	6-16	43.3	43.3	42.0	128.6	42.9[1]	60
Wasatch	11925	6-13	55.4	54.7	43.1	153.2	51.1	62
Turkey x Oro - 221	12705	6-20	38.3	27.0	31.2	96.5	32.2[1]	60
Yogo x Wasatch - 6		6-13	49.0	48.3	41.2	138.5	46.2	62
Yogo x Wasatch - 8		6-19	37.6	38.3	40.5	116.4	38.8[1]	61
Yogo x Wasatch - 3		6-17	40.5	48.3	46.7	135.5	45.2	61
Yogo x Wasatch - 4		6-19	38.3	40.5	45.4	124.2	41.4[1]	60
Ric-Rex x Cheyenne N472361	12925	6-14	43.3	46.2	44.7	134.2	44.7	61
Blackhull-Rex x Cheyenne N482296	12933	6-19	46.9	51.1	48.3	146.3	48.8	62
Ric x Rex N43096		6-13	46.2	43.3	43.3	132.8	44.3	61
27-15 x Rex-Ric-41 W3524	12696	6-16	62.5	73.8	67.5	203.8	67.9**	61
Minter		6-22	46.2	42.0	31.2	119.4	39.8[1]	59
Sioux		6-16	39.1	46.2	54.7	140.0	46.7	60
Cheyenne		6-17	42.6	44.7	56.8	144.1	48.0	61
Kharkof Reselection		6-19	42.6	49.7	49.7	142.0	47.3	61
Yogo x Rescue 56-30		6-19	51.8	51.8	49.0	152.6	50.9	61
Yogo Elite Composite		6-21	31.2	36.9	33.4	101.5	33.8[1]	61
Yogo Good Composite		6-20	36.9	36.9	48.3	122.1	40.7	59
Yogo Poor Composite		6-21	44.0	44.0	36.2	124.2	41.4[1]	60
112A - 273 - 3-2 (Logan)	13059	6-26	41.2	44.7	45.4	131.3	43.8	60
112A - 105 - 6-4 (Logan)	13060	6-18	46.2	44.0	56.8	147.0	49.0	60
Commanche	11673	6-12	54.0	56.1	47.6	157.7	52.6	60

Note: Wasatch is the check in this nursery.

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

[1]Varieties yielding significantly less than the check (5%).

Mean Yield.....45.4
S. E. $\bar{x}$..... 2.894
L.S.D. (5%)..... 8.2
L.S.D. (1%).....11.0
C. V. 6.37%

Table CVIII. Agronomic data from hard red winter wheat nursery grown under dryland conditions in Flathead county on Conrad Gilbertson farm Kalispell, Montana 1954. Single row plots four replications.

Date Planted. September 21, 1954. Date Harvested August 11, 1954. Size of Plot 16 feet.

Variety or Cross	C. I. or N No.	Height in inches	Dwarf Smut %	Flecking Leaf Spot[1]	Plot Yields In Bushels Per Acre I	II	III	IV	Total Bushels	Average Bushels Per Acre	Bushel Weight Pounds
Rio-Rex x Cheyenne	12925	28	T	1	32.0	24.9	24.9	22.0	103.8	26.0	62
Rio-Rex x Cheyenne	12927	28	T	1	30.5	24.1	27.0	24.9	106.5	26.6	62
Rio-Rex x Nebred	12928	28	.5	2	30.5	26.3	23.4	25.6	105.8	26.4	62
Rio-Rex x Nebred	12929	28	T	3	32.0	26.3	28.4	26.3	113.0	28.3	63
Rio-Rex x Nebred	12930	26	T	3	29.1	29.8	30.5	25.6	115.0	28.8	62
Blackhull x Rio-Rex	12931	29	T	4	24.9	27.7	24.9	22.7	100.2	25.1	62
Blackhull-Rex x Rio-Rex	12932	28	.5	1	32.0	30.5	29.1	27.7	119.3	29.8	62
Blackhull-Rex x Cheyenne	12933	28	T	1	33.4	30.5	27.7	24.1	115.7	28.9	63
Rio	10061	29	12	1	27.0	27.0	24.9	22.7	101.6	26.7	60
Commanche	11675	28	T	3	20.6	22.7	22.7	20.6	86.6	21.7	-
Wasatch	11925	30	0	2	30.5	33.4	26.3	27.7	117.9	29.5	62
Turkey x Oro	12705	29	T	1	29.1	30.5	24.9	26.3	110.8	27.7	62
Kharkof	1442	29	3	2	27.7	27.7	26.3	30.5	112.2	28.1	62
Orfed x Wasatch	12943	27	T	1	25.6	27.0	24.9	24.9	102.4	25.6	62
112A-273-3-2	13059	31	0	2	32.0	32.0	28.4	27.0	119.4	29.9	62
112A-105-6-4	13060	32	0	4	30.5	36.9	26.3	32.0	125.7	31.4	60
27-15- x Rex-Rio - 41	12696	28	T	2	36.2	44.0	27.0	27.0	134.2	33.6*	62
Yogo x Rescue	-	29	T	1	31.2	29.8	29.1	27.7	117.8	29.5	62
Kharkof Reselection		30	0	1	31.2	28.4	24.9	23.4	107.9	27.0	61
Rex x Rio		30	T	3	23.4	27.7	17.0	18.5	86.6	21.7	-
Yogo x Wasatch -6		30	0	2	28.4	29.8	29.1	24.1	111.4	28.6	62
Yogo x Wasatch -8		29	0	2	32.0	29.1	27.0	22.7	110.8	27.7	62
Yogo x Wasatch -3		31	0	3	34.8	29.1	26.3	24.9	115.1	28.8	61
Yogo x Wasatch -4		29	0	1	28.4	29.1	21.3	24.1	102.9	25.7	62
Wh - Rye- A. elong x Cheyenne		30	0	4	19.9	17.8	17.0	15.6	70.3	17.6	-

Note: Wasatch is the check in this nursery.
[1] Scale 0-4
*Varieties yielding significantly more than the check.(5%)

Mean Yield.....27.1
S.E. $\bar{x}$..... 1.261
L.S.D.(5%)..... 3.6
L.S.D.(1%)..... 4.8
C.V..... 4.65%