

TITLE: Small Grain Investigations

PROJECT NUMBER: 5023 (Spring Wheat)

PERSONNEL: Leader - Vern R. Stewart
Cooperator - F. H. McNeal

FUNDS: State \$775.00

LOCATION: Northwestern Montana Branch Station, Field No. Y-2
Three off-station locations

DURATION: Indefinite

OBJECTIVES:

1. To determine the adaptation of new and introduced spring wheat varieties and selections by comparison with recommended varieties.
2. To evaluate materials from spring wheat breeding program in Montana and other stations.

EXPERIMENTAL DATA:

INTRODUCTION

Spring wheat yields in 1963 were above average. This was due in part to the 5 to 6 inch rainfall in June. Considerable stripe rust was found in the variety Centana.

Two station nurseries and three off-station nurseries were grown in 1963. The off-station nurseries were grown under irrigation.

MATERIALS AND METHODS

The advance yield nursery contained 27 entries, the western regional white spring wheat nursery contained 22 entries. The three off-station nurseries each had 12 entries. Thatcher is used as a check in the advanced yield nursery, Idaed 59 in the white wheats, and Centana in the off-station nurseries.

RESULTS AND DISCUSSION

The effect of stripe rust was noted in the yield reduction in varieties that usually have relative high yields in this area. Rescue, a history of low yield in this area was the highest yielding entry in 1963. The lower yielding entries also have a high stripe rust coefficients. Some hail damage was sustained on August 24th, and perhaps accounts in part for the lower yields than anticipated in this nursery. Test weights are below USDA standards in most varieties. See Table XXIX, for details of the data.

The mean yield of the white wheat nursery was lower than the hard red, as has been found to be true in past seasons. Examination of the data in Table XXX, will reveal the effect that stripe rust had on yields. In most cases, as the rust coefficient increased the yield decreased. Idaed 59 had a higher rust coefficient than would have been expected.

The off-station nurseries will be discussed by counties in which they are located.

Missoula - Yields from the spring wheat nursery grown on the Al Goodan farm west of Missoula were fair, with a mean yield of 30.3 bushels per acre. C.I. 13641 was the most outstanding entry, with a yield of 47.5 bushels per acre, which is significantly higher in yield than Centana. The durra entries are all found at the bottom of the yield list. See Table XXXI.

Ravalli - The mean yield of the nursery grown at the Western Montana Branch Station was 51.1 bushels per acre. C.I. 13641 was highest in yield with 65.3 bushels per acre, Centana second with 59.8 bushels per acre. See Table XXXII.

Lake - The data from this nursery is found in Table XXXIII. This study was grown on the Walter Mangle's farm near Polson. Yields were quite low as were test weights. The mean yield was 21.3 bushels per acre. Centana was second in yield, with C.I. 13641 third.

Table XXIX. Agronomic data from advance yield spring wheat nursery at Creston, Montana in 1963. Four row plot, four replications, Field No. Y-2.

Date Planted: 5/7/63 Date Harvested: 9/11/63 Size of Plot: 12 square feet.

Variety or Cross	C. I. or N. No.	Head- ing Date	Height in Inches	Lodg- ing in %	Stripe Rust			Grams per Plot				Total Grams	Yield Bushel per Acre	Bushel Weight in Lbs.
					0-4	%	Coeffi- cient	I	II	III	IV			
Rescue	12435	7-3	47	—	1	1	.2	315	460	560	350	1685	56.2**	58.2
Sawtana	13304	7-5	48	—	0	5	.5	365	350	349	380	1444	48.1**	58.8
B49-102 x K.F. 338 B61-18	13762	7-5	47	—	0	T	.1	340	381	289	282	1392	46.4**	59.0
Gentana x B49-102	B60-68	7-4	48	—	2	20	8	327	374	345 ¹	330	1376	45.9**	58.5
Rescue x N 2389	B60-99	7-5	47	—	0	T	.1	349	325	316	381	1371	45.7**	57.4
II-50-17 x Pilot	B60-82	7-3	43	10	0	T	.1	275	344	480	260	1359	45.3**	59.5
Thatcher ⁵ x Rescue	B60-106	7-3	46	—	0	10	1	355	330	300	335	1320	44.0**	58.3
B49-102 x N 2389 B60-92	13591	7-5	48	—	2	20	8	275	350	265	380	1270	42.3*	59.2
Justin	13462	7-5	41	—	0	T	.1	230	333	390	311	1264	42.1*	57.8
Selkirk	13100	7-4	45	—	0	T	.1	310	327	305	265	1207	40.2	57.0
Thatcher ⁵ x Rescue	B60-109	7-5	47	—	0	1	.1	305	329	210	346 ¹	1190	39.7	—
K338 x Lee, B61-88	13772	7-2	46	—	1	10	2	290	285	275	312	1162	38.7	58.9
Lakota (Durum)	13335	7-5	46	—	3	50	40	276	310	298	235	1119	37.3	57.5
II-50-17 x Pilot <i>Shindan</i>	13586	7-3	49	—	1	T	.2	245	301	285	275	1106	36.9	60.1
Norin 10 Bvr x Gentana	B60-19	7-4	33	—	3	60	48	272	250	250	280	1052	35.1	56.9
Cypress	13344	7-5	47	—	0	T	.1	239	235	260	310	1044	34.8	59.2
Thatcher	10003	7-3	44	—	0	10	1	235	280	235	291	1041	34.7	57.5
Gentana	12974	7-5	48	—	3	35	28	230	245	299	255	1029	34.3	58.0
Wells (Durum)	13333	7-5	44	35	3	60	48	240	305	220	245	1010	33.7	58.3
Lee ² x K.F.R.L. 2938	13463	7-1	41	—	2	25	10	265	281	180	230	956	31.9	—
Langdon (Durum)	13165	7-5	45	—	3	50	40	252 ¹	210	245	240	947	31.6	—
Nrn 10-Bur-14 x Gentana B59-3	13587	7-5	39	—	3	70	56	160	235	211	305	911	30.3	—
N 2211 x Gentana	B60-86	7-1	44	—	3	35	28	219	230	249	206	904	30.1	—
Chinnok	13220	7-5	48	8	0	5	.5	219	210	220	240	889	29.6	—
Mindum (Durum)	5296	7-6	56	—	3	50	40	215	271	190	200	876	29.2	—
Ceres	6900	7-5	47	—	3	25	20	205	225	186	227	843	28.1	—
Minn II-53-404	13465	7-1	46	—	2	40	16	234	215	155	221	825	27.5	—

Table XXIX. (con't)

- $\frac{1}{-}$ Calculated missing plot
 NOTE: Thatcher is used as a check in this nursery
 * Varieties yielding significantly more than the check (.05)
 ** Varieties yielding significantly more than the check (.01)

\bar{x}	37.7
S.E. \bar{x}	2.25109
L.S.D.(.05).....	6.3
L.S.D.(.01).....	8.4
C.V.%.....	5.96

Analysis of Variance			
<u>Source</u>	<u>D.F.</u>	<u>Mean Square</u>	<u>F.</u>
Replications	3	3515.827	3.08
Varieties	26	11901.49003	10.44**
Error	75	1139.71358	
Total	104		