

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 XXX. Agronomic data from uniform western regional white spring wheat nursery at Creston, Montana in 1963. Four row plot, four replications, Field No. Y-8.

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	Stripe Rust			Grams per Plot				Total Grams	Yield Bushel per Acre	Bushel Weight in Lbs.
				0-4	%	Coeffi- cient	I	II	III	IV			
Burt x K.F. 57-70136	13641	7-10	47	0	T	.1	340	344	335	355	1374	45.8**	58.5
Gabo x Idaed ³	13637	7- 6	39	2	35	14	285	320	331	319	1255	41.8**	58.0
Eureka x Lemhi x Idd ²	13636	7- 3	39	0	5	.5	325	395	285	232	1237	41.2**	57.6
Burt x K.F. 58-2025	13736	7-11	35	1	5	1	256	315	315	336	1222	40.7**	57.6
Svenno x Lee - W Semidwarf	13730	7- 4	31	2	50	20	289	289	290	285	1153	38.4**	57.0
Karn x Henry Sel 90	13735	7- 6	44	0	T	.1	224	315	280	315	1134	37.8**	58.9
Thatcher	10003	7- 4	42	0	10	1	215	266	309	265	1055	35.2*	58.0
Burt x K.F. 58-2479	13640	7- 5	40	2	30	12	240	251	310	235	1036	34.5	58.0
Onas	6221	7- 1	40	1,2	30	18	236	283	274	215	1008	33.6	58.5
Premier x Federation	13732	7- 4	40	2	10	4	200	245	279	245	969	32.3	58.0
Idaed 59	13631	7- 1	38	1	30	6	205	224	203	240	872	29.1	59.5
Premier x Federation	13733	7- 4	39	2	50	20	190	230	210	240	870	29.0	58.0
Idaed	11706	7- 2	39	2	40	16	211	231	140	234	816	27.2	58.0
Idaed x Burt 42-5	13722	7- 4	33	1	35	7	175	220	229	180	804	26.8	--
Premier x Federation	13734	7- 9	41	3	50	40	181	205	200	215	801	26.7	--
Onas 52 x Idaed 18-1	13721	7- 6	39	3	60	48	174	199	180	170	723	24.1	--
Premier x Federation	13731	7- 8	41	2	50	20	175	160	160	199	694	23.1	--
Baart	1697	7- 4	40	4	75	75	99	132	266	156	653	21.8	--
Federation	4734	7- 7	37	4	75	75	131	165	165	176	637	21.2	--
Lemhi 62	13435	7- 7	39	4	80	80	110	131	110	110	461	15.4	--
Lemhi 53	13258	7- 6	36	4	80	80	51	55	60	76	242	8.1	--
Lemhi	11415	7- 6	37	4	80	80	40	40	50	55	185	6.2	--

NOTE: Idaed 59 is used as a check in this nursery

* Varieties yielding significantly more than the check (.05)

** Varieties yielding significantly more than the check (.01)

Analysis of Variance

Source	D.F.	Mean Square	F.
Replications	3	4280.28533	4.78**
Varieties	21	24975.78457	27.92**
Error	63	894.56171	
Total	87		

\bar{x}	29.1
S.E. \bar{x}	1.99435
L.S.D.(.05)..	5.6
L.S.D.(.01)..	7.5
C.V.%.....	6.85