

YEAR: 1964

TITLE: Small Grain Investigation (Spring Wheat) 5023

LOCATION: Northwestern Montana Branch Station and several off-station locations.

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

DURATION: Indefinite

OBJECTIVES:

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

EXPERIMENTAL DESIGN AND PROCEDURES:

Standard nursery procedures were used in the variety testing program. The station nurseries were grown four row plots, replicated four times. A randomized block design was used in all nurseries. The off-station nurseries were grown in single row plots, replicated four times.

The advanced yield hard red spring nursery contained 27 entries, the western regional soft white, 26 entries and the off-station, 12 entries.

RESULTS AND DISCUSSION:

Yield in the hard red spring wheat nursery was about average. However, test weights are below average. This was due to the continual rain that fell during the harvest period. The nursery was cut when the grain was high in moisture and was dried before cleaning and weighing. The Durm entries were higher in yield than in past seasons. Using Centana as check only two entries were significantly higher in yield, namely, C.I. 13777 and C.I. 13596. Table 1 gives complete data for this study.

Stripe rust was again a factor in the white wheat nursery. There was a direct relationship between variety yield and the stripe rust and coefficient. The larger the coefficient the lower the yield. See Table 2 for complete data on this study.

Three off-station nurseries were seeded in the spring of 1964. Only two were harvested. The nursery in Missoula County was poor in stand and a large number of wild oats. Therefore, it was not harvested.

Ravalli County

C.I. 13641 was the highest yielding entry in this nursery, with 45.6 bushels per acre. Only three replications were harvested because of Quackgrass infestation in the 4th replication. Test weights were fair in this study. Table 3.

## Spring Wheat (con't)

Lake County

Stands were excellent in this nursery. Growing conditions were optimum this season in this location.

Yields are good, but test weight quite low because of the rain during the harvest season. C.I. 13736 and C.I. 13641 are the two top yielding lines in the nursery. Table 4.

Table 5 is a summary of white wheat varieties grown at Creston, Montana, 1956-1964 inclusive. This summary indicates that most lines are superior to Lemhi.

FUTURE PLANS:

Continue in a limited way spring wheat varietal studies.

SUMMARY:

1. Yields were average or above this season. Continuous rain during the harvest season caused a reduction in test weight.
2. Most varieties now being grown are superior to Lemhi because of the stripe rust problem.

Table 2. Agronomic data from dryland western regional white spring wheat nursery, grown at Creston, Montana in 1964. Four row plots, four replications. Field No. Y-1.

Date Planted: May 12, 1964 Date Harvested: Sept 23, 1964 Size of Plot: 16 sq. ft.

Variety or Cross	C.I.No.	Head- ing Date	Ht. in In.	Grams per Plot					Yield Bu/A	Bu. Wt.	Coded Lodging			Stripe Rust		
				I	II	III	IV	Total			Type	Sev.	Prev.	% Sev.	i-4 Type	Coeffi- cient
Idaed x Burt, Sel. 42-5	13722	7-10	38	702	615	725	600	2642	66.1	56.0	23	7	99	5	2	20.0
Nainari 60	13747	7-11	38	669	670	400	752	2491	62.3	56.2	23	5	71	6	2	2.4
Lermo Rojo	13651	7- 9	41	606	699	523	540	2368	59.2	58.7	23	6	99	T	3	0.8
Burt x KF (58-2025)	13736	7-22	37	740	385	717	515	2357	58.9	54.0	23	4	38	0	i	0.0
No. 58-Tc x (Tc-KF, III- 52-8) A 613-S	13743	7-14	44	589	515	710	531	2345	58.6	55.7	23	8	94	23	2	9.2
Burt x KF (58-2479)	13640	7-12	38	480	562	637	640	2319	58.0	55.0	23	6	09	22	2,3	13.2
Idaed 59	13631	7- 8	37	665	510	496	555	2326	55.7	56.9	23	5	99	11	2,4	6.6
Idaed x Burt Sel. 30-2	13742	7- 9	34	499	565	544	545	2153	53.8	56.2	23	7	35	40	1,2	24.0
No. 58-Tc x Lee, A 6118-S	13745	7- 9	43	535	511	516	560	2122	53.1	53.1	23	5	10	T	1,2	0.6
Eureka-Lmh x Idaed <sup>2</sup> (60M3)	13636	7- 9	38	630	400	496	590	2116	52.9	56.5	23	5	73	0	i	0.0
Premier x Federation <sup>4</sup> (62M47-68)	13733	7-10	41	514	470	440	600	2024	50.6	57.0	23	8	99	25	2,3	15.0
No. 58-Tc x (Tc-KF, III-52-8), A614-S	13744	7- 9	39	521	518	556	425	2020	50.5	58.5	10	6	99	71	3	56.8
Svenno x Lee-Winter semidwarf	13730	7- 9	29	460	475	580	500	2015	50.4	54.4	23	6	01	5	2,3	3.0
Karn x Henry, Sel. 90	13735	7-12	46	569	530	640	270	2009	50.2	58.5	23	8	94	0	i	0.0
Thatcher	10003	7- 9	41	391	580	422	609	2002	50.1	58.0	10	6	78	2	2	1.2
Yaqui 54	13218	7- 9	34	555	410	506	480	1951	48.8	56.5	10	2	68	5	2	2.0
Burt x KF (57-70136)	13641	7-22	50	685	375	506	385	1951	48.8	51.8	23	8	60	0	i	0.0
Eureka-Lmh x Idaed <sup>2</sup> , 52 ab 1281	13746	7- 9	38	340	460	535	595	1930	48.3	58.5	23	5	63	0	i	0.0
Premier x Federation <sup>5</sup> (62M9-204)	13732	7-11	43	270	544	365	530	1709	42.7	57.5	23	8	99	29	3	23.2
Idaed	11706	7- 9	38	456	425	337	449	1667	41.7*	56.5	23	5	96	14	3,4	8.4
Onas	6221	7- 8	37	486	270	329	396	1481	37.1**	57.9	10	5	43	3	4	3.0

-4-

VHS KS

Table 2 . (con't)

Variety or Cross	C.I.No.	Head- ing Date	Ht. in In.	Grams per Plot					Yield Bu./A	Bu. Wt.	Coded Lodging			Stripe Rust		
				I	II	III	IV	Total			Type	Sev.	Prev.	% Sev.	i-4 Type	Coeffi- cient
Baart	1697	7-13	40	430	285	375	310	1400	35.0**	54.5	23	9	99	74	4	74.0
Federation	4734	7-18	42	300	235	314	331	1180	29.5**	49.9	23	9	91	79	4	79.0
Lemhi 62	13435	7-13	41	245	300	255	365	1165	29.1**	50.6	23	4	91	92	4	92.0
Lemhi 53	13258	7-12	38	251	240	150	215	856	21.4**	49.8	10	9	38	97	4	97.0
Lemhi	11415	7-13	41	162	154	135	135	586	14.7**	--	23	7	85	98	4	98.0

NOTE: Idaed 59 is used as a check in this nursery  
 \* Varieties yielding significantly less than the check (.05)  
 \*\* Varieties yielding significantly less than the check (.01)

Source	D.F.	Mean Square	F.
Replication	3	7423.24	
Variety	25	64265.8868	7.56
Error	75	8495.4404	
Total	103		

$\bar{x}$ ..... 47.2 bu/A  
 S.E. $\bar{x}$ ..... 4.608536  
 L.S.D.(.05) 13.0 bu/A  
 L.S.D.(.01) 17.2 bu/A  
 C.V.%..... 9.76