

TITLE: Small Grain Investigations

PROJECT NUMBER: 5023 (Spring Wheat)

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

FUNDS: State - \$ 441.66

LOCATION: Northwestern Montana Branch Station in field number Y-7

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 DATA:

INTRODUCTION

Spring wheat yields have been quite low in western Montana under dryland conditions the past three seasons. The yield variations between winter and spring wheat have been much greater the past three years than in previous years.

Spring wheat work this past season was limited to two nurseries grown under non-irrigated conditions.

MATERIALS AND METHODS

The two nurseries grown this season are described below. The advanced yield nursery had four durum wheat entries and twenty hard red entries. It was grown in four row plots replicated four times. The Uniform Western Regional white wheat nursery had twenty-four entries and Thatcher is included as a hard red variety. This nursery was grown in three replications.

RESULTS AND DISCUSSIONS

Yields were very good in this nursery in spite of the low rainfall. B 59-1 was the highest yielding entry with 71.2 bushels per acre. All entries with Norin 10 parentage were significantly higher in yield than Thatcher. Lakota durum also was very good in yield being significantly higher in yield than Thatcher. Stripe rust was noted on several entries. The entries with Norin 10 parentage had the highest rust reading. See Table XXXI for complete agronomic data.

The mean of the white wheat nursery was somewhat lower than the hard red nursery. Onas 53 was the only entry that was significantly better in yield than Lemhi. Stripe rust infection rates are quite variable between entries with some of them showing considerable resistance. Those entries with Idaed parentage all show good to moderate resistance to stripe rust. See Table XXXII for complete agronomic data.

Table XXXIII. Agronomic data from Uniform Western Regional white wheat nursery (dryland) at Creston, Montana in 1962. Four row plots, three replications.

Date Seeded: April 30, 1962 Date Harvested: September 5, 1962 Size of Plot: 16 square feet

Variety	C. I. Number	Head- ing Date	Stripe Rust	Ht. in In.	Grams Per Plot			Total Grams	Yield in Bu/A	Bu. Wt. in Pounds
					I	II	III			
Kenhi	13268	7-1	3.3	38	474 $\frac{1}{2}$	506	442	1422	47.4	58.0
Idaed	11706	6-27	1.7	40	599	578	601	1778	59.2	59.9
Burt x Kenya F.	13641	7-12	1.3	36	588	520	443	1551	51.7	61.0
Pullman Sel.	13638	7-4	2.3	39	540	450	471 $\frac{1}{2}$	1461	48.7	60.4
Onas 53	13257	7-6	4.0	34	665	613	600	1878	62.6 *	59.0
Pullman Sel.	13639	7-1	3.0	37	485	535	540	1560	52.0	60.5
Idaed x Burt 42-5	13722	7-1	1.7	36	520	541	505	1566	52.2	60.0
Bart	1697	7-2	4.0	46	476	447	330	1253	41.8	61.0
Lemhi 53	13258	7-4	4.0	36	486	555	430	1471	49.0	58.9
Burt x Kenya F.	13640	7-4	2.0	33	515	440	535	1490	49.7	61.5
Idaed x Burt 19-1	Pend.	6-30	1.7	33	560	561 $\frac{1}{2}$	516	1637	54.6	60.4
Kenya x Lemhi ⁶	13630	7-3	4.0	39	421	520	556	1497	49.9	59.5
Eureka -LMH x Idd ²	13636	6-28	1.3	38	515	510	470	1495	49.8	59.5
Onas 52 x Idaed ²	13635	6-29	2.0	43	469	635	530	1634	54.5	60.5
Idaed 59	13631	6-28	2.0	35	471	577	516	1564	52.1	59.6
Federation	4734	7-7	4.0	35	343	484	495	1322	44.1	58.0
Premier x Federation	13650	7-7	2.3	35	445	499	466	1410	47.0	59.4
Lemhi	11415	7-1	4.0	37	614	430	529	1573	52.4	58.5
Premier-Fed. x Idd. ²	13720	6-27	1.0	38	440	530	530	1500	50.0	59.0
Lemhi 62	13435	7-6	4.0	38	477	521	511	1509	50.3	59.0
Thatcher	10003	6-29	0.0	40	555	541	412	1508	50.3	58.5
Gabo x Idaed ³	13637	6-27	1.0	38	466	510	480	1456	48.5	59.5
Onas 52 x Idaed 18-1	13721	7-10	3.0	33	612	590	490	1692	56.4	59.2
Onas	6221	7-7	4.0	34	559	570	510	1639	54.6	58.8

Note: Lemhi is used as a check.

$\frac{1}{2}$ Calculated missing plot

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

Analysis of Variance

Source	D.F.	Mean Square	F
Replications	2	5939.04	1.96
Varieties	23	5989.3622	1.98 *
Error	43	3032.89744	
Total	68		

\bar{x}	51.2
S.E. \bar{x}	3.1796
L.S.D.(.05)....	9.1
C.V.	6.28 %