

YEAR: 1964

TITLE: Small Grain Investigations (Winter Wheat) 5023

LOCATION: Northwestern Montana Branch Station, Field No. E-2  
and several off-station locations.

DURATION: Indefinite

OBJECTIVES:

1. To obtain the information necessary for making varietal recommendation and for evaluating new varieties and selections.

2. To conduct a breeding program in Northwestern Montana designed to produce high yielding varieties with particular emphasis on acceptable quality and resistance to dwarf bunt and stripe rust. Other agronomic characteristics such as straw strength, winter hardiness, etc, will be evaluated in this program.

3. To determine the effect of seeding date, seeding depth and variety on the incidence of dwarf smut.

EXPERIMENTAL DESIGN AND PROCEDURE:

Standard nursery procedures were used in the variety testing program. In general station studies were four row plots, replicated four times. The design - complete randomized block. Description of a particular study and the procedures of each will be included in the results and discussion section.

RESULTS AND DISCUSSION:

Each nursery will be discussed separately in this report.

Intrastate Hard Red

Several commercial varieties and five Bunt x P.I. 178383 selections were included in this nursery. All the entries were superior to Westmont in yield. The Burt x P.I.178383 selections were quite late in maturity. The entire nursery with the exception of Gaines was lodged severely.

Stripe rust infections were quite sever in the susceptible varieties. Dwarf smut readings were not made but was evident in all entries except, C62-4 and C62-44. See Table 1, for complete results of this study.

Western Regional Hard Red

The hard red regional nursery was grown in two locations in 1963-1964. One in the dwarf bunt area Northwest of Kalispell on the Claridge farm and the other on the station. These nurseries contained thirty entries.

In the nursery on the Claridge farm, dwarf bunt was very sever with many of the susceptible varieties being over 50% smutted. Four of the five Burt x P.I.178383 selections were apparently immuned to dwarf bunt. These were also the highest yielding lines in the nursery. See Table 2 for complete data on this study.

Table 1. Agronomic data from dryland intrastate nursery grown at Creston, Montana in 1963-1964. Four row plots, four replications. Field No. E 2.

Date Seeded: September 17, 1963      Date Harvested: September 5, 1964  
 Size of Plot: 16 square feet.

Variety or Cross	C.I. No.	Head- ing Date	Plant Height in Ins.	Yield Bu./A	Test Weight #/acre	Lodging		Stripe Rust		
						Sev.	Prev.	Type i-4	% Sev.	Coeffi- cent
Gaines	13448	6-17	32	68.0**	55.3	2	24	2,3	3	1.8
Tendoy	13426	6-18	50	58.1**	56.4	9	99	i,2	1	.6
Cheyenne	8885	6-18	47	57.5*	56.0	9	99	i,2	T	.6
Winalta		6-17	48	54.4*	56.5	7	97	i,2	1	.6
Itana Sel. W-1	13846	6-20	47	54.1*	55.8	9	99	i	0	0
Delmar	13442	6-21	47	51.4	55.5	8	97	1,2	5	.6
Rego	13181	6-17	49	49.9	54.5	9	99	i	0	0
Burt x P.I. 178383	C62-44	6-21	47	48.1	52.3	9	87	i	0	0
Tendoy-61(Rex-Rio x Chn <sup>5</sup> )	13675	6-19	48	47.4	56.6	9	99	-	-	-
Itana	12933	6-19	50	46.8	53.0	7	47	4	97	97
Burt x P.I.178383	C62-9	6-17	44	46.7	49.0	9	99	i	0	0
Burt x P.I.178383	C62-4	6-17	44	45.9	45.6	9	99	i,3	3	.6
Warrior		6-17	45	45.8	54.2	7	61	4	68	68
Burt x P.I.178383 (C61-9)	13837	6-21	47	44.4	50.5	9	99	i,3	T	.6
Burt x P.I.178383	C62-31	6-19	47	44.1	50.8	9	99	i	0	0
Westmont	12930	6-16	47	41.5	52.3	9	99	4	94	94

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

Source	D.F.	Mean Square	F.
Replication	3	5036.6666	.706
Variety	15	18315.4000	2.569**
Error	45	7128.2000	
Total	63		

$\bar{x}$ ..... 50.2  
 S.E.x..... 4.221433  
 L.S.D.(.05) 12.0  
 L.S.D.(.01) 16.1  
 C.V.%..... 8.40