

- YEAR: 1965
- TITLE: Small Grain Investigations (Winter Wheat) 5023
- LOCATION: Northwestern Montana Branch Station, Field No. E-1 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:

Intrastate Hard Red

This nursery consisted of eleven commercial varieties and fourteen breeding lines. Nine entries were bulks of P.I. 178383 x Westmont². The remaining lines were from material originally supplied by W.S.U. staff.

Delmar was used as the check variety. There were no entries superior in yield to the check.

Stand reduction in this nursery was due primarily to the lack of snow cover during the winter, and "snow mold" in some cases. It was difficult to determine for sure if kill was due to the cold weather or disease.

Dwarf smut was noted on all but two entries, namely; C 63-16 and C 61-9. The percent smut on Delmar was 4% and 10% on Tendoy 61.

Most of the bulk lines of P.I. 178383 x Westmont² were somewhat susceptible to dwarf smut and very weak straw. Table 1.

Table 1. Agronomic data from intrastate winter wheat nursery grown at Kalispell, 1965. Experimental design - random block. Number of replications - four.

Planting Date - September 19, 1964
 Size of Plot - 16 square feet

Harvest Date - August 31, 1965

Variety	C.I. No.	Yield Bu. per acre	Test Wt. lbs/bu.	Height in ins.	Heading Date	Stand %	Dwarf Smut %	Lodging	
								Prev.	Sever.
Tendoy 61	13675	55.3	56.6	38	6-14	85	10	72	2
Im462N10xIT684/83 C63-9	647	51.6	54.5	33	6-16	80	1	5	3
Burt x P.I.178383 C62-31	634	49.3	54.3	34	6-14	75	0	15	4
Cheyenne	8885	48.7	56.5	38	6-13	84	9	95	4
Delmar	13442	47.3	56.0	38	6-14	68	4	0	0
P.I. 178383 x It Bulk 2	6417	43.7	56.5	38	6-12	56	9	89	3
Burt x P.I.178383 C61-9	631	43.7	53.6	35	6-15	76	0	24	3
Burt x P.I. 178383 C62-44	635	43.1	54.5	35	6-14	80	18	13	3 ⁵
Rego	13181	42.5	54.8	39	6-12	75	5	93	1 ⁵
Westmont	12930	42.4	57.0	33	6-9	80	16	42	4
P.I.178383 x Wmt Bulk 1	649	42.4	56.1	32	6-10	64	16	48	2
P.I.178383 x Wmt Bulk 3	6411	42.2	57.0	33	6-11	83	14	73	3
Itana W-1	13846	42.0	56.5	37	6-11	71	16	28	4
P.I.178383 x Wmt Bulk 7	6415	40.4	56.0	36	6-12	73	9	60	4
P.I.178383 x Wmt Bulk 5	6413	39.9	55.4	34	6-11	78	3	69	4
P.I.178383 x It Bulk 1	6416	38.9	56.5	36	6-11	74	2	79	4
Itana	12933	38.3	57.3	38	6-13	66	15	1	3
P.I.178383 x Wmt Bulk 2	6410	37.4	56.1	32	6-9	76	8	88	2
Warrior	13190	37.1	56.2	37	6-11	83	10	93	4
P.I.178383 x Wmt Bulk 6	6414	36.9	56.0	34	6-11	69	2	81	4
P.I.178383 x Wmt Bulk 4	6412	36.5	55.5	33	6-10	70	6	69	3
Tendoy	13426	35.5*	56.1	37	6-10	70	6	69	4
Winalta	13670	31.4*	56.1	37	6-13	83	4	89	4
Gaines	13448	24.7*	56.6	36	6-12	81	25	75	2
Im 462N10x83 C 63-16	648	20.5*	55.0	25	6-15	29	13	0	0
			55.9	19	6-14	2	0	0	0

NOTE: Delmar used as a check in this nursery

*: Significantly less in yield than the check

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Table 1. (con't)

Source	Analysis of Variance			\bar{x}	40.5
	D.F.	Mean Square	F.		
Replications	3	231.9	3.38	S.E. \bar{x}	4.1
Varieties	24	231.4	3.37	L.S.D.(.05)...	11.6
Error	72	68.6		C.V.%.....	10.2
Total	99				

Table 2. Agronomic data from western regional hard red winter wheat nursery grown on the Lance Claridge farm, Northwest of Kalispell. Four row plots, four replications.

Date seeded: September 15, 1964 Date Harvested: September 1, 1965 Size of Plot: 16 sq. ft.

Variety	C.I.No.	Head- ing Date	Ht. in Ins.	Replications				Total Yield Grams	Yield Bu/A	Bu.Wt. in Lbs.	Stripe Rust		Dwarf Smut %	Lodging		Pre.
				I	II	III	IV				Type	Sever.		Type	Sever.	
Burt x Itana, Sel. 125 WC (McCall) BC Bulk #7	13842	6-22	41	615	689	675	824	2803	70.0	56.5	2	20	24	1	.5	8
P.I.178383 x West. P.I.178383 x West. BC Bulk #1		6-19	42	630	665	629	706	2630	65.8	58.2	1	4	9	1	7	99
NRN 10-BVR 14 x Burt Sel. 11	13739	6-19	37	565	646	695	689	2595	64.9	56.4	i	0	27	1	7	98
Burt x Itana sel. 34	13844	6-22	26	647	601	677	665	2590	64.8	53.3	1	5	18	x	x	x
Columbia x Utah 175A- 53, Sel. 275-40-3-1	13839	6-21	39	681	565	625	635	2506	62.7	55.6	2	8	22	1	.2	20
P.I.178383 x West BC Bulk #6		6-23	42	460	810	681	535	2486	62.2	56.2	2	13	2	1	5	73
P.I.178383 x West BC Bulk #2		6-19	41	564	650	512	736	2462	61.6	55.4	i	0	11	1	9	99
P.I.178383 x West BC Bulk #3		6-17	41	635	612	640	568	2455	61.4	55.7	i	1	10		9	90
Delmar	13442	6-17	40	525	648	594	670	2437	60.9	56.5	i	0	21		7	98
Cheyenne	8885	6-23	41	615	676	626	506	2423	60.6	56.7	1	1	12	x	x	x
P.I.178383 x It. BC Bulk #1		6-22	44	625	645	594	555	2419	60.5	56.5	1	1	12	1	7	97
		6-21	46	480	805	546	584	2415	60.4	56.5	1	1	21	1	7	99