

WINTER WHEAT

INTRODUCTION:

Winter wheat work was conducted in Western Montana with a primary purpose of introducing varieties that are adapted to the area. Standard nursery techniques are used in the testing program. Varieties that are found to be of high potential for yield and other agronomic and milling and baking characteristics are used in off station testing. In addition to these lines, varieties from neighboring states are included in off station testing if they show promise in the western region.

RESULTS AND DISCUSSION:

Intra-state Hard Red - There were eighteen entries in the intra-state hard red winter wheat nursery. This nursery consisted of thirteen commercial lines that are being grown throughout the pacific northwest and in Montana. The other entries in the nursery consisted of a Burt x P.I. 178383 cross and five lines of Westmont² x P.I. 178383.

Delmar was the variety used as a check on yield in the nursery and only one variety, Gaines, was superior. Crest, a new line released by Montana Agricultural Experiment Station, was not significantly less in yield than Delmar, but some two bushels less in yield. Four of the entries in the nursery were free of Dwarf Smut and these were; MT 6646, MT 6642, MT 6634 and the variety Crest. All other entries had some dwarf smut ranging from a mean of 33% found in McCall to 0% in the varieties already mentioned.

One of the high yielding entries MT 6646 has a late heading date, June 17. Crest is one of the earliest heading, it and Westmont heading the 7th day of June. Test weights were good on all of the entries. Only MT 6643 was found completely free of stripe rust. Westmont had the highest infestation of all the entries. Table 1.

Western Regional Hard Red - The western regional hard red winter wheat nursery grown on the L. B. Claridge farm, contained 29 varieties. Dwarf smut and stripe rust were found to be prevalent in this nursery as was snow mold. Only two entries were found to be entirely free of dwarf smut and these were MT 6634 and MT 6619 or Crest. Columbia, one of the most susceptible entries in the nursery had 63% dwarf smut. Stand loss in the nursery was contributed mainly to the snow mold, in that, a perfect stand was obtained in the fall of 1966. The entries showing the most resistance were those crosses of Westmont 2 x P.I. 178383. Two entries ID 0001 and ID 5001 also having a common parent of Turkey, were quite resistant to snow mold. The entries showing the most stripe rust resistance were again the crosses of Westmont 2 x P.I. 178383. The mean yield for the nursery was 43.9 bushels per acre. The test weights were good for all entries. No lodging was noted in this nursery. See Table 2 for complete details.

Winter Wheat (con't)

SUMMARY AND CONDLUSION:

1. Intrastate nursery - Delmar exceeded in yield only by Gaines. Crest with-
in two bushels of Delmar, not significantly less.
2. Western regional hard red - Snow mold was a factor in stands and yields.
MT 6634 and Crest were found to be entirely free of dwarf smut.
3. Western regional white - Moro and Gaines about equal in yield. Moro was
resistant to stripe rust and dwarf smut.
4. Elite stripe rust nursery - Twenty-three entries of P.I. 178383 x West-
mont² and five check varieties were included in this nursery. Delmar, a check, was
highest yielding entry in the nursery.
5. Off-station nurseries - Crest is the highest yielding entry grown (see
summary). Protein levels vary greatly at each location.
6. Breeding nurseries - One hundred and thirty-four lines tested, forty were
harvested for yield. All were evaluated for snow mold and dwarf smut.

Table 1. Agronomic data from intra-state yield nursery grown at the Northwestern Montana Branch Station, Field E-2, in 1967. Random block design, Six replications.

Date Seeded: September 21, 1966
 Date Harvested: August 10, 1967
 Size of Plot: 16 square feet

Variety	C.I. No.	Yield Bu/A.	Test Weight Lbs/Bu	Head- ing Date	Pl. Ht.	Stripe Rust		Lodging		% Dwarf Smut
						Sever	Type	Prev	Sever	
Gaines	13448	62.84*	62.2	6/11	28	9.3	2.8	0.0	0.0	5.3
Burt x 83 C63-11	6646	58.41	60.4	6/17	31	.3	.3	0.0	0.0	0.0
Delmar	13442	55.89	61.5	6/12	39	5.1	2.8	0.0	0.0	.3
WMT-2 x 83 16-1-8	6641	54.81	63.1	6/12	43	.2	.3	0.0	0.0	16.7
Itana 65	13846	53.66	63.6	6/11	40	7.0	3.2	1.7	1.2	22.5
Crest	6619	53.53	62.2	6/ 7	36	.8	1.5	44.2	3.3	0.0
WMTx83 1-1-6	6643	52.71	62.0	6/ 9	39	0.0	0.0	61.7	3.2	1.8
McCall	13842	51.89	62.6	6/10	36	11.7	2.7	0.0	0.0	33.3
Wanser	13844	51.68	62.6	6/ 9	39	7.5	2.7	0.0	0.0	17.5
Westmont	12930	50.36	62.6	6/ 7	38	97.0	9.0	1.7	.8	13.3
WMT-2x83 12-1-1	6631	49.53	62.6	6/ 7	40	.3	.3	44.2	1.3	8.3
Cheyenne	8885	46.39 ¹	62.2	6/ 9	39	8.5	4.3	5.8	.3	13.3
WMT x 83 1-1-3	6642	45.96 ¹	63.2	6/ 8	38	.3	.5	20.8	1.3	1.0
WMT-2x83 7-14-4	6634	45.79 ¹	61.9	6/ 8	36	1.5	1.3	2.5	1.7	0.0
Winalta	13670	44.89 ¹	63.2	6/ 9	41	3.8	2.7	15.8	.3	23.3
Rego	13181	43.63 ¹	60.4	6/ 8	43	3.7	2.0	57.5	3.3	2.7
Warrior	13190	43.46 ¹	61.9	6/ 8	39	94.7	9.0	26.7	.7	20.0
Lancer	13547	41.66 ¹	61.9	6/ 6	38	2.2	1.3	0.0	0.0	21.7

NOTE: Delmar is used as the check in this nursery
 *: Varieties yielding significantly more than the check (.05)
¹: Varieties yielding significantly less than the check (.05)

\bar{x} 50.4
 S.E.x..... 2.4
 L.S.D.(.05).. 6.75
 C.V.%..... 4.76

Source	Analysis of Variance		
	D.F.	Mean Square	F.
Replications	5	120.3	3.48*
Varieties	17	196.4	5.68*
Error	85	34.5	
Total	107		