

PROJECT TITLE: Winter Wheat Variety Evaluations

YEAR/PROJECT: 1987/756 Small Grain Production

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SUMMARY:

To determine the adaptability of new and introduced winter wheat varieties to Montana the Western Regional Winter Wheat nurseries are grown at the Kalispell and Stillwater locations. The outstanding varieties from these nurseries are tested under varying growing conditions of western Montana through off-station nursery evaluations. These data are used in making recommendations to the Montana producer.

Continuous snow cover began on November 29th and continued until March 2nd (94 days) which was 11 days short of the snow cover last year. Dwarf smut infection levels were low to nonexistent at the Stillwater location whereas at the Kalispell sites there was light smut in the hard red varieties with medium to heavy smut in some of the soft white winter wheat varieties.

Yields at the Kalispell location were much higher this year but the 1987 yields from Stillwater were much lower than last year's.

RESULTS:

Western Regional Hard Red Winter Wheat - Kalispell

Very good yields were recorded from the hard red winter wheat nursery grown at Kalispell. The average yield was 23 bushel above that of last year. The yields of four Utah varieties (UT 15651a, UT 156712, UT 156775, and UT 156751), all exceeded 114 bushel per acre. Excellent yields were reported for most varieties with the mean yield of 96.18 bushels per acre.

Test weights averaged 61.33 lbs/bu. Kharkof had the lowest test weight at 56.83 lbs/bu. Heading dates and heights are reported in Table 1.

Dwarf smut (TCK) levels were low in the hard red winter wheats with only four varieties showing susceptibility above .75% . (WA 7522, OPRC 8320, Wanser, and Kharkof).

Western Regional Hard Red Winter Wheat - Stillwater

Moderate to low yields were obtained from the Stillwater Hard Red Winter Wheat nursery due to low plant populations which resulted from winter injury, snow mold and flooding of the test site. The average yield of the nursery was 50.68 bu/A, which was approximately 21 bushel less per acre than last year. Two of the Utah varieties that did well at the Kalispell site also were top yielding varieties at this location (UT156752, and UT 156751). Yields were near 60 bu/A.

Test weight, heights and winter survival data are found in Table 2. It should be noted that those data reflect the adverse growing conditions this season.

Western Regional Soft White Winter Wheat Nursery - Kalispell

Excellent yields were obtained in this nursery. The mean yield was 102.55 bu/A. Twenty-four varieties had yields in excess of 104 bu/A and 26 varieties yielded significantly less than Lewjain (the check variety). Table 3. Elgin had the lowest yield at 44.64 bu/A.

Test weights averaged about 58 lb/bu. Only eight varieties had test weights in excess of 60 lbs/bu. Heading on the average was seven days earlier than the previous season. Smut percentages were higher than in the red wheat nursery with eleven varieties having 5% or higher infection level. Table 3.

Western Regional Soft White Winter Wheat Nursery - Stillwater

Yields at the Stillwater location were about 16 bu/A lower than the previous year. Stands were reduced up to 60% during the winter. Test weights were down from any other previous year with the average test weight for the nursery being 52.35 lbs/bu. Height was also reduced in comparison to previous measurements due to the environmental conditions.

Intrastate Winter Wheat Nursery - Kalispell

Yields in 1987 were 27 bu/A below 1986 averages in the Intrastate nursery. Nugaines and Winridge had the highest yields with 108 and 101 bu/A respectively. All but 13 varieties had significantly lower yields in comparison to Winridge. Test weight, height, and heading date were all average for this location (Table 5).

Percent smut was highest (2%) in the variety Roughrider and was detected in the majority of varieties. Lodging, although not prevalent did appear in seven varieties above 20% . The severity of lodging in those varieties was not severe.

Offstation Winter Wheat Nurseries

The 1987 Offstation winter wheat nurseries grown on the Foss McIntyre farm (Ravalli Co.), the Don Callahan farm (Lake Co.), and at Stillwater. Neely, MT 2039, Cheyenne and Winridge were they highest yielding varieties when averaged across all locations. Yields were fair for the Stillwater and Lake County location but the stands at the the Ravalli County site were very poor and resulted in very low yields. Table 6. Test weights were good at all locations and were the lowest at the Stillwater location. Table 7.

Table 1. Agronomic data from the Western Regional Hard Red Winter Wheat Nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT in 1987. Field E-4.
Date planted: September 15, 1986 Date harvested: August 3, 1987

CI or State #	Variety or Pedigree	Yield Bu/A	Test Wt Lbs/Bu	Heading Date	Height Inches	%Smut ocular
UT156516	MANNING/SADOVO-1	126.16	61.58	146.00	35.43	.00
UT156712	MANNING/BEZOSTAJA-1	120.23	62.40	148.00	35.33	.25
ID 301	HGL/ID5006/4/II-60-1	117.99	62.15	152.00	36.91	.75
UT156775	MANNING/BEZOSTAJA-1	114.82	61.35	149.75	37.01	.25
UT156751	MANNING/BEZOSTAJA-1	114.54	63.35	149.75	37.60	.00
ID 353	ABERDEEN SEL.	109.05	61.65	153.00	38.78	.00
WA 7522	HATTON SIB//SHORT WH	108.00	61.78	155.00	43.31	5.25
ORCR8313	PROBSTORFER-EXTREM/T	104.14	62.38	146.75	37.70	.50
WA 6820	GWB127/GWB236-7/STUR	103.38	60.30	146.75	35.53	.25
ID 354	ABERDEEN SEL.	100.14	61.95	153.50	43.21	.25
ID 352	ABERDEEN SEL.	99.69	62.20	155.25	44.59	.00
ID 0338	SN64/II-60-155/HGL/3	99.18	61.55	150.00	40.85	.25
WA 7429	ID92/N7403301, NB308	98.86	62.03	155.00	45.96	.75
ID 302	ARBON/3/DM/CLM//BURT	98.46	61.03	149.50	38.68	.25
OR 8315	F60213-76, MEX CB782	98.26	59.73	149.00	30.02	.25
ORCR8601	PMF//CND S/GLL	98.00	62.48	147.25	36.42	.50
WA 7525	CERCO/HTN/5/KVZ/3/BN	97.90	62.33	152.25	43.50	.25
WA 7524	CI9342/ITANA//ID092	97.63	61.40	153.00	38.19	.00
ORCR8320	MARNE DESPREZ/COLOTA	96.46	61.05	147.00	36.61	6.25
MT 79123	UT755079/CST56//TX65	95.51	60.10	145.25	36.52	.25
MT 79121	UT755079/CST56//TX65	94.41	60.52	145.25	35.73	.00
ID 351	ABERDEEN SEL.	94.01	62.43	155.25	43.80	.00
ID 0337	A781011W-W A7257W-71	92.79	62.73	154.00	39.47	.00
ID 0336	ATL 50/4/R/R//2*CNN/	90.01	61.35	153.50	43.80	.00
CI 13844	WANSEI	89.46	59.50	151.75	45.47	4.50
ORCR8414	PMF//CND S/GLL	86.60	61.40	146.25	35.63	.00
MT 79125	UT755079/CST56//TX65	84.91	60.15	149.75	38.98	.25
ID 0333	A75211W-81-1-3T BUCK	84.65	62.50	151.75	46.46	.25
ID 298	ZIT65 OR 2CNN OR 2MC	81.76	62.75	152.75	43.70	.00
ID 297	A68203W-E-1-3-3/A682	81.48	61.63	154.75	45.08	.00
WA 7523	FREDRICK/SPRAGUE, NB	80.53	58.90	155.75	43.31	.50
ID 0335	TK/BURT/4/SM 6/4/UT	79.98	60.87	154.50	47.93	.00
ID 0332	II-60-156/CI14107//I	78.90	60.22	153.00	40.35	.00
ID 0331	RGR/3/II-60-157/MC/M	75.83	61.93	151.25	46.65	.00
CI 1442	KHARKOF	70.54	56.83	155.50	48.23	3.00

\bar{X}	96.18	61.33	151.11	40.48	.71
F value	7.67**	15.63**	39.00**	14.99**	1.09
C.V.%	4.92	.53	.35	2.86	99.43
L.S.D.	13.28	.92	1.50	3.25	4.26

Table 2. Agronomic data from the Western Regional Hard Red Winter Wheat Nursery grown on the Oscar Buller farm, Kalispell MT in 1987.
Date planted: September 17, 1986 Date harvested: August 27, 1987

VARIETY	Yield Bu/A	Test Wt Lbs/Bu	Height Inches	% Wntr Survivl
UT156712 MANNING/BEZOSTAJA-1	64.38	58.15	26.48	52.50
WA 7523 FREDRICK/SPRAGUE, NB	61.30	54.32	34.25	60.00
WA 7429 ID92/N7403301, NB308	59.54	57.10	35.04	55.00
UT156751 MANNING/BEZOSTAJA-1	59.29	57.33	29.72	55.00
ID 0333 A75211W-81-1-3T BUCK	58.24	59.22	35.53	52.50
ID 297 A68203W-E-1-3-3/A682	57.65	58.22	32.87	52.50
ID 301 HGL/ID5006/4/II-60-1	56.61	56.48	28.84	57.50
ID 0337 A781011W-W A7257W-71	56.21	59.53	29.63	70.00
ID 0331 RGR/3/II-60-157/MC/M	56.09	57.65	37.50	57.50
WA 7524 CI9342/ITANA//ID092	55.61	57.65	31.00	50.00
CI 13844 WANSE	55.58	56.85	33.76	50.00
WA 7522 HATTON SIB//SHORT WH	54.66	56.40	34.15	57.50
ID 298 2IT65 OR 2CNN OR 2MC	53.91	59.73	32.48	67.50
ID 353 ABERDEEN SEL.	53.50	58.08	28.64	62.50
ID 352 ABERDEEN SEL.	53.39	58.40	32.78	60.00
ID 0332 II-60-156/CI14107//I	52.43	57.23	31.50	37.50
WA 7525 CERCO/HTN/5/KVZ/3/BN	52.28	58.55	34.74	65.00
WA 6820 GWB127/GWB236-7/STUR	51.84	55.95	25.79	45.00
ORCR8320 MARNE DESPREZ/COLOTA	50.89	56.03	26.57	42.50
UT156775 MANNING/BEZOSTAJA-1	50.46	56.78	28.44	67.50
ID 302 ARBON/3/DM/CLM//BURT	48.64	57.38	28.74	70.00
UT156516 MANNING/SADOVO-1	48.53	56.25	25.79	65.00
ID 0335 TK/BURT/4/SM 6/4/UT	48.31	58.70	36.52	60.00
MT 79125 UT755079/CST56//TX65	47.00	57.23	27.85	70.00
ID 351 ABERDEEN SEL.	46.96	55.38	33.66	65.00
ORCR8313 PROBSTORFER-EXTREM/T	46.96	57.40	27.95	57.50
ORCR8414 PMF//CND 5/GLL	46.48	57.15	27.07	62.50
ID 0336 ATL 50/4/R/R//2*CNN/	45.18	56.03	34.06	65.00
CI 1442 KHARKOF	43.24	57.43	35.73	67.50
OR 8315 F60213-76, MEX CB782	43.06	54.65	23.82	70.00
ID 354 ABERDEEN SEL.	40.81	59.67	28.54	82.50
ORCR8601 PMF//CND 5/GLL	40.75	56.85	28.54	70.00
MT 79123 UT755079/CST56//TX65	40.14	57.08	25.98	60.00
ID 0338 SN64/II-60-155/HGL/3	39.10	58.65	28.84	77.50
MT 79121 UT755079/CST56//TX65	34.88	56.65	25.00	65.00

X	50.68	57.32	30.51	60.71
F value	2.32**	7.32	10.11	1.14
C.V.%	9.04	.84	3.85	14.67
L.S.D.	12.86	1.34	3.30	24.98