

PROJECT TITLE: Winter Wheat Variety Evaluations

YEAR/PROJECT: 1990/756

INVESTIGATORS: Leader - Vern R. Stewart, Todd K. Keener - Research Specialist.

OBJECTIVE: To evaluate winter wheat varieties for adaptability, yield, quality, and disease resistance.

RESULTS:

Moderate winter temperatures, ample precipitation through the season and a warm summer contributed to favorable yields in the winter wheat nurseries this year. The regional nurseries survived the winter conditions and were in excellent condition by early spring. Although there were not long periods of snow cover this year dwarf bunt (TCK) levels were moderate to high in some varieties. Excellent yields were harvested from both the Regional Hard Red and Soft White Winter wheat nurseries.

- 1990 Western Regional Hard Red Winter Wheat Nursery

With favorable weather and few disease problems the yields for this nursery were very high ranging from 127.45 bu/A to 46.23 bu/A. Six Oregon entries were the top yielding varieties in the nursery (Table 1). Test weights were good with few varieties weighing below 60 bu/A. Lodging was moderate to severe and occurred in all but eight of the thirty-six varieties. Dwarf smut (TCK) was detected in all but six of the entries and was as high as 22.5% in Hybritech QT 549. Table 1.

- 1990 Western Regional Soft White Winter Wheat Nursery

Yields were very good in this nursery. The mean yield was 118.71 bu/A with all but three of the forty entries having yields in excess of 100 bu/A. The yields of Kharkof and Elgin were depressed due to the degree of lodging and dwarf smut (TCK) infection. Dwarf smut was light throughout the nursery but was found at some level in all but five entries. Test weights were mostly above 60 lbs/bu in this trial with the average being 60.63 lb/bu. Lodging was much less in the soft white winter wheats with only eight varieties having light to moderate levels. Table 2.

- 1990 Intrastate Winter Wheat Nursery

Snow cover on winter wheat has been associated with the high incidence of dwarf smut. Although continuous snow cover was not considerable through out the winter (28 days continuous, 66 total days) there was moderate to high levels of TCK smut in the 1990 Intrastate Winter Wheat nursery. Levels were as high as 9.5% and only two varieties were found to have no smut (Blizzard and MT 8726). Sixteen varieties had levels below the 2% level. Winridge had a very slight evidence of TCK smut (.12%). Yields were good, ranging from 63 to 107 bu/A. Lodging was moderate in one third of the entries. Table 3.

Table 1. Agronomic data from the Western Regional Hard Red Winter Wheat Nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT
Planted: September 21, 1989 Harvested: August 14, 1990 Field E-4

CI/STATE NUMBER	VARIETY	YIELD BU/A	TEST WT LB/BU	HEAD DATE	HEIGHT INCHES	% TCK SMUT	- LODGING - SEVER PREV	
OR841708	CER//YMH/HYS	127.45	60.25	168.75	41.04	.63	.00 .00	
OR840157	D887-74/PEW	125.90	62.82	166.25	42.32	.25	3.75 11.25	
ORCR8602	TJB788-1089/ALDAN	118.41	61.65	161.50	33.37	1.37	.00 .00	
ORCR8608	TAST/TORIM	110.23	63.28	166.75	37.89	.75	3.50 21.25	
ORCR8603	M1223-3D-1D(MI76-7	106.87	60.65	162.00	40.35	2.37	.00 .00	
OR 8522	VORO/MNIM, 85B-839	105.48	60.73	167.25	37.89	1.50	.00 .00	
UT162334	BEZ1/MNG/3/HNL//IT	103.25	61.53	168.00	40.16	.00	6.25 65.00	
UT165093	ID51022/MNG	101.95	60.10	167.75	40.75	.00	2.25 15.00	
OR832306	TJB368-251/BUC	101.26	60.85	165.50	38.09	6.00	.00 .00	
OR830282	ND/P101//BUHD	98.70	61.95	159.75	38.19	.63	.00 .00	
UT167187	WTN/MNG	98.68	61.00	163.25	36.91	.12	1.00 5.00	
UT157140	HNL/USSR 2109-36	98.65	61.08	168.25	47.54	.00	9.00 67.25	
ID 360	CNN/LEE*7/TF/5/SM4	94.61	60.98	168.75	39.47	1.25	1.50 7.50	
OR831134	CNO/INIA/HN7/3/CC/	92.66	63.08	167.00	39.17	2.00	.00 .00	
MT 8039	JUDITH	92.40	59.18	163.75	45.57	7.00	8.75 84.75	
WA 7647	286011/ANDREWS	90.44	61.98	169.25	47.83	2.87	8.00 61.25	
UT160719	MNG/SMS	89.80	59.93	166.75	44.59	.00	6.75 74.25	
ID 355	MC*2/NF824/3/LMH66	86.85	61.18	167.00	49.41	1.25	6.75 80.00	
ID 381	ABERDEEN SELN	86.39	60.03	168.00	45.57	.00	9.00 95.50	
QT 542	HYBRITECH	84.84	60.90	162.50	47.15	14.00	8.50 93.25	
MT 79125	UT755079/CST56//TX	84.30	59.57	167.75	45.18	4.25	7.25 77.25	
ID 361	CNN//7*LEE/TF/5/SM	81.06	59.78	169.75	38.78	3.00	5.00 27.50	
ID 421	A74125W-16-3-1/A74	79.95	61.48	168.50	50.30	.00	8.50 93.00	
ORCR8601	PMF//CNO S/GLL	79.39	61.13	166.00	48.13	5.50	4.25 27.50	
WA 7626	HARD WHITE 1987 ML	78.03	61.43	167.00	46.46	1.50	4.50 49.75	
WA 7620	N7701501//V72044/C	77.74	60.60	169.25	44.59	8.75	8.50 97.00	
ID 422	CNN/LEE*7/TF/5/SM4	77.26	59.10	170.00	40.65	.63	3.50 55.00	
ID 364	ABERDEEN SELN	75.88	61.55	166.75	39.86	.50	.00 .00	
OR008718	BPR 689-71/TI	73.11	60.18	167.75	48.92	.12	9.00 99.00	
WA 7670	N7000063/K71056//N	71.75	61.25	170.50	46.95	.63	7.75 91.00	
PI517194	TIBER	70.70	60.60	167.25	50.20	7.50	9.00 96.75	
CI 13884	WANSER	67.75	60.87	167.50	52.46	13.00	6.75 85.00	
QT 549	HYBRITECH	64.75	58.60	161.75	42.42	22.50	8.75 96.75	
WA 7650	N7000063/K71056//U	62.30	60.25	167.50	51.87	.75	9.00 94.75	
WA 7523	BUCHANAN	61.74	56.55	170.25	49.51	6.00	9.00 99.00	
CI 1442	KARKHOF	46.23	58.85	167.75	39.57	15.75	9.00 99.00	
EXPERIMENTAL MEANS		87.96	60.69	166.76	43.59	3.68	5.13 51.93	
F TEST FOR VAR.		10.52**	6.63**	21.30**	8.45**	11.12**	11.30**	15.87**
C.V. 2: (S OF X/X)*100		6.39	.83	.34	3.87	43.03	20.81	19.48
LSD (0.05)		15.76	1.41	1.61	4.74	4.44	3.00	28.37

**/ Indicates statistical significance at the .01 level of probability