PROJECT TITLE: Winter Wheat Variety Evaluations

YEAR/PROJECT: 1989/756

PROJECT PERSONNEL: Leader - Vern R. Stewart, Todd K. Keener - Research Specialist, NWARC, Kalispell, MT

SUMMARY:

Severe winter temperatures destroyed the Intrastate and Western Regional Soft White winter wheat nurseries this season. Because of the winter injury, stands in the hard red winter wheat nursery were greatly reduced. The average yield for that test was 48 bushel/acre. The two offstation nurseries in Lake and Ravalli County had fair yields.

RESULTS:

The hard red winter Intrastate wheat nursery and the Western Regional Soft White Wheat nursery were severely injured by extreme temperatures that occured early February when wind chill factors exceeded 90 degrees below zero. Because of the severe damage to these two tests, the experiments were abandoned.

1989 Western Regional Hard Red Winter Wheat Nursery

Winter kill was 100% in three of the entries in this nursery. The variety UT 15751 and a survival rate of 87.5%, which was the highest for the nursery. Generally, the varieties had about 50% survival; however the test mean was 38.68%. Because of this stand reduction, there was a great reduction in yield as contrasted to previous years. The highest yielding entry was Idaho 381 at 82.5 bushels/acre. The average yield for the nursery was 48.63 bu/A. Test weights were reduced and the harvest date averaged about five days later than normal. Table 1.

1989 Lake County Offstation Winter Wheat Nursery.

Yields were very good for this nursery considering it was located on a recrop site. Stand losses due to winter kill were not consistent for varieties between replications. Location with in the nursery seemed to have as much effect on injury as did the variety. Yields range from 42.9 to 94.5 bu/A. Test weights were good with the mean being about 59.44 lbs/bu. Table 2.

1989 Ravalli County Offstation Winter Wheat Nursery

The yields from the Ross McIntyre farm in Ravalli Co. were some of the best that we recorded in that area. Rocky was the highest yielding entry with 60.9 bu/A. The lowest yielding entry was MT 88065. Test weights were fair with the average being 58.15 lbs/bu. Table 3.

FUTURE PLANS:

Winter wheat variety evaluations will continue with emphasis on selecting genetic material for dwarf smut resistance.

Table 1. Agronomic data from the 1989 Western Regional Hard Red Winter Wheat Nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT.

Date planted: Sept. 16, 1988 Date harvested: Sept. 11, 1989

VARIETY	Yield Bu/A	Test Wt Lbs/Bu	Height Inches	Heading Date	% /1 Surviv	- Lodging- %	angle
ID 0381 ABERDEEN SEL	82.58	55.40	36.22	168.00	45.00	12.50	1.00
QT 542 WINTER WHEAT HYBRID	79.06	58.40	36.42	159.25	67.50	.00	.00
UT160719 MNG/SMS	77.54	55.15	34.25	163.25	75.00	.00	.00
ID 0352 ABERDEEN SEL	76.60	56.80	35.83	165.00	72.50	.00	.00
UT156751 MNG/BEZ1	70.91	57.50	32.28	163.00	87.50	.00	.00
UT157140 HNL/USSR 2109-36	68.58	56.60	34.65	165.50	32.50	.00	.00
WA 7523 LIND SELFRG/SRG (FIE	67.86	51.50	33.46	167.75	38.75	2.50	1.25
MT 8039 LCD/FRD//NE 69559/WN	66.24	50.05	31.69	162.25	60.00	.00	.00
ID 0361 CNN//7*LEE/TF/5/SM4/	65.81	56.20	30.51	167.25	45.00	.00	.00
ID 0326 ABERDEEN SEL	63.25	55.25	26.97	163.25	55.00	.00	.00
UT160477 MNG/6/MT C61-9/BGR/5	62.89	53.50	29.13	163.25	82.50	.00	.00
QT 562 WINTER WHEAT HYBRID	62.15	55.15	29.53	160.75	48.75	.00	.00
MT 7811 FRD/WNK//MT 6928/TR	60.90	53.75	36.22	164.75	72.50	.00	.00
WA007647 286011/ANDREWS	58.85	53.90	36.22	167.75	52.50	.00	.00
ID 0353 ABERDEEN SEL	58.63	56.25	31.30	165.25	67.50	.00	.00
ID 0364 ABERDEEN SEL	58.19	56.10	33.86	164.50	67.50	.00	.00
WA007648 PI173467/GNS/3/BNK//	57.78	50.30	28.35	166.75	32.50	.00	.00
CI 13844 WANSER	57.56	55.45	37.99	165.25	60.00	8.75	1.50
CI 1442 KHARKOF	56.85	54.55	42.32	164.25	72.50	91.25	5.25
MT 79125 UT755079/CST56//TX65	56.40	52.30	32.48	164.25	42.50	.00	.00
ID 0332 II60156/CI 14107//IT	55.49	51.60	35.63	164.75	37.75	18.75	4.25
WA 7620 N7701501//V72044/CER	53.69	50.70	35.63	167.75	37.75	.00	.00
WA007649 HTN S/3/BEZ/CI 13438	52.56	51.90	31.30	171.75	17.75	.00	.00
WA 7619 N7701501//V72044/CER	51.89	50.05	37.20	169.00	47.75	.00	.00
WA 7626 HARD WHITE 1987 ML	49.25	52.85	28.35	167.00	23.75	.00	.00
WA007646 CER/HTN	48.31	52.50	32.48	166.00	28.75	.00	.00
WA007650 N7000063/K71056//UT9	48.26	47.50	37.80	167.50	37.75	20.00	1.50
ORCR8608 CORVALLIS SEL	33.35	53.75	26.38	168.00	7.75	.00	.00
UT162334 BEZ1/MNG/3/HNL//IT/P	29.84	55.10	33.86	166.00	9.00	.00	.00
OR 8522 VORO/MNIM,85B-839	28.16	55.35	33.46	167.50	5.25	.00	.00
ID 0362 HGL/RGR//A65249W-12-	26.05	55.75	28.15	166.50	12.75	.00	.00
OR831134 CORVALLIS SEL	25.42	53.05	28.35	166.75	17.50	.00	.00
ORCR8601 PMF//CNO S/GLL	24.95	52.50	31.30	164.25	5.75	.00	.00
ORCR8602 CORVALLIS SEL	21.30	54.25	24.61	165.75	12.75	.00	.00
ORCR8603 CORVALLIS SEL	18.68	50.30	24.61	164.75	12.75	.00	.00
OR830282 CORVALLIS SEL	17.47	53.60	22.44	165.25	16.25	.00	.00
OR832306 CORVALLIS SEL	2.16	.00	24.41	165.50	.00	.00	.00
OR830027 CORVALLIS SEL	1.00	.00	33.86	41.25	.00	3.75	1.00
ORCR8718 CORVALLIS SEL	.00	.00	28.74	82.50	.00	.00	.00

* Statistics and footnotes on next page

VARIETY	Yield Bu/A	Test Wt Lbs/Bu	Height Inches	Heading Date	% Surviv	-- Lodging- %	angle
EXPERIMENTAL MEANS	48.63	49.61	32.01	160.23	38.68	4.04	.40
F TEST FOR VAR. 2/	14.14	14.92	7.47	5.49	10.46	12.19	4.91
C.V. 2: (S OF MEAN/MEAN)*100	12.24	.79	5.06	6.33	20.72	107.29	124.71
LSD (0.05)	16.67	1.12	4.63	28.40	22.45	12.14	1.41

1/ % Surviv = percentage of plot surviving winter kill
2/ F value for variety comparison, all F values were highly significant

Table 2. Agronomic data from the 1989 Offstation Winter Wheat Nursery grown on the Ed Wehrheim farm, Lake County, Moiese, MT.

Planted: September 13, 1988 Harvested: August 4, 1989

CI or State #	VARIETY	YIELD BU/A	TEST WT LB/BU	HEIGHT INCHES	% SURVL	--- LODGING --- ANGLE	%
CI 17846	MANNING	94.47	58.87	39.63	81.67	3.33	63.00
CI 17419	DAWS	86.62	59.53	32.28	88.33	.00	.00
MT 88065	CST/VT1230//ID745101	77.19	59.23	40.55	50.00	.67	8.33
CI 17879	ROCKY	74.49	59.50	43.04	83.33	1.67	33.00
CI 17909	LEWJAIN	73.87	58.57	39.63	61.67	.00	.00
MT 8003	TIBER	73.55	60.40	40.42	81.67	.00	.00
ID 297	BLIZZARD	70.65	60.50	43.18	71.67	2.33	33.00
CI 17735	NORSTAR	69.49	60.47	48.82	68.33	3.00	96.00
CI 17860	NEELEY	68.99	59.10	36.61	45.00	2.00	64.67
CI 17902	WINRIDGE	67.33	58.93	37.53	80.00	3.67	44.67
CI 13670	WINALTA	66.93	59.00	46.33	55.00	4.33	83.33
PI491533	NORWIN	65.87	60.93	27.95	63.33	.00	.00
MT 88062	CST/VT1230//ID745101	65.67	59.20	41.60	81.67	1.67	35.00
CI 17441	VONA	63.82	60.73	35.17	43.33	.00	.00
CI 17727	WESTON	61.88	62.20	41.86	65.00	1.33	56.67
MT 8039	JUDITH	59.93	59.23	37.53	55.00	.00	.00
PI491532	CREE	58.65	60.20	43.18	66.67	3.67	82.67
CI 17594	STEPHENS	57.43	56.87	37.14	40.00	.00	.00
CI 8885	CHEYENNE	57.12	60.27	43.18	71.67	3.33	56.67
MT 88064	CST/VT1230//ID745101	51.77	56.40	40.55	38.33	1.67	55.00
MT 79125	UT755079/CST56//TX65	51.41	57.27	34.38	55.00	.00	.00
CI 17844	REDWIN	51.05	59.90	42.13	40.00	.00	.00
CI 13190	WARRIOR	49.70	59.47	43.44	60.00	2.67	58.00
CI 15075	CENTURK	42.86	59.80	40.94	61.67	1.67	46.67
	EXPERIMENTAL MEANS	65.03	59.44	39.88	62.85	1.54	34.03
	F TEST FOR VAR.	1.59	4.01**	3.37**	1.32	2.53**	2.77**
	C.V. 2:	14.55	1.09	6.19	21.11	60.00	56.83
	LSD (0.05)	26.93	1.84	7.03	37.76	2.63	55.05

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

Special notes: When evaluating this agronomic data keep in mind that the nursery was recrop winter wheat, it was irrigated, and that winter kill was extensive in some varieties.

Table 3. Agronomic data from the 1989 Offstation Winter Wheat Nursery grown on the Ross McIntyre farm, Ravalli County, Stephensville, MT.

Planted: September 14, 1988 Harvested: August 1, 1989

VARIETY	YIELD BU/A	TEST WT LB/BU	HEIGHT INCHES
CI 17879 ROCKY	60.88	60.27	29.53
ID 297 BLIZZARD	59.28	61.47	30.18
CI 17846 MANNING	58.30	57.60	32.15
MT 8003 TIBER	52.55	59.73	32.28
CI 17735 NORSTAR	50.70	60.07	35.96
CI 17441 VONA	49.72	58.20	23.75
CI 17909 LEWJAIN	49.30	56.57	24.02
CI 17419 DAWS	48.72	56.77	25.33
MT 79125 UT755079/CST56//TX65	47.93	57.90	26.90
CI 17727 WESTON	47.25	59.90	31.50
CI 15075 CENTURK	47.17	59.33	24.93
CI 13190 WARRIOR	47.00	58.63	28.61
PI491532 CREE	46.93	60.10	30.58
CI 13670 WINALTA	46.55	59.90	33.20
CI 17902 WINRIDGE	45.98	56.63	29.66
PI491533 NORWIN	45.58	59.33	20.60
MT 88062 CST/VT1230//ID745101	44.05	55.77	28.08
CI 17844 REDWIN	43.90	60.07	30.84
MT 8039 JUDITH	43.33	55.90	32.55
CI 17860 NEELEY	42.88	56.37	26.77
MT 88064 CST/VT1230//ID745101	42.43	54.10	30.58
CI 17594 STEPHENS	41.30	54.27	25.59
CI 8885 CHEYENNE	40.67	59.33	29.13
MT 88065 CST/VT1230//ID745101	39.15	57.30	25.20
EXPERIMENTAL MEANS	47.57	58.15	28.66
F TEST FOR VAR.	.73	9.97**	3.70**
C.V. 2: (S OF MEAN/MEAN)*100	13.93	1.09	6.58
LSD (0.05)	18.86	1.81	5.37

** Indicates statistical significance at the .01 level pf probability.