

PROJECT TITLE: 2004 Evaluation of soft winter wheat variety performance under fallow at the Central Agricultural Research Center, near Moccasin.

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PROJECT PERSONNEL: P. L. Bruckner, Winter Wheat Breeder, Bozeman, MT
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OBJECTIVES:

Evaluate agronomic performance, particularly winter hardiness, of soft winter wheat varieties in crop-fallow environments in the central Montana.

RESULTS:

The soft white winter wheat was seeded into tilled fallow soil on 23-September 2003. Emergence was uniform. The 2003-04 winter was relatively mild as some spring wheat over wintered in stubble. However, two soft white winter wheat varieties, Lewjain and Stephens, had severe winterkill. Three soft white entries topped the yield, not significantly, of the hard red check variety Neeley (Table 1). Protein contents were high for soft white with the two entries with the poorest stand, Lewjain and Stephens, having the highest protein content at 16.6 and 15.2, respectively.

In multi-year comparisons, no soft white entries have mean yields above the hard red winter wheat check, Neeley (Table 2). However, mean yields are closer to the Neeley mean than expected. This is due to the milder winters that have been experienced over the past ten years.

SUMMARY:

Eltan has been a fairly consistent high yielder over the tens years this study has been harvested. Only in 1996, did its yield fall as much as 10 bu/a below the yield of Neeley. The soft white varieties evaluated do not have sufficient winter hardiness to be raised in areas which frequently have bare soils and windy conditions during the winter months.

FUTURE PLANS:

2005 will be the last year crop year this nursery will harvested.

Table 1 2004 Soft white winter wheat agronomic performance on fallow.
Exp 5007 Central Agricultural Research Center. Moccasin, Montana.

Variety	Winter Survival	Head Date	Plant Height	Test Weight	Grain Yield	Protein Content
	%	d of y	"	lbs/bu	bu/a	%
Eltan	88.3	169.0	33.2	56.7	76.4	14.5
Simon	78.3	165.0	32.8	57.4	72.4	13.7
Rod	80.0	169.3	32.0	54.1	72.3	12.9
Neeley	88.3	164.3	34.5	59.6	71.0	13.9
Hubbard	81.7	166.7	37.9	58.7	69.3	12.7
Kmor	81.7	167.3	30.7	54.5	69.2	14.5
MacVicar	75.0	166.0	31.7	52.8	67.1	14.6
Finch	80.0	170.0	31.7	56.6	66.7	12.8
MAC-1	83.3	165.0	35.6	57.0	63.0	13.3
NuSky	91.7	164.7	33.9	60.3	62.9	15.2
Lambert	76.7	164.7	34.1	56.0	61.8	13.2
Hill 81	65.0	170.0	36.1	57.7	58.9	14.8
Kolding	75.0	166.0	32.5	57.6	53.5	14.4
Stephen	2.3	169.0	30.9	52.8	32.6	15.2
Lewjain	1.0	176.0	28.3	55.0	31.3	16.6
Mean	69.9	167.5	33.1	56.4	61.9	14.2
F ratio	24.72	24.36	6.381	13.4	15.1	
CV (S/MEAN)	14.17	0.6539	4.994	1.552	9.706	
LSD(0.05 by	16.5	1.827	2.8	1.866	10.02	

Seeded: 25-Sep-03 Into reduced till fallow
 Fertilizer: 10-10-10-05 NPKS w/Seec 60 N top dress as urea.
 Herbicide: Sprayed with Bronate May 24 pre boot

Table 2 Yield summary of selected soft white winter wheat varieties, 1993-2004.
Exp. 5007 Central Agricultural Research Center, Moccasin, MT

Varieties	bu/a										Ave	Neeley Same
	1993 ¹	###	1996	1997	1998	1999	2001	2002	2003	2004		Years
Neeley (HRW) ¹	67	49	49	67	86	58	57	51	37	71	59.3	59.3
Eltan	73	47	39	73	75	59	58	49	36	76	58.6	59.3
Rod	75	--	--	52	72	54	48	50	36	72	57.4	61.8
Daws	78	50	41	53	73	50	49	51	39	54	53.8	59.3
Lewjain	70	52	32	60	76	54	55	46	38	31	51.4	59.3
Kmor	77	47	27	61	74	52	50	51	41	69	54.9	59.3
Hill 81	73	42	32	57	78	52	50	48	40	59	53.1	59.3
Cashuo		47	39	60	75	58	47	48	33		50.9	56.8
MacVicar	76	43	18	57	70	53	47	49	38	67	51.8	59.3
Malcom	76	47	14	60	70	47	50	48	31		49.3	57.9
Lambert			31	42	79	50	51	52	36	62	50.4	59.3
Madsen	70	39	23	47	71	55	49	50	39		49.1	57.9
Stephens	74	44	16	49	68	45	51	50	31	33	46.1	59.3
KW960195p 7005								50	43	54	48.7	53.2
MAC-1							46	45	36	63	47.8	54.1
Bruehl							52	44	32		42.6	48.5
Nursery Mean	71	45	28.7	55	72.8	53.6	50.4	48.8	36.7	61.9		

¹ Neeley is used as a hard red winter wheat check.

² Neeley was in a different nursery in 1993.

1994 Nursery was damaged by wind blown soil and the 2000 nursery was damaged by hail.

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