PROJECT TITLE: Evaluation of winter and spring triticale varieties and selections for yield and quality under dryland cropping in Montana.

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OBJECTIVES: To evaluate triticale varieties and selections for yield and quality for adaptation to Montana production.

RESULTS 1996: The winter triticale trials were conducted at the Moccasin CARC and at a producer site near Moore, Montana (Tables 1 & 2). Winter triticale varieties and selections from Poland, Oregon, California and Alberta, Canada were compared for yield and quality to Tiber hard red winter wheat. As in the past 5 years, yields of numerous triticale entries exceeded the yield of hard red winter wheats. Selections from the four sources varied significantly in yield potential. However, triticale breeding programs from all 4 seed sources included entries which exceeded Tiber wheat yields at both the Moccasin and Moore test sites. Spring triticale trials were not conducted in 1996.

SUMMARY: In all the years of winter and spring triticale variety and selection evaluations, the higher yielding triticale significantly out yielded the hard red wheats. Grain protein in comparison to wheat varied from greater or less than or equal to wheat. The protein level appeared to vary in relation to triticale yield. If growing season moisture was high, the spread between triticale and wheat yields widened, and triticale grain protein dropped indicating the higher yield potential of triticale, and subsequent requirement for higher levels of N fertilizer.

In addition to evaluation of triticale for grain, awnless winter and spring types are being evaluated in comparison to hay barley and oats for yield and quality.

FUTURE: One spring triticale with consistently high grain yield and quality "Sunland" has been selected for increase, and foundation see is available at the Moccasin research center. Winter hardiness of winter triticales has not yet been established for the different production environments in Montana. The priority of this study is to generate winter hardiness data prior to selection of recommended varieties for Montana.

Table 1 1996 Moccasin Dryland Winter Triticale Trial
Exp.96WTRT01 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Head Date	Plant Ht.	Grain Yield	Winter Survival
		day	"	lbs/a	%
6	BOB	181.00	35.33	2420.63	100.00
28	RAH315 F93	175.00	32.00	2372.67	100.00
23	UGO	173.67	31.00	2234.90	91.67
40	RAH567 F93	174.67	36.33	2174.63	83.33
22	MALNO	176.00	32.67	2162.97	66.67
19	88DL01079-(SALMON)	179.00	36.00	2150.03	100.00
13	RSI EXPT 8703-(CAL)	177.00	35.33	2140.83	80.00
4	B009	181.00	31.33	2108.20	100.00
34	RAH406 F93	176.33	33.00	2075.67	88.33
1	TIBER	178.67	32.33	2028.90	91.67
14	PIKA-(SALMON)	180.00	43.00	1991.97	100.00
17	88DL01076-(SALMON)	175.00	42.33	1988.30	98.33
20	ALMO	174.33	32.00	1974.77	86.67
16	86D046045-(SALMON)	175.67	42.00	1948.30	96.67
39	RAH480 F93	175.33	34.67	1931.10	70.00
31	RAH371 F93	174.00	31.67	1923.73	75.00
18	88DL01047-(SALMON)	177.00	32.67	1906.50	98.33
29	RAH331 F93	176.67	31.33	1902.80	81.67
35	RAH407 F93	175.67	31.67	1875.73	93.33
10	TRICAL 102-(CAL)	178.00	40.33	1853.60	93.33
26	RAH223 F93	176.33	33.00	1849.90	76.67
9	WINTRI	179.67	41.33	1838.83	98.33
30	RAH365 F93	174.67	33.67	1832.70	33.33
33	RAH376 F93	173.67	31.67	1738.60	38.33
5	B0010	180.33	28.67	1728.17	93.33
21	BOGO	176.67	28.67	1719.50	50.00
37	RAH443 F93	176.00	29.33	1700.43	36.67
15	86D044047-(SALMON)	178.00	37.67	1695.57	98.33
11	C335-(CAL)	176.00	31.67	1692.47	93.33
12	TRICAL-888-(CAL)	179.33	32.33	1686.33	88.33
24	RAH173 F93	176.00	33.33	1643.30	46.67
25	RAH213 F93	175.33	35.67	1621.77	51.67
38	RAH475 F93	176.67	34.00	1577.43	66.67
27	RAH273 F93	179.67	31.00	1529.50	50.00
8	TRILLIUM	175.67	37.67	1403.40	40.00
32	RAH373 F93	174.67	35.67	1394.17	13.33
2	PRESTO	175.67	36.00	1239.83	25.00
3	FT 229	179.00	30.67	985.20	36.67
36	RAH441 F92	176.67	28.67	938.47	26.67
7	NEWCALE	171.00	37.00	899.73	20.00
EXPERIMENTAL MEANS		176.63	34.12	1797.04	71.96
F TEST FOR VAR. df=78		5.47	3.78	2.66	5.60
C.V. 1: (S/MEAN)*100		.94	9.89	20.99	28.03
LSD (0.05)		2.69	5.48	613.09	32.78

Planted: 9-28-1995 on fallow ground.
Fertilizer: 60 units N as Urea applied & incorporated preplant.
Growing Season Precipitation (April-July): 5.66".
88 yr. ave. = 8.68".

Table 2 1996 Moore Dryland Winter Triticale Trial
Exp.96WTRT02 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Plant Ht.	Grain Yield	Test Wt.
		"	lbs/a	lbs/bu
20	ALMO	37.00	2527.47	48.10
40	RAH567 F93	33.00	2222.57	45.40
32	RAH373 F93	33.00	2220.83	50.00
31	RAH371 F93	34.00	2188.57	48.60
30	RAH365 F93	33.00	2134.27	48.47
6	BOB	32.00	1950.50	46.80
19	88DL01079-(SALMON)	38.00	1937.40	49.20
22	MALNO	30.00	1919.47	46.50
8	TRILLIUM	37.00	1907.57	49.10
13	RSI EXPT 8703-(CAL)	30.00	1891.43	46.87
29	RAH331 F93	30.00	1884.83	45.80
39	RAH480 F93	31.00	1846.67	46.60
2	PRESTO	33.00	1835.97	52.27
1	TIBER	29.00	1809.07	58.60
14	PIKA-(SALMON)	45.00	1790.00	51.60
27	RAH273 F93	31.00	1776.87	45.00
21	BOGO	28.00	1758.40	46.80
33	RAH376 F93	30.00	1756.60	46.93
15	86D044047-(SALMON)	42.00	1746.43	50.47
9	WINTRI	47.00	1744.07	48.47
10	TRICAL 102-(CAL)	44.00	1743.50	46.47
36	RAH441 F92	29.00	1729.17	46.27
18	88DL01047-(SALMON)	39.00	1673.67	50.13
4	B009	30.00	1656.93	45.73
38	RAH475 F93	31.00	1652.73	46.13
16	86D046045-(SALMON)	39.00	1636.67	48.60
34	RAH406 F93	30.00	1611.60	46.27
25	RAH213 F93	32.00	1592.50	47.27
28	RAH315 F93	33.00	1564.47	45.93
26	RAH223 F93	33.00	1559.10	44.27
7	NEWCALE	37.00	1548.37	47.67
23	UGO	30.00	1536.43	44.80
5	B0010	29.00	1531.63	45.87
35	RAH407 F93	33.00	1516.73	47.60
37	RAH443 F93	35.00	1495.83	46.67
24	RAH173 F93	30.00	1449.30	47.73
12	TRICAL-888-(CAL)	30.00	1402.80	45.60
3	FT 229	32.00	1362.20	48.80
11	C335-(CAL)	32.00	1342.47	48.00
17	88DL01076-(SALMON)	39.00	1332.37	48.13
EXPERIMENTAL MEANS			1744.69	47.74
F TEST FOR VAR. df=78			1.78	20.33
C.V. 1: (S/MEAN)*100			19.51	2.03
LSD (0.05)			553.45	1.58