

I. PROJECT TITLE: Alternative winter/spring cereal crop variety comparison off-station at Billings.

II. PROJECT LEADERS: G.F. Stallknecht, K.M. Gilbertson

III. PROJECT PERSONNEL: Dover Sindelar cooperater

IV. OBJECTIVE: To compare yields of alternative winter cereals, particularly spelt to spring oat and barley yields.

V. RESULTS: 1994 winter/spring cereal variety yield comparisons are described in Tables 1 and 2. Tiber winter wheat and winter barleys have been included in the winter trial, and spring triticale and spring waxy hulless barleys for yield checks and comparisons.

Yield results in 1994, showed that spring barley yields averaged 40 percent less and spring oats 65 percent less than winter spelt. The Tiber winter wheat check yielded 46 bushel/Acre compared to spring Bowman barley which yielded 31 bushel/Acre. Both spring triticale, spring oats, and hulless waxy barley yielded significantly less than spring barley.

VI. SUMMARY: The 1994 results are in agreement with previous years studies, in which the data indicate that winter spelt will significantly out yield spring oats and barley, average precipitation years. The winter crops have the advantage to use available soil moisture early in the growing season for higher yield potentials. Only in a extreme abnormally high moisture year, did the spring grains equal or out yield the winter spelt. Since the protein content of spelt with the hull averages a percent higher than oats or barley, there is a distinct advantage to its use as a high rough/high energy feed for livestock.

VII. FUTURE PLANS: The study is completed for this objective and will be published in Montana Ag Research.

TABLE 1. 1994 OFF STATION DRYLAND WINTER GRAIN COMPARISON  
W/SPELT, W/WHEAT, W/BARLEY, SINDELAR FARM.

	VARIETY	YIELD LBS/AC	TEST WT LB/BU	PLANTHT INCHES	<sup>1</sup> % LOSS
10	TIBER WINTER WHEAT	2771.40	61.20	36.00	.00
6	CHAMP SPELTZ	2165.02	31.80	33.50	.00
2	SINDELAR LIGHT SPELT	2113.51	31.70	39.00	.00
5	SP 949 SPELTZ	2040.71	31.20	38.00	.00
8	* 86Ab1061 BARLEY	2009.53	47.70	27.50	40.00
1	WILLIE SPELTZ	1941.30	29.80	37.50	.00
4	SINDELAR MIX SPELTZ	1895.00	33.00	37.50	.00
9	* SCHUYLER BARLEY	1816.22	44.70	23.00	50.00
3	SINDELAR DARK SPELTZ	1806.74	32.70	38.00	.00
7	* KAMIAK BARLEY	1377.73	45.80	29.00	71.67

<sup>1</sup> Percent Loss due to broken heads.

\*\*\*\*\* STATISTICAL TABLE \*\*\*\*\*

	YIELD LBS/AC	PLANTHT INCHES	% LOSS
EXPERIMENTAL MEANS	1993.72	33.90	16.17
F TEST FOR REPS.	4.65	.44	1.87
F TEST FOR VAR.	6.42	5.32	115.17
C.V. 1: (S/MEAN)*100	12.04	9.98	27.08
C.V. 2: (S OF MEAN/MEAN)*100	6.95	7.06	15.63
LSD (0.05)	411.62	7.65	7.51

DATE PLANTED: 10/01/93  
DATE HARVESTED: 7/19/94 \*(WINTER BARLEY 7/14/94)

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WCOMM.WCD

TABLE 2 . 1994 DRYLAND SPRING GRAIN COMPARISON - OATS,  
BARLEY, TRITICALE, SINDELAR FARM.

	VARIETY	YIELD TEST WT		PLANT HT
		LB/AC	LB/BU	INCHES
3	BOWMAN BARLEY	1564.76	47.80	25.50
4	GALLATIN BARLEY	1346.49	46.80	25.50
6	STEPTOE BARLEY	1124.60	39.10	24.00
9	WAPITI TRITICALE	1086.60	53.00	32.50
7	WAXBAR BARLEY	961.40	50.20	24.00
5	CLARK BARLEY	891.27	44.00	24.50
10	KARL TRITICALE	866.61	49.80	29.50
2	MONIDA OATS	758.01	31.40	27.00
1	OTANA OATS	750.01	33.60	28.50
8	SHONKIN BARLEY	486.39	53.90	24.50

\*\*\*\*\* STATISTICAL TABLE \*\*\*\*\*

	YIELD	PLANT HT
	LB/AC	INCHES
EXPERIMENTAL MEANS	983.62	26.55
F TEST FOR REPS.	.03	7.23
F TEST FOR VAR.	8.57	47.03
C.V. 1: (S/MEAN)*100	18.76	2.19
C.V. 2: (S OF MEAN/MEAN)*100	10.83	1.55
LSD (0.05)	316.58	1.32

DATE PLANTED: 4/19/94

DATE HARVESTED: 7/27/94

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