PROJECT TITLE: Evaluation of spring barley variety performance in off-station trials at Denton and Fort Benton.

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OBJECTIVES:
To evaluate the agronomic performance of spring barley varieties in environments and cropping methods representative of the southern triangle and central Montana.

RESULTS:.
Denton barley trials were seeded on tilled millet stubble with anhydrous N applied at 60 lbs/a and 40 lbs 18-46-0 w/seed. Yields ranged from 79-65 bu/a with Lewis and Chinook topping the nursery. All the varieties had above standard test weights with a nursery mean of 53.5 lbs/bu. Grain protein averaged 9.3%. Most of the varieties have long term yield averages above Hector's with Baronesse having a 5 bu/a advantage over Hector (Tables 1 and 2).

Fort Benton spring barley trial was seeded into a heavy winter wheat residue. Straw bridging on the shanks caused some seeding difficulty. A moderate stand of wild oat caused some yield suppression. Barley yields ranged from 84 to 58 bu/a with Steptoe producing the highest yield. The barley test weight averaged 52.4 lbs/bu and protein averaged 11.6% (Tables 3.) Baronesse and Chinook have long term yield averages greater than Hector (Table 4).

SUMMARY:
1997 Spring barley yields were well above average at Denton and Fort Benton. The variety Baronesse faltered in yield rank from its past performance, but still has the top long term yield of currently popular barley varieties. Of the varieties with low fall dormancy, Chinook and Lewis performed well and had yields more than 10% above Harrington's at both Denton and Fort Benton.

FUTURE PLANS:
Spring barley variety evaluations will be continued at Denton and Fort Benton.

Table 1 1997 Denton Barley Variety Performance Trial
Exp. 3671 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Grain Yield	Test Wt.	Protein Content
		bu/a	lbs/bu	%
CI 15856	Lewis	78.8	54.9	9.1
PI591823	Chinook	78.8	55.4	9.3
PI491534	Gallatin	77.6	54.3	9.0
H1851195	H1851195	76.1	53.8	9.2
H3860224	H3860224	74.7	53.5	9.3
ND 9866	Stark	74.6	54.6	9.8
PI568246	Baronesse	72.5	52.7	9.3
PI537438	Targhee	72.1	53.5	8.8
CI 15229	Steptoe	71.8	48.8	8.9
ND 11055	Foster	71.0	51.5	9.2
MN 56	Stander	70.5	52.8	9.2
MT886610	MT886610	69.9	53.8	9.2
N1123111	Logan	68.7	54.7	9.4
SK 76333	Harrington	68.0	52.9	9.4
CI 15514	Hector	67.1	54.4	9.6
PI483237	Bowman	65.0	54.0	10.1
EXPERIMENTAL MEANS		72.33	53.48	9.30
F TEST FOR VAR. df=30		3.36	14.99	1.77
C.V. 1: (S/MEAN)*100		5.45	1.34	4.43
LSD (0.05)		6.58	1.19	.69

Planted: 5-1-1997 recrop on millet ground.
Harvested: 8-22-1997
Growing Season Precipitation (April-July): 10.76"

April	May	June	July
1.40"	2.54"	4.35"	2.47"

Producer: Richard Barber, Denton.

Table 2 Denton Off-Station Barley Multi-Year Summary
Central Agricultural Research Center, Moccasin, MT.

Variety	1988	1989	1990	1991	1992 @	1993	1994	1995	1996 @	1997 @	Ave.	Hector Same Yrs
	bu/a											
HECTOR	35	68	38	68	45	90	41	66	32	67	55	--
PIROLINE	34	73	43	63	37	99	41	65	29		54	54
HARRINGTON	28	53	37	59	37	102	33	70	25	68	51	55
LEWIS	24	59	46	68	33	101	41	69	31	79	55	55
BOWMAN	26	56	42	51*	37	99	42	67	29	65	51	55
STEPTOE	29	74	44	67	40	108	37	63	31	72	56	55
GALLATIN	35	59	42	65	39	100	40	68	31	78	56	55
CHINOOK	32	61	41	72	30	106	37	70	30	79	56	55
STARK			49	70	36	105	41	71	32	75	60	56
BARONESSE				71	37	121	38	73	31	73	63	58
TARGHEE								67	29	72	56	55
H3860224								74	27	75	59	55
H1851195								68	29	76	58	55
MT886610								66	28	70	55	55
Mean	31	62	41	65	37	104	38	68	30	72		

*Bowman suffered unidentified insect damage in 1991. Stark also showed some damage in one rep.
@Planted recrop on field pea ground in 1992, recrop following buckwheat in 1996, recrop following millet in 1997, all other years on fallow.
Variety trials were located on Richard Barber farm.

Table 3 1997 Fort Benton Barley Variety Performance Trial
Exp. 3672 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Plant Ht.	Grain Yield	Test Wt.	Protein Content
		"	bu/a	lbs/bu	%
CI 15229	Steptoe	27	84.3	49.3	9.5
PI483237	Bowman	31	83.7	54.4	12.5
ND 11055	Foster	31	83.4	51.7	11.0
PI568246	Baronesse	30	80.7	51.2	12.4
PI591823	Chinook	31	79.7	53.2	11.6
CI 15856	Lewis	31	76.8	53.7	13.4
CI 15514	Hector	34	74.4	53.7	12.2
ND 9866	Stark	32	71.1	53.8	11.2
SK 76333	Harrington	30	67.6	51.4	11.8
N1123111	Logan	30	67.1	53.0	11.7
PI491534	Gallatin	33	66.9	52.1	12.9
PI537438	Targhee	30	65.7	52.7	9.8
H3860224	H3860224	29	61.7	51.8	11.9
MT886610	MT886610	31	61.4	53.7	10.2
H1851195	H1851195	32	58.4	52.4	11.2
MN 56	Stander	28	57.6	50.6	12.0
EXPERIMENTAL MEANS		30.69	71.28	52.41	11.58
F TEST FOR VAR. df=30		2.33	2.25	9.65	3.33
C.V. 1: (S/MEAN)*100		6.19	15.06	1.45	8.78
LSD (0.05)		3.17	17.90	1.27	1.70

Planted: 5-1-1997 recrop on winter wheat ground.
Harvested: 8-19-1997
Growing Season Precipitation (April-July): 8.65"

April	May	June	July
2.23"	2.54"	2.72"	1.16"

Producer: Steve Birkeland, Fort Benton.

Table 4 Fort Benton Off-Station Barley Multi-Year Summary
Central Agricultural Research Center, Moccasin, MT.

Variety	1990	1991	1992	1993	1994	1995	1996	1997	Ave.	Hector Same yrs
	bu/a									
HECTOR	65	42	21	69	65	56	48	74	55	--
PIROLINE	64	39	22	68	70	57	51		53	52
HARRINGTON	68	36	21	68	54	64	51	68	54	55
LEWIS	55	43	19	73	61	50	53	77	54	55
BOWMAN	57	41	20	75	59	59	44	84	55	55
STEPTOE	43	52	26	76	70	58	57	84	58	55
GALLATIN	62	39	28	66	63	52	46	67	53	55
CHINOOK	58	38	20	74	66	67	55	80	57	55
STARK	55	38	19	71	62	51	52	71	52	55
BARONESSE		41	24	75	72	73	49	81	59	54
TARGHEE						60	52	66	59	59
H3860224						70	47	62	60	59
H1851195						67	46	58	57	59
MT886610						67	46	61	58	59
Mean	58.8	39.9	22.5	71.2	63.0	62.2	49.8	71.3		

Variety trials were located at Ron Long farm through 1996, Steve Birkeland farm in 1997.
The 1989 trial experienced severe hail damage.
All trials were planted on recrop ground.