

PROJECT TITLE: Evaluation of spring barley variety performance in off-station trials at Denton, Highwood, and Winifred.

PROJECT LEADER: David M. Wichman, Agronomist - Moccasin

PROJECT PERSONNEL: T.L. Blake, Barley Breeder, Bozeman
P.F. Hensleigh, Barley Res. Assoc., Bozeman
J. Vavrovsky, Technician, Moccasin
Dave Phillips, Fergus Cty. Extension Agent
Judee Wargo, Chouteau Cty. Extension Agent

OBJECTIVES:

To evaluate the performance of spring barley varieties in environments and cropping methods different from those at the Central Agricultural Research Center.

RESULTS:

The Denton trial was on fallow, while Highwood and Winifred were planted on recrop winter wheat ground.

Denton: Yields were below average, ranging from 44 to 28 bu/a. MT889106 was the high yielder, followed closely by Bowman, Pirolina, Hector, and Lewis. Test weights averaged 48.4 lbs/bu, while proteins averaged 12.7%. Data from the Denton site is presented in Tables 1 & 2.

Highwood: Yields were above average at Highwood, ranging from 72 to to 54 bu/a. Test weights averaged 49.3 lbs/bu, while proteins averaged 12.85%. Baronesse was the high yielder, followed by Pirolina and Steptoe. Data from the Highwood site is presented in Tables 3 & 4.

Winifred: Yields ranged from 61 to 46 bu/a. Test weights averaged 50.3 lbs/bu, while proteins averaged 11.8%. Baronesse was the high yielder, followed by Colter, MT140523, Lewis, and Hector. Data from the site is presented in Tables 5 & 6.

SUMMARY:

Varieties with high yield performance over 8 years at Denton are Steptoe, Bearpaw, and Gallatin. Varieties with high 5 year averages at Highwood are Steptoe, Pirolina, Gallatin, and Hector. The high yielders over 3 years at Winifred include Baronesse, Pirolina, Steptoe, and Hector. Baronesse, which has been in these trials for four years, has also performed very well at Denton and Highwood.

FUTURE PLANS:

Off-station spring barley variety trials are to be continued at Denton, Highwood, and Winifred.

Table 1 1994 Denton Off-Station Spring Barley Trial
Exp. 3671 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Grain Yield	Test Weight	Plant Ht.	Protein Content
		bu/a	lbs/bu	"	%
MT889106	Apex/Lewis	44.3	50.6	25	12.0
PI483237	Bowman	42.4	50.4	25	12.3
CI 9558	Pirolina	41.1	48.1	24	13.1
CI 15514	Hector	40.7	49.8	26	12.3
CI 15856	Lewis	40.7	50.1	24	12.7
ND 9866	Stark	40.5	50.8	26	12.3
MT861596	Lewis/MT 41549	40.5	50.5	23	13.6
PI491534	Gallatin	39.8	50.1	24	11.5
NS 78054	Baronesse	38.2	49.2	22	13.9
MT860756	MT860756	37.9	49.2	20	12.1
MT886610	MT 81143/Lewis	37.6	48.8	23	12.4
MT140523	MT140523	37.2	49.5	22	13.7
MT851195	MT851195	37.1	49.4	21	13.7
CI 15229	Steptoe	36.7	40.1	25	10.8
PI537967	Colter	34.1	41.7	20	10.9
SK 76333	Harrington	33.4	48.0	22	13.7
MT890008	MT890008	33.1	49.7	17	14.1
WPB92 1	Medallion	28.4	46.1	17	13.3
EXPERIMENTAL MEANS		37.99	48.44		12.70
F TEST FOR VAR. df=34		3.84	40.49		3.81
C.V. 1: (S/MEAN)*100		9.03	1.67		6.99
LSD (0.05)		5.69	1.34		1.47

Yields were reduced by dense stand of tame buckwheat, which was controlled June 10 with Express+2-4-D. The buckwheat had reached 3-4" in height.

Planted: 4-21-94 on fallow ground.

Harvested: 8-1-94

Fertilizer: 50# 28-28-0 w/seed, 60 units N as anhydrous applied preplant.

Growing Season Precipitation: April 2.28", May 1.63", June 2.76", July 0.64". Total = 7.31".

Producer: Richard Barber, Denton.

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

Variety	1987	1988	1989	1990	1991	1992 [@]	1993	1994	Ave.	Hector Same Yrs
	----- bu/a -----									
HECTOR	40	35	68	38	68	45	90	41	53	--
PIROLINE	47	34	73	43	63	37	99	41	55	53
HARRINGTON	56	28	53	37	59	37	102	33	51	53
CLARK	60	34	52	38	61	36	95		54	55
LEWIS	66	24	59	46	68	33	101	41	55	53
BOWMAN	53	26	56	42	51*	37	99	42	51	53
STEPTOE	62	29	74	44	67	40	108	37	58	53
GALLATIN	67	35	59	42	65	39	100	40	56	53
BEARPAW	73	34	59	39	68	37	100		59	55
MT860756						35	110	38	61	59
MT 140523		32	61	41	72	30	106	37	54	55
STARK				49	70	36	105	41	60	56
BARONESSE					71	37	121	38	67	61
COLTER							103	34	68	65
Mean	57.3	31.1	62.0	40.8	65.2	36.8	103.9	38.0		

*Bowman suffered unidentified insect damage in 1991. Stark also showed some damage in one rep.

[@]Planted recrop on field pea ground. All other years on fallow.
Variety trials were located on Richard Barber farm.

Table 3 1994 Highwood Recrop Spring Barley Trial
Exp. 3672 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Grain Yield	Test Weight	Plant Ht.	Protein Content
		bu/a	lbs/bu	"	%
NS 78054	Baronesse	71.9	49.1	28	13.1
CI 9558	Pirolina	69.9	50.8	30	13.4
CI 15229	Steptoe	69.8	43.9	29	11.7
MT851195	MT851195	69.4	48.9	29	13.7
MT140523	MT140523	65.9	50.3	26	13.2
MT889106	Apex/Lewis	64.8	51.2	28	13.4
CI 15514	Hector	64.7	50.3	28	13.3
PI537967	Colter	64.6	46.5	31	10.9
PI491534	Gallatin	63.3	49.7	28	12.7
MT886610	MT 81143/Lewis	63.0	50.3	28	12.6
ND 9866	Stark	62.4	50.9	29	13.2
MT860756	MT860756	61.5	49.9	28	12.4
CI 15856	Lewis	60.6	50.9	31	13.3
PI483237	Bowman	58.6	51.1	30	13.4
MT861596	Lewis/MT 41549	57.1	51.6	28	13.4
MT890008	MT890008	57.1	48.6	27	12.6
WPB92 1	Medallion	55.2	44.8	24	11.8
SK 76333	Harrington	53.9	48.1	29	13.2
EXPERIMENTAL MEANS		62.99	49.28		12.85
F TEST FOR VAR. df=34		4.39	41.26		36.25
C.V. 1: (S/MEAN)*100		6.92	1.21		1.70
LSD (0.05)		7.23	.99		.36

Planted: 4-21-94 recrop on winter wheat ground.
Harvested: 8-10-94
Fertilizer: 50# 28-28-0 w/seed
Growing season precipitation (April-July): 6.22 inches
Producer: Ron Long, Shonkin.

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

Variety	1990	1991	1992	1993	1994	Ave.	Hector Same yrs
	-----bu/a-----						
HECTOR	65	42	21	69	65	52	--
PIROLINE	64	39	22	68	70	53	52
HARRINGTON	68	36	21	68	54	49	52
CLARK	59	31	25	70		46	49
LEWIS	55	43	19	73	61	50	52
BOWMAN	57	41	20	75	59	50	52
STEPTOE	43	52	26	76	70	53	52
GALLATIN	62	39	28	66	63	52	52
BEARPAW	62	40	25	70		49	49
MT860756			27	74	61	54	52
MT 140523	58	38	20	74	66	51	52
STARK	55	38	19	71	62	49	52
BARONESSE		41	24	75	72	53	49
COLTER				69	65	67	67
Mean	58.8	39.9	22.5	71.2	63.0		

Variety trials were located at Ron Long farm.
The 1989 trial experienced severe hail damage.
All trials were planted on recrop ground.

Table 5 1994 Winifred Recrop Spring Barley Trial
Exp. 3674 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Grain Yield	Test Weight	Plant Ht.	Protein Content
		bu/a	lbs/bu	"	%
NS 78054	Baronesse	60.7	51.4	22	11.5
PI537967	Colter	60.4	48.0	23	10.0
MT140523	MT140523	59.5	51.6	23	11.8
CI 15856	Lewis	59.2	51.8	26	12.2
CI 15514	Hector	58.9	51.6	28	11.7
MT890008	MT890008	58.1	48.3	22	11.2
CI 9558	Pirolina	56.8	53.0	26	11.7
MT860756	MP860756	56.4	50.0	23	11.6
MT861596	Lewis/MT 41549	56.2	51.9	21	12.4
MT851195	MP851195	55.1	50.1	25	13.3
ND 9866	Stark	54.6	53.4	25	11.4
MT886610	MT 81143/Lewis	53.8	50.1	26	12.2
PI491534	Gallatin	53.0	51.6	24	11.8
CI 15229	Steptoe	52.1	46.3	21	11.2
MT889106	Apex/Lewis	50.7	51.4	21	12.2
WPB92 1	Medallion	50.2	45.2	22	11.9
PI483237	Bowman	49.3	51.2	24	12.7
SK 76333	Harrington	46.1	49.2	23	12.2
EXPERIMENTAL MEANS		55.06	50.34		11.84
F TEST FOR VAR. df=34		3.20	12.25		1.80
C.V. 1: (S/MEAN)*100		7.37	2.17		7.61
LSD (0.05)		6.73	1.81		1.50

Planted: 5-11-94 recrop on winter wheat ground.
Harvested: 8-12-94
Fertilizer: 50# 28-28-0 w/seed.
Producer: Bruce Udelhoven, Winifred.

File: AR367494.SBD

Table 6 Winifred Off-Station Barley Multi-Year Summary
Central Agricultural Research Center, Moccasin, MT.

Variety	1992	1993	1994	Ave.	Hector Same Yrs
	-----bu/a-----				
HECTOR	36	60	59	52	--
PIROLINE	35	72	57	55	52
HARRINGTON	37	57	46	47	52
CLARK	35	53		44	48
LEWIS	37	49	59	48	52
BOWMAN	35	46	49	43	52
STEPTOE	35	68	52	52	52
GALLATIN	42	53	53	49	52
BEARPAW	38	52		45	48
MT860756	34	67	56	52	52
MT 140523	35	52	59	49	52
STARK	32	47	55	45	52
BARONESSE	40	82	61	61	52
COLTER		58	60	59	59
Mean	36.2	57.7	55.1		

Variety trials were located at Bruce Udelhoven farm.
Trials were planted on recrop ground.