

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

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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 ground. Barley yields were exceptional at Denton and above average at Highwood and Winifred. Test weights were above average at all three locations.

Denton: Yields ranged from 121 to 90 bu/a. Baronesse was the high yielder, with MT890008, MT851195, MT860756, and Steptoe yielding very well. Data from the Denton site is presented in Tables 1 & 2.

Highwood: Yields ranged from 76 to 66 bu/a. Steptoe was the high yielder, followed closely by MT890008, Bowman, Baronesse, and MT860756. Data from the Highwood site is presented in Tables 3 & 4.

Winifred: Yields ranged from 82 to 46 bu/a. Baronesse was the high yielder, followed by Pirolina, Steptoe, MT860756, and MT851195. There was some shattering in this trial. Data is presented in Tables 5 & 6.

SUMMARY:

Varieties with high yield performance over 7 years at Denton are Steptoe, Bearpaw, and Gallatin. Varieties with high 4 year averages at Highwood are Steptoe, Gallatin, Bearpaw, and Hector. The high yielders over 2 years at Winifred include Baronesse, Pirolina, and Steptoe. Baronesse, which has been in these trials for only three 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.

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 Table 1 1993 Denton Off-Station Spring Barley Trial  
 Exp 3672 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Lodging	Plant Ht.	Grain Yield	Test Weight
		0-5	"	bu/a	lbs/bu
NS 78054	Baronesse	.0	34.0	120.8	50.4
MT890008	MT890008	.0	31.5	115.1	48.5
MT851195	MT851195	.0	34.5	111.9	49.3
MT860756	MT860756	.0	35.5	110.3	50.5
CI 15229	Steptoe	.0	34.0	108.3	43.1
MT140523	MT140523	.5	33.0	106.3	50.1
ND 9866	Stark	.0	38.0	105.1	49.7
PI537967	Colter	.0	34.0	103.2	41.2
SK 76333	Harrington	1.0	37.0	102.5	49.4
MT 81161	MT 81161	.5	30.0	102.1	48.9
MT851032	MT851032	.5	33.5	101.2	50.2
CI 15856	Lewis	1.0	35.5	100.6	51.1
PI531228	Bearpaw	2.5	37.5	100.1	49.8
PI491534	Gallatin	.0	33.5	99.7	50.0
CI 9558	Pirolina	2.5	33.0	99.1	50.2
PI483237	Bowman	.0	30.5	98.9	48.9
CI 15857	Clark	3.5	34.5	95.5	49.7
CI 15514	Hector	3.0	38.0	89.7	50.2
EXPERIMENTAL MEANS		.83	34.31	103.95	48.95
F TEST FOR VARdf=34		2.68	2.82	4.77	58.87
C.V.1: (S/MEAN)*100		123.10	5.75	5.61	1.19
LSD (0.05)		2.16	4.17	9.68	.97

<sup>1</sup> Plant lodging and height recorded on two reps, only.

Planted: 4-26-93 on fallow ground.

Moisture Probe Depth: 30" Soil Temp.(2" depth): 53 degrees F

Harvested: 9-10-93

Fertility: 50 lbs 18-46-0 with seed, 46 units N as anhydrous applied preplant.

Cooperator: D. Wichman, J. Vavrovsky, T. Blake, P. Hensleigh

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	AVE.
	e							
	-- -- -- -- -- bu/a -- -- -- -- --							
HECTOR	40	35	68	38	68	45	90	55
PIROLINE	47	34	73	43	63	37	99	57
HARRINGTON	56	28	53	37	59	37	102	53
CLARK	60	34	52	38	61	36	95	54
LEWIS	66	24	59	46	68	33	101	57
BOWMAN	53	26	56	42	51*	37	99	52
STEPTOE	62	29	74	44	67	40	108	61
GALLATIN	67	35	59	42	65	39	100	58
BEARPAW	73	34	59	39	68	37	100	59
MT 81161	70	33	68			36	102	
MT 140523		32	61	41	72	30	106	
STARK				49	70	36	105	
BARONESSE					71	37	121	
Mean	57.3	31.1	62.0	40.8	65.2	36.8	103.9	

\*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 1993 Highwood Recrop Spring Barley Trial  
Exp 3673 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Green* Tillers suckers	Plant Ht. "	Grain Yield bu/a	Test Weight lbs/bu
CI 15229	Steptoe	0	25	75.5	45.1
MT890008	MT890008	3	28	75.1	46.4
PI483237	Bowman	1	27	75.0	50.7
NS 78054	Baronesse	2	24	74.8	52.3
MT860756	MT860756	1	28	74.4	51.0
MT140523	MT140523	1	27	74.1	51.5
CI 15856	Lewis	1	26	73.2	52.2
ND 9866	Stark	2	28	71.0	51.3
MT 81161	MT 81161	1	29	70.7	48.7
PI531228	Bearpaw	1	26	70.1	49.5
CI 15857	Clark	1	25	69.9	50.3
MT851032	MT851032	1	27	69.2	50.2
MT851195	MT851195	2	28	68.9	49.1
PI537967	Colter	2	28	68.7	44.3
CI 15514	Hector	1	26	68.6	51.2
CI 9558	Piroline	1	25	68.1	51.2
SK 76333	Harrington	2	25	68.1	49.6
PI491534	Gallatin	1	27	65.8	50.0
EXPERIMENTAL MEANS				71.18	49.70
F TEST FOR VAR.				.79	23.04
C.V. 1: (S/MEAN)*100				8.39	1.66
LSD (0.05)				9.91	1.37

\*Green Tiller scale (0-3) 0=none

Planted: 4-28-93 recrop on tilled wheat ground.

Moisture Probe Depth: 22" Soil Temp.(2" depth): 53 degrees F.

Harvested: 8-10-93

Fertility: 50 lbs 18-46-0 with seed, 60 lbs N as Urea broadcast preplant.

Cooperator: D. Wichman, J. Vavrovsky, T. Blake, P. Hensleigh

Producer: Ron Long, Shonkin

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

VARIETY	1990	1991	1992	1993	AVG.
	-----bu/a-----				
HECTOR	65	42	21	69	49
PIROLINE	64	39	22	68	48
HARRINGTON	68	36	21	68	48
CLARK	59	31	25	70	46
LEWIS	55	43	19	73	47
BOWMAN	57	41	20	75	48
STEPTOE	43	52	26	76	49
GALLATIN	62	39	28	66	49
BEARPAW	62	40	25	70	49
MT 81161			25	71	
MT 140523	58	38	20	74	47
STARK	55	38	19	71	46
BARONESSE		41	24	75	
Mean	58.8	39.9	22.5	71.2	

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

Table 5 1993 Winifred Recrop Spring Barley Trial  
Exp 3674 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Shatter (0-3)*	Plant Ht.	Grain Yield	Test Weight	Plump >6/64	Thin <5.5/64
			"	bu/a	lbs/bu	%	%
NS 78054	Baronesse	1	27	82.2	49.3	94	2
CI 9558	Pirolina	0	32	71.8	51.4	92	2
CI 15229	Steptoe	0	30	67.6	43.3	89	3
MT860756	MT860756	2	30	66.7	50.0	96	1
MT851195	MT851195	1	31	62.4	49.0	94	2
CI 15514	Hector	0	28	60.1	49.0	92	2
PI537967	Colter	2	35	58.4	44.3	79	8
MT890008	MT890008	1	29	57.5	46.7	94	2
SK 76333	Harrington	1	32	56.8	47.8	95	2
MT 81161	MT 81161	0	30	54.6	47.8	95	1
PI491534	Gallatin	3	32	53.0	49.1	92	2
CI 15857	Clark	3	32	52.7	48.6	90	2
MT140523	MT140523	1	31	52.0	49.0	92	2
PI531228	Bearpaw	1	33	52.0	47.6	93	2
MT851032	MT851032	0	30	48.9	48.4	93	1
CI 15856	Lewis	3	32	48.8	49.3	92	2
ND 9866	Stark	2	35	47.0	49.7	95	2
PI483237	Bowman	2	31	46.4	49.3	96	1
EXPERIMENTAL MEANS				57.71	48.31	92.43	2.15
F TEST FOR VAR. df=34				12.02	50.22	22.30	11.83
C.V. 1: (S/MEAN)*100				8.21	.98	1.51	34.66
LSD (0.05)				7.86	.78	2.32	1.24

\*Shatter scale (0-3) 0=none

Planted: 4-16-93

Harvested: 8-13-93

Fertility: 50 lbs 18-46-0 with seed

Cooperator: D. Wichman, J. Vavrovsky, T. Blake, P. Hensleigh

Producer: Bruce Udelhoven, Winifred

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

Variety	1992	1993	Ave.
	-----bu/a-----		
HECTOR	36	60	48
PIROLINE	35	72	53
HARRINGTON	37	57	47
CLARK	35	53	44
LEWIS	37	49	43
BOWMAN	35	46	40
STEPTOE	35	68	51
GALLATIN	42	53	47
BEARPAW	38	52	45
MT 81161	40	55	47
MT 140523	35	52	43
STARK	32	47	39
BARONESSE	40	82	61
Mean	36.2	57.7	

Variety trials were located at Bruce Udelhoven farm, Winifred, MT  
Both trials were planted on recrop ground.