Title: Off-station barley variety evaluations in the Western Triangle Area.

Year: 2001

Location: Western Triangle Research Center, Conrad, MT.

Personnel: Gregory D. Kushnak and Ron Thaut, Research Center, Conrad; and Dr. Tom Blake, MSU Plant Science Dept.

Off-station barley variety trials were grown in Teton County near Choteau, Toole County near Oilmont, Glacier County near Cut Bank, and Chouteau County in the Knees Area. These four locations represent diverse environments with Choteau having deep soil and typically favorable moisture; the Knees with deep soil, intermediate moisture and higher temperatures; Oilmont having less than favorable moisture; and Cut Bank with short, cool growing season. The Cut Bank, Choteau and Knees trials were no-till planted on chem-fallow.

Results: Rainfall was about 60% of normal during the growing season. The Oilmont trial was not harvested due to poor stand and drought damage. Drought stress had considerable impact on kernel plump and test weight, although some varieties were able to maintain good test weight. Test weights were above average under these drought conditions, and percent plump was at or slightly below average. Dryland yields averaged 35 bu/a at the Knees, 38 bu/a at Cut Bank, and 24 bu/a at Choteau.

Data are presented in Tables 1-6, and include year-2001 results and 5-year averages. Agronomic traits for Xena and Baroness were not significantly different at most locations.

Haxby (MT-950186) was equal or greater than Baronesse and Xena for yield and test weight at all locations in 2001. Haxby was among the top yielders at nearly all locations over the past three years, in addition to having the highest test weight. This indicates that Haxby has a broad range of superior adaptability, including drought tolerance. Haxby was two days earlier to mature, and about three inches taller than Baroness. Haxby will most likely replace all other feed-type barley varieties in Montana.

The malt variety Conlon produced higher yields than Harrington at most locations, but had slightly lower test weight and percent plump than Harrington.

Future Plans: Variety trials will be repeated in year 2002 at these same locations.

Table 1 **Dryland Barley** variety trial grown north of **Cut Bank**, 2001. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Plump	% Thin	% Protein
MT 970116	43.4	54.3	28	63	10	17.2
H3860224	43.2	52.8	27	63	11	17.5
Xena	40.3	53.3	26	72	7	15.9
Haxby (950186)	40.2	52.4	24	37	26	16.8
Gallatin	39.3	51.4	25	32	29	18.0
MTLB 13	38.9	50.6	21	10	52	17.7
MTLB 5	38.6	52.3	21	20	36	18.1
Stark	38.2	50.3	27	46	21	16.0
MT 960228	38.2	52.8	23	43	18	16.9
MT 960099	37.8	53.1	22	19	34	17.8
Baronesse	37.7	53.0	21	47	17	18.7
Conlon	36.6	51.6	25	27	40	17.1
Valier	36.3	52.4	21	20	32	19.1
Lewis	35.5	52.8	24	32	28	18.2
MT 960100	31.8	54.5	22	41	17	19.1
Harrington	30.4	53.1	20	44	16	18.6

Cooperator: Kevin Bradley.
Location: Fifteen miles north of Cut Bank, MT. (Glacier Co.)
Applied fertilizer: 100-50-0 (N-P-K)
Rainfall: From planting to harvest was 3.8 inches.
Previous crop: No-till chem fallow (wheat stubble)
Moist soil depth at seeding: 23 inches.
Date seeded: April 30, 2001.
Date harvested: August 20, 2001.
Yield experimental mean: 37.90
Error degrees of freedom: 30
F test for var: 1.75
C.V. 2: 6.84
LSD (0.05): 7.49

Table 2 **Five-year** summary for **Dryland Barley** varieties grown near **Cut Bank, MT.** 1997 - 1998 - 1999 - 2000 - 2001. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	5 - year comparable average					
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Plump	% thin	% Protein
XENA	66.6	51.4	31	72	9	13.4
HAXBY	64.4	53.0	32	58	15	13.7
MTLB 13	62.4	50.2	29	30	34	14.5
BARONESSE	61.0	50.2	28	48	22	14.4
STARK	59.5	51.9	33	70	11	14.2
GALLATIN	59.4	52.0	32	56	17	14.4
MTLB 5	58.8	51.1	30	38	33	14.9
LEWIS	56.0	52.3	32	47	23	15.1
VALIER	55.3	51.3	30	30	30	15.4
HARRINGTON	53.8	49.9	30	45	24	15.2

Cooperator: Kevin Bradley.
Location: Fifteen miles north of Cut Bank. (Glacier County)

Table 3 **Dryland Barley** variety trial grown northeast of **Choteau**, 2001. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Plump	% Thin	% Protein
Haxby (950186)	37.0	54.3	23	23	28	19.7
Stark	33.3	53.2	21	38	19	18.8
Xena	29.2	52.3	20	51	15	19.8
MT 960228	28.3	52.9	21	23	26	21.5
Conlon	26.3	49.0	19	19	61	21.6
MTLB 13	25.4	51.2	19	53	12	21.4
MT 970116	24.6	53.6	24	5	62	19.8
Gallatin	24.0	50.7	18	10	45	21.8
H3860224	22.0	49.7	18	37	25	22.4
Baronesse	21.9	50.1	17	24	31	21.6
MT 960099	20.9	50.5	18	5	59	22.4
MTLB 5	19.8	51.4	19	11	41	21.8
Valier	18.0	52.4	18	14	40	21.9
Lewis	17.8	51.6	18	19	35	21.3
MT 960100	16.5	52.0	19	14	33	22.6
Harrington	13.4	50.9	17	28	27	22.0

Cooperator: Roy Inbody.
Location: Twelve miles northeast of Choteau. (Teton Co.)
Applied fertilizer: 100-50-0 (N-P-K)
Previous crop: No-till chem fallow (wheat stubble).
Date seeded: April 30, 2001.
Date harvested: August 7, 2001.
Soil moisture depth at seeding: 28 inches.
Rainfall: From planting to harvest was 3.1 inches.
Yield experimental mean: 23.64
Error degrees of freedom: 30.00
F test for var.: 2.44
C.V. 2: 16.90
LSD (0.05): 11.54

Table 4 **Five-year** summary for **Dryland Barley** varieties grown near **Choteau, MT.** 1996 - 1997 - 1998 - 2000 - 2001. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

	5 - year comparable average					
Variety	Yield bu/ac	Test wt. lbs/bu. **	Plant hgt. inches	% Plump	% thin	% Protein
HAXBY	88.0	54.0	35	40	23	15.2
XENA	74.7	50.5	31	84	19	14.6
STARK	72.9	51.1	33	63	19	14.9
MTLB 5	70.7	50.6	32	30	31	16.6
BARONESSE	69.8	49.9	30	53	18	16.2
MTLB 13	68.2	48.7	30	82	8	16.0
VALIER	65.6	51.1	31	24	33	16.3
GALLATIN	64.3	49.6	31	42	30	16.2
LEWIS	63.9	50.9	32	50	28	16.3
HARRINGTON	58.7	48.2	32	46	26	16.2

Cooperator: Roy Inbody.
Location: Northeast of Choteau. (Teton County)
** = Test weights based on 4 years average. (1996-97-2000-2001)

Table 5 **Dryland Barley** variety trial grown east of the **Knees**, 2001. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Plump	% Thin	% Protein
Haxby (950186)	40.7	52.1	22	64	11	16.8
Gallatin	37.7	50.0	22	65	12	16.6
Baronesse	37.1	49.7	20	64	11	18.0
MTLB 5	36.4	51.6	22	61	11	18.4
MTLB 13	35.6	50.8	21	64	11	17.3
Lewis	35.5	50.7	20	60	14	18.0
MT 960099	35.5	51.2	21	41	20	18.0
Harrington	35.0	49.5	21	66	12	17.7
MT 960228	34.8	51.6	21	63	9	16.9
MT 960100	34.4	50.9	20	55	16	18.7
Xena	33.6	51.3	24	83	4	15.9
Conlon	33.2	48.8	20	60	15	17.2
Valier	32.7	52.1	22	67	8	18.1
MT 970116	32.6	52.1	23	87	3	16.8
H3860224	31.1	51.0	23	82	5	18.5
Stark	29.5	52.8	25	88	3	16.1

Cooperator: Dan Picard.
Location: Thirty miles east of Brady, MT. (Chouteau, County)
Applied fertilizer: 80-50-0 (N-P-K)
Previous crop: No-till chem fallow (wheat stubble).
Date seeded: April 24, 2001.
Date harvested: Aug. 7, 2001.
Soil moisture depth at seeding: 39 inches.
Rainfall: From planting to harvest was 2.2 inches.
Yield experimental mean: 34.71
Error degrees of freedom: 30
F test for var.: 3.58
C.V. 2: 4.08
LSD (0.05): 4.09

Table 6 **Three-year** summary for **Dryland Barley** varieties grown near the **Knees**. (1999 - 2000 -2001) Montana Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	3 - year comparable average					
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Plump	% thin	% Protein
BARONESSE	50.0	48.1	23	32	33	17.2
STARK	49.5	51.4	29	54	19	15.6
HAXBY	49.1	52.1	26	36	31	15.8
XENA	47.1	48.0	27	38	28	15.6
MTLB 13	45.1	47.5	25	27	43	16.4
GALLATIN	43.4	47.8	26	29	37	16.2
LEWIS	40.7	49.1	25	33	38	16.9
VALIER	40.7	49.0	25	31	37	17.1
HARRINGTON	40.0	46.8	24	35	31	16.6
MTLB 5	39.3	49.6	25	26	43	17.4

Cooperator: Dan Picard.
Location: Thirty miles east of Brady, MT. (Chouteau County)