

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

Year: 2007

Location: Western Triangle Research Center, Conrad, MT.

Personnel: Gregory D. Kushnak, Ag Research Center, Conrad; and Tom Blake & Stan Bates, MSU Plant Science Dept.

Dryland off-station barley variety trials were grown in Teton County near Choteau, Glacier County near Cut Bank, and Toole County near Oilmont. An irrigated trial was grown at Conrad. These locations represent diverse environments with Teton having deep soil and typically favorable moisture; Oilmont with limited moisture, and Cut Bank with a short, cool growing season. The Choteau, Cut Bank, and Oilmont trials were no-till planted on chem-fallow, while the irrigated trial was planted on tillage-fallow.

Results: Data for the various locations are presented in Tables 1 - 9, and include the 2007 and multi-year averages. Table 9 is a summary of all Western Triangle **dryland** barley tests over the past few years, and is equivalent to 26 tests.

Temperatures were unusually high for most of the growing season, and rainfall was far below average. Consequently, dryland barley yield, test weight and plump were below average.

Averaged across all dryland locations over the past several years, the feed barley 'Haxby' had the highest yield and test weight (Table 9). The 2-row malt varieties 'Craft' and 'Hockett' had above-average yield, test weight and percent plump, and were substantially higher than 'Metcalf' and 'Harrington' for those traits, as well as being 2 to 4 days earlier to head. Malt status of Hockett is pending, and Craft has been AMBA approved for organic malt production. Both lines would be intended for use in dryland malt barley production.

The 2-row malt variety 'Geraldine' had the highest average yield among malt varieties on irrigated conditions (Table 8). Official malt status of Geraldine is pending.

Among the 6-row malt varieties, 'Tradition', and in some cases 'Stellar', produced substantially higher yield, test weight and plump than other 6-row varieties for both dryland and irrigated conditions.

Future Plans: Variety trials will be repeated in 2008 in similar environments.

Table 1. 2007 **Barley** variety trial, off-station Choteau.

Variety	Spike	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby	2	79.8	53.1	62	8	14.8	30
Eslick	2	79.5	48.4	59	10	14.7	31
Boulder	2	77.9	50.9	68	7	16.1	28
Hays forage	2	77.3	45.4	62	14	15.3	25
Tradition	6	76.3	45.7	61	8	15.1	30
Stellar	6	74.5	45.5	75	5	14.2	30
Craft 970116	2	74.0	47.4	82	4	15.5	32
Drummond	6	73.5	44.2	60	10	15.3	31
Metcalfe	2	73.1	46.5	73	8	16.0	29
Xena	2	72.8	47.7	56	11	15.3	28
Geraldine 960101	2	70.4	48.3	50	15	16.0	28
Conrad	2	68.8	45.6	67	11	16.4	27
Hockett 910189	2	67.6	47.1	76	7	14.5	29
Legacy	6	67.6	43.7	46	15	15.4	31
Harrington	2	67.0	45.4	62	10	15.7	27
Merit	2	66.1	43.7	54	17	16.6	26
mean		72.9	46.8	63.3	10.1	15.4	28.9
LSD (.05) =		7.6					
C.V. =		6.78					

Cooperator & Location: Scott & Roy Inbody, east of Choteau, MT.
 Planted April 17, 2007. Harvested July 31, 2007.
 Fertilizer, actual: 11-52-0
 Conducted by MSU Western Triangle Ag Research Center.

Table 2. Five-year averages, **Barley** varieties, Choteau area, 2003 - 07.

Variety	Spike	5-Year Average					
		Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby MSU	2	82.0	51.8	50	17	16.0	34
Boulder WestBred	2	79.3	49.3	51	22	17.3	32
Craft 970116	2	78.7	49.3	63	12	16.4	37
Hockett 910189	2	78.0	49.0	59	14	15.8	34
Xena Westbred	2	75.7	46.6	42	22	16.5	33
Eslick MSU	2	75.3	47.4	44	19	16.3	33
Tradition BuschAg	6	75.3	44.3	32	31	17.0	36
Drummond ND	6	74.3	43.4	32	35	16.4	38
Hays forage	2	73.9	43.0	35	31	16.4	32
Conrad BuschAg	2	72.4	46.0	46	23	17.3	32
Metcalfe	2	69.0	45.9	46	22	17.5	35
Stellar ND	6	68.7	43.8	46	25	15.6	36
Harrington	2	67.7	44.9	37	26	17.0	34
Geraldine 960101	2	67.4	46.1	27	38	17.3	33
Merit BuschAg	2	65.1	43.5	37	31	17.4	33
Legacy BuschAg	6	64.1	43.4	27	37	16.6	37
Mean		73.4	46.4	42.4	24.8	16.7	34.3

Hays = awnless forage-hay variety.

Cooperator & Location: Scott & Roy Inbody, east of Choteau, MT.
 Conducted by MSU Western Triangle Agr Research Center.

Table 3. 2007 **Barley** variety trial, off-station Cut Bank.

Variety	Spike	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby	2	57.4	46.9	11	58	15.4	25
Craft 970116	2	56.7	46.8	34	28	15.1	29
Tradition	6	56.5	42.5	22	44	14.2	29
Xena	2	55.5	43.9	16	52	14.9	25
Hays forage	2	55.3	42.3	14	57	16.5	24
Legacy	6	51.8	37.9	7	75	14.7	27
Boulder	2	51.2	45.5	24	43	15.7	25
Harrington	2	51.2	42.0	17	52	15.8	25
Eslick	2	50.4	43.7	15	54	14.9	25
Drummond	6	50.0	40.4	11	67	14.6	28
Hockett 910189	2	49.7	43.7	23	46	15.0	24
Conrad	2	49.1	44.0	21	42	16.1	25
Metcalfe	2	49.0	43.0	23	46	16.4	26
Stellar	6	48.1	37.0	19	50	13.8	28
Geraldine 960101	2	44.1	42.8	11	70	17.0	25
Merit	2	42.7	40.3	12.5	58.8	16.6	26
mean		51.2	42.7	17.4	52.6	15.4	26.0
LSD (.05) =		6.5					
C.V. =		7.44					

Cooperator & Location: Kevin Bradley, north of Cut Bank, MT.
 Planted April 17, 2007 on chem-fallow. Harvested Aug 2, 2007.
 Fertilizer, actual: 51-52-0
 Conducted by MSU Western Triangle Ag Research Center.

Table 4. Five-year averages, **Barley** varieties, Cut Bank area, 2003 - 07.

Variety	Spike	5-Year Average					
		Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby MSU	2	66.7	51.2	59	22	12.0	30
Eslick MSU	2	66.7	48.6	61	23	11.8	30
Xena WestBred	2	66.2	48.9	60	21	12.1	30
Craft 970116	2	65.7	50.3	71	12	12.3	33
Tradition BuschAg	6	65.4	47.1	64	17	12.1	33
Stellar ND	6	65.4	45.0	65	19	11.3	32
Hays forage	2	65.1	44.7	57	24	12.5	29
Legacy BuschAg	6	65.0	45.2	59	28	12.3	33
Boulder WestBred	2	64.6	50.9	66	17	12.2	29
Metcalfe	2	64.2	48.8	65	18	12.5	31
Drummond ND	6	64.2	46.4	62	25	12.2	34
Hockett 910189	2	64.1	49.7	66	17	12.2	29
Harrington	2	64.0	47.6	64	19	12.1	30
Conrad BuschAg	2	63.9	48.4	66	16	12.8	30
Geraldine 960101	2	63.1	48.6	59	26	12.2	29
Merit BuschAg	2	59.8	46.0	62	22	12.7	30
Mean		64.6	48.2	62.7	20.6	12.2	30.6

Cooperator & Location: Kevin Bradley, north of Cut Bank, MT.

Conducted by MSU Western Triangle Agr Research Center.

Table 5. 2007 **Barley** variety trial, off-station Oilmont.

Variety	Spike	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby	2	37.1	49.8	9	57	16.0	22.0
Hays forage	2	35.7	43.6	5	78	18.1	19.0
Hockett 910189	2	34.3	47.2	22	48	16.0	23.0
Drummond	6	33.3	42.5	7	70	15.8	25.0
Xena	2	33.1	46.6	5	70	16.2	20.0
Tradition	6	32.9	44.4	11	59	15.1	22.0
Eslick	2	32.7	45.8	2	77	16.5	22.0
Metcalfe	2	32.2	44.5	5	66	18.3	22.0
Conrad	2	31.8	46.1	8	68	17.4	19.0
Legacy	6	31.7	39.9	7	76	16.0	21.0
Harrington	2	31.4	44.3	8	66	17.8	20.0
Craft 970116	2	31.3	48.4	15	44	16.5	26.0
Boulder	2	29.9	46.3	6	70	17.0	19.0
Merit	2	27.3	42.8	7	74	18.3	19.0
Geraldine 960101	2	27.2	45.9	3	83	18.3	20.0
Stellar	6	26.2	38.9	9	70	15.6	22.0
mean		31.7	44.8	8.0	67.3	16.8	21.3
LSD (.05) =		4.7					
C.V. =		5.49					

Cooperator & Location: Terry Alme, east of Oilmont, MT.

Planted April 17, 2007 on chem-fallow. Harvested July 26, 2007.

Fertilizer, actual: 11-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 6. Three-year averages, **Barley** varieties, Oilmont, 2003, 2006 & 2007.

Variety	Spike	3-Year Average					
		Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby MSU	2	49.7	47.9	17	44	16.7	28
Tradition BuschAg	6	45.0	43.0	15	53	15.8	30
Craft 970116	2	44.6	45.9	17	47	16.6	31
Hockett 910189	2	42.8	44.4	19	49	16.3	28
Xena WestBred	2	41.0	44.9	11	56	15.9	27
Drummond ND	6	40.7	41.3	11	62	16.0	30
Eslick MSU	2	40.5	43.6	7	68	16.4	26
Conrad BuschAg	2	40.3	44.7	16	52	17.2	25
Metcalfe	2	38.9	43.1	15	50	17.5	28
Stellar ND	6	38.7	39.1	15	58	15.6	27
Harrington	2	38.3	42.6	16	51	17.1	27
Hays forage	2	38.1	41.4	6	70	17.3	24
Boulder WestBred	2	38.0	46.4	19	48	17.2	25
Legacy BuschAg	6	35.1	39.2	10	66	16.2	27
Merit BuschAg	2	32.4	40.7	10	63	17.8	26
Geraldine 960101	2	29.9	42.9	6	75	18.1	25
mean		39.7	43.4	12.9	57.1	16.8	27.2

Hays = awnless forage-hay variety.

Cooperator & Location: Terry Alme, east of Oilmont, MT.
 Conducted by MSU Western Triangle Agr Research Center.

Table 7. **Irrigated Malt Barley** variety trial, Conrad 2007.

Variety	Spike	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Head date	Height in.
Calgary	2	108.7	52.8	77	11	11.9	180	24
Geraldine ⁹⁶⁰¹⁰¹	2	108.4	53.0	82	8	12.7	180	29
Boulder	2	106.7	54.0	87	6	11.8	179	26
Xena	2	106.3	50.7	69	14	11.7	180	29
Eslick	2	105.7	51.8	81	8	11.5	179	27
Merit	2	101.1	48.4	76	12	12.9	180	27
Craft ⁹⁷⁰¹¹⁶	2	98.8	52.1	74	13	11.5	178	33
Conrad	2	95.6	51.1	77	12	12.2	180	28
Haxby	2	94.5	54.2	77	9	11.9	176	26
Stellar	6	94.3	52.0	93	2	12.9	175	32
Tradition	6	93.2	51.4	81	6	10.8	178	29
Hockett ⁹¹⁰¹⁸⁹	2	92.0	50.9	73	15	12.3	176	28
Legacy	6	91.6	49.5	67	13	11.4	178	30
Drummond	6	89.3	50.7	83	5	11.1	175	31
Harrington	2	85.1	47.9	62	19	12.6	180	31
Metcalfe	2	83.7	49.7	73	13	12.8	179	32
mean		97.2	51.3	77.0	10.2	12.0	178.3	28.9
LSD (.05) =		14.9						
C.V. =		9.32						

Planted April 27, 2007 on fallow. Harvested Aug 9, 2007.

Fertilizer, actual: 71-52-0

Location: MSU Western Triangle Ag Research Center, Conrad, MT.

Table 8. Seven-year averages, **irrigated Malt Barley** varieties, Conrad 2001 - 07.

Variety	Spike	7-Year Average						
		Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Head date	Height in.
Geraldine 960101	2	107.8	52.6	89	3	12.3	182	29
Haxby MSU	2	105.2	54.4	93	3	12.5	180	31
Craft 970116	2	103.6	53.4	92	3	12.6	179	35
Stellar	6	102.7	52.2	96	1	12.5	178	32
Merit BuschAg	2	101.7	49.9	89	4	12.2	182	30
Tradition BuschAg	6	100.8	51.1	92	2	12.1	179	32
Conrad BuschAg	2	100.8	51.9	92	4	12.3	181	31
Hockett 910189	2	95.4	52.7	91	4	12.4	178	30
Metcalfe	2	95.4	51.8	90	4	12.6	181	32
Drummond	6	94.5	50.6	90	3	12.2	178	35
Legacy BuschAg	6	93.4	49.6	80	6	12.0	180	34
Harrington	2	89.2	49.6	82	6	12.2	181	31
Mean		99.0	51.6	89.3	3.6	12.3	180.1	31.8

Location: MSU Western Triangle Agr Research Center, Conrad, MT.

Table 9. Multi-Year x Location Averages - **Barley** varieties, Western Triangle Area.

Variety	Spike	26-Year x Location Dryland Average*						
		Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.	Head date**
Haxby MSU	2	69.1	51.4	53	20	14.2	31	180
Hockett 910189	2	66.5	49.0	60	18	14.2	30	178
Craft 970116	2	66.1	49.7	63	17	14.4	33	179
Boulder Westbred	2	65.8	50.0	55	22	15.1	29	181
Eslick MSU	2	65.8	47.7	47	27	14.2	30	182
Conrad BuschAg	2	64.2	47.5	54	22	15.0	29	182
Tradition BuschAg	6	63.5	46.2	46	25	14.5	32	179
Metcalfe	2	62.7	47.2	52	23	15.2	31	181
Harrington	2	61.1	46.2	51	24	14.8	30	182
Stellar	6	60.7	44.6	50	25	13.8	31	178
Legacy BuschAg	6	59.9	44.2	39	32	14.3	33	180
Geraldine 960101	2	58.9	47.2	39	37	15.0	29	182
Merit BuschAg	2	58.5	44.7	45	29	15.3	30	183
Mean		63.3	47.3	49.8	25.1	14.6	30.8	180.3

** Head date, Conrad only.

* Conrad dryland 8-yr + Choteau 5-yr + Cut Bank 5-yr + Oilmont 3-yr + Knees 5-yr.
Years included thru 2007. Comparable average calculations.

Cooperators: Kevin Bradley, Cut Bank; Roy and Scott Inbody, Choteau;
Terry Alme, Oilmont; Dan Picard, Knees area.

Conducted by MSU Western Triangle Agr Research Center.