

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

Year: 2005

Location: Western Triangle Research Center, Conrad, MT.

Personnel: Gregory D. Kushnak, Ag Research Center, Conrad; and
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Dryland off-station barley variety trials were grown in Teton County near Choteau, Glacier County near Cut Bank, and western Chouteau County in the Knees Area. An irrigated trial was grown at Conrad. These four locations represent diverse environments with Teton having deep soil and typically favorable moisture; the Knees with deep soil, intermediate moisture and warmer temperatures; and Cut Bank with short, cool growing season. The Cut Bank, Knees and Choteau trials were no-till planted on chem-fallow.

Results: Data for the individual locations are presented in Tables 1-8, and include the 2005 and multi-year averages. Table 9 is a summary of all the Western Triangle area dryland barley tests over the past few years, and is equivalent to 17 tests on each variety.

Averaged across all dryland locations over the past five years, the feed barley 'Haxby' had the highest yield and test weight (Table 9). Dryland multi-year averages for some of the newer malt varieties are limited, but in 2005, the 2-row malt varieties 'Metcalfe' and 'Conrad' had higher yields and test weights than 'Copeland' and 'Harrington'.

The experimental 2-row malt lines 'Hockett' (MT910189) and 'Craft' (MT970116) averaged substantially higher dryland yields, test weights, and plumps than Metcalfe and Harrington, and were 3 to 4 days earlier to head. Hockett and Craft are intended for use in dryland malt production. Malt status of the two lines is pending.

Under irrigation, the experimental 2-row malt lines 'Geraldine' (MT960101) and Craft yielded similar to the high-yield feed variety Haxby, and were substantially higher in yield than Metcalfe and Harrington (Table 8).

Future Plans: Variety trials will be repeated in 2006 in similar environments.

Table 1. 2005 **Barley** variety trial, Choteau.

Variety ①	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Boulder WestBred	95.4	51.9	67	9	17.0	35
Hockett 910189	94.1	51.9	67	9	17.0	37
Tradition Busch Ag	93.8	45.5	30	23	18.0	40
Xena WestBred	93.3	48.9	49	13	15.8	36
Haxby	92.5	53.5	58	9	16.3	36
MT970229	92.1	51.4	79	7	17.3	35
Craft 970116	91.8	51.6	64	11	17.1	39
Eslick	88.3	49.4	37	18	17.1	35
Drummond	87.6	45.4	23	34	17.0	41
Conrad Busch Ag	86.5	48.1	47	18	18.2	34
Hays ②	85.3	43.6	31	30	17.2	35
Baronesse WPB	84.4	47.9	38	20	17.8	34
Geraldine 960101	84.1	46.9	25	31	17.6	36
Copeland	83.9	47.3	43	20	17.9	36
Robust	82.5	44.8	35	26	16.4	44
Metcalf	82.3	47.8	47	20	18.0	40
Kendall	82.0	47.4	48	20	18.9	37
Harrington	80.5	45.8	31	27	17.8	36
Merit Busch Ag	77.3	45.5	38	26	17.7	37
Legacy Busch Ag	65.4	43.6	19	47	17.7	41
mean	86.2	48.6	46.1	18.3	17.3	36.5
LSD (.05) =	7.0 bu					
C.V. =	4.9					

① Drummond, Legacy, Robust & Tradition are 6-row.

② Hays = awnless forage-hay variety.

Cooperator & Location: Roy Inbody, east of Choteau, MT.

Planted April 12, 2005 on chem-fallow. Harvested Aug 9, 2005.

Fertilizer, actual: 11-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 2. Three-year averages, **Barley** varieties, Choteau area, 2003 - 05.

Variety	3-Year Average					
	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby	89.0	51.6	51	16	16.5	38
MT970229	88.4	49.6	68	10	16.9	37
Hockett 910189	87.6	49.9	61	9	16.4	37
Craft 970116	85.2	49.8	60	14	17.2	41
Tradition 6-row, Busch Ag	83.6	44.1	29	31	18.0	40
Xena WestBred	81.9	46.5	42	20	16.9	36
Hays ①	81.8	41.9	30	34	16.9	36
Eslick	81.0	47.2	49	13	16.8	37
Geraldine 960101	77.6	45.1	19	39	17.6	36
Baronesse WPB	75.5	45.2	33	29	17.7	35
Harrington	74.0	44.4	31	29	17.9	38
Metcalfe	73.9	44.9	39	30	18.2	39
Copeland	72.3	44.9	34	31	18.1	37
Mean	81.1	46.7	42	24	17.2	37

① Hays = awnless forage-hay variety.

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

Table 3. 2005 **Barley** variety trial, Cut Bank.

Variety ①	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Eslick	42.3	50.5	86	3	7.5	25
MT970229	42.0	52.1	95	1	8.3	24
Haxby	41.3	53.2	85	5	8.2	26
Baronesse WPB	41.0	51.0	89	3	8.4	24
Boulder WestBred	40.7	52.9	93	2	7.5	24
Geraldine 960101	40.4	51.4	83	4	7.5	24
Legacy Busch Ag	40.0	47.7	89	2	9.1	30
Merit Busch Ag	39.7	47.4	92	2	8.8	26
Hays ②	39.5	41.6	85	5	9.3	22
Conrad Busch Ag	39.1	49.5	96	1	8.9	25
Robust	38.9	48.7	91	2	10.1	31
Hockett 910189	38.7	50.7	94	1	8.4	25
Metcalfe	38.1	49.7	93	2	8.1	25
Craft 970116	37.9	51.1	92	3	9.3	27
Xena WestBred	37.7	50.7	82	4	7.7	24
Kendall	37.6	48.7	93	1	8.1	24
Harrington	37.5	49.2	93	1	7.5	25
Copeland	36.7	48.0	95	1	8.7	24
Drummond	36.3	48.0	90	3	9.4	31
Tradition Busch Ag	33.4	48.7	90	2	9.0	28
mean	38.9	49.8	89.4	2.7	8.3	24.8
LSD (.05) =	5.3 bu					
C.V. =	8.3%					

① Drummond, Legacy, Robust & Tradition are 6-row.

② Hays = awnless forage-hay variety.

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

Planted April 12, 2005 on chem-fallow. Harvested Aug 10, 2005.

Fertilizer, actual: 11-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 4. Four-year averages, **Barley** varieties, Cut Bank area, 2002 - 05.

Variety	4-Year Average					
	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Haxby	55.0	51.9	72	13	11.5	31
MT970229	54.1	51.4	86	5	11.5	29
Xena WestBred	54.0	49.8	70	14	11.6	31
Craft 970116	53.3	51.1	82	8	11.6	33
Metcalfe	53.2	49.9	78	8	11.3	31
Baronesse WPB	53.2	49.1	72	16	11.8	30
Hockett 910189	52.8	51.0	79	6	11.8	29
Eslick	52.8	49.4	73	15	11.2	30
Hays ①	52.5	44.7	70	14	11.8	29
Harrington	50.8	48.9	77	11	11.8	30
Copeland	50.5	48.0	79	6	11.7	31
Tradition 6-row, Busch Ag	50.4	47.7	77	8	12.1	33
Geraldine 960101	48.6	49.1	70	15	11.6	29
Mean	52.8	49.4	76.2	12	11.7	31

① Hays = awnless forage-hay variety.

Cooperator & Location: Kevin Bradley, north of Cut Bank, MT.
 Conducted by MSU Western Triangle Agr Research Center.

Table 5. 2005 **Barley** variety trial, Knees area MT.

Variety ①	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Boulder WestBred	82.9	49.4	57	17	14.9	35
Eslick	79.2	46.9	38	27	15.0	33
MT970229	78.5	49.5	67	11	15.6	35
Haxby	76.8	52.7	70	8	13.5	35
Copeland	75.7	46.5	53	20	14.6	35
Xena WestBred	74.2	47.3	51	23	13.0	32
Merit Busch Ag	73.8	45.6	56	17	14.6	33
Metcalfe	73.5	48.2	68	10	13.6	36
Geraldine 960101	73.0	48.3	52	19	12.9	33
Craft 970116	72.1	50.5	77	7	13.3	34
Conrad Busch Ag	71.7	49.2	69	11	13.3	31
Hockett 910189	70.6	50.9	83	6	13.5	34
Harrington	70.5	46.6	66	12	13.9	32
Hays ②	69.2	47.0	56	17	13.3	28
Kendall	68.7	47.3	73	11	14.9	34
Baronesse WestBred	68.0	46.4	44	30	14.5	34
Drummond	67.8	48.0	62	12	13.2	32
Legacy Busch Ag	61.5	45.1	48	16	12.9	31
Robust	56.9	47.0	74	6	13.5	29
Tradition Busch Ag	52.7	47.6	75	6	13.7	28
mean	70.9	48.3	61.5	15.1	13.9	33.0
LSD (.05) =	12.6 bu					
C.V. =	10.8					

① Drummond, Legacy, Robust & Tradition are 6-row.

② Hays = awnless forage-hay variety.

Cooperator & Location: Dan Picard, western Chouteau county.

Planted April 11, 2005 on chem-fallow. Harvested Aug 5, 2005.

Fertilizer, actual: 11-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 6. Four-year averages, **Barley** varieties, Knees area, 2002 - 05.

Variety	4-Year Average					
	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.
Eslick	68.4	47.4	52	17	14.3	31
MT970229	67.8	48.5	75	7	15.2	32
Haxby	67.2	52.0	62	11	14.0	32
Xena WestBred	66.2	46.7	51	20	14.3	31
Hays ①	65.6	44.9	42	24	14.6	30
Craft 970116	64.6	49.8	72	9	14.4	33
Hockett 910189	64.4	49.8	73	7	14.5	32
Metcalfe	64.4	47.0	55	15	15.2	32
Baronesse WPB	64.0	46.7	46	27	15.0	31
Copeland	63.8	45.9	48	26	15.5	31
Harrington	61.0	46.1	59	16	15.1	31
Geraldine 960101	59.8	46.5	42	33	14.9	29
Tradition 6-row, Busch Ag	54.9	46.6	52	15	14.8	29
Mean	64.3	47.7	54	19	14.8	31

① Hays = awnless forage-hay variety.

Cooperator & Location: Dan Picard, Knees area, western Chouteau Co.
 Conducted by MSU Western Triangle Agr Research Center.

Table 7. **Irrigated Malt Barley** variety trial, Conrad 2005.

Variety	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Head date	Height in.
Tradition Busch Ag	111.6	50.5	93	1	12.0	180	37
Haxby	110.7	55.0	96	1	12.2	182	35
Xena WestBred	109.5	52.8	96	1	12.0	182	31
Eslick	108.9	51.7	84	4	12.3	184	31
Drummond	107.9	51.4	94	1	12.8	179	41
Craft 970116	107.3	53.6	94	2	13.7	181	36
Copeland	107.1	51.5	92	2	11.8	185	36
Geraldine 960101	105.7	51.7	84	4	13.5	184	29
Conrad Busch Ag	103.5	51.6	96	1	12.8	182	33
Hockett 910189	101.4	53.7	97	1	13.3	179	31
Robust	101.3	51.5	91	2	12.2	181	41
Harrington	101.0	48.5	76	5	12.9	184	31
Merit Busch Ag	100.6	49.4	92	2	13.1	184	33
Kendall	100.0	51.8	93	2	13.4	184	33
Morex	99.9	50.4	85	3	12.5	180	43
Metcalf	97.6	51.5	92	2	13.5	185	34
Boulder WestBred	96.1	53.5	95	1	14.0	181	33
Legacy Busch Ag	95.4	50.7	90	1	13.1	182	41
Baronesse WPB	95.4	51.7	91	3	12.9	182	30
Hays	95.1	50.2	86	5	12.0	184	37
Calgary	92.8	50.0	85	3	13.6	184	28
MT970229	89.3	53.5	97	1	13.8	182	33
means	101.7	51.7	90.9	2.2	12.9	182.3	34.4

LSD (.05) = 16.9 bu.

C.V. 1&2 = 10.1 & 5.8

Planted April 25, 2005 on fallow. Harvested Aug 11, 2005.

Fertilizer, actual: 11-52-0

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

Table 8. Five-year averages, **irrigated Malt Barley** varieties, Conrad 2001 - 05.

Variety	Spike	5-Year Average						
		Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Head date	Height in.
Geraldine 960101	2	106.8	52.2	92	2.4	12.2	183	28
Haxby	2	105.6	54.4	96	1.4	12.6	181	32
Craft 970116	2	101.9	53.4	96	1.6	12.9	180	35
Baronesse WPB	2	101.8	52.8	94	2.1	12.0	181	29
Tradition Busch Ag	6	101.7	50.4	95	1.3	12.3	180	33
Conrad Busch Ag	2	101.3	52.2	95	1.7	12.3	182	30
Coors 37	2	100.7	51.5	94	2.0	12.8	183	25
Merit Busch Ag	2	99.4	49.9	92	2.6	12.0	184	30
Copeland	2	98.7	51.3	94	1.8	11.8	184	34
Metcalf	2	97.3	52.0	94	1.9	12.4	182	32
Hockett 910189	2	97.0	52.8	95	1.8	12.5	180	30
BA1202 Busch Ag	2	96.4	50.8	94	1.5	12.4	182	29
Kendall	2	96.0	51.9	94	2.3	12.7	183	31
Drummond	6	95.8	50.4	93	1.6	12.6	180	36
Legacy Busch Ag	6	92.4	49.6	87	3.0	12.1	181	35
Harrington	2	90.1	50.2	88	3.3	12.0	182	30
Robust	6	85.0	50.3	88	3.0	12.4	180	36
Morex	6	75.8	49.4	83	4.5	12.8	180	37
Mean		96.1	51.5	93	2.1	12.3	181	32

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

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

Variety	17-Year x Location Dryland Average ^①						
	Yield bu/a	Test Wt lb/bu	Plump %	Thin %	Protein %	Height in.	Head date ^②
Haxby	70.3	52.3	66	11	13.6	32	181
MT970229	70.0	50.6	79	7	14.3	31	182
Hockett 910189	69.9	50.5	74	7	13.8	31	179
Eslick	68.2	48.8	63	13	13.7	31	183
Craft 970116	68.1	51.0	78	8	13.9	34	180
Baronesse WPB	67.3	48.1	60	18	14.3	30	183
Xena WestBred	66.8	48.6	61	15	13.9	31	182
Hays ^③	66.2	44.3	49	21	14.2	31	184
Metcalfe	65.2	48.1	61	16	14.4	33	183
Tradition 6-row, Busch Ag	64.1	47.1	56	16	14.4	33	181
Harrington	63.5	47.4	63	15	14.5	31	183
Geraldine 960101	62.9	48.1	49	24	14.2	30	183
Copeland	62.6	46.9	58	18	14.6	31	--
Mean	66.7	48.7	63	15	14.1	32	182

① Conrad dryland 6-yr + Choteau 3-yr + Cut Bank 4-yr + Knees 4-yr.

② Head date, Conrad only.

③ Hays = awnless forage-hay variety.

Conducted by MSU Western Triangle Agr Research Center.