

TITLE: 2012 Montana Statewide Barley Performance Trials

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OBJECTIVES: Evaluate the agronomic performance of barley cultivars and experimental breeding lines under the diverse environments represented across the Montana by MSU and six MAES Agricultural Research Centers. Such evaluations will facilitate the release of improved feed- and malt-type barley cultivars for production by Montana producers, and assist producers in determining which commercially available barley cultivars are most likely to be best adapted for their production area.

RESULTS: The 2012 Montana Statewide Barley Performance Trials were grown at six dryland locations and five irrigated locations in the state. The dryland trials were Bozeman, Conrad, Havre, Huntley, Moccasin, and Sidney, The irrigated trials included Bozeman, Conrad, Huntley, Kalispell, and Sidney. Table 1 summarizes all observed and measured traits across all locations in the state, while Table 2 summarizes all traits for dryland locations. Table 3 is a summary of all traits for irrigated locations in Montana. Agronomic traits summarized at each location can be found in Tables 4 through 9 for dryland sites, and Tables 10 through 14 for irrigated production. Tables 15 through 21 summarize individual traits (grain yield, test weight, grain protein, plump kernel content, thin kernel content, mature plant height, and heading date) by all test locations.

Across all test environments, the highest yielding entry was 'Champion' averaging 86 bushels per acre (bu/a). Other top yielding cultivars included 'Conrad', 'Eslick' and 'Expedition', averaging 82, 81 and 81 bu/a, respectively (Tables 1 and 15). The top yielder for dryland production in 2012 was Champion with a statewide average of 69 bu/a (Table 2). No other released cultivar produced yields statistically equivalent to those of Champion under dryland conditions. Conrad was the highest yielding malt-type cultivar under dryland conditions, averaging 62 bu/a. Under irrigation, the experimental line 'MT090190' produced the highest yields, averaging 113 bu/a (Table 3). Five commercial cultivars, Eslick, Conrad, Champion, Expedition and 'Craft', produced yields from 108 to 103 bu/a that were statistically equal to the yield of MT090190 under irrigation.

FUNDING SUMMARY: Expenditure information will be provided by OSP upon request.

FUTURE PLANS: These trials will continue in 2013. The Montana Statewide Barley Performance Trials are not a component of the Research Center's umbrella project. This information is presented here for the convenience of the MWBC and the growers who generate MWBC check-off dollars.

Table 1. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trials conducted at eleven locations in 2012.

Entry	Pedigree	Grain ^{1/} Yield	Test Weight	Grain Protein	Plump Kernels	Thin Kernels	Plant Height	Heading Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	78.7	49.6	13.5	71.6	14.2	26.4	179.9
EM090105	05032-068	78.7	48.8	13.1	65.6	16.4	28.2	177.7
EM090081	05037-079	77.0	49.3	13.6	58.0	18.8	29.7	180.9
MT103015	Haxby/WCC100	61.4	58.7	13.4	42.4	34.1	30.8	173.9
MT103031	Hays/WCC100	56.3	56.8	14.9	20.1	47.7	30.6	176.9
CDC Cowboy	CDC Cowboy	67.2	49.9	13.9	72.6	8.4	36.4	178.4
Champion	Champion (Baronesse/Camas)	85.7	50.9	13.1	64.4	15.3	29.7	176.6
Conrad	Conrad	82.1	49.4	13.6	68.9	17.2	27.8	178.9
Eslick	Eslick	81.1	49.8	13.0	50.8	24.8	26.0	179.7
Expedition	Expedition	80.9	49.9	12.7	61.8	16.1	26.0	179.9
MT960101	Geraldine	76.9	49.3	13.2	51.6	27.4	27.9	180.1
Harrington	Harrington	72.6	48.6	13.3	66.8	13.4	30.0	178.0
Haxby	Haxby	79.0	51.8	13.0	59.0	20.8	29.9	175.8
Hockett	Hockett	76.9	50.3	12.9	67.5	17.6	28.9	175.7
AC Metcalfe	Metcalfe	72.0	49.4	13.9	70.0	15.6	31.3	177.5
MT010158	MT920041/Harrington	65.0	49.9	14.3	66.4	13.2	28.8	178.2
MT010160	MT920041/Harrington	78.0	50.0	12.9	62.1	20.3	29.8	177.9
MT020155	MT960225/H1851195	83.7	49.9	12.9	63.4	19.5	29.5	173.9
Craft	Craft	78.7	51.0	13.4	66.1	16.5	31.2	175.6
MT061035	Baronesse/MT981210	82.3	48.9	13.1	61.4	21.0	28.5	179.3
MT061169	MT960101/Coors 37	79.0	49.1	13.3	61.1	21.1	27.5	178.9
MT070086	MT970148/Coors37	80.2	48.1	12.5	67.6	13.0	24.5	179.6
MT070111	MT010178/Harrington	78.6	50.0	13.2	62.4	21.0	29.4	179.1
MT070125	MT981210/MT970116	81.2	50.5	12.8	65.9	16.0	31.3	178.3
MT070158	MT970148/Klages	83.7	49.9	12.7	72.3	12.4	27.9	177.7
MT070159	MT970148/Klages	82.4	49.3	12.8	68.5	15.2	26.9	177.5
MT070161	MT970148/Klages	84.7	50.1	12.9	73.1	10.9	28.2	177.2
MT070175	LK644///Hockett F5	79.5	50.1	12.0	74.2	11.9	31.1	176.4
MT080081	Coors/Metcalfe	75.9	48.1	13.4	62.7	18.3	25.6	179.9
Hays	Hays	65.2	46.2	13.2	44.9	29.5	28.6	178.8
MT080179	Metcalfe/MT990106	75.4	50.4	13.8	71.4	13.1	31.7	176.4
MT080243	MT960101/MT981210	80.7	49.5	13.2	61.1	18.1	30.5	178.0
MT103043	Hays/WCC100	55.8	50.7	14.2	29.2	53.8	28.7	176.2
MT080281	MT970148/MT970116	82.0	49.3	13.0	65.4	16.8	26.7	177.8
MT080279	MT970148/MT970116	81.3	49.3	12.6	65.0	17.9	27.0	177.2
MT080285	MT970148/MT970116	80.9	49.5	12.8	63.6	18.6	27.2	178.4
MT100170	Craft/151	51.9	58.5	16.6	55.7	25.0	34.3	176.7
MT090001	LK6-44/Excel(29-53)	74.7	47.7	11.1	36.9	36.1	29.2	175.1
MT090180	MT910189*/LK644/EslickBC3F33-G	83.1	49.8	11.9	67.3	14.2	30.8	179.0
MT090181	MT910189*/LK644/EslickBC3F33-G	80.7	50.2	12.1	73.5	10.9	30.9	178.4
MT090182	MT910189*/LK644/EslickBC3F33-G	81.7	49.7	12.1	63.5	19.1	30.4	177.8

Table 1 Con't.

Entry	Pedigree	Grain ^{1/} Yield	Test Weight	Grain Protein	Plump Kernels	Thin Kernels	Plant Height	Heading Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
MT090184	MT910189*/LK644/EslickBC3F33-G	79.4	50.9	11.9	66.1	15.9	30.5	178.7
MT090186	MT910189*/LK644/EslickBC3F33-G	79.6	50.7	12.1	64.8	18.5	30.0	179.3
MT090190	MT910189*/LK644/EslickBC3F33-G	82.8	50.4	12.1	69.4	13.2	30.7	178.9
MT090193	MT910189*/LK644/EslickBC3F33-G	82.9	50.0	12.2	67.6	14.6	31.3	178.6
MT100051	GPCBC3F4 rows 155&158/Haxby	82.4	52.0	12.0	60.9	20.3	28.9	175.1
MT100060	GPCBC3F4 rows 155&158/Haxby	81.1	51.6	12.0	63.5	18.5	29.3	175.7
MT100063	GPCBC3F4 rows 137/Craft	80.3	50.8	11.8	60.5	19.6	29.5	176.2
MT100064	GPCBC3F4 rows 137/Craft	75.7	50.6	11.6	61.5	17.9	29.7	177.3
MT100070	GPCBC3F4 rows 137/Craft	80.3	50.9	12.0	72.4	13.0	30.9	176.2
MT100074	GPCBC3F4rows 137/Craft	78.0	50.6	12.0	61.9	21.6	29.4	177.3
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	79.3	50.7	11.5	68.7	16.4	27.2	175.9
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	83.9	50.4	12.2	71.1	12.5	31.3	178.4
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	80.8	50.1	11.9	69.6	13.0	31.3	178.5
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	81.4	50.0	12.2	71.8	10.7	31.7	179.2
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	83.1	50.4	11.8	67.6	12.8	30.9	179.6
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	79.6	50.7	12.2	74.4	9.4	30.8	179.4
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	82.0	49.8	12.5	63.3	17.0	30.9	178.3
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	79.7	49.7	12.0	68.2	12.7	30.8	178.7
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	80.5	49.8	12.1	66.6	16.4	31.2	177.6
MT103022	Hays/WCC100	82.9	49.7	13.6	68.4	13.1	28.3	178.5
Pinnacle	Pinnacle	73.3	49.9	11.9	77.3	12.3	30.8	174.9
Scarlett	Scarlett	76.9	49.9	13.4	65.1	16.3	24.8	180.2
Tradition	Tradition (B	76.9	48.7	12.9	58.6	22.4	31.8	176.0
Average		77.7	50.3	12.8	63.4	18.3	29.5	177.8
PLSD (p=0.05)		6.0	1.0	0.6	7.1	8.0	1.2	1.1
CV%		9.3	2.4	5.2	13.4	44.6	4.7	0.7
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Locations		11	11	8	11	8	11	11

1/ Grain yields are based on a 48 pound per bushel standard bushel weight.

Table 2. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trials conducted at six dryland locations in 2012.

Entry	Pedigree	Grain ^{1/}	Test	Grain	Plump	Thin	Plant	Heading
		Yield	Weight	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	59.1	48.8	14.2	56.8	20.3	23.4	179.9
EM090105	05032-068	61.5	47.0	13.8	48.1	24.3	24.7	177.4
EM090081	05037-079	58.5	48.2	14.1	37.8	27.5	25.5	180.9
MT103015	Haxby/WCC100	47.9	59.7	13.3	26.9	46.4	27.4	173.4
MT103031	Hays/WCC100	40.7	56.8	15.8	9.4	66.5	27.1	177.3
CDC Cowboy	CDC Cowboy	48.7	48.7	14.6	59.0	11.3	31.8	177.8
Champion	Champion (Baronesse/Camas)	69.4	50.2	13.2	45.6	22.5	26.5	176.5
Conrad	Conrad	62.3	48.1	14.4	52.1	25.9	23.9	179.5
Eslick	Eslick	58.8	48.5	14.3	28.0	37.1	22.2	180.1
Expedition	Expedition	61.6	49.2	13.4	47.7	21.5	23.4	179.9
MT960101	Geraldine	55.7	47.5	14.1	31.6	40.2	24.2	180.5
Harrington	Harrington	56.2	47.0	14.0	52.0	18.6	26.1	177.8
Haxby	Haxby	60.6	50.6	13.4	37.5	31.7	26.2	175.3
Hockett	Hockett	59.6	49.2	13.3	52.9	25.5	25.1	175.2
AC Metcalfe	Metcalfe	55.2	47.7	14.4	56.5	22.8	27.2	177.4
MT010158	MT920041/Harrington	47.3	48.6	15.1	51.2	19.2	25.0	178.9
MT010160	MT920041/Harrington	58.0	48.2	13.5	40.6	30.7	26.0	177.9
MT020155	MT960225/H1851195	64.8	48.5	13.4	46.6	28.5	25.2	173.3
Craft	Craft	58.2	49.5	13.7	46.8	25.4	27.5	175.2
MT061035	Baronesse/MT981210	64.5	47.4	13.8	44.3	30.8	24.2	179.7
MT061169	MT960101/Coors 37	59.3	47.3	14.1	39.8	31.2	23.8	179.3
MT070086	MT970148/Coors37	62.9	45.9	13.4	50.2	19.2	21.6	180.4
MT070111	MT010178/Harrington	59.0	48.7	13.8	44.6	29.0	25.7	178.5
MT070125	MT981210/MT970116	61.6	49.3	13.6	48.7	23.9	28.1	178.3
MT070158	MT970148/Klages	66.0	48.4	13.4	56.6	18.3	24.9	178.2
MT070159	MT970148/Klages	66.7	47.6	13.4	50.8	22.7	24.0	177.8
MT070161	MT970148/Klages	65.6	48.7	13.4	57.6	16.1	24.9	177.7
MT070175	LK644///Hockett F5	58.3	48.5	12.6	61.5	17.3	27.0	176.3
MT080081	Coors/Metcalfe	57.4	46.5	14.0	43.5	27.3	21.9	179.7
Hays	Hays	53.4	44.8	14.3	31.7	37.9	24.0	178.7
MT080179	Metcalfe/MT990106	57.7	48.8	14.6	55.4	19.9	27.9	176.0
MT080243	MT960101/MT981210	62.8	48.2	13.7	42.9	26.2	26.8	177.9
MT103043	Hays/WCC100	43.5	49.7	15.1	12.3	67.0	24.9	175.9
MT080281	MT970148/MT970116	63.2	47.6	13.4	46.9	24.5	23.4	178.5
MT080279	MT970148/MT970116	63.1	47.7	13.3	46.6	26.3	23.5	177.7
MT080285	MT970148/MT970116	62.1	47.8	13.6	42.5	27.5	23.4	179.1
MT100170	Craft/151	42.1	58.4	17.3	36.4	35.0	31.0	176.6

Table 2 Con't.

Entry	Pedigree	Grain ^{1/} Yield	Test Weight	Grain Protein	Plump Kernels	Thin Kernels	Plant Height	Heading Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
MT090001	LK6-44/Excel(29-53)	54.3	47.1	11.5	24.5	46.2	25.9	174.2
MT090180	MT910189*/LK644/EslickBC3F33-G	59.3	48.4	12.6	49.5	21.2	26.7	178.9
MT090181	MT910189*/LK644/EslickBC3F33-G	59.1	48.8	12.7	60.2	16.0	27.1	178.4
MT090182	MT910189*/LK644/EslickBC3F33-G	59.2	48.1	12.8	43.9	28.9	27.1	178.3
MT090184	MT910189*/LK644/EslickBC3F33-G	57.1	49.5	12.4	50.5	22.5	26.7	178.4
MT090186	MT910189*/LK644/EslickBC3F33-G	57.7	49.4	12.6	46.2	27.6	26.8	179.4
MT090190	MT910189*/LK644/EslickBC3F33-G	57.9	49.1	12.6	54.0	19.3	26.7	179.3
MT090193	MT910189*/LK644/EslickBC3F33-G	61.4	48.4	12.8	50.8	21.5	26.9	178.6
MT100051	GPCBC3F4 rows 155&158/Haxby	61.4	51.3	12.3	42.3	31.0	25.6	175.0
MT100060	GPCBC3F4 rows 155&158/Haxby	59.9	50.7	12.7	44.4	27.4	25.5	175.5
MT100063	GPCBC3F4 rows 137/Craft	61.1	49.3	12.2	38.4	29.7	25.3	175.6
MT100064	GPCBC3F4 rows 137/Craft	58.0	49.2	12.2	41.6	27.0	25.7	177.0
MT100070	GPCBC3F4 rows 137/Craft	60.7	50.0	12.5	57.4	19.5	27.2	175.9
MT100074	GPCBC3F4rows 137/Craft	59.5	49.3	12.5	44.5	32.8	26.1	176.7
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	60.5	49.8	11.9	52.9	24.6	23.1	175.8
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	62.1	49.2	12.6	56.7	17.8	27.9	178.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	59.0	48.6	12.6	52.9	19.4	27.4	178.4
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	57.8	48.6	12.8	58.5	15.6	27.3	178.9
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	59.2	48.7	12.5	53.2	19.5	27.1	179.5
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	55.6	49.4	12.8	61.7	13.5	27.1	179.2
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	60.7	48.2	13.3	43.6	25.6	27.5	178.2
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	59.2	48.4	12.7	52.8	18.4	27.2	178.5
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	57.6	48.0	12.8	48.1	24.3	26.9	177.5
MT103022	Hays/WCC100	63.6	48.2	14.3	52.0	19.1	24.7	179.0
Pinnacle	Pinnacle	52.2	48.4	12.8	64.6	18.5	26.9	174.2
Scarlett	Scarlett	60.3	49.0	13.7	46.0	24.6	22.0	180.9
Tradition	Tradition (B)	58.8	48.0	13.1	38.9	34.9	28.0	175.4
Average		58.5	49.0	13.4	46.4	26.4	25.8	177.7
PLSD (p=0.05)		6.9	1.3	0.6	11.2	11.9	1.5	1.5
CV%		10.3	2.3	3.8	21.2	36.2	5.1	0.8
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Locations		6	6	5	6	5	6	6

1/ Grain yields are based on a 48 pound per bushel standard bushel weight.

Table 3. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trials conducted at five irrigated locations in 2012.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain Protein - % -	Plump Kernels - % -	Thin Kernels - % -	Plant Height - inches -	Heading Date - julian -
EM090061	04064-048	102.2	50.6	13.3	89.5	4.1	29.9	179.9
EM090105	05032-068	99.4	50.9	12.8	86.5	3.2	32.5	178.2
EM090081	05037-079	99.3	50.7	13.5	82.2	4.2	34.8	181.0
MT103015	Haxby/WCC100	77.6	57.5	13.9	61.1	13.7	34.9	174.4
MT103031	Hays/WCC100	74.9	56.8	14.5	32.9	16.4	34.9	176.4
CDC Cowboy	CDC Cowboy	89.3	51.4	13.6	89.0	3.4	41.8	179.0
Champion	Champion (Baronesse/Camas)	105.2	51.8	13.2	87.1	3.1	33.7	176.8
Conrad	Conrad	105.9	51.0	13.3	89.1	2.8	32.4	178.1
Eslick	Eslick	108.0	51.4	12.5	78.2	4.2	30.5	179.3
Expedition	Expedition	104.0	50.7	12.3	78.7	7.1	29.1	179.9
MT960101	Geraldine	102.4	51.5	12.8	75.7	6.1	32.4	179.6
Harrington	Harrington	92.2	50.4	13.1	84.5	4.6	34.6	178.2
Haxby	Haxby	101.1	53.2	13.0	84.9	2.6	34.3	176.4
Hockett	Hockett	97.6	51.6	12.9	85.0	4.3	33.5	176.2
AC Metcalfe	Metcalfe	92.3	51.4	14.0	86.3	3.4	36.2	177.7
MT010158	MT920041/Harrington	86.3	51.5	13.8	84.6	3.3	33.4	177.4
MT010160	MT920041/Harrington	102.1	52.1	12.9	88.0	3.1	34.5	178.0
MT020155	MT960225/H1851195	106.3	51.6	13.0	83.7	4.6	34.5	174.6
Craft	Craft	103.4	52.8	13.2	89.1	1.6	35.6	176.0
MT061035	Baronesse/MT981210	103.6	50.8	13.1	81.8	4.5	33.7	178.8
MT061169	MT960101/Coors 37	102.7	51.2	13.1	86.6	4.3	32.0	178.5
MT070086	MT970148/Coors37	101.0	50.7	11.9	88.4	2.7	27.9	178.8
MT070111	MT010178/Harrington	102.0	51.4	13.0	83.8	7.5	33.9	179.9
MT070125	MT981210/MT970116	104.7	51.9	12.5	86.6	2.8	35.2	178.3
MT070158	MT970148/Klages	105.0	51.8	12.4	91.2	2.4	31.6	177.2
MT070159	MT970148/Klages	101.3	51.5	12.8	89.7	2.8	30.3	177.0
MT070161	MT970148/Klages	107.7	51.8	12.8	91.8	2.2	32.2	176.5
MT070175	LK644///Hockett F5	104.9	52.0	11.9	89.5	3.0	36.1	176.7
MT080081	Coors/Metcalfe	98.2	50.0	13.2	85.6	3.5	30.2	180.0
Hays	Hays	79.3	47.8	12.8	60.8	15.5	34.2	178.9
MT080179	Metcalfe/MT990106	96.7	52.3	13.6	90.5	1.7	36.2	176.9
MT080243	MT960101/MT981210	102.1	51.2	13.1	83.0	4.7	35.0	178.1
MT103043	Hays/WCC100	70.6	52.0	14.0	49.4	32.0	33.2	176.5
MT080281	MT970148/MT970116	104.5	51.4	13.1	87.5	3.9	30.7	176.9
MT080279	MT970148/MT970116	103.0	51.2	12.6	87.2	3.9	31.2	176.6
MT080285	MT970148/MT970116	103.5	51.6	12.5	89.0	3.6	31.9	177.5

Table 3 Con't.

Entry	Pedigree	Grain ^{1/} Yield	Test Weight	Grain Protein	Plump Kernels	Thin Kernels	Plant Height	Heading Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
MT100170	Craft/151	63.5	58.6	16.3	78.8	8.3	38.2	176.8
MT090001	LK6-44/Excel(29-53)	99.3	48.4	11.1	51.9	19.4	33.0	176.1
MT090180	MT910189*/LK644/EslickBC3F33-G	111.7	51.4	11.7	88.6	2.7	35.7	179.1
MT090181	MT910189*/LK644/EslickBC3F33-G	106.6	52.0	11.9	89.6	2.5	35.4	178.4
MT090182	MT910189*/LK644/EslickBC3F33-G	108.6	51.6	12.0	87.1	2.8	34.4	177.2
MT090184	MT910189*/LK644/EslickBC3F33-G	106.1	52.6	12.0	84.9	4.9	35.0	179.0
MT090186	MT910189*/LK644/EslickBC3F33-G	106.0	52.3	12.1	87.0	3.3	33.8	179.2
MT090190	MT910189*/LK644/EslickBC3F33-G	112.6	51.9	12.2	87.9	3.2	35.4	178.5
MT090193	MT910189*/LK644/EslickBC3F33-G	108.8	51.9	12.1	87.7	3.2	36.7	178.5
MT100051	GPCBC3F4 rows 155&158/Haxby	107.7	52.8	11.9	83.3	2.5	32.9	175.3
MT100060	GPCBC3F4 rows 155&158/Haxby	106.6	52.7	11.6	86.4	3.7	33.8	175.9
MT100063	GPCBC3F4 rows 137/Craft	103.3	52.5	11.7	87.1	2.7	34.5	176.8
MT100064	GPCBC3F4 rows 137/Craft	96.9	52.2	11.3	85.4	2.9	34.6	177.8
MT100070	GPCBC3F4 rows 137/Craft	103.8	51.9	11.9	90.4	2.4	35.5	176.7
MT100074	GPCBC3F4rows 137/Craft	100.3	52.2	12.0	82.9	2.9	33.3	178.1
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	101.9	51.9	11.6	87.8	2.8	32.2	176.0
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	110.0	51.8	12.1	88.3	3.7	35.3	178.7
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	106.9	52.0	11.7	89.5	2.2	36.0	178.5
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	109.9	51.6	12.1	87.7	2.4	36.9	179.4
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	111.7	52.4	11.5	84.9	1.6	35.4	179.7
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	108.5	52.3	12.1	89.7	2.6	35.2	179.7
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	107.7	51.7	12.2	86.9	2.7	35.1	178.5
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	104.3	51.3	11.8	86.8	3.1	35.0	179.0
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	108.1	52.0	11.9	88.7	3.2	36.3	177.8
MT103022	Hays/WCC100	106.1	51.5	13.3	88.1	3.1	32.5	177.8
Pinnacle	Pinnacle	98.6	51.6	11.5	92.6	1.9	35.4	175.8
Scarlett	Scarlett	96.7	50.9	13.6	88.2	2.5	28.2	179.4
Tradition	Tradition (B)	98.6	49.5	13.0	82.2	1.7	36.4	176.7
Average		100.8	51.8	12.7	83.7	4.7	33.9	177.8
PLSD (p=0.05)		9.3	1.4	1.1	7.3	3.9	1.8	1.4
CV%		7.4	2.2	6.4	7.0	51.5	4.2	0.6
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Locations		5	5	4	5	3	5	5

1/ Grain yields are based on a 48 pound per bushel standard bushel weight.

Table 4. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Bozeman under dryland conditions in 2012. MSU Post Farm. Exp 214712.

Entry	Pedigree	Grain ^{1/}	Test	Grain ^{2/}	Plump	Plant	Heading
		Yield	Weight	Protein	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	60.2	52.8	15.0	71.7	21.4	183.3
EM090105	05032-068	69.8	51.0	14.6	43.1	21.3	183.0
EM090081	05037-079	65.1	52.5	14.8	31.7	23.2	185.7
MT103015	Haxby/WCC100	52.3	62.7	14.0	28.2	22.7	180.0
MT103031	Hays/WCC100	41.3	57.4	17.5	2.2	22.4	182.7
CDC Cowboy	CDC Cowboy	55.0	51.8	15.7	63.0	27.7	184.7
Champion	Champion (Baronesse/Camas)	69.4	53.4	14.2	52.4	22.8	182.0
Conrad	Conrad	63.7	51.6	16.0	53.0	19.9	182.3
Eslick	Eslick	58.9	51.2	15.0	21.9	19.8	183.3
Expedition	Expedition	58.3	52.2	14.3	44.0	21.4	186.7
MT960101	Geraldine	65.5	50.8	15.4	31.9	21.5	184.0
Harrington	Harrington	57.4	51.0	14.8	45.4	20.7	184.3
Haxby	Haxby	61.5	54.4	14.7	35.4	22.4	180.0
Hockett	Hockett	62.0	53.0	14.5	70.9	22.2	180.0
AC Metcalfe	Metcalfe	53.4	51.8	15.4	61.0	21.4	183.0
MT010158	MT920041/Harrington	51.7	51.9	15.3	39.6	21.8	183.7
MT010160	MT920041/Harrington	62.2	51.9	14.8	41.3	21.1	183.0
MT020155	MT960225/H1851195	63.8	51.3	15.0	52.5	21.5	179.3
Craft	Craft	62.7	53.8	15.0	68.9	23.0	180.7
MT061035	Baronesse/MT981210	70.6	52.0	14.7	58.4	21.1	182.7
MT061169	MT960101/Coors 37	66.5	51.4	14.7	52.2	19.7	184.3
MT070086	MT970148/Coors37	65.7	51.0	14.1	56.3	19.8	184.3
MT070111	MT010178/Harrington	64.6	52.1	15.0	64.2	22.3	182.7
MT070125	MT981210/MT970116	60.2	51.8	14.5	54.0	22.6	184.3
MT070158	MT970148/Klages	67.0	51.9	14.2	70.5	22.8	181.7
MT070159	MT970148/Klages	66.4	50.6	14.5	61.4	20.9	181.7
MT070161	MT970148/Klages	66.9	52.5	14.5	71.5	22.2	181.3
MT070175	LK644///Hockett F5	58.2	51.9	13.4	66.7	22.4	182.7
MT080081	Coors/Metcalfe	61.2	52.1	14.7	53.6	20.3	185.0
Hays	Hays	68.0	50.5	14.9	37.5	21.5	184.3
MT080179	Metcalfe/MT990106	54.3	52.5	16.3	76.5	22.6	182.7
MT080243	MT960101/MT981210	64.4	51.7	15.2	46.3	22.8	183.0
MT103043	Hays/WCC100	47.3	54.0	15.9	7.8	21.5	183.3
MT080281	MT970148/MT970116	66.4	51.1	14.3	62.6	21.0	182.3
MT080279	MT970148/MT970116	68.0	51.7	14.3	65.1	20.7	182.7
MT080285	MT970148/MT970116	64.6	50.5	14.3	61.6	20.7	182.7
MT100170	Craft/151	48.3	59.6	19.3	40.1	25.5	182.0
MT090001	LK6-44/Excel(29-53)	58.3	50.8	12.3	21.5	21.7	180.3
MT090180	MT910189*/LK644/EslickBC3F33-G	63.3	53.0	12.9	63.0	24.1	184.7
MT090181	MT910189*/LK644/EslickBC3F33-G	63.4	53.1	12.8	68.7	23.5	183.3

Table 4 Con't.

Entry	Pedigree	Grain ^{1/}	Test	Grain ^{2/}	Plump	Plant	Heading
		Yield	Weight	Protein	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- inches -	- julian -
MT090182	MT910189*/LK644/EslickBC3F33-G	66.9	52.6	13.3	61.1	23.0	183.0
MT090184	MT910189*/LK644/EslickBC3F33-G	60.2	53.1	12.9	59.1	22.8	184.0
MT090186	MT910189*/LK644/EslickBC3F33-G	66.0	53.8	12.6	62.1	22.8	185.3
MT090190	MT910189*/LK644/EslickBC3F33-G	60.4	52.6	12.9	57.6	22.6	184.7
MT090193	MT910189*/LK644/EslickBC3F33-G	62.0	52.2	13.4	60.1	23.1	184.3
MT100051	GPCBC3F4 rows 155&158/Haxby	67.0	54.9	13.0	54.9	22.7	180.7
MT100060	GPCBC3F4 rows 155&158/Haxby	65.8	54.4	13.0	45.4	22.0	181.0
MT100063	GPCBC3F4 rows 137/Craft	68.2	53.2	12.7	48.3	20.5	181.7
MT100064	GPCBC3F4 rows 137/Craft	54.8	52.3	12.9	47.0	21.0	182.0
MT100070	GPCBC3F4 rows 137/Craft	62.7	52.7	13.1	67.7	22.4	182.3
MT100074	GPCBC3F4rows 137/Craft	62.9	52.1	12.9	52.4	21.8	182.3
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	65.5	53.0	12.1	67.2	21.1	181.7
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	65.5	53.6	12.9	63.9	23.6	183.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	63.3	52.3	13.0	71.1	23.4	183.3
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	57.4	52.3	13.1	60.5	22.7	185.0
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	59.7	53.2	13.0	60.2	23.5	185.3
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	60.8	52.3	13.1	66.2	22.7	185.0
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	62.9	52.0	13.5	54.5	23.0	184.3
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	61.4	52.6	13.1	62.6	23.0	184.0
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	62.4	51.9	13.2	61.7	22.4	183.0
MT103022	Hays/WCC100	62.3	51.0	15.8	50.3	20.7	183.0
Pinnacle	Pinnacle	58.5	53.5	13.2	75.2	21.3	180.7
Scarlett	Scarlett	57.4	51.0	14.6	40.4	20.1	187.0
Tradition	Tradition (B	49.8	51.7	14.8	45.5	21.7	183.0
Average		61.4	52.6	14.2	53.3	22.1	183.0
PLSD (0.05)		7.0	1.3	0.6	7.1	1.5	1.3
CV1		6.7	1.5	2.5	7.7	4.3	0.4
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lattice RE% ^{3/}		131	104	106	151	103	101

1/ Grain yields are based on a 48 pound per bushel standard bushel weight on a "as is" moisture basis.

2/ Grain protein values adjusted to a dry matter basis.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date:

Harvest date:

Table 5. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Conrad under dryland conditions in 2012. MSU Western Triangle Agricultural Research Center. Exp 211812.

Entry	Pedigree	Grain ^{1/}	Test	Grain ^{2/}	Plump	Thin	Plant	Heading
		Yield	Weight	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	96.8	49.6	9.8	96.7	0.9	28.7	184.0
EM090105	05032-068	91.0	51.2	8.2	96.6	1.1	31.2	178.3
EM090081	05037-079	97.5	50.6	9.0	94.7	1.4	32.0	181.8
MT103015	Haxby/WCC100	72.1	60.2	9.4	72.5	12.0	31.8	173.6
MT103031	Hays/WCC100	65.9	60.1	10.4	46.2	12.3	34.0	176.6
CDC Cowboy	CDC Cowboy	79.6	51.5	9.7	97.2	1.1	38.4	178.7
Champion	Champion (Baronesse/Camas)	108.9	52.9	9.5	94.0	1.5	34.0	177.0
Conrad	Conrad	93.9	50.7	8.9	97.0	1.4	27.4	180.0
Eslick	Eslick	97.4	52.2	8.4	94.2	1.3	29.0	179.4
Expedition	Expedition	97.2	50.2	9.0	95.8	1.5	26.4	183.5
MT960101	Geraldine	78.9	52.2	7.9	88.6	2.3	30.7	181.6
Harrington	Harrington	90.6	49.9	9.0	94.3	1.8	35.1	179.1
Haxby	Haxby	94.5	54.2	8.9	92.8	2.0	32.0	176.9
Hockett	Hockett	89.0	52.5	9.1	96.6	1.0	30.7	177.7
AC Metcalfe	Metcalfe	96.1	51.0	9.2	95.8	1.5	35.1	177.7
MT010158	MT920041/Harrington	57.0	51.0	11.6	96.8	1.0	29.0	179.3
MT010160	MT920041/Harrington	83.2	51.8	8.5	94.8	1.3	33.3	179.7
MT020155	MT960225/H1851195	94.0	51.5	9.3	95.8	1.3	31.2	174.5
Craft	Craft	85.4	53.1	8.9	95.3	1.3	34.0	176.1
MT061035	Baronesse/MT981210	105.1	51.2	8.4	93.8	1.9	31.2	179.8
MT061169	MT960101/Coors 37	93.0	51.5	9.1	94.3	1.6	30.2	179.8
MT070086	MT970148/Coors37	98.3	49.2	8.6	92.4	2.4	25.9	181.4
MT070111	MT010178/Harrington	86.5	52.0	8.4	89.9	2.4	31.8	179.7
MT070125	MT981210/MT970116	91.1	52.5	9.1	96.8	0.8	35.3	178.6
MT070158	MT970148/Klages	113.6	52.3	8.6	96.9	0.7	30.2	179.8
MT070159	MT970148/Klages	97.4	51.9	8.8	96.5	1.0	28.7	179.4
MT070161	MT970148/Klages	94.7	52.1	8.8	96.7	1.0	29.0	178.1
MT070175	LK644///Hockett F5	95.6	51.2	8.2	95.5	1.5	37.3	176.3
MT080081	Coors/Metcalfe	94.9	49.0	8.6	94.2	2.2	27.9	182.5
Hays	Hays	85.2	49.0	8.5	84.1	6.3	30.2	178.7
MT080179	Metcalfe/MT990106	84.2	52.3	8.5	96.5	1.3	34.3	176.6
MT080243	MT960101/MT981210	95.3	52.5	8.8	93.9	1.5	34.0	177.8
MT103043	Hays/WCC100	62.9	52.5	9.8	42.4	32.6	29.7	176.6
MT080281	MT970148/MT970116	98.6	51.4	8.6	93.1	1.8	29.0	179.7
MT080279	MT970148/MT970116	95.4	52.1	8.3	94.8	1.4	28.4	179.5
MT080285	MT970148/MT970116	95.8	51.3	9.1	95.1	1.8	27.9	180.2
MT100170	Craft/151	59.8	60.2	12.1	87.2	4.3	39.1	177.5
MT090001	LK6-44/Excel(29-53)	90.2	48.2	7.6	63.1	16.5	32.8	174.6

Table 5 Con't.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain ^{2/} Protein - % -	Plump Kernels - % -	Thin Kernels - % -	Plant Height - inches -	Heading Date - julian -
MT090180	MT910189*/LK644/EslickBC3F33-G	97.8	51.0	7.9	95.8	1.3	32.8	179.3
MT090181	MT910189*/LK644/EslickBC3F33-G	99.8	50.9	8.3	96.8	1.2	35.1	179.0
MT090182	MT910189*/LK644/EslickBC3F33-G	98.2	52.7	8.1	95.2	1.4	34.0	179.6
MT090184	MT910189*/LK644/EslickBC3F33-G	95.1	52.8	8.0	96.1	1.1	34.5	178.9
MT090186	MT910189*/LK644/EslickBC3F33-G	100.3	52.0	8.7	97.5	0.8	35.1	179.7
MT090190	MT910189*/LK644/EslickBC3F33-G	94.0	51.9	7.6	96.3	0.9	33.8	179.3
MT090193	MT910189*/LK644/EslickBC3F33-G	113.6	50.8	8.3	95.8	1.3	37.1	179.7
MT100051	GPCBC3F4 rows 155&158/Haxby	99.5	53.9	9.2	97.2	0.9	31.8	175.6
MT100060	GPCBC3F4 rows 155&158/Haxby	95.7	54.2	9.1	97.4	1.0	32.0	176.3
MT100063	GPCBC3F4 rows 137/Craft	93.3	53.1	8.1	94.8	1.4	30.7	175.5
MT100064	GPCBC3F4 rows 137/Craft	98.5	52.9	8.3	94.7	1.6	32.8	177.2
MT100070	GPCBC3F4 rows 137/Craft	96.5	53.2	8.2	96.5	1.0	36.1	177.1
MT100074	GPCBC3F4rows 137/Craft	90.4	52.8	8.8	95.7	1.5	34.0	178.0
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	92.1	52.8	8.0	96.2	1.3	29.0	176.6
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	101.9	52.5	8.1	97.4	0.7	37.3	178.6
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	101.7	51.7	8.3	96.9	0.8	35.3	179.8
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	100.5	51.1	8.3	96.1	1.2	33.8	180.0
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	102.1	51.3	8.2	96.2	1.4	35.1	180.3
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	99.5	52.4	8.6	95.6	1.9	34.3	179.7
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	105.2	52.7	8.4	95.3	1.2	34.3	179.0
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	94.7	50.7	7.8	94.6	1.5	34.5	179.5
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	97.8	51.7	8.0	94.7	1.5	34.3	179.1
MT103022	Hays/WCC100	97.7	51.6	9.8	97.3	1.0	31.8	179.4
Pinnacle	Pinnacle	88.7	52.3	7.9	98.3	0.8	33.3	174.2
Scarlett	Scarlett	94.5	51.5	8.9	97.1	1.0	25.7	181.7
Tradition	Tradition (B)	86.7	49.2	9.1	94.7	1.0	36.3	177.1
Average		92.9	52.1	8.8	92.7	2.5	32.3	178.6
PLSD (0.05)		14.5	1.2	--	3.1	1.9	3.6	1.2
CV%		10.0	1.6	--	2.3	52.4	7.7	0.5
Prob>F (Entries)		<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001
Lattice RE% ^{3/}		128	101	--	102	100	102	111

1/ Grain yields are based on a 48 pound per bushel standard bushel weight on a "as is" moisture basis.

2/ Grain protein values determined from subsamples bulked across replications.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date: April 4, 2012

Harvest date: August 6, 2012

Table 6. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Havre under dryland no-till fallow conditions in 2012. MSU Northern Agricultural Research Center. Exp 210212.

Entry	Pedigree	Grain ^{1/}	Test	Grain	Grain ^{2/}	Test	Plump	Stand	Plant	Heading ^{3/}
		Yield	Weight	Moisture	Protein	Weight	Kernels		Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- lbs/bu -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	45.3	45.3	8.1	16.2	45.3	22.9	79.1	22.9	184.5
EM090105	05032-068	43.4	44.1	7.5	16.8	44.1	42.3	75.3	21.9	181.0
EM090081	05037-079	38.5	42.8	7.3	17.2	42.8	34.7	82.5	22.3	186.0
MT103015	Haxby/WCC100	18.2	55.3	10.5	15.7	55.3	6.9	62.5	26.7	177.5
MT103031	Hays/WCC100	19.9	55.9	9.4	18.0	55.9	6.3	65.1	22.5	185.0
COWBOY	CDC Cowboy	27.3	46.2	8.3	16.2	46.2	68.9	69.7	29.4	180.0
YU501385	Champion (Baronesse/Camas)	47.0	47.5	8.2	15.1	47.5	32.5	82.8	22.8	180.5
CONRAD	Conrad	43.8	44.7	7.5	16.8	44.7	60.2	85.8	23.9	186.0
MT960228	Eslick	30.9	44.2	7.6	16.8	44.2	13.2	81.2	19.7	187.0
EM090160	Expedition	39.9	46.4	8.8	16.0	46.4	47.0	86.4	20.5	183.0
MT960101	Geraldine	33.8	41.1	7.9	17.8	41.1	12.2	78.2	21.9	183.5
SK 76333	Harrington	37.7	42.1	8.9	16.2	42.1	42.8	78.0	28.2	177.5
MT950186	Haxby	25.1	43.2	7.8	15.6	43.2	29.6	76.2	25.6	175.0
MT910189	Hockett	54.4	46.2	9.2	14.7	46.2	36.3	80.7	29.3	175.5
TR 232	Metcalfe	39.5	43.8	8.3	17.1	43.8	52.8	78.5	28.8	176.0
MT010158	MT920041/Harrington	16.1	44.9	7.5	17.9	44.9	37.4	35.3	22.6	185.5
MT010160	MT920041/Harrington	33.3	44.4	9.0	16.2	44.4	35.5	59.5	27.3	178.0
MT020155	MT960225/H1851195	55.4	46.0	8.6	14.9	46.0	38.7	87.0	26.8	174.5
MT970116	Craft	31.4	43.9	8.1	16.0	43.9	29.3	78.4	26.7	177.0
MT061035	Baronesse/MT981210	47.2	42.8	9.0	16.4	42.8	28.1	85.3	22.9	184.5
MT061169	MT960101/Coors 37	44.1	42.5	7.9	16.3	42.5	20.6	92.0	20.6	180.0
MT070086	MT970148/Coors37	42.0	42.7	7.9	16.1	42.7	52.0	84.2	17.8	184.5
MT070111	MT010178/Harrington	41.3	44.6	9.0	17.1	44.6	29.0	71.6	27.9	181.5
MT070125	MT981210/MT970116	49.5	45.1	8.8	15.9	45.1	38.6	77.9	31.8	178.0
MT070158	MT970148/Klages	51.4	47.4	8.6	14.9	47.4	63.4	77.5	24.2	179.0
MT070159	MT970148/Klages	48.8	44.3	9.2	15.2	44.3	52.6	83.7	25.1	179.5
MT070161	MT970148/Klages	62.0	46.6	9.4	15.3	46.6	59.6	83.7	30.0	179.0
MT070175	LK644///Hockett F5	49.5	45.4	8.3	14.8	45.4	59.7	77.7	25.5	178.5
MT080081	Coors/Metcalfe	34.3	40.9	7.8	17.1	40.9	31.3	85.2	21.0	183.5
MT981060	Hays	17.1	38.9	6.7	16.9	38.9	11.9	80.6	24.4	180.5
MT080179	Metcalfe/MT990106	50.7	45.3	9.1	17.0	45.3	52.1	80.2	30.2	176.0
MT080243	MT960101/MT981210	44.4	42.7	8.0	16.3	42.7	11.8	88.8	28.1	177.0
MT103043	Hays/WCC100	22.4	43.0	7.7	17.5	43.0	13.3	76.4	24.2	178.0
MT080281	MT970148/MT970116	42.0	45.7	8.3	15.6	45.7	39.8	80.4	22.6	181.5
MT080279	MT970148/MT970116	44.2	44.7	8.3	15.3	44.7	24.8	78.6	23.1	180.0
MT080285	MT970148/MT970116	44.4	41.4	8.8	16.1	41.4	22.8	84.7	24.9	179.5
MT100170	Craft/151	26.6	55.9	9.2	19.2	55.9	16.5	66.7	28.3	181.0

Table 6 Con't.

Entry	Pedigree	Grain ^{1/}	Test	Grain	Grain ^{2/}	Test	Plump	Stand	Plant	Heading ^{3/}
		Yield	Weight	Moisture	Protein	Weight	Kernels		Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- lbs/bu -	- % -	- % -	- inches -	- julian -
MT090001	LK6-44/Excel(29-53)	31.0	45.3	8.3	13.7	45.3	14.3	73.5	25.2	176.0
MT090180	MT910189*/LK644/EslickBC3F33-G	29.0	45.2	8.4	15.5	45.2	43.9	69.7	26.2	185.0
MT090181	MT910189*/LK644/EslickBC3F33-G	41.9	44.9	8.3	15.3	44.9	55.4	80.9	23.5	179.0
MT090182	MT910189*/LK644/EslickBC3F33-G	42.0	42.9	8.9	15.4	42.9	36.3	89.9	27.0	180.5
MT090184	MT910189*/LK644/EslickBC3F33-G	34.7	45.0	7.5	14.8	45.0	39.4	82.6	24.6	181.0
MT090186	MT910189*/LK644/EslickBC3F33-G	37.9	43.4	8.1	15.2	43.4	18.4	82.9	29.0	180.5
MT090190	MT910189*/LK644/EslickBC3F33-G	34.5	44.4	7.9	15.3	44.4	47.9	77.7	24.4	183.0
MT090193	MT910189*/LK644/EslickBC3F33-G	38.5	44.9	8.2	15.2	44.9	53.5	88.0	22.4	183.0
MT100051	GPCBC3F4 rows 155&158/Haxby	36.0	47.2	8.7	14.7	47.2	22.1	94.0	28.5	176.0
MT100060	GPCBC3F4 rows 155&158/Haxby	35.1	46.4	9.5	15.1	46.4	25.3	84.3	26.7	176.5
MT100063	GPCBC3F4 rows 137/Craft	35.2	43.8	8.2	14.5	43.8	24.1	87.1	21.3	176.5
MT100064	GPCBC3F4 rows 137/Craft	33.1	43.3	9.2	14.6	43.3	29.4	79.1	26.5	182.0
MT100070	GPCBC3F4 rows 137/Craft	40.0	44.9	9.0	14.9	44.9	42.1	76.7	29.5	176.5
MT100074	GPCBC3F4rows 137/Craft	38.0	44.3	8.9	14.7	44.3	12.8	89.2	27.4	177.0
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	41.4	46.1	8.4	14.0	46.1	40.9	76.2	22.3	178.0
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	44.4	43.2	8.2	15.4	43.2	34.7	85.6	28.8	180.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	39.3	42.7	9.1	15.4	42.7	32.1	89.8	27.2	177.5
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	37.9	45.1	8.4	14.9	45.1	52.5	85.3	25.6	183.0
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	43.4	44.6	8.3	15.0	44.6	47.7	91.9	25.2	181.0
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	27.1	45.6	8.4	15.4	45.6	55.1	83.2	23.2	183.0
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	45.1	45.0	8.5	15.8	45.0	26.0	77.4	26.6	179.5
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	44.7	43.1	8.9	15.7	43.1	47.6	84.4	28.1	180.0
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	41.0	42.7	9.0	15.1	42.7	28.1	93.9	24.7	177.5
MT103022	Hays/WCC100	43.5	44.8	8.2	16.1	44.8	45.9	81.5	24.3	182.0
PI643354	Pinnacle	24.6	41.7	7.3	16.1	41.7	27.1	75.1	26.2	175.0
EB03 26	Scarlett	41.2	46.0	7.5	16.5	46.0	37.9	82.4	20.1	187.0
6B952482	Tradition	47.3	45.0	8.2	15.1	45.0	16.4	86.5	29.0	175.0
Average		38.6	44.8	8.4	15.8	44.8	34.9	80.1	25.2	180.1
PLSD (p=0.05)		7.6	2.9	ns	1.1	2.9	-.	13.6	6.0	4.2
C.V.		9.8	3.3	9.6	3.6	3.3	-.	8.5	11.9	1.2
Prob>F (Entries)		<0.001	<0.001	0.107	<0.001	<0.001	-.	<0.001	0.003	<0.001

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 48 lb/bu as the standard bushel weight for barley.

2/ Protein values are reported on a 100% dry matter basis.

3/ No. of Days from January 1 (180 = June 28).

Planted: April 21, 2012

Harvested: August 9, 2012

Table 7. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Huntley under dryland conditions in 2012. MSU Southern Agricultural Research Center. Exp 210812.

Entry	Pedigree	Grain ^{1/}	Test	Grain	Grain ^{2/}	Plump	Thin	Plant	Heading
		Yield	Weight	Moisture	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	77.2	46.8	9.6		58.0	21.5	27.0	174.0
EM090105	05032-068	73.3	44.7	9.6		41.8	33.7	26.9	172.7
EM090081	05037-079	63.7	45.8	9.3		31.6	34.2	27.0	173.3
MT103015 (hullless)	Haxby/WCC100	66.6	60.6	9.4		22.2	44.7	31.5	169.0
MT103031 (hullless)	Hays/WCC100	50.4	56.5	11.4		0.0	90.9	30.8	171.3
CDC Cowboy	CDC Cowboy	63.5	47.1	9.5		59.0	14.5	36.5	169.3
Champion	Champion (Baronesse/Camas)	80.8	48.5	9.5		33.4	42.8	28.2	172.0
Conrad	Conrad	75.3	46.2	9.4		51.3	23.3	26.7	174.0
Eslick	Eslick	70.4	46.6	9.7		14.9	54.3	25.3	172.7
Expedition	Expedition	80.9	46.2	9.3		24.3	34.7	26.4	174.0
MT960101	Geraldine	69.2	44.6	9.5		18.3	46.9	28.0	174.0
Harrington	Harrington	74.0	46.8	9.8		54.6	19.7	28.7	171.0
Haxby	Haxby	82.5	49.5	9.7		24.1	36.5	29.0	169.7
Hockett	Hockett	71.4	46.4	9.5		33.5	39.0	28.1	171.0
AC Metcalfe	Metcalfe	68.9	44.6	9.3		41.7	24.8	30.1	172.3
MT010158	MT920041/Harrington	63.9	45.8	9.4		40.4	32.8	28.6	174.0
MT010160	MT920041/Harrington	71.7	46.2	9.7		37.3	32.6	27.5	173.0
MT020155	MT960225/H1851195	79.9	45.4	9.5		37.7	33.0	27.7	169.3
Craft	Craft	78.8	48.6	9.6		53.7	19.6	30.7	169.3
MT061035	Baronesse/MT981210	79.7	44.9	9.5		22.0	39.0	27.2	174.7
MT061169	MT960101/Coors 37	67.3	44.7	9.3		20.2	52.5	25.5	172.7
MT070086	MT970148/Coors37	73.9	43.0	9.2		42.1	27.7	22.7	174.0
MT070111	MT010178/Harrington	59.9	45.4	9.5		20.0	51.2	26.2	172.7
MT070125	MT981210/MT970116	74.7	47.3	9.5		35.3	30.5	32.3	172.0
MT070158	MT970148/Klages	79.0	47.2	9.9		55.9	19.8	27.6	174.3
MT070159	MT970148/Klages	77.8	44.9	9.3		34.4	33.4	25.9	174.7
MT070161	MT970148/Klages	80.4	47.3	9.7		51.8	20.6	26.0	172.0
MT070175	LK644///Hockett F5	68.4	44.2	9.6		43.1	29.0	27.6	171.3
MT080081	Coors/Metcalfe	72.0	43.5	9.1		33.2	40.2	22.7	172.7
Hays	Hays	66.6	41.5	8.9		16.0	59.8	25.9	174.3
MT080179	Metcalfe/MT990106	75.7	47.2	9.6		51.7	23.5	30.4	170.7
MT080243	MT960101/MT981210	73.6	46.1	9.7		42.6	24.7	28.6	174.0
MT103043	Hays/WCC100	56.9	48.5	10.6		-1.3	85.2	29.9	171.0
MT080281	MT970148/MT970116	77.9	45.0	9.7		33.5	29.1	25.2	173.0
MT080279	MT970148/MT970116	75.7	44.7	9.5		31.0	33.0	22.9	173.3
MT080285	MT970148/MT970116	72.7	44.6	9.3		31.6	33.7	25.4	174.0
MT100170	Craft/151	50.2	57.9	10.5		24.5	46.9	35.8	171.7
MT090001	LK6-44/Excel(29-53)	71.2	46.4	9.7		19.9	59.5	29.0	169.7
MT090180	MT910189*/LK644/EslickBC3F33-G	71.9	46.1	9.7		45.5	24.3	25.5	172.3
MT090181	MT910189*/LK644/EslickBC3F33-G	61.7	45.5	9.8		35.2	31.9	29.4	174.0

Table 7 Con't.

Entry	Pedigree	Grain ^{1/}	Test	Grain	Grain ^{2/}	Plump	Thin	Plant	Heading
		Yield	Weight	Moisture	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- % -	- inches -	- julian -
MT090182	MT910189*/Lk644/EslickBC3F33-G	65.0	46.5	9.7		39.7	32.9	29.4	173.0
MT090184	MT910189*/Lk644/EslickBC3F33-G	64.5	46.0	9.5		35.1	35.5	30.0	174.0
MT090186	MT910189*/Lk644/EslickBC3F33-G	60.7	46.3	9.6		35.0	34.4	28.5	174.0
MT090190	MT910189*/Lk644/EslickBC3F33-G	71.5	46.8	9.7		47.0	30.8	28.2	174.0
MT090193	MT910189*/Lk644/EslickBC3F33-G	67.5	45.4	9.3		28.7	36.5	28.7	172.3
MT100051	GPCBC3F4 rows 155&158/Haxby	85.2	49.0	9.6		22.4	40.9	26.8	169.3
MT100060	GPCBC3F4 rows 155&158/Haxby	84.4	48.5	10.0		26.8	48.4	28.7	169.0
MT100063	GPCBC3F4 rows 137/Craft	73.6	48.5	10.0		24.4	39.9	28.7	172.3
MT100064	GPCBC3F4 rows 137/Craft	67.2	46.1	9.6		14.9	52.4	28.6	170.3
MT100070	GPCBC3F4 rows 137/Craft	77.1	48.2	9.7		49.6	24.3	30.8	169.3
MT100074	GPCBC3F4rows 137/Craft	68.7	46.0	9.7		32.7	43.5	27.8	172.3
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	73.7	47.7	9.7		34.8	33.5	25.0	171.7
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	68.7	45.2	10.0		50.6	24.9	29.8	173.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	64.8	45.8	9.1		43.7	19.8	28.0	174.3
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	70.7	46.3	9.6		51.5	21.0	29.3	172.3
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	56.4	44.8	9.5		26.6	39.3	28.0	174.0
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	63.5	46.4	9.7		48.9	22.3	30.6	173.3
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	71.9	46.8	9.9		43.5	24.9	30.8	173.0
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	66.2	45.9	9.9		42.0	22.9	29.0	172.3
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	67.6	45.8	9.6		42.2	26.2	28.5	173.0
MT103022	Hays/WCC100	79.8	46.5	9.9		54.9	22.1	27.4	171.0
Pinnacle	Pinnacle	63.7	46.7	9.6		65.0	19.6	31.0	169.0
Scarlett	Scarlett	72.3	47.4	9.9		40.7	26.4	25.2	172.7
Tradition	Tradition	73.0	46.6	9.1		25.6	44.5	30.4	172.7
Average		70.7	46.7	9.6		35.8	35.0	28.2	172.3
PLSD (p=0.05)		13.2	2.6	0.6	--	22.0	19.8	3.9	2.9
CV%		10.8	3.2	4.0	--	35.7	33.1	8.5	1.1
Prob>F (Entries)		<0.05	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05
Lattice RE% ^{3/}		158	137	102	--	146	129	104	101

1/ Grain yields are based on a 48 pound per bushel standard bushel weight and adjusted to 13% grain moisture content.

2/ Grain protein values determined from subsamples bulked across replications.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date: April 9, 2012

Harvest date: July 25, 2012

Table 8. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Mocassin under dryland conditions in 2012. MSU Central Agricultural Research Center. Exp 210712.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain ^{2/} Protein - % -	Plump Kernels - % -	Thin Kernels - % -	Plant Height - inches -	Heading Date - julian -
EM090061	04064-048	29.8	51.6	16.7	17.4	34.9	18.6	183.3
EM090105	05032-068	41.1	48.5	15.6	16.6	48.7	21.5	178.0
EM090081	05037-079	43.9	51.3	15.7	9.3	61.6	20.3	186.7
MT103015	Haxby/WCC100	34.6	60.8	15.2	2.4	76.3	23.5	176.0
MT103031	Hays/WCC100	27.2	58.3	17.6	0.3	96.1	22.0	180.0
CDC Cowboy	CDC Cowboy	37.9	50.4	16.7	34.8	18.4	24.7	182.3
Champion	Champion (Baronesse/Camas)	55.7	52.4	14.0	27.1	25.6	24.7	177.7
Conrad	Conrad	44.0	50.2	16.1	4.0	78.2	19.9	182.3
Eslick	Eslick	35.4	50.7	17.1	1.6	86.7	17.6	187.3
Expedition	Expedition	44.9	51.2	14.9	13.4	45.5	20.5	180.0
MT960101	Geraldine	40.2	49.3	16.4	2.5	79.7	19.2	187.7
Harrington	Harrington	34.5	49.1	16.1	26.8	36.8	19.8	180.7
Haxby	Haxby	44.4	52.1	14.9	2.9	74.0	21.9	179.0
Hockett	Hockett	39.2	50.1	15.0	16.1	51.9	20.3	177.0
AC Metcalfe	Metcalfe	36.5	46.4	16.6	7.6	58.1	22.0	182.3
MT010158	MT920041/Harrington	40.0	52.9	16.5	45.9	18.0	23.9	181.0
MT010160	MT920041/Harrington	41.4	49.8	15.7	2.7	76.0	22.0	181.0
MT020155	MT960225/H1851195	40.9	48.9	15.3	3.8	71.9	22.6	175.7
Craft	Craft	44.1	52.2	14.7	13.8	52.4	22.7	179.0
MT061035	Baronesse/MT981210	37.5	48.1	16.7	6.5	68.1	19.4	184.0
MT061169	MT960101/Coors 37	38.5	49.2	16.3	20.5	38.8	20.6	185.7
MT070086	MT970148/Coors37	44.4	45.8	15.2	19.3	35.7	18.6	186.0
MT070111	MT010178/Harrington	44.1	51.0	15.8	12.2	42.6	22.0	182.3
MT070125	MT981210/MT970116	42.2	51.5	15.6	13.2	55.3	22.6	183.3
MT070158	MT970148/Klages	42.4	49.8	15.2	14.2	49.6	21.7	180.0
MT070159	MT970148/Klages	41.6	49.3	15.5	14.1	50.6	20.3	180.3
MT070161	MT970148/Klages	47.9	50.9	15.1	30.8	28.0	22.2	181.3
MT070175	LK644///Hockett F5	41.7	50.1	14.5	27.9	32.2	23.0	177.3
MT080081	Coors/Metcalfe	38.9	49.1	16.1	17.7	42.6	19.4	181.7
Hays	Hays	39.3	44.8	17.2	8.5	49.2	19.0	182.3
MT080179	Metcalfe/MT990106	39.0	50.4	16.8	13.7	46.5	23.0	177.0
MT080243	MT960101/MT981210	47.2	48.9	15.1	15.0	42.6	22.6	181.7
MT103043	Hays/WCC100	30.2	51.0	18.0	1.5	90.8	20.1	176.7
MT080281	MT970148/MT970116	42.4	48.9	15.4	9.5	53.6	20.3	182.0
MT080279	MT970148/MT970116	43.1	47.1	15.8	13.7	51.5	21.5	179.3
MT080285	MT970148/MT970116	40.6	48.6	15.4	15.0	44.1	19.8	185.7
MT100170	Craft/151	29.4	59.6	18.9	6.1	55.8	24.4	178.0
MT090001	LK6-44/Excel(29-53)	35.4	49.5	13.4	7.0	64.9	19.8	177.0

Table 8 Con't.

Entry	Pedigree	Grain ^{1/}	Test	Grain ^{2/}	Plump	Thin	Plant	Heading
		Yield	Weight	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
MT090180	MT910189*/LK644/EslickBC3F33-G	44.8	50.7	14.6	12.1	37.5	23.9	182.0
MT090181	MT910189*/LK644/EslickBC3F33-G	48.0	51.8	14.2	36.9	19.2	21.8	183.0
MT090182	MT910189*/LK644/EslickBC3F33-G	44.4	50.2	14.6	8.1	53.4	22.4	181.0
MT090184	MT910189*/LK644/EslickBC3F33-G	45.1	51.7	14.5	12.1	36.4	20.6	181.3
MT090186	MT910189*/LK644/EslickBC3F33-G	42.2	52.4	14.6	8.5	45.4	22.0	184.0
MT090190	MT910189*/LK644/EslickBC3F33-G	44.3	51.2	15.0	14.9	33.5	22.3	183.0
MT090193	MT910189*/LK644/EslickBC3F33-G	45.5	52.5	14.4	12.5	38.4	21.5	183.0
MT100051	GPCBC3F4 rows 155&158/Haxby	41.8	52.7	13.5	5.3	61.5	21.3	177.0
MT100060	GPCBC3F4 rows 155&158/Haxby	44.0	52.5	14.1	14.3	39.7	20.1	177.0
MT100063	GPCBC3F4 rows 137/Craft	43.0	51.1	13.6	10.6	50.2	23.4	177.0
MT100064	GPCBC3F4 rows 137/Craft	45.8	52.8	13.6	15.6	36.9	20.9	179.0
MT100070	GPCBC3F4 rows 137/Craft	44.4	52.2	14.0	22.3	33.4	20.1	177.0
MT100074	GPCBC3F4 rows 137/Craft	46.0	51.2	14.3	8.3	58.5	21.1	179.3
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	40.1	50.9	14.3	16.1	48.4	19.2	177.0
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	42.7	51.9	14.5	27.7	24.1	22.6	180.7
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	43.0	51.2	14.5	12.8	32.7	23.0	181.7
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	45.9	51.4	14.8	26.4	26.0	21.7	182.7
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	49.3	49.9	14.2	29.3	24.0	23.9	184.0
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	44.3	52.1	14.6	44.5	15.5	21.1	184.0
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	40.8	49.9	15.5	14.6	40.2	21.5	181.7
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	49.6	51.6	14.6	26.7	31.0	21.8	182.3
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	42.2	50.9	15.0	20.0	37.4	22.0	180.7
MT103022	Hays/WCC100	44.1	49.9	16.3	12.8	40.7	19.8	185.0
Pinnacle	Pinnacle	40.4	49.5	14.8	56.7	18.9	23.1	177.0
Scarlett	Scarlett	44.4	52.1	15.7	6.7	60.3	18.9	185.0
Tradition	Tradition (B)	39.7	49.9	14.6	4.9	71.6	23.9	176.7
Average		41.7	50.8	15.3	15.6	47.6	21.4	180.9
PLSD (p=0.05)		8.2	2.4	1.0	--	--	2.9	3.6
CV%		11.4	2.8	4.0	--	--	8.3	1.2
Prob>F (Entries)		<0.001	<0.001	<0.001	--	--	<0.001	<0.001
Lattice RE% ^{3/}		160	106	140	--	--	101	101

1/ Grain yields are based on a 48 pound per bushel standard bushel weight on a "as is" moisture basis.

2/ Grain protein values determined from subsamples bulked across replications.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date: April 4, 2012

Harvest date: August 6, 2012

Table 9. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Sidney under dryland conditions in 2012. MSU Eastern Agricultural Research Center. Exp 210312.

Entry	Pedigree	Grain Yield - bu/a -	Test Weight - lbs/bu -	Grain ¹ Protein - % -	Plump Kernels - % -	Regular Kernels - % -	Plant Height - inches -	Heading Date - julian -
EM090061	04064-048	34.5	47.0	12.2	74	22	22.0	170.7
EM090105	05032-068	38.8	43.5	13.3	48	43	25.5	169.0
EM090081	05037-079	28.5	46.0	13.7	25	67	26.8	173.0
MT103015	Haxby/WCC100	28.5	58.0	11.6	29	51	27.0	165.7
MT103031	Hays/WCC100	23.1	54.5	14.0	2	43	26.9	170.7
COWBOY	CDC Cowboy	17.2	45.0	13.2	31	62	33.2	170.7
YU501385	Champion (Baronesse/Camas)	40.7	47.5	12.3	34	57	25.1	171.3
CONRAD	Conrad	40.0	46.0	13.7	47	47	25.1	172.7
Eslick	Eslick	38.1	46.0	13.8	22	64	21.7	171.0
Expedition	Expedition	34.6	49.0	12.5	62	35	23.1	173.0
Geraldine	Geraldine	33.1	46.0	13.6	36	55	24.7	172.7
Harrington	Harrington	27.4	43.0	14.0	48	45	25.6	171.7
Haxby	Haxby	38.6	49.5	12.0	40	54	27.4	170.3
Hockett	Hockett	31.5	47.0	11.9	64	32	24.8	169.3
Metcalfe	Metcalfe	30.2	48.5	12.5	80	18	27.0	169.3
MT010158	MT920041/Harrington	24.0	46.0	15.3	47	43	26.6	170.7
MT010160	MT920041/Harrington	31.9	45.0	12.8	32	57	24.8	170.7
MT020155	MT960225/H1851195	46.3	47.5	12.3	51	40	28.5	165.0
Craft	Craft	33.8	45.0	13.1	20	64	29.4	167.7
MT061035	Baronesse/MT981210	34.7	46.0	14.3	57	39	23.0	172.0
MT061169	MT960101/Coors 37	39.7	44.5	15.2	31	55	25.3	172.0
MT070086	MT970148/Coors37	36.2	44.0	13.6	39	53	21.0	173.0
MT070111	MT010178/Harrington	36.8	46.5	13.1	52	39	26.2	171.0
MT070125	MT981210/MT970116	38.3	48.0	12.9	54	41	28.5	171.0
MT070158	MT970148/Klages	30.8	43.5	13.4	39	53	25.2	172.3
MT070159	MT970148/Klages	38.0	44.0	12.0	46	46	25.1	171.0
MT070161	MT970148/Klages	35.6	44.0	12.7	35	49	24.8	170.7
MT070175	LK644///Hockett F5	25.7	49.0	12.5	76	20	28.0	170.0
MT080081	Coors/Metcalfe	30.7	43.0	13.5	31	57	21.4	172.3
Hays	Hays	31.5	43.0	12.5	32	52	25.7	170.7
MT080179	Metcalfe/MT990106	31.1	45.0	13.4	42	52	29.7	170.7
MT080243	MT960101/MT981210	40.1	47.0	12.6	48	44	27.4	171.3
MT103043	Hays/WCC100	28.7	50.0	14.0	10	32	23.0	169.0
MT080281	MT970148/MT970116	37.1	45.0	12.5	43	48	23.1	171.7
MT080279	MT970148/MT970116	35.7	46.5	11.8	50	42	23.5	171.3
MT080285	MT970148/MT970116	40.4	49.0	12.7	29	56	23.9	172.0
MT100170	Craft/151	25.9	58.0	16.6	44	46	31.2	169.7

Table 9 Con't.

Entry	Pedigree	Grain Yield	Test Weight	Grain ^{1/} Protein	Plump Kernels	Regular Kernels	Plant Height	Heading Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
MT090001	LK6-44/Excel(29-53)	33.6	44.5	10.3	21	54	27.0	168.3
MT090180	MT910189*/LK644/EslickBC3F33-G	29.3	45.5	12.4	37	50	27.4	171.7
MT090181	MT910189*/LK644/EslickBC3F33-G	27.3	48.0	12.1	68	26	27.8	171.0
MT090182	MT910189*/LK644/EslickBC3F33-G	28.5	43.0	11.6	23	55	27.0	172.0
MT090184	MT910189*/LK644/EslickBC3F33-G	30.2	47.5	11.8	61	33	28.0	170.7
MT090186	MT910189*/LK644/EslickBC3F33-G	29.1	47.5	11.6	56	36	27.0	171.3
MT090190	MT910189*/LK644/EslickBC3F33-G	29.8	47.5	12.1	60	34	28.2	171.3
MT090193	MT910189*/LK644/EslickBC3F33-G	30.8	45.5	13.2	54	37	28.5	170.7
MT100051	GPCBC3F4 rows 155&158/Haxby	31.4	50.0	11.9	52	42	25.9	169.0
MT100060	GPCBC3F4 rows 155&158/Haxby	33.2	49.0	11.4	57	36	26.8	169.3
MT100063	GPCBC3F4 rows 137/Craft	36.5	45.5	11.8	28	61	26.0	169.7
MT100064	GPCBC3F4 rows 137/Craft	35.2	48.0	10.9	48	45	26.9	170.7
MT100070	GPCBC3F4 rows 137/Craft	30.9	48.5	11.1	66	27	27.6	169.3
MT100074	GPCBC3F4rows 137/Craft	36.7	49.0	11.5	65	28	27.2	170.7
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	33.5	48.0	11.3	62	31	23.0	169.3
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	27.9	47.0	12.9	66	28	26.5	170.3
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	32.2	46.5	11.0	61	32	29.0	172.0
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	28.8	45.5	12.8	64	30	30.2	171.3
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	30.1	47.5	12.4	59	34	27.3	172.3
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	29.2	48.0	12.5	60	35	28.6	171.3
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	27.7	43.5	11.3	28	54	28.0	171.0
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	28.8	45.5	12.4	43	46	29.1	171.7
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	28.7	44.5	12.9	42	44	29.8	171.3
MT103022	Hays/WCC100	39.0	45.5	14.3	51	43	25.5	171.7
Pinnacle	Pinnacle	28.0	45.0	12.7	65	27	27.3	167.7
Scarlett	Scarlett	38.5	46.5	13.3	53	43	21.5	173.0
Tradition	Tradition	37.6	45.5	11.4	46	50	28.2	168.3
Average		32.7	46.8	12.7	46	43	26.3	170.7
PLSD (p=0.05)		5.8	--	--	--	--	2.9	2.0
CV (S/MEAN)		11.0	--	--	--	--	6.9	0.7
Prob>F (Entries)		<0.001	--	--	--	--	<0.001	<0.001

1/ Protein values are reported on a 12.5% grain moisture basis.

Table 10. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Bozeman under irrigated conditions in 2012. MSU Post Farm. Exp 220112.

Entry	Pedigree	Grain ^{1/}	Test	Grain ^{2/}	Plump	Plant	Heading
		Yield - bu/a -	Weight - lbs/bu -	Protein - % -	Kernels - % -	Height - inches -	Date - julian -
EM090061	04064-048	113.1	53.1	13.0	92.3	26.8	185.0
EM090105	05032-068	100.3	52.1	12.7	82.6	29.5	184.3
EM090081	05037-079	100.3	51.7	13.7	69.3	32.9	186.3
MT103015	Haxby/WCC100	84.6	62.0	12.8	59.6	29.6	182.7
MT103031	Hays/WCC100	78.3	58.1	14.9	6.7	30.6	184.3
CDC Cowboy	CDC Cowboy	97.2	53.3	13.9	88.6	41.3	185.7
Champion	Champion (Baronesse/Camas)	115.4	53.9	12.6	87.4	30.4	184.0
Conrad	Conrad	111.5	53.1	14.2	89.4	26.8	184.7
Eslick	Eslick	112.7	53.1	12.8	76.2	26.8	185.3
Expedition	Expedition	106.9	51.6	12.6	68.0	26.9	186.0
MT960101	Geraldine	107.9	53.0	13.1	66.5	28.9	185.7
Harrington	Harrington	113.0	53.9	12.6	87.4	32.3	185.7
Haxby	Haxby	111.9	55.2	12.8	71.4	29.3	184.3
Hockett	Hockett	107.8	54.3	12.7	91.0	29.6	184.0
AC Metcalfe	Metcalfe	110.5	53.9	13.1	86.9	32.6	184.3
MT010158	MT920041/Harrington	100.4	53.5	13.7	80.9	29.0	184.7
MT010160	MT920041/Harrington	114.7	54.0	13.0	87.4	30.6	185.0
MT020155	MT960225/H1851195	116.5	54.5	13.1	82.8	30.8	183.0
Craft	Craft	118.1	54.8	13.0	90.9	32.7	184.3
MT061035	Baronesse/MT981210	104.9	53.0	12.7	81.2	31.3	185.3
MT061169	MT960101/Coors 37	120.1	53.3	13.7	80.7	27.5	185.3
MT070086	MT970148/Coors37	115.3	52.0	11.8	83.8	24.2	184.7
MT070111	MT010178/Harrington	116.8	52.9	12.8	80.7	31.1	185.0
MT070125	MT981210/MT970116	112.4	53.9	12.9	87.2	31.1	184.7
MT070158	MT970148/Klages	122.8	53.8	12.5	92.0	29.9	185.0
MT070159	MT970148/Klages	119.3	53.7	12.4	86.3	27.5	184.3
MT070161	MT970148/Klages	123.6	53.9	12.4	92.6	29.9	183.7
MT070175	LK644///Hockett F5	121.0	53.4	11.6	88.7	32.4	184.7
MT080081	Coors/Metcalfe	105.4	51.6	12.7	76.4	28.6	186.3
Hays	Hays	96.0	51.2	13.0	61.3	32.2	186.7
MT080179	Metcalfe/MT990106	100.8	54.0	13.0	91.1	33.3	184.7
MT080243	MT960101/MT981210	105.1	53.7	13.0	83.2	31.4	184.0
MT103043	Hays/WCC100	67.3	54.5	13.9	63.0	30.8	185.3
MT080281	MT970148/MT970116	117.5	53.9	12.3	87.3	27.4	184.0
MT080279	MT970148/MT970116	115.8	53.5	12.4	84.4	27.2	183.7
MT080285	MT970148/MT970116	116.9	53.4	12.4	86.8	27.8	185.0
MT100170	Craft/151	65.7	61.2	17.9	76.7	34.8	184.0
MT090001	LK6-44/Excel(29-53)	104.7	49.7	10.6	46.6	28.6	184.3
MT090180	MT910189*/LK644/EslickBC3F33-G	118.1	52.9	11.4	85.2	33.1	185.0
MT090181	MT910189*/LK644/EslickBC3F33-G	114.9	53.9	11.5	88.8	32.4	184.7
MT090182	MT910189*/LK644/EslickBC3F33-G	125.2	54.1	11.3	86.9	30.7	184.7
MT090184	MT910189*/LK644/EslickBC3F33-G	116.9	54.0	11.3	84.7	32.4	185.0
MT090186	MT910189*/LK644/EslickBC3F33-G	114.3	54.0	11.2	86.3	30.9	185.3
MT090190	MT910189*/LK644/EslickBC3F33-G	126.1	53.7	11.5	86.6	31.1	185.0
MT090193	MT910189*/LK644/EslickBC3F33-G	109.9	53.4	11.7	84.3	32.5	185.0
MT100051	GPCBC3F4 rows 155&158/Haxby	118.7	54.6	11.4	63.7	28.9	183.0

Table 10 Con't.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain ^{2/} Protein - % -	Plump Kernels - % -	Plant Height - inches -	Heading Date - julian -
MT100060	GPCBC3F4 rows 155&158/Haxby	114.8	54.1	11.0	81.7	30.8	183.7
MT100063	GPCBC3F4 rows 137/Craft	105.6	54.1	11.0	86.7	30.6	184.3
MT100064	GPCBC3F4 rows 137/Craft	101.2	53.8	11.0	85.2	30.7	185.0
MT100070	GPCBC3F4 rows 137/Craft	116.1	53.6	11.1	89.6	32.6	184.3
MT100074	GPCBC3F4rows 137/Craft	114.6	53.5	11.7	64.0	30.5	184.7
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	113.6	54.0	10.8	89.1	29.3	184.7
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	118.7	53.7	11.6	85.4	31.5	185.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	114.2	53.7	11.4	89.7	33.2	185.7
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	112.9	53.2	11.5	79.0	33.2	185.7
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	124.8	53.8	11.3	56.4	34.5	186.3
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	111.4	53.6	11.2	87.2	33.2	185.7
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	108.1	53.8	12.1	84.6	29.8	184.7
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	114.6	53.2	11.5	88.0	32.0	184.3
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	119.3	53.6	11.5	86.7	33.2	185.0
MT103022	Hays/WCC100	128.1	52.7	14.1	83.5	27.9	184.3
Pinnacle	Pinnacle	100.8	53.7	11.2	92.8	32.1	184.7
Scarlett	Scarlett	102.2	52.8	13.5	83.0	26.7	186.3
Tradition	Tradition (B)	108.4	52.1	13.0	81.3	32.4	184.3
Average		110.1	53.7	12.4	80.6	30.6	184.8
PLSD (0.05)		12.7	0.9	0.5	18.7	2.1	1.1
CV1		6.9	1.0	2.4	14.4	3.9	0.4
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lattice RE%		106	106	209	100	215	100

1/ Grain yields are based on a 48 pound per bushel standard bushel weight on a "as is" moisture basis.

2/ Grain protein values adjusted to a dry matter basis.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date:

Harvest date:

Table 11. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Conrad under irrigated conditions in 2012. MSU Western Triangle Agricultural Research Center. Exp 221912.

Entry	Pedigree	Grain ^{1/}	Test	Grain ^{2/}	Plump	Thin	Plant	Heading
		Yield	Weight	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	106.3	49.9	9.3	97.7	0.9	27.4	184.0
EM090105	05032-068	97.4	50.7	8.7	95.0	1.8	30.9	180.0
EM090081	05037-079	104.3	51.5	8.9	95.1	1.3	31.9	184.3
MT103015	Haxby/WCC100	69.2	60.1	10.1	69.0	13.8	31.1	176.0
MT103031	Hays/WCC100	78.7	59.0	11.9	48.0	7.3	34.6	179.7
CDC Cowboy	CDC Cowboy	85.7	51.9	10.3	98.4	0.7	40.7	182.7
Champion	Champion (Baronesse/Camas)	103.8	52.7	9.4	97.8	0.7	32.2	179.3
Conrad	Conrad	105.0	51.3	9.5	97.1	1.2	30.1	181.7
Eslick	Eslick	105.0	51.9	8.5	94.1	2.1	28.6	184.0
Expedition	Expedition	106.6	50.4	8.5	95.8	1.8	25.0	184.0
MT960101	Geraldine	100.9	52.0	8.4	92.8	2.6	29.9	184.3
Harrington	Harrington	87.7	50.0	9.1	94.7	1.6	30.8	180.7
Haxby	Haxby	96.9	53.7	9.2	96.4	1.2	31.8	178.3
Hockett	Hockett	92.8	51.3	9.2	96.3	1.4	33.4	178.7
AC Metcalfe	Metcalfe	93.6	50.5	9.7	95.6	1.5	33.0	180.3
MT010158	MT920041/Harrington	88.1	52.8	11.2	98.1	0.6	30.7	179.7
MT010160	MT920041/Harrington	100.0	52.0	10.0	96.7	1.0	33.9	180.3
MT020155	MT960225/H1851195	98.0	51.9	9.5	94.4	2.0	33.1	176.3
Craft	Craft	97.1	53.7	9.4	96.5	1.1	34.3	178.7
MT061035	Baronesse/MT981210	104.7	50.8	8.9	95.4	0.8	29.0	182.0
MT061169	MT960101/Coors 37	92.6	49.9	9.0	93.6	2.2	28.8	183.3
MT070086	MT970148/Coors37	99.9	49.6	8.7	93.8	2.2	31.1	183.7
MT070111	MT010178/Harrington	93.2	50.8	8.2	92.1	10.8	29.6	183.3
MT070125	MT981210/MT970116	106.5	52.2	9.0	97.0	1.0	33.6	181.0
MT070158	MT970148/Klages	95.7	52.3	8.8	97.1	1.4	30.2	180.0
MT070159	MT970148/Klages	99.9	51.1	9.3	95.9	1.4	27.6	180.7
MT070161	MT970148/Klages	98.3	51.4	8.8	96.9	1.2	31.4	179.0
MT070175	LK644//Hockett F5	98.3	51.9	8.6	96.5	1.0	34.7	179.0
MT080081	Coors/Metcalfe	90.7	48.6	9.3	91.7	3.0	26.1	184.0
Hays	Hays	90.0	46.9	9.2	78.7	9.9	32.2	181.3
MT080179	Metcalfe/MT990106	87.9	51.6	9.2	96.1	1.4	33.1	179.0
MT080243	MT960101/MT981210	101.1	51.9	9.1	96.0	1.3	31.0	182.3
MT103043	Hays/WCC100	72.8	50.3	10.8	58.7	23.9	31.6	178.7
MT080281	MT970148/MT970116	97.3	51.1	9.0	95.8	1.5	27.9	179.7
MT080279	MT970148/MT970116	92.4	51.0	9.0	95.4	1.2	27.7	179.7
MT080285	MT970148/MT970116	99.2	51.4	9.2	94.5	1.7	31.5	180.0
MT100170	Craft/151	58.8	59.4	12.6	87.4	5.2	36.1	178.3
MT090001	LK6-44/Excel(29-53)	95.9	46.3	7.5	55.9	21.2	30.8	177.3
MT090180	MT910189*/LK644/EslickBC3F33-G	109.3	51.4	8.0	94.8	1.5	34.3	181.7
MT090181	MT910189*/LK644/EslickBC3F33-G	102.8	52.1	8.2	97.0	0.9	32.6	180.3

Table 11 Con't.

Entry	Pedigree	Grain ^{1/} Yield	Test Weight	Grain ^{2/} Protein	Plump Kernels	Thin Kernels	Plant Height	Heading Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- inches -	- julian -
MT090182	MT910189*/LK644/EslickBC3F33-G	103.2	53.1	8.3	95.6	1.2	32.8	177.3
MT090184	MT910189*/LK644/EslickBC3F33-G	109.0	53.2	8.1	97.5	1.0	34.9	180.3
MT090186	MT910189*/LK644/EslickBC3F33-G	108.1	53.1	8.7	97.3	1.0	29.8	181.7
MT090190	MT910189*/LK644/EslickBC3F33-G	104.9	52.5	8.1	96.8	0.9	34.5	181.3
MT090193	MT910189*/LK644/EslickBC3F33-G	107.1	52.4	8.6	95.5	1.4	34.5	181.7
MT100051	GPCBC3F4 rows 155&158/Haxby	95.3	53.1	8.3	96.7	1.2	29.6	177.7
MT100060	GPCBC3F4 rows 155&158/Haxby	99.5	52.6	8.5	96.0	1.3	30.4	178.7
MT100063	GPCBC3F4 rows 137/Craft	99.0	52.7	8.4	96.6	0.9	33.5	179.0
MT100064	GPCBC3F4 rows 137/Craft	100.7	53.2	8.4	97.5	0.8	35.0	179.0
MT100070	GPCBC3F4 rows 137/Craft	95.8	52.4	8.9	96.6	1.0	34.0	178.7
MT100074	GPCBC3F4rows 137/Craft	95.7	53.5	8.8	96.6	1.5	31.3	179.3
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	102.7	52.4	9.1	96.1	1.7	30.7	179.7
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	99.6	52.8	8.4	97.3	0.8	32.3	181.3
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	109.2	52.0	8.2	96.2	1.0	35.3	180.3
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	108.8	51.5	8.8	96.3	1.0	36.0	182.7
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	108.6	52.7	7.9	96.5	0.9	34.2	182.7
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	104.1	53.0	8.0	96.1	1.5	34.1	183.7
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	116.3	52.7	9.1	96.5	1.0	33.6	180.3
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	97.9	51.2	8.1	94.4	1.4	32.9	182.3
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	104.6	52.0	8.6	95.9	0.9	35.5	181.0
MT103022	Hays/WCC100	98.7	51.5	8.4	97.6	0.9	29.5	180.3
Pinnacle	Pinnacle	92.8	51.9	8.3	98.8	0.5	32.2	177.3
Scarlett	Scarlett	92.9	50.0	9.3	97.0	1.0	24.2	184.3
Tradition	Tradition (B	94.0	48.3	9.6	95.9	0.5	36.4	179.0
Average		97.7	51.9	9.0	93.2	2.6	31.9	180.6
PLSD (0.05)		10.3	1.0	--	1.9	3.4	4.2	1.9
CV%		6.1	1.2	--	1.2	80.4	7.7	0.7
Prob>F (Entries)		<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.001
Lattice RE%		181	109	--	107	100	110	100

1/ Grain yields are based on a 48 pound per bushel standard bushel weight on a "as is" moisture basis.

2/ Grain protein values determined from subsamples bulked across replications.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date: April 20, 2012

Harvest date: August 20,2012

Table 12. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Huntley under irrigated conditions in 2012. MSU Southern Agricultural Research Center. Exp 220912.

Entry	Pedigree	Grain ^{1/}	Test	Grain	Grain ^{2/}	Plump	Thin	Plant	Heading
		Yield	Weight	Moisture	Protein	Kernels	Kernels	Height	Date
		- bu/a -	- lbs/bu -	- % -	- % -	- % -	- % -	- inches -	- julian -
EM090061	04064-048	131.4	53.7	8.8		93.5	3.4	34.4	173.0
EM090105	05032-068	118.0	53.4	8.9		90.1	3.9	37.7	175.0
EM090081	05037-079	106.2	52.4	8.8		81.9	8.3	38.3	174.3
MT103015	Haxby/WCC100	97.5	63.0	8.6		79.0	9.3	40.1	169.0
MT103031	Hays/WCC100	86.5	60.7	8.6		50.9	18.0	40.2	169.0
CDC Cowboy	CDC Cowboy	102.7	53.7	8.6		86.4	6.6	40.9	170.7
Champion	Champion (Baronesse/Camas)	135.4	55.4	8.9		95.6	1.6	38.8	170.7
Conrad	Conrad	136.8	53.6	8.8		93.0	3.2	39.3	173.7
Eslick	Eslick	136.7	54.8	8.7		90.2	4.6	38.2	173.7
Expedition	Expedition	136.9	54.0	8.7		72.5	14.5	33.8	173.0
MT960101	Geraldine	129.9	54.1	8.8		82.5	7.6	38.1	173.0
Harrington	Harrington	116.6	51.6	8.6		82.2	8.2	37.6	174.3
Haxby	Haxby	130.2	55.7	8.9		91.8	3.7	38.8	169.7
Hockett	Hockett	116.6	53.7	8.8		85.0	6.4	38.2	170.3
AC Metcalfe	Metcalfe	97.0	53.9	8.8		90.4	3.8	40.3	172.7
MT010158	MT920041/Harrington	109.1	54.0	8.9		91.2	3.4	38.5	172.3
MT010160	MT920041/Harrington	116.4	54.4	8.8		89.6	4.2	38.1	172.7
MT020155	MT960225/H1851195	130.0	53.5	8.8		86.2	5.8	38.3	169.0
Craft	Craft	132.5	55.6	8.9		96.0	1.7	38.6	169.0
MT061035	Baronesse/MT981210	127.3	52.5	8.4		83.3	7.7	41.2	173.0
MT061169	MT960101/Coors 37	120.2	53.6	8.6		87.2	5.7	36.9	173.0
MT070086	MT970148/Coors37	116.1	53.0	8.6		90.3	4.0	29.5	173.7
MT070111	MT010178/Harrington	119.5	54.1	8.7		87.0	5.8	37.3	175.0
MT070125	MT981210/MT970116	128.3	55.1	8.8		94.2	2.5	40.2	173.7
MT070158	MT970148/Klages	127.5	54.3	8.8		91.7	3.9	36.6	171.0
MT070159	MT970148/Klages	109.1	53.6	8.7		88.1	4.9	35.2	171.3
MT070161	MT970148/Klages	134.9	54.7	8.8		92.6	3.4	37.4	171.7
MT070175	LK644///Hockett F5	139.4	54.5	9.0		92.1	2.9	40.2	170.3
MT080081	Coors/Metcalfe	132.9	52.5	8.5		90.8	3.4	35.2	174.3
Hays	Hays	66.2	49.3	8.4		56.8	22.5	39.1	175.0
MT080179	Metcalfe/MT990106	121.2	55.0	8.9		95.8	1.7	39.8	171.7
MT080243	MT960101/MT981210	122.2	52.7	8.6		84.7	6.7	40.2	173.0
MT103043	Hays/WCC100	85.6	56.2	9.6		48.2	33.0	38.7	170.3
MT080281	MT970148/MT970116	128.5	53.5	8.8		88.9	5.2	35.8	171.7
MT080279	MT970148/MT970116	124.0	52.9	8.5		86.8	5.4	38.1	170.7
MT080285	MT970148/MT970116	117.2	53.0	8.7		89.5	5.0	38.2	174.3
MT100170	Craft/151	72.2	59.1	8.3		88.8	4.7	40.6	172.3
MT090001	LK6-44/Excel(29-53)	125.2	51.6	8.8		59.5	24.0	36.4	169.0

Table 12 Con't.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain Moisture - % -	Grain ^{2/} Protein - % -	Plump Kernels - % -	Thin Kernels - % -	Plant Height - inches -	Heading Date - julian -
MT090180	MT910189*/LK644/EslickBC3F33-G	134.9	54.6	9.5		94.7	2.7	39.5	175.7
MT090181	MT910189*/LK644/EslickBC3F33-G	133.4	55.3	9.6		95.4	1.7	39.9	173.7
MT090182	MT910189*/LK644/EslickBC3F33-G	132.2	54.5	9.4		93.3	2.3	40.9	173.0
MT090184	MT910189*/LK644/EslickBC3F33-G	127.3	55.7	9.7		72.8	9.7	39.3	175.0
MT090186	MT910189*/LK644/EslickBC3F33-G	128.3	55.1	10.0		93.0	2.9	38.9	173.7
MT090190	MT910189*/LK644/EslickBC3F33-G	134.7	55.2	9.4		95.7	1.7	40.4	174.3
MT090193	MT910189*/LK644/EslickBC3F33-G	131.0	54.6	9.1		93.3	3.2	40.6	172.7
MT100051	GPCBC3F4 rows 155&158/Haxby	138.1	55.4	8.9		93.8	2.3	37.8	169.0
MT100060	GPCBC3F4 rows 155&158/Haxby	136.2	55.3	9.1		93.3	2.8	38.5	169.0
MT100063	GPCBC3F4 rows 137/Craft	137.2	55.5	9.1		95.0	2.2	39.4	171.7
MT100064	GPCBC3F4 rows 137/Craft	118.1	55.0	9.1		89.4	4.9	39.8	175.0
MT100070	GPCBC3F4 rows 137/Craft	134.1	54.8	9.3		93.2	3.1	39.0	170.7
MT100074	GPCBC3F4rows 137/Craft	119.6	54.7	9.4		92.7	3.3	36.6	175.7
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	119.1	54.2	8.9		90.8	3.6	37.4	169.0
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	138.6	54.7	9.7		94.4	2.4	41.2	173.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	127.3	55.0	9.5		95.8	1.7	40.0	175.7
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	135.4	54.3	9.5		95.1	2.3	41.9	174.3
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	135.1	55.2	9.7		97.3	1.0	39.7	173.7
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	132.7	55.0	9.6		94.7	2.3	41.5	174.3
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	141.1	55.1	9.2		94.8	2.1	41.1	174.3
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	129.0	54.5	9.2		95.5	2.0	39.4	174.3
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	123.2	54.5	9.2		92.1	3.8	40.9	171.0
MT103022	Hays/WCC100	126.0	54.2	8.9		87.8	5.4	38.9	172.0
Pinnacle	Pinnacle	119.4	54.9	9.3		94.3	2.2	38.7	169.0
Scarlett	Scarlett	110.9	53.8	9.1		90.9	3.6	32.5	172.7
Tradition	Tradition (B	123.1	54.0	8.6		93.5	1.5	41.1	174.3
Average		122.6	54.5	9.0		88.1	5.4	38.6	172.4
PLSD (p=0.05)		16.6	1.2	0.5	--	17.4	8.7	2.9	3.1
CV%		7.9	1.3	3.3	--	12.2	100.1	4.7	1.1
Prob>F (Entries)		<0.05	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05
Lattice RE%		133	102	103	--	89	89	98	100

1/ Grain yields are based on a 48 pound per bushel standard bushel weight and adjusted to 13% grain moisture content.

2/ Grain protein values determined from subsamples bulked across replications.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date: April 11, 2012

Harvest date: August 6, 2012

Table 13. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Kalispell under irrigated conditions in 2012. MSU Northwestern Agricultural Research Center. Exp 220512.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain Moisture - % -	Grain ^{2/} Protein - % -	Plump Kernels - % -	Plant Height - inches -	Lodging - % -	Heading Date - julian -
EM090061	04064-048	120.6	51.1	14.1	14.3	95.0	34.5	2.2	183.0
EM090105	05032-068	119.1	51.0	13.4	14.3	91.0	38.4	0.2	178.3
EM090081	05037-079	136.1	51.2	15.0	14.6	94.0	42.3	3.4	184.7
MT103015	Haxby/WCC100	93.3	46.7	14.1	14.5	57.0	41.0	1.5	175.0
MT103031	Hays/WCC100	96.4	53.9	15.0	16.2	46.0	38.4	1.2	177.7
CDC Cowboy	CDC Cowboy	127.8	49.9	14.0	14.3	98.0	50.1	0.0	182.3
Champion	Champion (Baronesse/Camas)	125.2	50.1	12.8	14.0	94.5	39.6	5.9	177.7
Conrad	Conrad	122.6	51.2	12.6	15.2	90.5	38.3	0.2	178.0
Eslick	Eslick	121.8	50.2	14.2	13.7	77.5	35.4	2.5	181.0
Expedition	Expedition	111.6	51.2	13.0	13.9	90.5	33.2	2.2	182.3
MT960101	Geraldine	123.6	52.1	13.0	14.1	81.5	38.1	22.7	180.3
Harrington	Harrington	98.8	49.6	12.0	14.2	85.0	40.4	0.0	178.3
Haxby	Haxby	111.8	52.6	12.4	15.4	90.5	39.2	0.0	178.3
Hockett	Hockett	115.5	50.9	13.7	14.7	77.5	38.0	8.0	176.7
AC Metcalfe	Metcalfe	118.7	52.3	14.1	14.8	91.0	42.8	17.4	179.7
MT010158	MT920041/Harrington	96.1	51.1	13.2	14.6	86.5	39.5	1.5	178.0
MT010160	MT920041/Harrington	118.2	52.4	13.7	14.6	90.5	38.9	1.4	179.0
MT020155	MT960225/H1851195	121.3	51.2	12.7	14.4	83.0	39.4	4.3	175.0
Craft	Craft	121.0	51.8	12.3	14.7	81.5	41.1	1.1	176.3
MT061035	Baronesse/MT981210	128.0	50.7	12.9	14.0	86.0	37.1	1.7	180.7
MT061169	MT960101/Coors 37	121.7	52.3	13.2	14.0	93.5	37.0	2.4	179.0
MT070086	MT970148/Coors37	112.4	50.6	12.3	13.9	87.5	29.6	3.8	178.7
MT070111	MT010178/Harrington	133.4	52.2	12.8	13.9	91.5	39.9	5.0	183.0
MT070125	MT981210/MT970116	119.3	51.0	12.8	14.8	87.5	38.4	0.0	178.3
MT070158	MT970148/Klages	125.0	51.6	12.6	13.5	93.5	35.3	2.2	178.0
MT070159	MT970148/Klages	120.5	51.5	12.8	13.7	93.5	35.6	0.1	177.7
MT070161	MT970148/Klages	129.5	51.5	12.3	13.5	94.0	35.4	3.3	177.0
MT070175	LK644///Hockett F5	119.4	53.0	14.6	12.8	90.5	40.9	0.0	177.3
MT080081	Coors/Metcalfe	115.3	50.5	12.2	15.4	90.5	34.7	1.4	182.7
Hays	Hays	99.6	47.7	12.2	14.8	69.0	37.0	34.4	177.7
MT080179	Metcalfe/MT990106	123.9	53.4	13.7	14.6	94.0	41.6	0.0	178.0
MT080243	MT960101/MT981210	121.8	51.0	13.6	15.2	83.0	40.3	8.5	178.3
MT103043	Hays/WCC100	89.8	49.0	13.1	16.2	62.0	37.7	8.1	177.0
MT080281	MT970148/MT970116	124.4	51.6	13.5	13.6	89.0	34.4	0.0	177.0
MT080279	MT970148/MT970116	125.8	50.9	12.0	13.7	90.0	34.9	2.8	178.0
MT080285	MT970148/MT970116	127.4	52.1	12.2	14.0	90.5	34.8	0.0	177.3
MT100170	Craft/151	86.3	57.8	14.7	17.9	90.0	44.1	6.3	179.7
MT090001	LK6-44/Excel(29-53)	119.3	49.4	15.8	12.4	57.0	39.7	0.6	179.7
MT090180	MT910189*/LK644/EslickBC3F33-G	136.2	51.9	14.6	13.4	93.0	40.2	0.0	178.3
MT090181	MT910189*/LK644/EslickBC3F33-G	133.1	52.6	15.5	12.9	93.0	40.0	13.0	178.7
MT090182	MT910189*/LK644/EslickBC3F33-G	129.4	49.9	15.2	13.0	91.5	40.5	23.1	178.3
MT090184	MT910189*/LK644/EslickBC3F33-G	135.0	52.4	16.1	12.9	92.0	40.4	1.5	179.0
MT090186	MT910189*/LK644/EslickBC3F33-G	130.2	52.2	14.7	13.2	90.5	38.9	3.6	180.0
MT090190	MT910189*/LK644/EslickBC3F33-G	141.5	53.1	15.9	12.7	93.0	39.5	2.1	178.7

Table 13 Con't.

Entry	Pedigree	Grain ^{1/} Yield - bu/a -	Test Weight - lbs/bu -	Grain Moisture - % -	Grain ^{2/} Protein - % -	Plump Kernels - % -	Plant Height - inches -	Lodging - % -	Heading Date - julian -
MT090193	MT910189*/LK644/EslickBC3F33-G	139.5	51.9	15.5	13.5	93.0	41.4	5.2	179.7
MT100051	GPCBC3F4 rows 155&158/Haxby	125.1	52.4	14.3	14.0	91.0	36.8	1.5	177.0
MT100060	GPCBC3F4 rows 155&158/Haxby	132.9	52.6	14.2	13.3	91.0	38.1	0.0	177.3
MT100063	GPCBC3F4 rows 137/Craft	117.0	52.2	13.5	13.4	86.0	39.0	1.0	177.7
MT100064	GPCBC3F4 rows 137/Craft	111.6	51.7	14.8	12.4	83.0	38.6	0.8	178.3
MT100070	GPCBC3F4 rows 137/Craft	128.5	50.5	14.5	13.5	91.0	40.5	5.8	178.0
MT100074	GPCBC3F4rows 137/Craft	118.9	51.8	14.3	13.3	87.5	39.9	1.5	177.7
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	118.6	50.2	14.6	12.7	82.5	36.0	2.5	176.3
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	136.1	52.2	17.2	12.6	94.0	40.9	4.2	180.3
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	133.5	52.1	15.7	14.1	94.5	40.6	0.4	178.3
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	140.8	52.5	15.6	13.0	92.5	42.0	5.6	180.7
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	131.2	52.7	16.1	13.5	93.0	39.4	2.3	181.7
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	143.4	52.9	16.7	12.9	95.5	38.5	0.5	179.3
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	125.1	50.9	14.8	13.1	92.0	41.2	4.7	179.0
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	131.9	51.5	16.1	13.2	91.5	41.9	0.0	180.3
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	131.5	52.0	15.7	13.3	91.0	40.0	1.1	178.3
MT103022	Hays/WCC100	120.2	51.3	13.7	15.0	92.0	37.1	0.6	179.7
Pinnacle	Pinnacle	124.1	50.6	15.7	12.9	94.5	42.2	0.9	177.3
Scarlett	Scarlett	120.7	51.3	12.4	14.4	96.0	33.1	1.5	179.0
Tradition	Tradition (B)	116.3	48.2	11.2	14.7	69.5	41.4	2.0	176.3
Average		121.8	51.4	14.0	14.0	87.3	38.8	3.8	178.8
PLSD (0.05)		11.4	--	--	--	--	2.2	15.6	1.6
CV%		5.5	--	--	--	--	3.3	239.2	0.6
Prob>F (Entries)		<0.001	--	--	--	--	<0.001	0.015	<0.001
Lattice RE%		109	--	--	--	--	134	152	100

1/ Grain yields are based on a 48 pound per bushel standard bushel weight on a "as is" moisture basis.

2/ Grain protein values adjusted to a dry matter basis.

3/ Adjusted means provided for Lattice RE% values equal to or greater than 105%.

Planting date: April 10, 2012

Harvest date: August 17, 2012

Table 14. Agronomic evaluation of 64 entries tested in the Montana Statewide Barley Performance Trial conducted at Sidney under irrigated conditions in 2012. MSU Eastern Agricultural Research Center. Exp 220412.

Entry	Pedigree	Grain Yield - bu/a -	Test Weight - lbs/bu -	Grain Protein - % -	Plump Kernels - % -	Regular Kernels - % -	Plant Height - inches -	Heading Date - julian -
EM090061	04064-048	34.2	45.0	17.2	67	25	25.6	174.7
EM090105	05032-068	59.0	47.5	15.8	75	21	25.5	173.3
EM090081	05037-079	52.3	46.5	17.7	71	26	26.9	175.3
MT103015	Haxby/WCC100	43.5	55.5	16.4	40	42	32.3	169.3
MT103031	Hays/WCC100	38.7	52.5	18.2	13	63	31.1	171.3
COWBOY	CDC Cowboy	32.6	48.0	17.3	74	23	35.8	173.7
YU501385	Champion (Baronesse/Camas)	40.8	47.0	17.4	58	35	25.9	172.7
CONRAD	Conrad	52.8	46.0	18.3	74	22	27.4	172.3
Eslick	Eslick	69.1	47.0	16.8	53	41	24.5	172.3
Expedition	Expedition	65.9	46.5	16.1	67	28	27.2	174.0
Geraldine	Geraldine	45.0	46.5	17.6	56	36	26.1	174.7
Harrington	Harrington	51.8	47.0	16.5	72	24	32.7	171.7
Haxby	Haxby	58.1	49.0	16.5	74	23	33.1	171.3
Hockett	Hockett	60.2	48.0	15.8	75	20	27.8	171.0
Metcalfe	Metcalfe	38.2	46.5	17.7	67	28	32.5	171.3
MT010158	MT920041/Harrington	42.4	46.0	17.3	65	29	29.3	172.3
MT010160	MT920041/Harrington	58.2	47.5	15.1	77	19	29.0	173.3
MT020155	MT960225/H1851195	67.7	47.0	16.5	71	23	32.3	169.7
Craft	Craft	49.6	48.0	17.1	81	17	31.5	171.7
MT061035	Baronesse/MT981210	53.2	47.0	17.7	65	30	30.7	173.0
MT061169	MT960101/Coors 37	56.3	47.0	17.5	77	18	29.7	171.7
MT070086	MT970148/Coors37	62.5	48.5	15.7	85	13	26.2	173.0
MT070111	MT010178/Harrington	50.3	47.0	18.2	68	26	32.4	173.0
MT070125	MT981210/MT970116	56.1	47.5	17.8	67	28	33.2	173.7
MT070158	MT970148/Klages	54.2	47.0	16.6	83	15	25.3	172.0
MT070159	MT970148/Klages	53.3	47.5	16.1	85	13	24.8	171.3
MT070161	MT970148/Klages	46.6	47.5	16.6	84	14	25.5	171.3
MT070175	LK644///Hockett F5	50.7	47.0	15.2	79	16	33.1	172.0
MT080081	Coors/Metcalfe	48.4	47.0	17.1	78	18	28.1	172.7
Hays	Hays	41.0	44.0	18.3	38	48	29.7	174.0
MT080179	Metcalfe/MT990106	56.9	47.5	16.6	76	22	34.5	171.3
MT080243	MT960101/MT981210	61.8	46.5	16.9	69	25	32.4	172.7
MT103043	Hays/WCC100	41.7	50.0	18.4	18	43	29.1	171.0
MT080281	MT970148/MT970116	52.1	47.0	16.1	77	18	28.5	172.0
MT080279	MT970148/MT970116	59.9	47.5	16.1	79	16	28.3	171.0
MT080285	MT970148/MT970116	54.4	48.0	14.6	82	14	25.9	171.3
MT100170	Craft/151	28.3	55.5	21.5	49	36	35.3	169.7
MT090001	LK6-44/Excel(29-53)	52.8	45.0	13.3	41	46	31.1	170.0

Table 14 Con't.

Entry	Pedigree	Grain Yield - bu/a -	Test Weight - lbs/bu -	Grain Protein - % -	Plump Kernels - % -	Regular Kernels - % -	Plant Height - inches -	Heading Date - julian -
MT090180	MT910189*/LK644/EslickBC3F33-G	60.3	46.0	15.3	76	20	31.9	174.7
MT090181	MT910189*/LK644/EslickBC3F33-G	50.2	46.0	16.4	75	20	31.6	174.3
MT090182	MT910189*/LK644/EslickBC3F33-G	56.8	46.5	15.2	69	26	26.8	172.3
MT090184	MT910189*/LK644/EslickBC3F33-G	38.1	47.5	15.7	77	19	28.0	176.0
MT090186	MT910189*/LK644/EslickBC3F33-G	50.2	47.0	15.7	67	27	31.0	175.3
MT090190	MT910189*/LK644/EslickBC3F33-G	51.8	45.0	14.7	68	25	31.1	173.3
MT090193	MT910189*/LK644/EslickBC3F33-G	56.7	47.0	16.4	71	24	35.7	173.3
MT100051	GPCBC3F4 rows 155&158/Haxby	64.6	48.5	15.3	72	24	31.6	170.0
MT100060	GPCBC3F4 rows 155&158/Haxby	50.6	49.0	14.7	69	24	32.4	171.0
MT100063	GPCBC3F4 rows 137/Craft	57.0	48.0	14.9	71	24	29.5	171.7
MT100064	GPCBC3F4 rows 137/Craft	49.2	47.5	14.6	72	25	27.7	171.7
MT100070	GPCBC3F4 rows 137/Craft	43.3	48.0	15.8	83	14	32.3	171.7
MT100074	GPCBC3F4rows 137/Craft	53.2	47.5	15.4	72	24	28.5	173.0
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	56.0	48.5	14.1	80	17	29.0	170.3
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	54.9	45.5	15.3	72	20	30.4	174.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	44.5	47.0	15.9	71	25	30.4	172.7
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	57.9	46.5	15.4	75	21	31.2	173.7
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	62.1	47.5	14.6	81	16	28.6	174.0
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	48.2	47.0	16.1	76	20	29.1	175.3
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	43.7	46.0	15.8	68	27	28.3	174.3
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	44.0	46.0	15.8	65	29	28.2	173.7
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	62.2	48.0	14.6	78	17	30.7	173.7
MT103022	Hays/WCC100	54.3	48.0	18.4	79	18	28.2	173.0
Pinnacle	Pinnacle	56.9	47.0	14.3	83	14	31.5	170.7
Scarlett	Scarlett	58.4	46.5	16.5	74	23	24.7	174.7
Tradition	Tradition (B)	47.6	45.0	16.3	72	25	30.8	169.7
Average		51.8	47.4	16.3	69	25	29.7	172.5
PLSD (0.05)		14.0	--	--	--	--	4.2	2.0
CV (S/MEAN)		16.8	--	--	--	--	8.8	2.0
Prob>F (Entries)		<0.001	--	--	--	--	<0.001	<0.001

1/ Protein values are reported on a 12.5% grain moisture basis.

Table 15. Comparison of grain yields¹ for 64 entries tested at six dryland and five irrigated locations in the Montana Statewide Barley Performance Trials conducted during 2012. Sorted from highest to lowest grain yield averaged across all locations.

Entry	Pedigree	Dryland							Irrigated					All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney		Average
Champion	Champion (Baronesse/Camas)	69.4	108.9	47.0	80.8	55.7	40.7	69.4**	115.4	103.8	135.4	125.2	40.8	105.2*	85.7**
MT070161	MT970148/Klages	66.9	94.7	62.0	80.4	47.9	35.6	65.6*	123.6	98.3	134.9	129.5	46.6	107.7*	84.7*
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	65.5	101.9	44.4	68.7	42.7	27.9	62.1	118.7	99.6	138.6	136.1	54.9	110.0*	83.9*
MT020155	MT960225/H1851195	63.8	94.0	55.4	79.9	40.9	46.3	64.8*	116.5	98.0	130.0	121.3	67.7	106.3*	83.7*
MT070158	MT970148/Klages	67.0	113.6	51.4	79.0	42.4	30.8	66.0*	122.8	95.7	127.5	125.0	54.2	105.0*	83.7*
MT090180	MT910189*/LK644/EslickBC3F33-G	63.3	97.8	29.0	71.9	44.8	29.3	59.3	118.1	109.3	134.9	136.2	60.3	111.7*	83.1*
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	59.7	102.1	43.4	56.4	49.3	30.1	59.2	124.8	108.6	135.1	131.2	62.1	111.7*	83.1*
MT090193	MT910189*/LK644/EslickBC3F33-G	62.0	113.6	38.5	67.5	45.5	30.8	61.4	109.9	107.1	131.0	139.5	56.7	108.8*	82.9*
MT103022	Hays/WCC100	62.3	97.7	43.5	79.8	44.1	39.0	63.6*	128.1	98.7	126.0	120.2	54.3	106.1*	82.9*
MT090190	MT910189*/LK644/EslickBC3F33-G	60.4	94.0	34.5	71.5	44.3	29.8	57.9	126.1	104.9	134.7	141.5	51.8	112.6**	82.8*
MT100051	GPCBC3F4 rows 155&158/Haxby	67.0	99.5	36.0	85.2	41.8	31.4	61.4	118.7	95.3	138.1	125.1	64.6	107.7*	82.4*
MT070159	MT970148/Klages	66.4	97.4	48.8	77.8	41.6	38.0	66.7*	119.3	99.9	109.1	120.5	53.3	101.3	82.4*
MT061035	Baronesse/MT981210	70.6	105.1	47.2	79.7	37.5	34.7	64.5*	104.9	104.7	127.3	128.0	53.2	103.6*	82.3*
Conrad	Conrad	63.7	93.9	43.8	75.3	44.0	40.0	62.3	111.5	105.0	136.8	122.6	52.8	105.9*	82.1*
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	62.9	105.2	45.1	71.9	40.8	27.7	60.7	108.1	116.3	141.1	125.1	43.7	107.7*	82.0*
MT080281	MT970148/MT970116	66.4	98.6	42.0	77.9	42.4	37.1	63.2*	117.5	97.3	128.5	124.4	52.1	104.5*	82.0*
MT090182	MT910189*/LK644/EslickBC3F33-G	66.9	98.2	42.0	65.0	44.4	28.5	59.2	125.2	103.2	132.2	129.4	56.8	108.6*	81.7*
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	57.4	100.5	37.9	70.7	45.9	28.8	57.8	112.9	108.8	135.4	140.8	57.9	109.9*	81.4*
MT080279	MT970148/MT970116	68.0	95.4	44.2	75.7	43.1	35.7	63.1*	115.8	92.4	124.0	125.8	59.9	103.0	81.3*
MT070125	MT981210/MT970116	60.2	91.1	49.5	74.7	42.2	38.3	61.6	112.4	106.5	128.3	119.3	56.1	104.7*	81.2*
Eslick	Eslick	58.9	97.4	30.9	70.4	35.4	38.1	58.8	112.7	105.0	136.7	121.8	69.1	108.0*	81.1*
MT100060	GPCBC3F4 rows 155&158/Haxby	65.8	95.7	35.1	84.4	44.0	33.2	59.9	114.8	99.5	136.2	132.9	50.6	106.6*	81.1*
Expedition	Expedition	58.3	97.2	39.9	80.9	44.9	34.6	61.6	106.9	106.6	136.9	111.6	65.9	104.0*	80.9*
MT080285	MT970148/MT970116	64.6	95.8	44.4	72.7	40.6	40.4	62.1	116.9	99.2	117.2	127.4	54.4	103.5*	80.9*
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	63.3	101.7	39.3	64.8	43.0	32.2	59.0	114.2	109.2	127.3	133.5	44.5	106.9*	80.8*
MT090181	MT910189*/LK644/EslickBC3F33-G	63.4	99.8	41.9	61.7	48.0	27.3	59.1	114.9	102.8	133.4	133.1	50.2	106.6*	80.7*
MT080243	MT960101/MT981210	64.4	95.3	44.4	73.6	47.2	40.1	62.8*	105.1	101.1	122.2	121.8	61.8	102.1	80.7*
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	62.4	97.8	41.0	67.6	42.2	28.7	57.6	119.3	104.6	123.2	131.5	62.2	108.1*	80.5*
MT100070	GPCBC3F4 rows 137/Craft	62.7	96.5	40.0	77.1	44.4	30.9	60.7	116.1	95.8	134.1	128.5	43.3	103.8*	80.3*
MT100063	GPCBC3F4 rows 137/Craft	68.2	93.3	35.2	73.6	43.0	36.5	61.1	105.6	99.0	137.2	117.0	57.0	103.3*	80.3*
MT070086	MT970148/Coors37	65.7	98.3	42.0	73.9	44.4	36.2	62.9*	115.3	99.9	116.1	112.4	62.5	101.0	80.2*
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	61.4	94.7	44.7	66.2	49.6	28.8	59.2	114.6	97.9	129.0	131.9	44.0	104.3*	79.7*
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	60.8	99.5	27.1	63.5	44.3	29.2	55.6	111.4	104.1	132.7	143.4	48.2	108.5*	79.6
MT090186	MT910189*/LK644/EslickBC3F33-G	66.0	100.3	37.9	60.7	42.2	29.1	57.7	114.3	108.1	128.3	130.2	50.2	106.0*	79.6
MT070175	LK644///Hockett F5	58.2	95.6	49.5	68.4	41.7	25.7	58.3	121.0	98.3	139.4	119.4	50.7	104.9*	79.5
MT090184	MT910189*/LK644/EslickBC3F33-G	60.2	95.1	34.7	64.5	45.1	30.2	57.1	116.9	109.0	127.3	135.0	38.1	106.1*	79.4
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	65.5	92.1	41.4	73.7	40.1	33.5	60.5	113.6	102.7	119.1	118.6	56.0	101.9	79.3
MT061169	MT960101/Coors 37	66.5	93.0	44.1	67.3	38.5	39.7	59.3	120.1	92.6	120.2	121.7	56.3	102.7	79.0

Table 15 Con't.

Entry	Pedigree	Dryland							Irrigated						All Locations
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney	Average	
bu/a															
Haxby	Haxby	61.5	94.5	25.1	82.5	44.4	38.6	60.6	111.9	96.9	130.2	111.8	58.1	101.1	79.0
Craft	Craft	62.7	85.4	31.4	78.8	44.1	33.8	58.2	118.1	97.1	132.5	121.0	49.6	103.4*	78.7
EM090061	04064-048	60.2	96.8	45.3	77.2	29.8	34.5	59.1	113.1	106.3	131.4	120.6	34.2	102.2	78.7
EM090105	05032-068	69.8	91.0	43.4	73.3	41.1	38.8	61.5	100.3	97.4	118.0	119.1	59.0	99.4	78.7
MT070111	MT010178/Harrington	64.6	86.5	41.3	59.9	44.1	36.8	59.0	116.8	93.2	119.5	133.4	50.3	102.0	78.6
MT010160	MT920041/Harrington	62.2	83.2	33.3	71.7	41.4	31.9	58.0	114.7	100.0	116.4	118.2	58.2	102.1	78.0
MT100074	GPCBC3F4rows 137/Craft	62.9	90.4	38.0	68.7	46.0	36.7	59.5	114.6	95.7	119.6	118.9	53.2	100.3	78.0
EM090081	05037-079	65.1	97.5	38.5	63.7	43.9	28.5	58.5	100.3	104.3	106.2	136.1	52.3	99.3	77.0
MT960101	Geraldine	65.5	78.9	33.8	69.2	40.2	33.1	55.7	107.9	100.9	129.9	123.6	45.0	102.4	76.9
Tradition	Tradition	49.8	86.7	47.3	73.0	39.7	37.6	58.8	108.4	94.0	123.1	116.3	47.6	98.6	76.9
Hockett	Hockett	62.0	89.0	54.4	71.4	39.2	31.5	59.6	107.8	92.8	116.6	115.5	60.2	97.6	76.9
Scarlett	Scarlett	57.4	94.5	41.2	72.3	44.4	38.5	60.3	102.2	92.9	110.9	120.7	58.4	96.7	76.9
MT080081	Coors/Metcalfe	61.2	94.9	34.3	72.0	38.9	30.7	57.4	105.4	90.7	132.9	115.3	48.4	98.2	75.9
MT100064	GPCBC3F4 rows 137/Craft	54.8	98.5	33.1	67.2	45.8	35.2	58.0	101.2	100.7	118.1	111.6	49.2	96.9	75.7
MT080179	Metcalfe/MT990106	54.3	84.2	50.7	75.7	39.0	31.1	57.7	100.8	87.9	121.2	123.9	56.9	96.7	75.4
MT090001	LK6-44/Excel(29-53)	58.3	90.2	31.0	71.2	35.4	33.6	54.3	104.7	95.9	125.2	119.3	52.8	99.3	74.7
Pinnacle	Pinnacle	58.5	88.7	24.6	63.7	40.4	28.0	52.2	100.8	92.8	119.4	124.1	56.9	98.6	73.3
Harrington	Harrington	57.4	90.6	37.7	74.0	34.5	27.4	56.2	113.0	87.7	116.6	98.8	51.8	92.2	72.6
AC Metcalfe	Metcalfe	53.4	96.1	39.5	68.9	36.5	30.2	55.2	110.5	93.6	97.0	118.7	38.2	92.3	72.0
CDC Cowboy	CDC Cowboy	55.0	79.6	27.3	63.5	37.9	17.2	48.7	97.2	85.7	102.7	127.8	32.6	89.3	67.2
Hays	Hays	68.0	85.2	17.1	66.6	39.3	31.5	53.4	96.0	90.0	66.2	99.6	41.0	79.3	65.2
MT010158	MT920041/Harrington	51.7	57.0	16.1	63.9	40.0	24.0	47.3	100.4	88.1	109.1	96.1	42.4	86.3	65.0
MT103015	Haxby/WCC100	52.3	72.1	18.2	66.6	34.6	28.5	47.9	84.6	69.2	97.5	93.3	43.5	77.6	61.4
MT103031	Hays/WCC100	41.3	65.9	19.9	50.4	27.2	23.1	40.7	78.3	78.7	86.5	96.4	38.7	74.9	56.3
MT103043	Hays/WCC100	47.3	62.9	22.4	56.9	30.2	28.7	43.5	67.3	72.8	85.6	89.8	41.7	70.6	55.8
MT100170	Craft/151	48.3	59.8	26.6	50.2	29.4	25.9	42.1	65.7	58.8	72.2	86.3	28.3	63.5	51.9
Average		61.4	92.9	38.6	70.7	41.7	32.7	58.5	110.1	97.7	122.6	121.8	51.8	100.8	77.7
PLSD (p=0.05)		7.0	14.5	7.6	13.2	8.2	5.8	6.9	12.7	10.3	16.6	11.4	14.0	9.3	6.0
C.V.		6.7	10.0	9.8	10.8	11.4	11.0	10.3	6.9	6.1	7.9	5.5	16.8	7.4	9.3
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001

1/ Based on a 48 pound standard bushel weight.

** Signifies the highest yielding entry within a column.

* Signifies entries yielding equal to the highest yielding entry within a column based on Fischer's Protected LSD at the 0.05 probability level.

Table 16. Comparison of test weight values for 64 entries tested at six dryland and five irrigated locations in the Montana Statewide Barley Performance Trials conducted during 2012. Sorted from heaviest to lightest test weight averaged across all locations.

Entry	Pedigree	Dryland							Irrigated					All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney		Average
MT103015	Haxby/WCC100	62.7	60.2	55.3	60.6	60.8	58.0	59.7**	62.0	60.1	63.0	46.7	55.5	57.5*	58.7**
MT100170	Craft/151	59.6	60.2	55.9	57.9	59.6	58.0	58.4*	61.2	59.4	59.1	57.8	55.5	58.6**	58.5*
MT103031	Hays/WCC100	57.4	60.1	55.9	56.5	58.3	54.5	56.8	58.1	59.0	60.7	53.9	52.5	56.8	56.8
MT100051	GPCBC3F4 rows 155&158/Haxby	54.9	53.9	47.2	49.0	52.7	50.0	51.3	54.6	53.1	55.4	52.4	48.5	52.8	52.0
Haxby	Haxby	54.4	54.2	43.2	49.5	52.1	49.5	50.6	55.2	53.7	55.7	52.6	49.0	53.2	51.8
MT100060	GPCBC3F4 rows 155&158/Haxby	54.4	54.2	46.4	48.5	52.5	49.0	50.7	54.1	52.6	55.3	52.6	49.0	52.7	51.6
Craft	Craft	53.8	53.1	43.9	48.6	52.2	45.0	49.5	54.8	53.7	55.6	51.8	48.0	52.8	51.0
MT090184	MT910189*/LK644/EslickBC3F33-G	53.1	52.8	45.0	46.0	51.7	47.5	49.5	54.0	53.2	55.7	52.4	47.5	52.6	50.9
MT100070	GPCBC3F4 rows 137/Craft	52.7	53.2	44.9	48.2	52.2	48.5	50.0	53.6	52.4	54.8	50.5	48.0	51.9	50.9
Champion	Champion (Baronesse/Camas)	53.4	52.9	47.5	48.5	52.4	47.5	50.2	53.9	52.7	55.4	50.1	47.0	51.8	50.9
MT100063	GPCBC3F4 rows 137/Craft	53.2	53.1	43.8	48.5	51.1	45.5	49.3	54.1	52.7	55.5	52.2	48.0	52.5	50.8
MT090186	MT910189*/LK644/EslickBC3F33-G	53.8	52.0	43.4	46.3	52.4	47.5	49.4	54.0	53.1	55.1	52.2	47.0	52.3	50.7
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	52.3	52.4	45.6	46.4	52.1	48.0	49.4	53.6	53.0	55.0	52.9	47.0	52.3	50.7
MT103043	Hays/WCC100	54.0	52.5	43.0	48.5	51.0	50.0	49.7	54.5	50.3	56.2	49.0	50.0	52.0	50.7
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	53.0	52.8	46.1	47.7	50.9	48.0	49.8	54.0	52.4	54.2	50.2	48.5	51.9	50.7
MT100074	GPCBC3F4 rows 137/Craft	52.1	52.8	44.3	46.0	51.2	49.0	49.3	53.5	53.5	54.7	51.8	47.5	52.2	50.6
MT100064	GPCBC3F4 rows 137/Craft	52.3	52.9	43.3	46.1	52.8	48.0	49.2	53.8	53.2	55.0	51.7	47.5	52.2	50.6
MT070125	MT981210/MT970116	51.8	52.5	45.1	47.3	51.5	48.0	49.3	53.9	52.2	55.1	51.0	47.5	51.9	50.5
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	53.2	51.3	44.6	44.8	49.9	47.5	48.7	53.8	52.7	55.2	52.7	47.5	52.4	50.4
MT080179	Metcalfe/MT990106	52.5	52.3	45.3	47.2	50.4	45.0	48.8	54.0	51.6	55.0	53.4	47.5	52.3	50.4
MT090190	MT910189*/LK644/EslickBC3F33-G	52.6	51.9	44.4	46.8	51.2	47.5	49.1	53.7	52.5	55.2	53.1	45.0	51.9	50.4
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	53.6	52.5	43.2	45.2	51.9	47.0	49.2	53.7	52.8	54.7	52.2	45.5	51.8	50.4
Hockett	Hockett	53.0	52.5	46.2	46.4	50.1	47.0	49.2	54.3	51.3	53.7	50.9	48.0	51.6	50.3
MT090181	MT910189*/LK644/EslickBC3F33-G	53.1	50.9	44.9	45.5	51.8	48.0	48.8	53.9	52.1	55.3	52.6	46.0	52.0	50.2
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	52.3	51.7	42.7	45.8	51.2	46.5	48.6	53.7	52.0	55.0	52.1	47.0	52.0	50.1
MT070175	LK644///Hockett F5	51.9	51.2	45.4	44.2	50.1	49.0	48.5	53.4	51.9	54.5	53.0	47.0	52.0	50.1
MT070161	MT970148/Klages	52.5	52.1	46.6	47.3	50.9	44.0	48.7	53.9	51.4	54.7	51.5	47.5	51.8	50.1
MT010160	MT920041/Harrington	51.9	51.8	44.4	46.2	49.8	45.0	48.2	54.0	52.0	54.4	52.4	47.5	52.1	50.0
MT090193	MT910189*/LK644/EslickBC3F33-G	52.2	50.8	44.9	45.4	52.5	45.5	48.4	53.4	52.4	54.6	51.9	47.0	51.9	50.0
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	52.3	51.1	45.1	46.3	51.4	45.5	48.6	53.2	51.5	54.3	52.5	46.5	51.6	50.0
MT070111	MT010178/Harrington	52.1	52.0	44.6	45.4	51.0	46.5	48.7	52.9	50.8	54.1	52.2	47.0	51.4	50.0
MT070158	MT970148/Klages	51.9	52.3	47.4	47.2	49.8	43.5	48.4	53.8	52.3	54.3	51.6	47.0	51.8	49.9
MT020155	MT960225/H1851195	51.3	51.5	46.0	45.4	48.9	47.5	48.5	54.5	51.9	53.5	51.2	47.0	51.6	49.9
Pinnacle	Pinnacle	53.5	52.3	41.7	46.7	49.5	45.0	48.4	53.7	51.9	54.9	50.6	47.0	51.6	49.9
MT010158	MT920041/Harrington	51.9	51.0	44.9	45.8	52.9	46.0	48.6	53.5	52.8	54.0	51.1	46.0	51.5	49.9
CDC Cowboy	CDC Cowboy	51.8	51.5	46.2	47.1	50.4	45.0	48.7	53.3	51.9	53.7	49.9	48.0	51.4	49.9
Scarlett	Scarlett	51.0	51.5	46.0	47.4	52.1	46.5	49.0	52.8	50.0	53.8	51.3	46.5	50.9	49.9
Expedition	Expedition	52.2	50.2	46.4	46.2	51.2	49.0	49.2	51.6	50.4	54.0	51.2	46.5	50.7	49.9

Table 16 Con't.

Entry	Pedigree	Dryland							Irrigated						All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney	Average		
----- lbs/bu -----																
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	51.9	51.7	42.7	45.8	50.9	44.5	48.0	53.6	52.0	54.5	52.0	48.0	52.0	49.8	
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	52.0	52.7	45.0	46.8	49.9	43.5	48.2	53.8	52.7	55.1	50.9	46.0	51.7	49.8	
Eslick	Eslick	51.2	52.2	44.2	46.6	50.7	46.0	48.5	53.1	51.9	54.8	50.2	47.0	51.4	49.8	
MT090180	MT910189*/LK644/EslickBC3F33-G	53.0	51.0	45.2	46.1	50.7	45.5	48.4	52.9	51.4	54.6	51.9	46.0	51.4	49.8	
MT090182	MT910189*/LK644/EslickBC3F33-G	52.6	52.7	42.9	46.5	50.2	43.0	48.1	54.1	53.1	54.5	49.9	46.5	51.6	49.7	
MT103022	Hays/WCC100	51.0	51.6	44.8	46.5	49.9	45.5	48.2	52.7	51.5	54.2	51.3	48.0	51.5	49.7	
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	52.6	50.7	43.1	45.9	51.6	45.5	48.4	53.2	51.2	54.5	51.5	46.0	51.3	49.7	
EM090061	04064-048	52.8	49.6	45.3	46.8	51.6	47.0	48.8	53.1	49.9	53.7	51.1	45.0	50.6	49.6	
MT080285	MT970148/MT970116	50.5	51.3	41.4	44.6	48.6	49.0	47.8	53.4	51.4	53.0	52.1	48.0	51.6	49.5	
MT080243	MT960101/MT981210	51.7	52.5	42.7	46.1	48.9	47.0	48.2	53.7	51.9	52.7	51.0	46.5	51.2	49.5	
AC Metcalfe	Metcalfe	51.8	51.0	43.8	44.6	46.4	48.5	47.7	53.9	50.5	53.9	52.3	46.5	51.4	49.4	
Conrad	Conrad	51.6	50.7	44.7	46.2	50.2	46.0	48.1	53.1	51.3	53.6	51.2	46.0	51.0	49.4	
MT070159	MT970148/Klages	50.6	51.9	44.3	44.9	49.3	44.0	47.6	53.7	51.1	53.6	51.5	47.5	51.5	49.3	
MT960101	Geraldine	50.8	52.2	41.1	44.6	49.3	46.0	47.5	53.0	52.0	54.1	52.1	46.5	51.5	49.3	
MT080281	MT970148/MT970116	51.1	51.4	45.7	45.0	48.9	45.0	47.6	53.9	51.1	53.5	51.6	47.0	51.4	49.3	
MT080279	MT970148/MT970116	51.7	52.1	44.7	44.7	47.1	46.5	47.7	53.5	51.0	52.9	50.9	47.5	51.2	49.3	
EM090081	05037-079	52.5	50.6	42.8	45.8	51.3	46.0	48.2	51.7	51.5	52.4	51.2	46.5	50.7	49.3	
MT061169	MT960101/Coors 37	51.4	51.5	42.5	44.7	49.2	44.5	47.3	53.3	49.9	53.6	52.3	47.0	51.2	49.1	
MT061035	Baronesse/MT981210	52.0	51.2	42.8	44.9	48.1	46.0	47.4	53.0	50.8	52.5	50.7	47.0	50.8	48.9	
EM090105	05032-068	51.0	51.2	44.1	44.7	48.5	43.5	47.0	52.1	50.7	53.4	51.0	47.5	50.9	48.8	
Tradition	Tradition	51.7	49.2	45.0	46.6	49.9	45.5	48.0	52.1	48.3	54.0	48.2	45.0	49.5	48.7	
Harrington	Harrington	51.0	49.9	42.1	46.8	49.1	43.0	47.0	53.9	50.0	51.6	49.6	47.0	50.4	48.6	
MT070086	MT970148/Coors37	51.0	49.2	42.7	43.0	45.8	44.0	45.9	52.0	49.6	53.0	50.6	48.5	50.7	48.1	
MT080081	Coors/Metcalfe	52.1	49.0	40.9	43.5	49.1	43.0	46.5	51.6	48.6	52.5	50.5	47.0	50.0	48.1	
MT090001	LK6-44/Excel(29-53)	50.8	48.2	45.3	46.4	49.5	44.5	47.1	49.7	46.3	51.6	49.4	45.0	48.4	47.7	
Hays	Hays	50.5	49.0	38.9	41.5	44.8	43.0	44.8	51.2	46.9	49.3	47.7	44.0	47.8	46.2	
Average		52.6	52.1	44.8	46.7	50.8	46.8	49.0	53.7	51.9	54.5	51.4	47.4	51.8	50.3	
PLSD (p=0.05)		1.3	1.2	2.9	2.6	2.4	--	1.3	0.9	1.0	1.2	--	--	1.4	1.0	
C.V.		1.5	1.6	3.3	3.2	2.8	--	2.3	1.0	1.2	1.3	--	--	2.2	2.4	
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.05	<0.001	--	<0.001	<0.001	<0.001	<0.05	--	--	<0.001	<0.001	

** Signifies the entry with the heaviest test weight average within a column.

* Signifies entries with test weights equal to the entry with the heaviest test weight within a column based on Fischer's Protected LSD at the 0.05 probability level.

Table 17. Comparison of grain protein values^{1/} for 64 entries tested at six dryland and five irrigated locations in the Montana Statewide Barley Performance Trials during 2012. Sorted by increasing protein content averaged across all locations.

Entry	Pedigree	Dryland						Irrigated						All Locations
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney	
EM090061	04064-048	15.0	9.8	16.2		16.7	12.2	13.6	13.0	9.3		14.3	17.2	13.3
EM090105	05032-068	14.6	8.2	16.8		15.6	13.3	13.3	12.7	8.7		14.3	15.8	12.8
EM090081	05037-079	14.8	9.0	17.2		15.7	13.7	13.7	13.7	8.9		14.6	17.7	13.5
MT103015	Haxby/WCC100	14.0	9.4	15.7		15.2	11.6	12.9	12.8	10.1		14.5	16.4	13.9
MT103031	Hays/WCC100	17.5	10.4	18.0		17.6	14.0	15.3	14.9	11.9		16.2	18.2	14.5
CDC Cowboy	CDC Cowboy	15.7	9.7	16.2		16.7	13.2	14.1	13.9	10.3		14.3	17.3	13.6
Champion	Champion (Baronesse/Camas)	14.2	9.5	15.1		14.0	12.3	13.0	12.6	9.4		14.0	17.4	13.2
Conrad	Conrad	16.0	8.9	16.8		16.1	13.7	13.9	14.2	9.5		15.2	18.3	13.3
Eslick	Eslick	15.0	8.4	16.8		17.1	13.8	13.5	12.8	8.5		13.7	16.8	12.5
Expedition	Expedition	14.3	9.0	16.0		14.9	12.5	13.0	12.6	8.5		13.9	16.1	12.3
MT960101	Geraldine	15.4	7.9	17.8		16.4	13.6	13.5	13.1	8.4		14.1	17.6	12.8
Harrington	Harrington	14.8	9.0	16.2		16.1	14.0	13.5	12.6	9.1		14.2	16.5	13.1
Haxby	Haxby	14.7	8.9	15.6		14.9	12.0	13.0	12.8	9.2		15.4	16.5	13.0
Hockett	Hockett	14.5	9.1	14.7		15.0	11.9	12.9	12.7	9.2		14.7	15.8	12.9
AC Metcalfe	Metcalfe	15.4	9.2	17.1		16.6	12.5	13.9	13.1	9.7		14.8	17.7	14.0
MT010158	MT920041/Harrington	15.3	11.6	17.9		16.5	15.3	14.7	13.7	11.2		14.6	17.3	13.8
MT010160	MT920041/Harrington	14.8	8.5	16.2		15.7	12.8	12.9	13.0	10.0		14.6	15.1	12.9
MT020155	MT960225/H1851195	15.0	9.3	14.9		15.3	12.3	12.9	13.1	9.5		14.4	16.5	13.0
Craft	Craft	15.0	8.9	16.0		14.7	13.1	13.5	13.0	9.4		14.7	17.1	13.2
MT061035	Baronesse/MT981210	14.7	8.4	16.4		16.7	14.3	13.1	12.7	8.9		14.0	17.7	13.1
MT061169	MT960101/Coors 37	14.7	9.1	16.3		16.3	15.2	13.5	13.7	9.0		14.0	17.5	13.1
MT070086	MT970148/Coors37	14.1	8.6	16.1		15.2	13.6	13.0	11.8	8.7		13.9	15.7	11.9
MT070111	MT010178/Harrington	15.0	8.4	17.1		15.8	13.1	13.3	12.8	8.2		13.9	18.2	13.0
MT070125	MT981210/MT970116	14.5	9.1	15.9		15.6	12.9	13.1	12.9	9.0		14.8	17.8	12.5
MT070158	MT970148/Klages	14.2	8.6	14.9		15.2	13.4	13.0	12.5	8.8		13.5	16.6	12.4
MT070159	MT970148/Klages	14.5	8.8	15.2		15.5	12.0	12.8	12.4	9.3		13.7	16.1	12.8
MT070161	MT970148/Klages	14.5	8.8	15.3		15.1	12.7	13.0	12.4	8.8		13.5	16.6	12.8
MT070175	LK644//Hockett F5	13.4	8.2	14.8		14.5	12.5	12.2	11.6	8.6		12.8	15.2	11.9
MT080081	Coors/Metcalfe	14.7	8.6	17.1		16.1	13.5	13.5	12.7	9.3		15.4	17.1	13.2
Hays	Hays	14.9	8.5	16.9		17.2	12.5	13.6	13.0	9.2		14.8	18.3	12.8
MT080179	Metcalfe/MT990106	16.3	8.5	17.0		16.8	13.4	14.0	13.0	9.2		14.6	16.6	13.6
MT080243	MT960101/MT981210	15.2	8.8	16.3		15.1	12.6	13.3	13.0	9.1		15.2	16.9	13.1
MT103043	Hays/WCC100	15.9	9.8	17.5		18.0	14.0	14.4	13.9	10.8		16.2	18.4	14.0
MT080281	MT970148/MT970116	14.3	8.6	15.6		15.4	12.5	12.9	12.3	9.0		13.6	16.1	13.1
MT080279	MT970148/MT970116	14.3	8.3	15.3		15.8	11.8	12.7	12.4	9.0		13.7	16.1	12.6
MT080285	MT970148/MT970116	14.3	9.1	16.1		15.4	12.7	13.1	12.4	9.2		14.0	14.6	12.5
MT100170	Craft/151	19.3	12.1	19.2		18.9	16.6	16.9	17.9	12.6		17.9	21.5	16.3
MT090001	LK6-44/Excel(29-53)	12.3	7.6	13.7		13.4	10.3	11.1	10.6	7.5		12.4	13.3	11.1

Table 17 Con't.

Entry	Pedigree	Dryland						Irrigated						All Locations
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney	
MT090180	MT910189*/LK644/EslickBC3F33-G	12.9	7.9	15.5		14.6	12.4	12.0	11.4	8.0		13.4	15.3	11.7
MT090181	MT910189*/LK644/EslickBC3F33-G	12.8	8.3	15.3		14.2	12.1	12.3	11.5	8.2		12.9	16.4	11.9
MT090182	MT910189*/LK644/EslickBC3F33-G	13.3	8.1	15.4		14.6	11.6	12.3	11.3	8.3		13.0	15.2	12.0
MT090184	MT910189*/LK644/EslickBC3F33-G	12.9	8.0	14.8		14.5	11.8	11.9	11.3	8.1		12.9	15.7	12.0
MT090186	MT910189*/LK644/EslickBC3F33-G	12.6	8.7	15.2		14.6	11.6	12.1	11.2	8.7		13.2	15.7	12.1
MT090190	MT910189*/LK644/EslickBC3F33-G	12.9	7.6	15.3		15.0	12.1	12.0	11.5	8.1		12.7	14.7	12.2
MT090193	MT910189*/LK644/EslickBC3F33-G	13.4	8.3	15.2		14.4	13.2	12.3	11.7	8.6		13.5	16.4	12.1
MT100051	GPCBC3F4 rows 155&158/Haxby	13.0	9.2	14.7		13.5	11.9	12.1	11.4	8.3		14.0	15.3	11.9
MT100060	GPCBC3F4 rows 155&158/Haxby	13.0	9.1	15.1		14.1	11.4	12.4	11.0	8.5		13.3	14.7	11.6
MT100063	GPCBC3F4 rows 137/Craft	12.7	8.1	14.5		13.6	11.8	11.8	11.0	8.4		13.4	14.9	11.7
MT100064	GPCBC3F4 rows 137/Craft	12.9	8.3	14.6		13.6	10.9	11.9	11.0	8.4		12.4	14.6	11.3
MT100070	GPCBC3F4 rows 137/Craft	13.1	8.2	14.9		14.0	11.1	12.1	11.1	8.9		13.5	15.8	11.9
MT100074	GPCBC3F4rows 137/Craft	12.9	8.8	14.7		14.3	11.5	12.1	11.7	8.8		13.3	15.4	12.0
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	12.1	8.0	14.0		14.3	11.3	11.3	10.8	9.1		12.7	14.1	11.6
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	12.9	8.1	15.4		14.5	12.9	12.2	11.6	8.4		12.6	15.3	12.1
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	13.0	8.3	15.4		14.5	11.0	12.1	11.4	8.2		14.1	15.9	11.7
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	13.1	8.3	14.9		14.8	12.8	12.3	11.5	8.8		13.0	15.4	12.1
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	13.0	8.2	15.0		14.2	12.4	12.0	11.3	7.9		13.5	14.6	11.5
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	13.1	8.6	15.4		14.6	12.5	12.3	11.2	8.0		12.9	16.1	12.1
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	13.5	8.4	15.8		15.5	11.3	12.7	12.1	9.1		13.1	15.8	12.2
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	13.1	7.8	15.7		14.6	12.4	12.2	11.5	8.1		13.2	15.8	11.8
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	13.2	8.0	15.1		15.0	12.9	12.3	11.5	8.6		13.3	14.6	11.9
MT103022	Hays/WCC100	15.8	9.8	16.1		16.3	14.3	13.9	14.1	8.4		15.0	18.4	13.3
Pinnacle	Pinnacle	13.2	7.9	16.1		14.8	12.7	12.3	11.2	8.3		12.9	14.3	11.5
Scarlett	Scarlett	14.6	8.9	16.5		15.7	13.3	13.2	13.5	9.3		14.4	16.5	13.6
Tradition	Tradition	14.8	9.1	15.1		14.6	11.4	12.8	13.0	9.6		14.7	16.3	13.0
Average		14.2	8.8	15.8		15.3	12.7	12.9	12.4	9.0		14.0	16.3	12.7
PLSD (p=0.05)		0.6	--	1.1		1.0	--	0.7	0.5	--		--	--	1.1
C.V.		2.5	--	3.6		4.0	--	4.0	2.4	--		--	--	6.4
Prob>F (Entries)		<0.001	--	<0.001		<0.001	--	<0.001	<0.001	--		--	--	<0.001

1/ Grain protein values adjusted to a 100 percent dry matter basis except for the Sidney location. Grain protein values obtained at Sidney are adjusted to a 12.5 percent moisture

Table 18. Comparison of plump kernel values^{1/} for 64 entries tested at six dryland and five irrigated locations in the Montana Statewide Barley Performance Trials conducted during 2012. Sorted from highest to lowest plump kernel content averaged across all locations.

Entry	Pedigree	Dryland							Irrigated					All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney		Average
Pinnacle	Pinnacle	75.2	98.3	27.1	65.0	56.7	65.0	64.6**	92.8	98.8	94.3	94.5	83.0	92.6**	77.3**
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	66.2	95.6	55.1	48.9	44.5	60.0	61.7*	87.2	96.1	94.7	95.5	76.0	89.7*	74.4*
MT070175	LK644//Hockett F5	66.7	95.5	59.7	43.1	27.9	76.0	61.5*	88.7	96.5	92.1	90.5	79.0	89.5*	74.2*
MT090181	MT910189*/LK644/EslickBC3F33-G	68.7	96.8	55.4	35.2	36.9	68.0	60.2*	88.8	97.0	95.4	93.0	75.0	89.6*	73.5*
MT070161	MT970148/Klages	71.5	96.7	59.6	51.8	30.8	35.0	57.6*	92.6	96.9	92.6	94.0	84.0	91.8*	73.1*
CDC Cowboy	CDC Cowboy	63.0	97.2	68.9	59.0	34.8	31.0	59.0*	88.6	98.4	86.4	98.0	74.0	89.0*	72.6*
MT100070	GPCBC3F4 rows 137/Craft	67.7	96.5	42.1	49.6	22.3	66.0	57.4*	89.6	96.6	93.2	91.0	83.0	90.4*	72.4*
MT070158	MT970148/Klages	70.5	96.9	63.4	55.9	14.2	39.0	56.6*	92.0	97.1	91.7	93.5	83.0	91.2*	72.3*
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	60.5	96.1	52.5	51.5	26.4	64.0	58.5*	79.0	96.3	95.1	92.5	75.0	87.7*	71.8*
EM090061	04064-048	71.7	96.7	22.9	58.0	17.4	74.0	56.8*	92.3	97.7	93.5	95.0	67.0	89.5*	71.6*
MT080179	Metcalfe/MT990106	76.5	96.5	52.1	51.7	13.7	42.0	55.4*	91.1	96.1	95.8	94.0	76.0	90.5*	71.4*
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	63.9	97.4	34.7	50.6	27.7	66.0	56.7*	85.4	97.3	94.4	94.0	72.0	88.3*	71.1*
AC Metcalfe	Metcalfe	61.0	95.8	52.8	41.7	7.6	80.0	56.5*	86.9	95.6	90.4	91.0	67.0	86.3*	70.0
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	71.1	96.9	32.1	43.7	12.8	61.0	52.9	89.7	96.2	95.8	94.5	71.0	89.5*	69.6
MT090190	MT910189*/LK644/EslickBC3F33-G	57.6	96.3	47.9	47.0	14.9	60.0	54.0*	86.6	96.8	95.7	93.0	68.0	87.9*	69.4
Conrad	Conrad	53.0	97.0	60.2	51.3	4.0	47.0	52.1	89.4	97.1	93.0	90.5	74.0	89.1*	68.9
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	67.2	96.2	40.9	34.8	16.1	62.0	52.9	89.1	96.1	90.8	82.5	80.0	87.8*	68.7
MT070159	MT970148/Klages	61.4	96.5	52.6	34.4	14.1	46.0	50.8	86.3	95.9	88.1	93.5	85.0	89.7*	68.5
MT103022	Hays/WCC100	50.3	97.3	45.9	54.9	12.8	51.0	52.0	83.5	97.6	87.8	92.0	79.0	88.1*	68.4
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	62.6	94.6	47.6	42.0	26.7	43.0	52.8	88.0	94.4	95.5	91.5	65.0	86.8*	68.2
MT070086	MT970148/Coors37	56.3	92.4	52.0	42.1	19.3	39.0	50.2	83.8	93.8	90.3	87.5	85.0	88.4*	67.6
MT090193	MT910189*/LK644/EslickBC3F33-G	60.1	95.8	53.5	28.7	12.5	54.0	50.8	84.3	95.5	93.3	93.0	71.0	87.7*	67.6
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	60.2	96.2	47.7	26.6	29.3	59.0	53.2	56.4	96.5	97.3	93.0	81.0	84.9	67.6
Hockett	Hockett	70.9	96.6	36.3	33.5	16.1	64.0	52.9	91.0	96.3	85.0	77.5	75.0	85.0	67.5
MT090180	MT910189*/LK644/EslickBC3F33-G	63.0	95.8	43.9	45.5	12.1	37.0	49.5	85.2	94.8	94.7	93.0	76.0	88.6*	67.3
Harrington	Harrington	45.4	94.3	42.8	54.6	26.8	48.0	52.0	87.4	94.7	82.2	85.0	72.0	84.5	66.8
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	61.7	94.7	28.1	42.2	20.0	42.0	48.1	86.7	95.9	92.1	91.0	78.0	88.7*	66.6
MT010158	MT920041/Harrington	39.6	96.8	37.4	40.4	45.9	47.0	51.2	80.9	98.1	91.2	86.5	65.0	84.6	66.4
Craft	Craft	68.9	95.3	29.3	53.7	13.8	20.0	46.8	90.9	96.5	96.0	81.5	81.0	89.1*	66.1
MT090184	MT910189*/LK644/EslickBC3F33-G	59.1	96.1	39.4	35.1	12.1	61.0	50.5	84.7	97.5	72.8	92.0	77.0	84.9	66.1
MT070125	MT981210/MT970116	54.0	96.8	38.6	35.3	13.2	54.0	48.7	87.2	97.0	94.2	87.5	67.0	86.6*	65.9
EM090105	05032-068	43.1	96.6	42.3	41.8	16.6	48.0	48.1	82.6	95.0	90.1	91.0	75.0	86.5*	65.6
MT080281	MT970148/MT970116	62.6	93.1	39.8	33.5	9.5	43.0	46.9	87.3	95.8	88.9	89.0	77.0	87.5*	65.4
Scarlett	Scarlett	40.4	97.1	37.9	40.7	6.7	53.0	46.0	83.0	97.0	90.9	96.0	74.0	88.2*	65.1
MT080279	MT970148/MT970116	65.1	94.8	24.8	31.0	13.7	50.0	46.6	84.4	95.4	86.8	90.0	79.0	87.2*	65.0
MT090186	MT910189*/LK644/EslickBC3F33-G	62.1	97.5	18.4	35.0	8.5	56.0	46.2	86.3	97.3	93.0	90.5	67.0	87.0*	64.8
Champion	Champion (Baronesse/Camas)	52.4	94.0	32.5	33.4	27.1	34.0	45.6	87.4	97.8	95.6	94.5	58.0	87.1*	64.4
MT080285	MT970148/MT970116	61.6	95.1	22.8	31.6	15.0	29.0	42.5	86.8	94.5	89.5	90.5	82.0	89.0*	63.6
MT090182	MT910189*/LK644/EslickBC3F33-G	61.1	95.2	36.3	39.7	8.1	23.0	43.9	86.9	95.6	93.3	91.5	69.0	87.1*	63.5
MT100060	GPCBC3F4 rows 155&158/Haxby	45.4	97.4	25.3	26.8	14.3	57.0	44.4	81.7	96.0	93.3	91.0	69.0	86.4*	63.5
MT020155	MT960225/H1851195	52.5	95.8	38.7	37.7	3.8	51.0	46.6	82.8	94.4	86.2	83.0	71.0	83.7	63.4

Table 18 Con't.

Entry	Pedigree	Dryland							Irrigated					All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney		Average
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	54.5	95.3	26.0	43.5	14.6	28.0	43.6	84.6	96.5	94.8	92.0	68.0	86.9*	63.3
MT080081	Coors/Metcalf	53.6	94.2	31.3	33.2	17.7	31.0	43.5	76.4	91.7	90.8	90.5	78.0	85.6	62.7
MT070111	MT010178/Harrington	64.2	89.9	29.0	20.0	12.2	52.0	44.6	80.7	92.1	87.0	91.5	68.0	83.8	62.4
MT010160	MT920041/Harrington	41.3	94.8	35.5	37.3	2.7	32.0	40.6	87.4	96.7	89.6	90.5	77.0	88.0*	62.1
MT100074	GPCBC3F4rows 137/Craft	52.4	95.7	12.8	32.7	8.3	65.0	44.5	64.0	96.6	92.7	87.5	72.0	82.9	61.9
Expedition	Expedition	44.0	95.8	47.0	24.3	13.4	62.0	47.7	68.0	95.8	72.5	90.5	67.0	78.7	61.8
MT100064	GPCBC3F4 rows 137/Craft	47.0	94.7	29.4	14.9	15.6	48.0	41.6	85.2	97.5	89.4	83.0	72.0	85.4	61.5
MT061035	Baronesse/MT981210	58.4	93.8	28.1	22.0	6.5	57.0	44.3	81.2	95.4	83.3	86.0	65.0	81.8	61.4
MT061169	MT960101/Coors 37	52.2	94.3	20.6	20.2	20.5	31.0	39.8	80.7	93.6	87.2	93.5	77.0	86.6*	61.1
MT080243	MT960101/MT981210	46.3	93.9	11.8	42.6	15.0	48.0	42.9	83.2	96.0	84.7	83.0	69.0	83.0	61.1
MT100051	GPCBC3F4 rows 155&158/Haxby	54.9	97.2	22.1	22.4	5.3	52.0	42.3	63.7	96.7	93.8	91.0	72.0	83.3	60.9
MT100063	GPCBC3F4 rows 137/Craft	48.3	94.8	24.1	24.4	10.6	28.0	38.4	86.7	96.6	95.0	86.0	71.0	87.1*	60.5
Haxby	Haxby	35.4	92.8	29.6	24.1	2.9	40.0	37.5	71.4	96.4	91.8	90.5	74.0	84.9	59.0
Tradition	Tradition	45.5	94.7	16.4	25.6	4.9	46.0	38.9	81.3	95.9	93.5	69.5	72.0	82.2	58.6
EM090081	05037-079	31.7	94.7	34.7	31.6	9.3	25.0	37.8	69.3	95.1	81.9	94.0	71.0	82.2	58.0
MT100170	Craft/151	40.1	87.2	16.5	24.5	6.1	44.0	36.4	76.7	87.4	88.8	90.0	49.0	78.8	55.7
MT960101	Geraldine	31.9	88.6	12.2	18.3	2.5	36.0	31.6	66.5	92.8	82.5	81.5	56.0	75.7	51.6
Eslick	Eslick	21.9	94.2	13.2	14.9	1.6	22.0	28.0	76.2	94.1	90.2	77.5	53.0	78.2	50.8
Hays	Hays	37.5	84.1	11.9	16.0	8.5	32.0	31.7	61.3	78.7	56.8	69.0	38.0	60.8	44.9
MT103015	Haxby/WCC100	28.2	72.5	6.9	22.2	2.4	29.0	26.9	59.6	69.0	79.0	57.0	40.0	61.1	42.4
MT090001	LK6-44/Excel(29-53)	21.5	63.1	14.3	19.9	7.0	21.0	24.5	46.6	55.9	59.5	57.0	41.0	51.9	36.9
MT103043	Hays/WCC100	7.8	42.4	13.3	-1.3	1.5	10.0	12.3	63.0	58.7	48.2	62.0	18.0	49.4	29.2
MT103031	Hays/WCC100	2.2	46.2	6.3	0.0	0.3	2.0	9.4	6.7	48.0	50.9	46.0	13.0	32.9	20.1
Average		53.3	92.7	34.9	35.8	15.6	46.0	46.4	80.6	93.2	88.1	87.3	69.0	83.7	63.4
PLSD (p=0.05)		7.1	3.1	--	22.0	--	--	11.2	18.7	1.9	17.4	--	--	7.3	7.1
C.V.		7.7	2.3	--	35.7	--	--	21.2	14.4	1.2	12.2	--	--	7.0	13.4
Prob>F (Entries)		<0.001	<0.001	--	<0.05	--	--	<0.001	<0.001	<0.001	<0.05	--	--	<0.001	<0.001

1/ Percentage of kernels retained above a 6-64" slotted screen for a ~100g subsample following 30 oscillations on a Strand™ sizer shaker.

** Signifies the entry possessing the highest percentage of plump kernels within a column.

* Signifies entries possessing plump kernel percentages equal to the entry possessing the highest percentage of plump kernels within a column based on Fischer's Protected LSD at the 0.05 probability level.

Table 19. Comparison of thin kernel values^{1/} for 64 entries tested at five dryland and three irrigated locations in the Montana Statewide Barley Performance Trials conducted during 2012. Sorted from lowest to highest thin kernel content averaged across all locations.

Entry	Pedigree	Dryland					Average	Irrigated				All Locations
		Conrad	Havre	Huntley	Mocassin	Sidney		Conrad	Huntley	Sidney	Average	
CDC Cowboy	CDC Cowboy	1.1	15.5	14.5	18.4	7.0	11.3**	0.7	6.6	3.0	3.4*	8.4**
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	1.9	22.7	22.3	15.5	5.0	13.5*	1.5	2.3	4.0	2.6*	9.4*
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	1.2	23.8	21.0	26.0	6.0	15.6*	1.0	2.3	4.0	2.4*	10.7*
MT070161	MT970148/Klages	1.0	15.0	20.6	28.0	16.0	16.1*	1.2	3.4	2.0	2.2*	10.9*
MT090181	MT910189*/LK644/EslickBC3F33-G	1.2	21.5	31.9	19.2	6.0	16.0*	0.9	1.7	5.0	2.5*	10.9*
MT070175	LK644///Hockett F5	1.5	19.8	29.0	32.2	4.0	17.3*	1.0	2.9	5.0	3.0*	11.9*
Pinnacle	Pinnacle	0.8	45.4	19.6	18.9	8.0	18.5*	0.5	2.2	3.0	1.9*	12.3*
MT070158	MT970148/Klages	0.7	13.5	19.8	49.6	8.0	18.3*	1.4	3.9	2.0	2.4*	12.4*
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	0.7	33.3	24.9	24.1	6.0	17.8*	0.8	2.4	8.0	3.7*	12.5*
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	1.5	25.7	22.9	31.0	11.0	18.4*	1.4	2.0	6.0	3.1*	12.7*
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	1.4	25.9	39.3	24.0	7.0	19.5*	0.9	1.0	3.0	1.6**	12.8*
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	0.8	36.8	19.8	32.7	7.0	19.4*	1.0	1.7	4.0	2.2*	13.0*
MT100070	GPCBC3F4 rows 137/Craft	1.0	31.6	24.3	33.4	7.0	19.5*	1.0	3.1	3.0	2.4*	13.0*
MT070086	MT970148/Coors37	2.4	22.3	27.7	35.7	8.0	19.2*	2.2	4.0	2.0	2.7*	13.0*
MT080179	Metcalfe/MT990106	1.3	22.2	23.5	46.5	6.0	19.9*	1.4	1.7	2.0	1.7*	13.1*
MT103022	Hays/WCC100	1.0	25.7	22.1	40.7	6.0	19.1*	0.9	5.4	3.0	3.1*	13.1*
MT090190	MT910189*/LK644/EslickBC3F33-G	0.9	25.1	30.8	33.5	6.0	19.3*	0.9	1.7	7.0	3.2*	13.2*
MT010158	MT920041/Harrington	1.0	34.0	32.8	18.0	10.0	19.2*	0.6	3.4	6.0	3.3*	13.2*
Harrington	Harrington	1.8	27.7	19.7	36.8	7.0	18.6*	1.6	8.2	4.0	4.6*	13.4*
MT090180	MT910189*/LK644/EslickBC3F33-G	1.3	29.7	24.3	37.5	13.0	21.2*	1.5	2.7	4.0	2.7*	14.2*
EM090061	04064-048	0.9	40.3	21.5	34.9	4.0	20.3*	0.9	3.4	8.0	4.1*	14.2*
MT090193	MT910189*/LK644/EslickBC3F33-G	1.3	22.1	36.5	38.4	9.0	21.5*	1.4	3.2	5.0	3.2*	14.6*
MT070159	MT970148/Klages	1.0	20.4	33.4	50.6	8.0	22.7*	1.4	4.9	2.0	2.8*	15.2*
Champion	Champion (Baronesse/Camas)	1.5	33.8	42.8	25.6	9.0	22.5*	0.7	1.6	7.0	3.1*	15.3*
AC Metcalfe	Metcalfe	1.5	27.7	24.8	58.1	2.0	22.8*	1.5	3.8	5.0	3.4*	15.6*
MT090184	MT910189*/LK644/EslickBC3F33-G	1.1	33.3	35.5	36.4	6.0	22.5*	1.0	9.7	4.0	4.9*	15.9*
MT070125	MT981210/MT970116	0.8	27.7	30.5	55.3	5.0	23.9	1.0	2.5	5.0	2.8*	16.0*
Expedition	Expedition	1.5	22.6	34.7	45.5	3.0	21.5*	1.8	14.5	5.0	7.1	16.1*
Scarlett	Scarlett	1.0	31.3	26.4	60.3	4.0	24.6	1.0	3.6	3.0	2.5*	16.3*
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	1.3	32.8	33.5	48.4	7.0	24.6	1.7	3.6	3.0	2.8*	16.4*
EM090105	05032-068	1.1	28.8	33.7	48.7	9.0	24.3	1.8	3.9	4.0	3.2*	16.4*
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	1.5	42.3	26.2	37.4	14.0	24.3	0.9	3.8	5.0	3.2*	16.4*
Craft	Craft	1.3	37.6	19.6	52.4	16.0	25.4	1.1	1.7	2.0	1.6**	16.5
MT080281	MT970148/MT970116	1.8	29.2	29.1	53.6	9.0	24.5	1.5	5.2	5.0	3.9*	16.8
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	1.2	43.5	24.9	40.2	18.0	25.6	1.0	2.1	5.0	2.7*	17.0
Conrad	Conrad	1.4	20.5	23.3	78.2	6.0	25.9	1.2	3.2	4.0	2.8*	17.2
Hockett	Hockett	1.0	31.8	39.0	51.9	4.0	25.5	1.4	6.4	5.0	4.3*	17.6
MT100064	GPCBC3F4 rows 137/Craft	1.6	37.0	52.4	36.9	7.0	27.0	0.8	4.9	3.0	2.9*	17.9
MT080279	MT970148/MT970116	1.4	37.6	33.0	51.5	8.0	26.3	1.2	5.4	5.0	3.9*	17.9
MT080243	MT960101/MT981210	1.5	54.0	24.7	42.6	8.0	26.2	1.3	6.7	6.0	4.7*	18.1

Table 19 Con't.

Entry	Pedigree	Dryland					Irrigated				All Locations	
		Conrad	Havre	Huntley	Mocassin	Sidney	Average	Conrad	Huntley	Sidney		Average
		----- % -----										
MT080081	Coors/Metcalf	2.2	39.3	40.2	42.6	12.0	27.3	3.0	3.4	4.0	3.5*	18.3
MT090186	MT910189*/LK644/EslickBC3F33-G	0.8	49.5	34.4	45.4	8.0	27.6	1.0	2.9	6.0	3.3*	18.5
MT100060	GPCBC3F4 rows 155&158/Haxby	1.0	41.0	48.4	39.7	7.0	27.4	1.3	2.8	7.0	3.7*	18.5
MT080285	MT970148/MT970116	1.8	43.1	33.7	44.1	15.0	27.5	1.7	5.0	4.0	3.6*	18.6
EM090081	05037-079	1.4	32.3	34.2	61.6	8.0	27.5	1.3	8.3	3.0	4.2*	18.8
MT090182	MT910189*/LK644/EslickBC3F33-G	1.4	34.7	32.9	53.4	22.0	28.9	1.2	2.3	5.0	2.8*	19.1
MT020155	MT960225/H1851195	1.3	27.1	33.0	71.9	9.0	28.5	2.0	5.8	6.0	4.6*	19.5
MT100063	GPCBC3F4 rows 137/Craft	1.4	45.9	39.9	50.2	11.0	29.7	0.9	2.2	5.0	2.7*	19.6
MT100051	GPCBC3F4 rows 155&158/Haxby	0.9	45.6	40.9	61.5	6.0	31.0	1.2	2.3	4.0	2.5*	20.3
MT010160	MT920041/Harrington	1.3	32.7	32.6	76.0	11.0	30.7	1.0	4.2	4.0	3.1*	20.3
Haxby	Haxby	2.0	40.2	36.5	74.0	6.0	31.7	1.2	3.7	3.0	2.6*	20.8
MT061035	Baronesse/MT981210	1.9	41.2	39.0	68.1	4.0	30.8	0.8	7.7	5.0	4.5*	21.0
MT070111	MT010178/Harrington	2.4	39.9	51.2	42.6	9.0	29.0	10.8	5.8	6.0	7.5	21.0
MT061169	MT960101/Coors 37	1.6	48.9	52.5	38.8	14.0	31.2	2.2	5.7	5.0	4.3*	21.1
MT100074	GPCBC3F4rows 137/Craft	1.5	53.3	43.5	58.5	7.0	32.8	1.5	3.3	4.0	2.9*	21.6
Tradition	Tradition	1.0	53.4	44.5	71.6	4.0	34.9	0.5	1.5	3.0	1.7*	22.4
Eslick	Eslick	1.3	29.0	54.3	86.7	14.0	37.1	2.1	4.6	6.0	4.2*	24.8
MT100170	Craft/151	4.3	57.8	46.9	55.8	10.0	35.0	5.2	4.7	15.0	8.3	25.0
MT960101	Geraldine	2.3	62.9	46.9	79.7	9.0	40.2	2.6	7.6	8.0	6.1	27.4
Hays	Hays	6.3	58.0	59.8	49.2	16.0	37.9	9.9	22.5	14.0	15.5	29.5
MT103015	Haxby/WCC100	12.0	78.8	44.7	76.3	20.0	46.4	13.8	9.3	18.0	13.7	34.1
MT090001	LK6-44/Excel(29-53)	16.5	64.9	59.5	64.9	25.0	46.2	21.2	24.0	13.0	19.4	36.1
MT103031	Hays/WCC100	12.3	78.2	90.9	96.1	55.0	66.5	7.3	18.0	24.0	16.4	47.7
MT103043	Hays/WCC100	32.6	68.3	85.2	90.8	58.0	67.0	23.9	33.0	39.0	32.0	53.8
Average		2.5	36.5	35.0	47.6	11.0	26.4	2.6	5.4	6.0	4.7	18.3
PLSD (p=0.05)		1.9	--	19.8	--	--	11.9	3.4	8.7	--	3.9	8.0
C.V.		52.4	--	33.1	--	--	36.2	80.4	100.1	--	51.5	44.6
Prob>F (Entries)		<0.001	--	<0.05	--	--	<0.001	<0.001	<0.05	--	<0.001	<0.001

1/ Percentage of kernels passing through a 5½-64" slotted screen for a ~100g subsample following 30 oscillations on a Strand™ sizer shaker.

** Signifies the entry possessing the lowest percentage of thin kernels within a column.

* Signifies entries possessing thin kernel percentages equal to the entry possessing the lowest percentage of thin kernels within a column based on Fischer's Protected LSD at the 0.05 probability level.

Table 20. Comparison of plant height values^{1/} for 64 entries tested at six dryland and five irrigated locations in the Montana Statewide Barley Performance Trials conducted during 2012. Sorted from shortest to tallest plant height averaged across all locations.

Entry	Pedigree	Dryland							Irrigated					All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney		Average
----- inches -----															
MT070086	MT970148/Coors37	19.8	25.9	17.8	22.7	18.6	21.0	21.6	24.2	31.1	29.5	29.6	26.2	27.9	24.5
Scarlett	Scarlett	20.1	25.7	20.1	25.2	18.9	21.5	22.0	26.7	24.2	32.5	33.1	24.7	28.2	24.8
MT080081	Coors/Metcalfe	20.3	27.9	21.0	22.7	19.4	21.4	21.9	28.6	26.1	35.2	34.7	28.1	30.2	25.6
Eslick	Eslick	19.8	29.0	19.7	25.3	17.6	21.7	22.2	26.8	28.6	38.2	35.4	24.5	30.5	26.0
Expedition	Expedition	21.4	26.4	20.5	26.4	20.5	23.1	23.4	26.9	25.0	33.8	33.2	27.2	29.1	26.0
EM090061	04064-048	21.4	28.7	22.9	27.0	18.6	22.0	23.4	26.8	27.4	34.4	34.5	25.6	29.9	26.4
MT080281	MT970148/MT970116	21.0	29.0	22.6	25.2	20.3	23.1	23.4	27.4	27.9	35.8	34.4	28.5	30.7	26.7
MT070159	MT970148/Klages	20.9	28.7	25.1	25.9	20.3	25.1	24.0	27.5	27.6	35.2	35.6	24.8	30.3	26.9
MT080279	MT970148/MT970116	20.7	28.4	23.1	22.9	21.5	23.5	23.5	27.2	27.7	38.1	34.9	28.3	31.2	27.0
MT080285	MT970148/MT970116	20.7	27.9	24.9	25.4	19.8	23.9	23.4	27.8	31.5	38.2	34.8	25.9	31.9	27.2
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	21.1	29.0	22.3	25.0	19.2	23.0	23.1	29.3	30.7	37.4	36.0	29.0	32.2	27.2
MT061169	MT960101/Coors 37	19.7	30.2	20.6	25.5	20.6	25.3	23.8	27.5	28.8	36.9	37.0	29.7	32.0	27.5
Conrad	Conrad	19.9	27.4	23.9	26.7	19.9	25.1	23.9	26.8	30.1	39.3	38.3	27.4	32.4	27.8
MT960101	Geraldine	21.5	30.7	21.9	28.0	19.2	24.7	24.2	28.9	29.9	38.1	38.1	26.1	32.4	27.9
MT070158	MT970148/Klages	22.8	30.2	24.2	27.6	21.7	25.2	24.9	29.9	30.2	36.6	35.3	25.3	31.6	27.9
EM090105	05032-068	21.3	31.2	21.9	26.9	21.5	25.5	24.7	29.5	30.9	37.7	38.4	25.5	32.5	28.2
MT070161	MT970148/Klages	22.2	29.0	30.0	26.0	22.2	24.8	24.9	29.9	31.4	37.4	35.4	25.5	32.2	28.2
MT103022	Hays/WCC100	20.7	31.8	24.3	27.4	19.8	25.5	24.7	27.9	29.5	38.9	37.1	28.2	32.5	28.3
MT061035	Baronesse/MT981210	21.1	31.2	22.9	27.2	19.4	23.0	24.2	31.3	29.0	41.2	37.1	30.7	33.7	28.5
Hays	Hays	21.5	30.2	24.4	25.9	19.0	25.7	24.0	32.2	32.2	39.1	37.0	29.7	34.2	28.6
MT103043	Hays/WCC100	21.5	29.7	24.2	29.9	20.1	23.0	24.9	30.8	31.6	38.7	37.7	29.1	33.2	28.7
MT010158	MT920041/Harrington	21.8	29.0	22.6	28.6	23.9	26.6	25.0	29.0	30.7	38.5	39.5	29.3	33.4	28.8
Hockett	Hockett	22.2	30.7	29.3	28.1	20.3	24.8	25.1	29.6	33.4	38.2	38.0	27.8	33.5	28.9
MT100051	GPCBC3F4 rows 155&158/Haxby	22.7	31.8	28.5	26.8	21.3	25.9	25.6	28.9	29.6	37.8	36.8	31.6	32.9	28.9
MT090001	LK6-44/Excel(29-53)	21.7	32.8	25.2	29.0	19.8	27.0	25.9	28.6	30.8	36.4	39.7	31.1	33.0	29.2
MT100060	GPCBC3F4 rows 155&158/Haxby	22.0	32.0	26.7	28.7	20.1	26.8	25.5	30.8	30.4	38.5	38.1	32.4	33.8	29.3
MT070111	MT010178/Harrington	22.3	31.8	27.9	26.2	22.0	26.2	25.7	31.1	29.6	37.3	39.9	32.4	33.9	29.4
MT100074	GPCBC3F4rows 137/Craft	21.8	34.0	27.4	27.8	21.1	27.2	26.1	30.5	31.3	36.6	39.9	28.5	33.3	29.4
MT020155	MT960225/H1851195	21.5	31.2	26.8	27.7	22.6	28.5	25.2	30.8	33.1	38.3	39.4	32.3	34.5	29.5
MT100063	GPCBC3F4 rows 137/Craft	20.5	30.7	21.3	28.7	23.4	26.0	25.3	30.6	33.5	39.4	39.0	29.5	34.5	29.5
EM090081	05037-079	23.2	32.0	22.3	27.0	20.3	26.8	25.5	32.9	31.9	38.3	42.3	26.9	34.8	29.7
Champion	Champion (Baronesse/Camas)	22.8	34.0	22.8	28.2	24.7	25.1	26.5	30.4	32.2	38.8	39.6	25.9	33.7	29.7
MT100064	GPCBC3F4 rows 137/Craft	21.0	32.8	26.5	28.6	20.9	26.9	25.7	30.7	35.0	39.8	38.6	27.7	34.6	29.7
MT010160	MT920041/Harrington	21.1	33.3	27.3	27.5	22.0	24.8	26.0	30.6	33.9	38.1	38.9	29.0	34.5	29.8
Haxby	Haxby	22.4	32.0	25.6	29.0	21.9	27.4	26.2	29.3	31.8	38.8	39.2	33.1	34.3	29.9
Harrington	Harrington	20.7	35.1	28.2	28.7	19.8	25.6	26.1	32.3	30.8	37.6	40.4	32.7	34.6	30.0
MT090186	MT910189*/LK644/EslickBC3F33-G	22.8	35.1	29.0	28.5	22.0	27.0	26.8	30.9	29.8	38.9	38.9	31.0	33.8	30.0
MT090182	MT910189*/LK644/EslickBC3F33-G	23.0	34.0	27.0	29.4	22.4	27.0	27.1	30.7	32.8	40.9	40.5	26.8	34.4	30.4
MT080243	MT960101/MT981210	22.8	34.0	28.1	28.6	22.6	27.4	26.8	31.4	31.0	40.2	40.3	32.4	35.0	30.5
MT090184	MT910189*/LK644/EslickBC3F33-G	22.8	34.5	24.6	30.0	20.6	28.0	26.7	32.4	34.9	39.3	40.4	28.0	35.0	30.5
MT103031	Hays/WCC100	22.4	34.0	22.5	30.8	22.0	26.9	27.1	30.6	34.6	40.2	38.4	31.1	34.9	30.6

Table 20 Con't.

Entry	Pedigree	Dryland							Irrigated					All Locations	
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney		Average
-----inches-----															
MT090190	MT910189*/LK644/EslickBC3F33-G	22.6	33.8	24.4	28.2	22.3	28.2	26.7	31.1	34.5	40.4	39.5	31.1	35.4	30.7
MT103015	Haxby/WCC100	22.7	31.8	26.7	31.5	23.5	27.0	27.4	29.6	31.1	40.1	41.0	32.3	34.9	30.8
MT090180	MT910189*/LK644/EslickBC3F33-G	24.1	32.8	26.2	25.5	23.9	27.4	26.7	33.1	34.3	39.5	40.2	31.9	35.7	30.8
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	22.7	34.3	23.2	30.6	21.1	28.6	27.1	33.2	34.1	41.5	38.5	29.1	35.2	30.8
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	23.0	34.5	28.1	29.0	21.8	29.1	27.2	32.0	32.9	39.4	41.9	28.2	35.0	30.8
Pinnacle	Pinnacle	21.3	33.3	26.2	31.0	23.1	27.3	26.9	32.1	32.2	38.7	42.2	31.5	35.4	30.8
MT090181	MT910189*/LK644/EslickBC3F33-G	23.5	35.1	23.5	29.4	21.8	27.8	27.1	32.4	32.6	39.9	40.0	31.6	35.4	30.9
MT100070	GPCBC3F4 rows 137/Craft	22.4	36.1	29.5	30.8	20.1	27.6	27.2	32.6	34.0	39.0	40.5	32.3	35.5	30.9
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	23.5	35.1	25.2	28.0	23.9	27.3	27.1	34.5	34.2	39.7	39.4	28.6	35.4	30.9
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	23.0	34.3	26.6	30.8	21.5	28.0	27.5	29.8	33.6	41.1	41.2	28.3	35.1	30.9
MT070175	LK644//Hockett F5	22.4	37.3	25.5	27.6	23.0	28.0	27.0	32.4	34.7	40.2	40.9	33.1	36.1	31.1
Craft	Craft	23.0	34.0	26.7	30.7	22.7	29.4	27.5	32.7	34.3	38.6	41.1	31.5	35.6	31.2
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	22.4	34.3	24.7	28.5	22.0	29.8	26.9	33.2	35.5	40.9	40.0	30.7	36.3	31.2
AC Metcalfe	Metcalfe	21.4	35.1	28.8	30.1	22.0	27.0	27.2	32.6	33.0	40.3	42.8	32.5	36.2	31.3
MT070125	MT981210/MT970116	22.6	35.3	31.8	32.3	22.6	28.5	28.1	31.1	33.6	40.2	38.4	33.2	35.2	31.3
MT090193	MT910189*/LK644/EslickBC3F33-G	23.1	37.1	22.4	28.7	21.5	28.5	26.9	32.5	34.5	40.6	41.4	35.7	36.7	31.3
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	23.6	37.3	28.8	29.8	22.6	26.5	27.9	31.5	32.3	41.2	40.9	30.4	35.3	31.3
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	23.4	35.3	27.2	28.0	23.0	29.0	27.4	33.2	35.3	40.0	40.6	30.4	36.0	31.3
MT080179	Metcalfe/MT990106	22.6	34.3	30.2	30.4	23.0	29.7	27.9	33.3	33.1	39.8	41.6	34.5	36.2	31.7
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	22.7	33.8	25.6	29.3	21.7	30.2	27.3	33.2	36.0	41.9	42.0	31.2	36.9	31.7
Tradition	Tradition	21.7	36.3	29.0	30.4	23.9	28.2	28.0	32.4	36.4	41.1	41.4	30.8	36.4	31.8
MT100170	Craft/151	25.5	39.1	28.3	35.8	24.4	31.2	31.0	34.8	36.1	40.6	44.1	35.3	38.2	34.3
CDC Cowboy	CDC Cowboy	27.7	38.4	29.4	36.5	24.7	33.2	31.8	41.3	40.7	40.9	50.1	35.8	41.8	36.4
Average		22.1	32.3	25.2	28.2	21.4	26.3	25.8	30.6	31.9	38.6	38.8	29.7	33.9	29.5
PLSD (p=0.05)		1.5	3.6	6.0	3.9	2.9	2.9	1.5	2.1	4.2	2.9	2.2	4.2	1.8	1.2
C.V.		4.3	7.7	11.9	8.5	8.3	6.9	5.1	3.9	7.7	4.7	3.3	8.8	4.2	4.7
Prob>F (Entries)		<0.001	<0.001	0.0	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001

1/ Measured from the soil surface to the top of the head, excluding any awns if present.

Table 21. Comparison of days to heading^{1/} for 64 entries tested at six dryland and five irrigated locations in the Montana Statewide Barley performance Trials conducted during 2012. Sorted from early to late heading date averaged across all locations.

Entry	Pedigree	Dryland							Irrigated						All Locations
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney	Average	
MT103015	Haxby/WCC100	180.0	173.6	177.5	169.0	176.0	165.7	173.4	182.7	176.0	169.0	175.0	169.3	174.4	173.9
MT020155	MT960225/H1851195	179.3	174.5	174.5	169.3	175.7	165.0	173.3	183.0	176.3	169.0	175.0	169.7	174.6	173.9
Pinnacle	Pinnacle	180.7	174.2	175.0	169.0	177.0	167.7	174.2	184.7	177.3	169.0	177.3	170.7	175.8	174.9
MT090001	LK6-44/Excel(29-53)	180.3	174.6	176.0	169.7	177.0	168.3	174.2	184.3	177.3	169.0	179.7	170.0	176.1	175.1
MT100051	GPCBC3F4 rows 155&158/Haxby	180.7	175.6	176.0	169.3	177.0	169.0	175.0	183.0	177.7	169.0	177.0	170.0	175.3	175.1
Craft	Craft	180.7	176.1	177.0	169.3	179.0	167.7	175.2	184.3	178.7	169.0	176.3	171.7	176.0	175.6
Hockett	Hockett	180.0	177.7	175.5	171.0	177.0	169.3	175.2	184.0	178.7	170.3	176.7	171.0	176.2	175.7
MT100060	GPCBC3F4 rows 155&158/Haxby	181.0	176.3	176.5	169.0	177.0	169.3	175.5	183.7	178.7	169.0	177.3	171.0	175.9	175.7
Haxby	Haxby	180.0	176.9	175.0	169.7	179.0	170.3	175.3	184.3	178.3	169.7	178.3	171.3	176.4	175.8
MT100113	Hockett/X/Lk644/EslickBC3F4 3G	181.7	176.6	178.0	171.7	177.0	169.3	175.8	184.7	179.7	169.0	176.3	170.3	176.0	175.9
Tradition	Tradition	183.0	177.1	175.0	172.7	176.7	168.3	175.4	184.3	179.0	174.3	176.3	169.7	176.7	176.0
MT103043	Hays/WCC100	183.3	176.6	178.0	171.0	176.7	169.0	175.9	185.3	178.7	170.3	177.0	171.0	176.5	176.2
MT100063	GPCBC3F4 rows 137/Craft	181.7	175.5	176.5	172.3	177.0	169.7	175.6	184.3	179.0	171.7	177.7	171.7	176.8	176.2
MT100070	GPCBC3F4 rows 137/Craft	182.3	177.1	176.5	169.3	177.0	169.3	175.9	184.3	178.7	170.7	178.0	171.7	176.7	176.2
MT070175	LK644///Hockett F5	182.7	176.3	178.5	171.3	177.3	170.0	176.3	184.7	179.0	170.3	177.3	172.0	176.7	176.4
MT080179	Metcalfe/MT990106	182.7	176.6	176.0	170.7	177.0	170.7	176.0	184.7	179.0	171.7	178.0	171.3	176.9	176.4
Champion	Champion (Baronesse/Camas)	182.0	177.0	180.5	172.0	177.7	171.3	176.5	184.0	179.3	170.7	177.7	172.7	176.8	176.6
MT100170	Craft/151	182.0	177.5	181.0	171.7	178.0	169.7	176.6	184.0	178.3	172.3	179.7	169.7	176.8	176.7
MT103031	Hays/WCC100	182.7	176.6	185.0	171.3	180.0	170.7	177.3	184.3	179.7	169.0	177.7	171.3	176.4	176.9
MT070161	MT970148/Klages	181.3	178.1	179.0	172.0	181.3	170.7	177.7	183.7	179.0	171.7	177.0	171.3	176.5	177.2
MT080279	MT970148/MT970116	182.7	179.5	180.0	173.3	179.3	171.3	177.7	183.7	179.7	170.7	178.0	171.0	176.6	177.2
MT100064	GPCBC3F4 rows 137/Craft	182.0	177.2	182.0	170.3	179.0	170.7	177.0	185.0	179.0	175.0	178.3	171.7	177.8	177.3
MT100074	GPCBC3F4rows 137/Craft	182.3	178.0	177.0	172.3	179.3	170.7	176.7	184.7	179.3	175.7	177.7	173.0	178.1	177.3
AC Metcalfe	Metcalfe	183.0	177.7	176.0	172.3	182.3	169.3	177.4	184.3	180.3	172.7	179.7	171.3	177.7	177.5
MT070159	MT970148/Klages	181.7	179.4	179.5	174.7	180.3	171.0	177.8	184.3	180.7	171.3	177.7	171.3	177.0	177.5
MT100136	Hockett/X/Lk644/EslickBC3F3 3-	183.0	179.1	177.5	173.0	180.7	171.3	177.5	185.0	181.0	171.0	178.3	173.7	177.8	177.6
EM090105	05032-068	183.0	178.3	181.0	172.7	178.0	169.0	177.4	184.3	180.0	175.0	178.3	173.3	178.2	177.7
MT070158	MT970148/Klages	181.7	179.8	179.0	174.3	180.0	172.3	178.2	185.0	180.0	171.0	178.0	172.0	177.2	177.7
MT080281	MT970148/MT970116	182.3	179.7	181.5	173.0	182.0	171.7	178.5	184.0	179.7	171.7	177.0	172.0	176.9	177.8
MT090182	MT910189*/LK644/EslickBC3F33-G	183.0	179.6	180.5	173.0	181.0	172.0	178.3	184.7	177.3	173.0	178.3	172.3	177.2	177.8
MT010160	MT920041/Harrington	183.0	179.7	178.0	173.0	181.0	170.7	177.9	185.0	180.3	172.7	179.0	173.3	178.0	177.9
Harrington	Harrington	184.3	179.1	177.5	171.0	180.7	171.7	177.8	185.7	180.7	174.3	178.3	171.7	178.2	178.0
MT080243	MT960101/MT981210	183.0	177.8	177.0	174.0	181.7	171.3	177.9	184.0	182.3	173.0	178.3	172.7	178.1	178.0
MT010158	MT920041/Harrington	183.7	179.3	185.5	174.0	181.0	170.7	178.9	184.7	179.7	172.3	178.0	172.3	177.4	178.2
MT070125	MT981210/MT970116	184.3	178.6	178.0	172.0	183.3	171.0	178.3	184.7	181.0	173.7	178.3	173.7	178.3	178.3
MT100130	Hockett/X/Lk644/EslickBC3F3 3-	184.3	179.0	179.5	173.0	181.7	171.0	178.2	184.7	180.3	174.3	179.0	174.3	178.5	178.3
CDC Cowboy	CDC Cowboy	184.7	178.7	180.0	169.3	182.3	170.7	177.8	185.7	182.7	170.7	182.3	173.7	179.0	178.4
MT080285	MT970148/MT970116	182.7	180.2	179.5	174.0	185.7	172.0	179.1	185.0	180.0	174.3	177.3	171.3	177.5	178.4

Table 21 Con't.

Entry	Pedigree	Dryland							Irrigated						All Locations
		Bozeman	Conrad	Havre	Huntley	Mocassin	Sidney	Average	Bozeman	Conrad	Huntley	Kalispell	Sidney	Average	
MT090181	MT910189*/LK644/EslickBC3F33-G	183.3	179.0	179.0	174.0	183.0	171.0	178.4	184.7	180.3	173.7	178.7	174.3	178.4	178.4
MT100120	Hockett/X/Lk644/EslickBC3F3 3-	183.0	178.6	180.0	173.0	180.7	170.3	178.0	185.0	181.3	173.0	180.3	174.0	178.7	178.4
MT100124	Hockett/X/Lk644/EslickBC3F3 3-	183.3	179.8	177.5	174.3	181.7	172.0	178.4	185.7	180.3	175.7	178.3	172.7	178.5	178.5
MT103022	Hays/WCC100	183.0	179.4	182.0	171.0	185.0	171.7	179.0	184.3	180.3	172.0	179.7	173.0	177.8	178.5
MT090193	MT910189*/LK644/EslickBC3F33-G	184.3	179.7	183.0	172.3	183.0	170.7	178.6	185.0	181.7	172.7	179.7	173.3	178.5	178.6
MT090184	MT910189*/LK644/EslickBC3F33-G	184.0	178.9	181.0	174.0	181.3	170.7	178.4	185.0	180.3	175.0	179.0	176.0	179.0	178.7
MT100132	Hockett/X/Lk644/EslickBC3F3 3-	184.0	179.5	180.0	172.3	182.3	171.7	178.5	184.3	182.3	174.3	180.3	173.7	179.0	178.7
Hays	Hays	184.3	178.7	180.5	174.3	182.3	170.7	178.7	186.7	181.3	175.0	177.7	174.0	178.9	178.8
Conrad	Conrad	182.3	180.0	186.0	174.0	182.3	172.7	179.5	184.7	181.7	173.7	178.0	172.3	178.1	178.9
MT061169	MT960101/Coors 37	184.3	179.8	180.0	172.7	185.7	172.0	179.3	185.3	183.3	173.0	179.0	171.7	178.5	178.9
MT090190	MT910189*/LK644/EslickBC3F33-G	184.7	179.3	183.0	174.0	183.0	171.3	179.3	185.0	181.3	174.3	178.7	173.3	178.5	178.9
MT090180	MT910189*/LK644/EslickBC3F33-G	184.7	179.3	185.0	172.3	182.0	171.7	178.9	185.0	181.7	175.7	178.3	174.7	179.1	179.0
MT070111	MT010178/Harrington	182.7	179.7	181.5	172.7	182.3	171.0	178.5	185.0	183.3	175.0	183.0	173.0	179.9	179.1
MT100125	Hockett/X/Lk644/EslickBC3F3 3-	185.0	180.0	183.0	172.3	182.7	171.3	178.9	185.7	182.7	174.3	180.7	173.7	179.4	179.2
MT061035	Baronesse/MT981210	182.7	179.8	184.5	174.7	184.0	172.0	179.7	185.3	182.0	173.0	180.7	173.0	178.8	179.3
MT090186	MT910189*/LK644/EslickBC3F33-G	185.3	179.7	180.5	174.0	184.0	171.3	179.4	185.3	181.7	173.7	180.0	175.3	179.2	179.3
MT100128	Hockett/X/Lk644/EslickBC3F3 3-	185.0	179.7	183.0	173.3	184.0	171.3	179.2	185.7	183.7	174.3	179.3	175.3	179.7	179.4
MT070086	MT970148/Coors37	184.3	181.4	184.5	174.0	186.0	173.0	180.4	184.7	183.7	173.7	178.7	173.0	178.8	179.6
MT100126	Hockett/X/Lk644/EslickBC3F3 3-	185.3	180.3	181.0	174.0	184.0	172.3	179.5	186.3	182.7	173.7	181.7	174.0	179.7	179.6
Eslick	Eslick	183.3	179.4	187.0	172.7	187.3	171.0	180.1	185.3	184.0	173.7	181.0	172.3	179.3	179.7
EM090061	04064-048	183.3	184.0	184.5	174.0	183.3	170.7	179.9	185.0	184.0	173.0	183.0	174.7	179.9	179.9
Expedition	Expedition	186.7	183.5	183.0	174.0	180.0	173.0	179.9	186.0	184.0	173.0	182.3	174.0	179.9	179.9
MT080081	Coors/Metcalf	185.0	182.5	183.5	172.7	181.7	172.3	179.7	186.3	184.0	174.3	182.7	172.7	180.0	179.9
MT960101	Geraldine	184.0	181.6	183.5	174.0	187.7	172.7	180.5	185.7	184.3	173.0	180.3	174.7	179.6	180.1
Scarlett	Scarlett	187.0	181.7	187.0	172.7	185.0	173.0	180.9	186.3	184.3	172.7	179.0	174.7	179.4	180.2
EM090081	05037-079	185.7	181.8	186.0	173.3	186.7	173.0	180.9	186.3	184.3	174.3	184.7	175.3	181.0	180.9
Average		183.0	178.6	180.1	172.3	180.9	170.7	177.7	184.8	180.6	172.4	178.8	172.5	177.8	177.8
PLSD (p=0.05)		1.3	1.2	4.2	2.9	3.6	2.0	1.5	1.1	1.9	3.1	1.6	2.0	1.4	1.1
C.V.		0.4	0.5	1.2	1.1	1.2	0.7	0.8	0.4	0.7	1.1	0.6	2.0	0.6	0.7
Prob>F (Entries)		<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001