

PROJECT TITLE: Long-Term Small Grain Variety Performance Evaluation Under Mechanical or Chemical Fallow Conditions Off-Station in Northern Montana Counties.

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OBJECTIVES:

Diverse cropping environments exist within that five-county area most closely served by this Research Center (Blaine, Chouteau, Hill, Liberty, and Phillips counties). Winter and spring wheat, barley, durum and oat production together in the five counties represents 29.0 percent of the 2003-2007 statewide total (43 percent and 23 percent for winter and spring wheat alone, respectively). Producers are keenly interested in variety performance data generated under local conditions. It is our objective, within budget and other resource limitations, to evaluate small grain variety performance, over time, under conditions representative of specific areas of Northern Montana yet differing from those of the Research Center.

It is also our objective to develop and maintain databases which are not only specific to differing major crop environments, but which are further augmented by as much associated climatic and production management information as is practical and feasible to collect. Since 1982 we have recorded and reported supportive information of this nature along with the crop performance data for each investigation. A new, standardized system was initiated in 1995 for better management and dissemination of such 'base data' in more detail than that provided previously. An abridged version of such 'base data' is included in this report for each trial at each location.

RESULTS:

Data details for individual trials conducted from 1982-2007 were included in respective previous annual reports, but long-term yield and test weight data from the past ten years are presented in abridged form for summary purposes here as applicable. For winter and spring wheat, selected variety performance comparisons on the basis of gross dollar return for these off-station locations as well as the principal statewide trials conducted on-station at Havre are included in a separate report.

Cropping environments in 2008 ranged from fair to excellent across North Central Montana. At Havre, total annual growing season precipitation (9/1/07 through 8/31/08) was 12.21 inches, 2.69 percent more than the average for all years since 1916. April 1 through July 31 precipitation was 8.09 inches or 120 percent of the 93-year average. Heat units expressed as "Growing Degree Days" (GDD, base 50) from May through July were 1182.5, 91 percent of the average for the last 58 years (1951-2008). The last spring frost was 2 days early with the first fall frost 20 days late, resulting in 151 frost-free days, 22 days longer than the 93-year average. September 2007 through March 2008 precipitation was 85 percent of the long-term average. The minimum winter temperature was -29 degrees F on January 29. The April through July growing season saw an average daily temperature at 51.1 degrees F, 2.1 degrees below normal. July and August average temperatures were 1.3 percent higher than normal with the high for 2008 recorded on August 8 at 100 degrees F. There were 27 days 90 degrees F or above, and 1 day with temperatures 100 degrees F or above. April growing conditions were drier and cooler than normal resulting in delayed emergence of early seeded crops. May and June were wetter and cooler than normal resulting in delayed maturity of cereal crops. Overall, spring conditions were wetter than normal with March through May precipitation at 106 percent of normal. June and July were wetter than normal at 119 percent of the long-term average for those months. Although the overall growing season was on average warmer than normal, early season temperatures were cool and prolonged maturity of the cereal crops.

Crop outlook was initially very good with adequate fallow-stored soil moisture and generally favorable conditions. Spring crop performance in some areas was poorer than expected due to cool temperatures and crusting after planting, whereas winter wheat performance varied from good to excellent depending upon location. Yield and test weight comparisons with long-term comparable averages varied according to crop and location. On-Station WW at Havre had increased yields (123 percent of the 10-year comparable average of 51.3 bu/ac) and lower than normal test weights (1.2 lbs less than the 10-year comparable average of 60.6 lbs/bu); SW had increased yields (134 percent of the 10-year comparable average of 34.6 bu/ac) and reduced test weights (0.5 lbs less than the 10-year comparable average of 57.5 lbs/bu); BLY had increased yields (130 percent of the 9-year comparable average of 55.9 bu/ac) and increased test weights (2.4 lbs more than the 10-year comparable average of 48.5 lbs/bu).

Off-station cropping environments were somewhat variable in 2008. The Loma location had adequate precipitation and favorable conditions for the production of winter and spring cereal crops. Compared to nine-year Loma comparable average WW yields, 2008 yields were up 36 percent with lower than average test weights. SW yields increased nearly 63 percent from the ten-year Loma comparable average with test weights up 2.4 lbs/bu. DURUM yields were up 28 percent from the six-year Loma comparable average with test weights 2.3 lbs/bu above average. Ten-year Loma comparable average BLY yields were 32 percent lower than 2008 yields with test weight up 1.6 lbs/bu. The Turner location had above normal precipitation; however the moisture was poorly timed resulting in reduced yields attributed to early season crusting. Yields of the SW were down 57 percent from the nine-year comparable average with test weights down 2.7 lbs/bu. DURUM yields were 44 percent lower than the seven-year Turner comparable average with test weights down 1.6 lbs/bu. Turner BLY was not harvested in 2008 due to wildlife depredation of specific plots. Ten-year Loring comparable average SW yields were 6 percent higher than the 2008 yield of 33.1 bu/ac, with test weights down 0.6 lbs/bu. Ten-year Loring comparable average barley yields were 18 percent higher than the 2008 yield of 43.7 bu/ac, with test weights up 1.2 lbs/bu. The North Havre location, established in 2005 for purposes of conducting agronomic investigations in a wheat stem sawfly environment, saw generally average yields and average test weights for WW. Yields of the SW were 28 percent higher than the four-year comparable average with test weights 3.8 lbs/bu higher. DURUM yields were 27 percent higher than the four-year comparable average with test weights 3.6 lbs/bu higher. Four-year comparable averages of BLY were nearly the same as the 2008 average yield of 50 bu/ac and test weights for 2008 were 4.0 lbs/bu higher. Sawfly pressure on winter wheat was minimal at Loma, averaging 6.5 percent cut, and severe at North Havre, averaging 40 percent cut. Sawfly pressure on spring wheat was minimal at Loma and Loring, and severe at North Havre and Turner. Most locations recorded yields generally commensurate with available moisture, with the exception of Turner. Protein levels for appropriately fertilized wheat and barley were generally excellent, but protein values were abnormally high in those areas where yields and/or test weights were most seriously affected by environmental stress during critical development stages.

Stand percent, plant height, yield, moisture, test weight, protein and sawfly cutting data, where appropriate, for the 2008 Peterson (North Havre) and McKeever (Loma) dryland winter wheat trials are summarized in Tables 1 and 3, respectively. Multi-year yield and test weight summary data for selected winter wheat entries at the Peterson location for 2003-2008 are presented in Table 2 and data for the McKeever location for 1999-2008 are presented in Table 4.

Stand percent, plant height, yield, moisture, test weight, protein and sawfly cutting data, where appropriate, for the 2008 Cederberg (Turner), Peterson (North Havre), Flansaas/Lumsden (Loring) and McKeever (Loma) dryland spring wheat trials are summarized in Tables 5, 7, 9 and 11, respectively. The Cederberg location, in place since 1982, further featured "fertilized vs. unfertilized" spring wheat variety performance evaluations (1994-1998). The Peterson location was added in 2005 due to the presence of significant sawfly pressure. The Flansaas/Lumsden location replaced the 10-year Solberg location at Dodson (1986-1995). The McKeever location replaces the former, long-term Myers location (Big Sandy, 1988-1997). Multi-year yield and test weight summaries for selected spring wheat entries at the Cederberg, Peterson, Flansaas/Lumsden and McKeever locations are presented in Tables 6, 8, 10 and 12, respectively.

Stand percent, plant height, yield, moisture, test weight, protein and sawfly cutting data, where appropriate, for the 2008 Cederberg (Turner), Peterson (North Havre) and McKeever (Loma) dryland durum trials are summarized in Tables 13, 15 and 17, respectively. The evaluation of durum varieties was added at the Cederberg location in 2002, the Peterson location in 2005, and at the McKeever location in 2003. Multi-year yield and test weight summaries for selected durum entries at the Cederberg, Peterson and McKeever locations are presented in Tables 14, 16 and 18, respectively.

Stand percent, plant height, yield, moisture, test weight, plump/thin, protein, sawfly cutting and wildlife depredation data, where appropriate, for the 2008 Cederberg (Turner), Peterson (North Havre), Flansaas/Lumsden (Loring) and McKeever (Loma) dryland spring barley trials are summarized in Tables 19, 21, 23 and 25 respectively. The Cederberg

location, in place since 1982, further featured "fertilized vs. unfertilized" barley variety performance evaluations (1994-1998). The Peterson location was added in 2005 due to the presence of significant sawfly pressure. The Flansaas/Lumsden location replaces the 10-year Solberg location at Dodson (1986-1995). The McKeever location replaces the former long-term Myers location (Big Sandy, 1988-1997), but the barley variety evaluation was not initiated there until 1999. Multi-year yield and test weight summaries for selected spring barley entries at the Cederberg, Peterson, Flansaas/Lumsden, and McKeever locations are presented in Tables 20, 22, 24 and 26, respectively.

SUMMARY:

Thirteen, standard, off-station variety performance trials were conducted in 2008 on chemical fallow at four locations in four northern Montana counties.

Dryland Winter Wheat Trials:

- | | | |
|---|--------------|------------|
| 1. McKeever Farm & Seed Inc., Chouteau County | (12N Loma) | 28-27N-10E |
| 2. Mark Peterson Farm, Hill County | (35NW Havre) | 31-36N-13E |

Dryland Spring Wheat Trials:

- | | | |
|--|--------------|------------|
| 1. Leon Cederberg Farm, Blaine County | (3NE Turner) | 13-36N-25E |
| 2. Mark Peterson Farm, Hill County | (35NW Havre) | 31-36N-13E |
| 3. Flansaas/Lumsden Farm, Phillips County | (1SW Loring) | 24-35N-29E |
| 4. McKeever Farm & Seed Inc, Chouteau County | (12N Loma) | 28-27N-10E |

Dryland Spring Durum Trials:

- | | | |
|--|--------------|------------|
| 1. Leon Cederberg Farm, Blaine County | (3NE Turner) | 13-36N-25E |
| 2. Mark Peterson Farm, Hill County | (35NW Havre) | 31-36N-13E |
| 3. McKeever Farm & Seed Inc, Chouteau County | (12N Loma) | 28-27N-10E |

Dryland Spring Barley Trials:

- | | | |
|--|--------------|------------|
| 1. Leon Cederberg Farm, Blaine County | (3NE Turner) | 13-36N-25E |
| 2. Mark Peterson Farm, Hill County | (35NW Havre) | 31-36N-13E |
| 3. Flansaas/Lumsden Farm, Phillips County | (1SW Loring) | 24-35N-29E |
| 4. McKeever Farm & Seed Inc, Chouteau County | (12N Loma) | 28-27N-10E |

All trials were seeded in replicated, 3-row, 22-foot plots on a 12-inch row spacing utilizing a self-propelled cone seeder. Trials (1988-1991) were planted with hoe openers fitted with 'Acra-Plant' or JD 3" shovels. Beginning with spring planting in 1992, all off-station trials were planted with modified 'Haybuster' openers. Beginning with spring planting in 2005, all off-station trials were planted with 'Haybuster' openers further modified to provide narrow, paired-row seed placement for enhanced seed/fertilizer separation. A randomized complete block design was standard for all trials with three replications. Beginning in 1997, a 'Wintersteiger 1541-21' plot combine, funded in part by MWBC was used to harvest each 3-row plot. Preceding harvest, depending on sawfly severity, plots were either end-trimmed to 16' or left at 18' to avoid mixing of stems and heads between plots. Prior to 1997, a 'Hege 125C' plot combine, also funded in part by MWBC in 1984, was used. Some 1991 plots were harvested via the former binder/thresher method due to breakdown of the Hege plot combine. Other variables specific to each individual trial are listed with the current year data tables.

FUTURE PLANS:

It is planned, with drought, budget and other resources allowing, to continue off-station cereal variety investigations in the five-county area. This work has been strongly supported by producers near each of the locations, and by the Northern Ag Research Center Advisory Council. Budgets aside, expanded overall workload suggested that the number of replicated, off-station variety trial locations needed to be reduced - at least for the time being. Spring grains were dropped in 1997 (after 10 years of data) at the Myers (Big Sandy) location. This was an excellent location with outstanding producer cooperation and support. However, sawfly-resistant variety development efforts were initiated in 1997 involving establishment and maintenance of 2,000-3,000 plots on the McKeever Farm (Loma) only a few miles away where conditions (other than sawfly pressure) were quite similar. Thus, the Big Sandy location was put on hold; and standard off-station winter wheat, spring wheat, durum and barley variety trials were established at the Loma site. A steady reduction in sawfly pressure at the Loma location later resulted in relocation of the sawfly-resistant variety development work to northern Hill County as of the 2005 crop year. It was our intent to continue standard off-station

variety evaluation work at Loma until at least ten years of performance data are collected, which happened in 2008 for SW and BLY. Due to the ten years of data collection along with the workload associated with maintaining both winter and spring crops at the same location, spring trials will be dropped from the Loma location in 2009. This continues to be an excellent location with outstanding producer cooperation and support.

It is planned to continue winter wheat variety investigations at the Peterson (North Havre) and McKeever (Loma) locations. It is also planned to continue off-station spring wheat and barley variety evaluations at the Cederberg (Turner), Peterson (North Havre) and Flansaas/Lumsden (Loring) locations and durum evaluations at the Cederberg and Peterson locations. In 2009, off-station spring wheat, barley and durum variety evaluations will be discontinued at the McKeever (Loma) location. The Loring location is entering its' fourteenth year, and the cooperator and area producer interest and support has been outstanding. The Turner location is only 32 miles from the Loring site, but conditions there are quite different; and it is our opinion that the Turner location should be continued. 2008 marked 21 years at the present site (plus 5 years on a different soil series at a site nearby). Double plantings initiated in 1994 at Turner comparing fertilized vs. unfertilized plots were terminated following the 1998 crop year as originally planned. Cooperating producer and general community interest and support at Turner is outstanding.

Data processed by the Center will normally be limited to trials where the Center performs all field functions from planting to harvest. Special arrangements may be made with Extension Agents desiring to conduct additional replicated trials on their own. Packaged seed can likely again be provided to the County Extension Agents as per their needs for non-replicated demonstration locations. Such demonstrations will be for display and discussion use by the County Extension Agent; and performance data will not be collected or processed by the Research Center for any such demonstration plantings.

It is our current opinion that effort put forth to generate quality multi-year data at a few sites, carefully chosen to represent principal differences in average growing season conditions, is superior to an approach involving less concentrated work at greater numbers of locations. This is particularly true when critical season workload would otherwise result in less than timely planting and maintenance of certain sites.

TABLE 1. Dryland Fallow Winter Wheat Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-3852-WW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/		2/		3/
				YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PROTEIN %	SAWFLY %
MTS04114	L'Govskaya167/Rmp//MT940	92.9	25.3	54.4	10.9	59.9	12.9	38.3
MTS0531	L'Govskaya167//Rmp//MT94	88.0	24.5	52.4	11.1	59.0	12.6	18.3
MTS0532	L'Govskaya167/Rmp//MT940	91.7	26.7	51.0	11.1	60.3	12.3	20.0
PI619098	WAHOO	88.6	25.9	50.2	10.8	58.1	12.4	43.3
MTS0031	GENOU	82.7	26.6	49.1	11.5	58.5	13.6	30.0
PI517194	TIBER	92.3	29.9	48.7	10.9	60.7	13.1	51.7
JAGALENE	JAGALENE	86.4	23.8	48.4	10.8	59.5	12.7	50.0
MT0495	MT9640/NB1133	92.0	27.4	48.3	10.1	57.7	13.0	53.3
MTCL0306	HYALITE	88.9	28.1	48.2	10.7	60.4	13.1	56.7
MTCL0316	NORRIS	86.1	28.2	47.8	10.3	60.3	12.7	63.3
MT00159	YELLOWSTONE	93.5	29.8	47.3	10.4	58.4	12.6	50.0
BZ96-788	LEDGER	88.3	25.3	46.9	11.4	59.6	11.9	13.3
CI 17879	ROCKY	88.9	25.4	46.4	11.0	60.0	12.7	33.3
MTW9441	NuSKY	90.4	29.9	43.9	10.5	60.5	13.1	50.0
BZ022060	CARTER	87.6	23.4	43.2	11.7	58.3	13.3	30.0
MT0552	N95L159/CDC Clair	84.6	25.3	42.9	11.1	58.9	13.8	35.0
ND9257	JERRY	93.8	29.4	42.8	11.0	58.7	12.6	43.3
BZ96-919	PRYOR	90.4	24.3	42.2	11.0	57.6	13.0	31.7
PI593889	RAMPART	90.1	26.3	41.7	11.1	58.7	13.8	21.7
MTCL0318	BYNUM	85.5	26.6	40.0	11.0	59.8	13.7	30.0
S94-4	CDC FALCON	94.1	24.8	38.8	11.0	57.2	13.2	40.0
MTS04120	L'Govskaya 167/ Rampart	88.0	27.6	38.7	11.4	58.8	13.2	30.0
PI555458	PROMONTORY	88.9	26.9	38.0	10.7	60.3	12.6	73.3
CI 17860	NEELEY	91.7	28.2	34.8	10.8	57.4	13.2	48.3
EXPERIMENTAL MEANS		89.4	26.7	45.3	10.9	59.1	13.0	39.8
LSD (0.05)		9.8	3.7	7.0	0.3	1.4	-	15.0
C.V.2: (S of MEAN / MEAN)*100		3.9	4.8	5.4	0.8	0.9	-	13.2

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-3852-WW)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	NE		S (ppm) 0-24	62	2" Soil Temp (°F) @ Plnt'g	54
Section	31		Zn (ppm) 0-6	0.52	4" Soil Temp (°F) @ Plnt'g	52
Township	36N		Fe (ppm) 0-6	25.4	Fertilizer Formulation	Gran Blend
Range	13E		Mn (ppm) 0-6	10.32	Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.234'		Cu (ppm) 0-6	0.85	Fert. Rate (lbs/ac) N	70
Longitude	W110 5.366'		CEC 0-6	10	Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	6.4		Soil Texture 6-24	n/a	Herbicide App. Date	5/20
Org.Matter (%) 0-6	0.9		Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	12		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	20 oz
N (lbs/ac) 6-24	24		Init PAW (in.) 0-6"	1.04	Precip (in.) Plnt'g-Harvest	-
N (lbs/ac) 24-36	8		Init PAW (in.) 6-24"	3.73	Precip (>.1) Plnt'g-Harvest	-
N (lbs/ac) 36-48	6		Init PAW (in.) 24-36"	2.85	Harvest Date	8/28
N (lbs/ac) 0-48	50		Init PAW (in.) 36-48"	3.41	Rooting Depth (in.)	39"
P (ppm) Olsen 0-6	18		Init PAW (in.) 0-48"	11.03	Post PAW (in.) 0-6"	0.26
K (ppm) 0-6	272		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	2.27
Ca (ppm)	1213		Previous Crop	WW	Post PAW (in.) 24-36"	0.97
Mg (ppm) 0-6	383		Planting Date	10/1	Post PAW (in.) 36-48"	1.71
Na (ppm) 0-6	13		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	5.21
SaltHaz (MMHOS/cm) 0-6	0.2		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 2. Five-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Winter Wheat Variety Nurseries Grown Off-Station in a Wheat Stem Sawfly Environment at Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2003-2008. (Exp# 3852-WW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)							
		2004 6/	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	5-YR COMP. AVE. YIELD 5/	2004 6/	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/
MT00159 YELLOWSTONE (++)	3		40.1	53.4	47.3	46.9	118.2	49.6		61.2	60.1	58.4	59.9	101.9		58.8
MTCL0316 NORRIS (P, CL++)	4	35.8	40.5	52.1	47.8	44.1	117.1	49.1	55.7	62.9	61.7	60.3	60.2	104.0		60.0
BZ96-788 LEDGER (P+)	3		33.5	58.6	46.9	46.3	116.6	48.9		61.9	61.5	59.6	61.0	103.8		59.9
MTS 0031 GENOU (sawfly res)(++)	5	36.9	40.1	63.3	49.1	48.9	116.6	48.9	55.1	61.6	61.3	58.5	59.2	102.6		59.2
PI619098 WAHOO (++)	4	31.4	30.0	62.9	50.2	43.6	116.0	48.6	53.8	60.8	60.1	58.1	58.2	100.6		58.1
JAGALENE JAGALENE (P+)	4	32.9	30.6	53.2	48.4	41.3	109.6	46.0	56.9	62.3	62.6	59.5	60.3	104.2		60.1
MTCL0306 HYALITE (P, CL++)	4	34.4	31.4	50.7	48.2	41.2	109.5	45.9	56.3	61.7	61.1	60.4	59.9	103.5		59.7
CI 17879 ROCKY (P)	5	35.8	35.8	54.0	46.4	44.8	106.7	44.8	57.2	62.6	62.1	60.0	60.6	105.1		60.6
MTW 9441 NUSKY (HW)	5	30.5	39.7	52.4	43.9	44.5	106.0	44.5	55.3	61.3	60.1	60.5	59.5	103.1		59.5
ND9257 JERRY	5	34.3	27.4	55.2	42.8	44.2	105.4	44.2	54.1	59.7	60.7	58.7	58.2	100.8		58.2
PI593889 RAMPART (sawfly res)	5	35.9	34.0	53.9	41.7	44.1	105.0	44.1	55.1	61.2	61.1	58.7	59.2	102.5		59.2
PI555458 PROMONTORY	5	37.2	29.4	59.3	38.0	44.0	104.9	44.0	57.4	61.8	61.4	60.3	60.5	104.9		60.5
PI599336 MORGAN (P+)	4	35.3	34.6	54.5		45.2	103.4	43.4	53.6	59.6	61.0		58.0	100.4		58.0
PI517194 TIBER	5	34.5	34.0	52.6	48.7	43.0	102.5	43.0	55.4	61.3	60.9	60.7	59.6	103.3		59.6
MTCL0318 BYNUM (sf res)(P, CL++)	4	33.8	28.7	51.7	40.0	38.6	102.4	43.0	56.4	60.5	61.3	59.8	59.5	102.8		59.3
PI593891 VANGUARD (sawfly res)	4	38.2	36.5	57.1		44.7	102.1	42.8	55.4	61.5	61.2		59.4	102.8		59.3
S94-4 CDC FALCON (P+)	5	31.4	34.8	53.6	38.8	42.5	101.4	42.5	54.3	61.2	60.2	57.2	58.4	101.1		58.4
BZ96-919 PRYOR (P+)	5	31.6	33.3	54.6	42.2	42.0	100.2	42.0	54.0	61.2	60.1	57.6	58.1	100.6		58.1
CI 17860 NEELEY	5	31.4	34.2	50.1	34.8	41.9	100.0	41.9	55.2	58.5	60.4	57.4	57.7	100.0		57.7
MT 9432 BIGSKY (++)	4	32.8	33.2	56.8		42.2	96.4	40.4	55.0	61.4	61.0		59.6	103.2		59.5
MEANS (For Entries Listed)		34.1		55.0	44.4			44.9	55.3	61.0	59.2					59.2
7/ Growing Season Precipitation (in.)		n/a	4.7	3.9	4.8	4.3										
Soil PAW (in.) to SD @ Planting		8.0	4.5	7.4	11.0	7.9										
Total Plant Available Water (in.)		8.0	9.2	11.2	15.8	11.3										
Soil NO3 (lbs.) to SD at Planting		108	178	364	50	156										
Fertilizer Applied	(# N)	70	70	70	70	70										
	(# P ₂ O ₅)	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25										

Check Variety is Neeley.

1/ See MCES Bulletin 1098 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, winter hardiness, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending, HW = Hard White Wheat, CL = Clearfield Tolerant.

3/ Only the most recent 5 years shown, but summary calculations include all years noted.

4/ Percent of Neeley yield or test weight for the same data years as those in which a given entry was tested.

5/ 5-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Neeley for the same years, and z = 5-Yr average yield or test weight for the check variety Neeley.

6/ 2004 Nursery not harvested due to extreme variability not associated with varietal differences.

7/ April 1 to 14 days prior to harvest maturity.

TABLE 3. Dryland Fallow Winter Wheat Cultivar Evaluation Nursery Grown Off-Station at the McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-3853-WW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOISTURE %	TEST WT Lbs/Bu	2/	3/
				YIELD Bu/Ac			PROTEIN %	SAWFLY %
JAGALENE	JAGALENE	92.0	30.7	79.5	7.7	57.9	14.0	2.3
MT0495	MT9640/NB1133	90.1	30.2	78.9	7.2	55.6	13.9	11.7
MTCL0306	HYALITE	89.5	32.6	78.6	7.7	58.3	13.8	8.7
S94-4	CDC FALCON	88.9	30.8	78.6	7.5	56.1	13.6	1.0
MTS04114	L'Govskaya 167/RMP//MT940	94.1	31.1	78.2	8.0	57.8	13.6	3.7
MTS0531	L'Govskaya 167/RMP//MT94	90.4	29.3	78.0	7.7	56.8	14.0	2.3
MT0552	N95L159/CD	93.8	28.6	77.0	7.6	56.8	13.9	2.3
MTS0532	L'Govskaya 167/RMP//MT940	94.4	31.0	76.5	7.7	57.5	14.4	2.3
MT00159	YELLOWSTONE	93.8	31.7	76.5	7.3	55.1	14.8	10.0
PI555458	PROMONTORY	83.7	29.7	75.9	7.8	59.7	12.9	15.0
PI619098	WAHOO	94.7	29.0	75.5	7.3	55.8	13.9	10.0
MTW9441	NuSKY	88.9	36.3	75.1	7.7	57.4	14.0	3.7
ND9257	JERRY	90.1	34.4	74.3	7.8	57.8	13.1	8.3
CI 17879	ROCKY	93.2	33.5	71.7	7.7	58.0	13.7	5.3
MTCL0316	NORRIS	93.2	36.4	70.3	7.5	57.6	14.1	18.3
BZ96-919	PRYOR	95.1	27.5	66.4	7.0	54.6	14.8	1.0
MTCL0318	BYNUM	90.1	33.7	65.5	7.7	59.5	14.1	8.3
BZ022060	CARTER	92.9	25.1	63.9	7.5	56.8	14.7	3.7
CI 17860	NEELEY	97.2	34.8	62.4	7.5	55.0	14.7	10.3
BZ96-788	LEDGER	89.5	27.6	62.3	7.7	57.5	13.6	4.0
PI517194	TIBER	96.3	37.5	60.3	7.5	57.4	15.0	11.7
MTS0031	GENOU	93.2	32.8	58.5	7.3	55.4	15.0	3.7
PI593889	RAMPART	94.7	32.4	55.9	7.5	57.3	14.6	3.7
MTS04120	L'Govskaya 167/Rampart	87.0	31.0	52.0	7.5	56.4	14.9	5.3
EXPERIMENTAL MEANS		92.0	31.6	70.5	7.6	57.0	14.1	6.5
LSD (0.05)		8.7	3.2	10.6	0.4	2.2	-	6.9
C.V.2: (S of MEAN / MEAN)*100		3.3	3.5	5.3	1.6	1.4	-	37.1

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-3853-WW)						
Field			SaltHaz (MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @Plnt'g	0.25
Quarter	NW		S (ppm) 0-24	62	2" Soil Temp (°F) @ Plnt'g	52
Section	28		Zn (ppm) 0-6	0.99	4" Soil Temp (°F) @ Plnt'g	50
Township	27N		Fe (ppm) 0-6	39.5	Fertilizer Formulation	Gran Blend
Range	10E		Mn (ppm) 0-6	15.22	Fertilizer Placement	Bnd at Plntg
Latitude	N48 4.165'		Cu (ppm) 0-6	1.2	Fert. Rate (lbs/ac) N	70
Longitude	W 110 27.404'		CEC 0-6	11	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	6		Soil Texture 6-24	n/a	Herbicide App. Date	5/20
Org.Matter (%) 0-6	1.5		Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	56		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	20 oz
N (lbs/ac) 6-24	54		Init PAW (in.) 0-6"	1.32	Precip (in.) Plnt'g-Harvest	-
N (lbs/ac) 24-36	52		Init PAW (in.) 6-24"	4.11	Precip (>.1) Plnt'g-Harvest	-
N (lbs/ac) 36-48	138		Init PAW (in.) 24-36"	2.75	Harvest Date	8/25
N (lbs/ac) 0-48	300		Init PAW (in.) 36-48"	2.34	Rooting Depth (in.)	-
P (ppm) Olsen 0-6	31		Init PAW (in.) 0-48"	10.52	Post PAW (in.) 0-6"	-
K (ppm) 0-6	518		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	-
Ca (ppm)	1334		Previous Crop	SW	Post PAW (in.) 24-36"	-
Mg (ppm) 0-6	349		Planting Date	10/3	Post PAW (in.) 36-48"	-
Na (ppm) 0-6	14		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	-
SaltHaz (MMHOS/cm) 0-6	0.3		Moist Soil Depth @Plnt'g	48+	Precip (>.1) Hvst-Post	-

TABLE 4. Nine-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Winter Wheat Variety Nurseries Grown Off-Station at McKeever Farms, Loma, Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 3853-WW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)					9-YR COMP. AVE. TEST WT 5/					
		2004	2005	2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK YIELD 4/	9-YR COMP. AVE. YIELD 5/	2004	2005		2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK TEST WT 4/
MT00159 YELLOWSTONE (++)	6	89.2	62.1	65.2	65.5	76.5	68.3	105.6	55.7	57.5	61.0	60.6	58.6	55.1	58.2	100.1	58.3
PI619098 WAHOO (++)	5	88.8	75.3	48.2	73.9	75.5	72.3	103.6	54.6	58.3	61.2	60.1	59.0	55.8	58.9	100.5	58.5
S94-4 CDC FALCON (P+)	6	81.4	75.0	48.8	67.5	78.6	65.7	101.6	53.6	57.0	62.8	61.3	59.1	56.1	58.6	100.8	58.7
BZ96-919 PRYOR (P+)	6	81.8	79.6	57.4	59.3	66.4	64.7	100.0	52.7	56.0	62.2	62.5	57.8	54.6	58.2	100.1	58.2
CI 17860 NEELEY	9	82.3	79.4	64.5	60.4	62.4	52.7	100.0	52.7	56.4	62.9	60.6	57.9	55.0	58.2	100.0	58.2
MTCL0306 HYALITE (P, CL++)	4		69.9	56.3	61.7	78.6	66.6	99.9	52.7		62.5	61.8	60.2	58.3	60.7	102.7	59.8
PI555458 PROMONTORY	9	81.0	64.3	56.6	64.4	75.9	52.6	99.8	52.6	59.7	63.0	61.7	61.9	59.7	60.5	103.9	60.5
JAGALENE JAGALENE (P+)	5	93.0	64.6	48.2	62.9	79.5	69.6	99.8	52.6	61.7	63.6	62.8	62.2	57.9	61.6	105.3	61.3
CI 17879 ROCKY (P)	9	91.1	71.9	28.6	68.2	71.7	52.6	99.7	52.6	60.7	63.2	60.8	61.2	58.0	60.4	103.7	60.4
MTCL0316 NORRIS (P, CL++)	4		71.5	60.9	61.2	70.3	66.0	98.9	52.2		62.8	62.4	60.4	57.6	60.8	102.9	59.9
ND9257 JERRY	6	88.2	63.2	44.5	60.7	74.3	62.3	96.4	50.8	57.1	61.3	60.2	58.3	57.8	58.7	101.0	58.8
MTW 9441 NUSKY (HW)	9	79.1	63.0	60.3	62.5	75.1	50.8	96.3	50.8	57.1	61.5	62.0	59.3	57.4	59.2	101.7	59.2
BZ96-788 LEDGER (P+)	3			55.2	61.5	62.3	59.7	95.6	50.4			61.1	60.6	57.5	59.7	103.3	60.1
PI517194 TIBER	9	74.2	66.2	51.2	58.7	60.3	50.1	95.0	50.1	57.6	62.0	61.3	59.4	57.4	59.6	102.4	59.6
PI599336 MORGAN (P+)	8	79.1	58.3	57.7	64.7		48.6	94.4	49.8	54.1	60.1	60.7	58.6		58.1	99.1	57.7
PI593891 VANGUARD (sawfly res)	8	74.4	68.5	50.3	57.8		47.7	92.6	48.8	57.3	61.6	60.6	59.3		59.6	101.7	59.2
MT 9432 BIGSKY (++)	8	73.7	73.1	48.3	59.4		47.5	92.2	48.6	54.7	62.6	60.7	58.5		59.1	100.8	58.7
MTS 0031 GENOU (sawfly res)(++)	6	73.5	69.3	57.3	58.5	58.5	59.4	91.9	48.5	58.2	62.2	61.2	58.6	55.4	58.6	100.9	58.7
PI593889 RAMPART (sawfly res)	9	70.5	61.7	49.0	60.0	55.9	47.7	90.4	47.7	56.9	61.5	61.0	59.5	57.3	59.4	102.0	59.4
MTCL0318 BYNUM (sf res)(P, CL++)	4		61.2	46.7	59.6	65.5	58.3	87.4	46.1		61.4	60.4	60.5	59.5	60.5	102.3	59.5
MEANS (For Entries Listed)		81.3	68.3	52.7	62.4	69.8			51.2	57.5	62.1	61.2	59.5	57.1			59.2
7/ Growing Season Precipitation (in.)		7.4	n/a	8.6	6.9	8.9	7.2										
Soil PAW (in.) to SD @ Planting		5.7	4.0	7.6	n/a	10.5	7.2										
Total Plant Available Water (in.)		13.1	4.0	16.2	n/a	19.4	13.0										
Soil NO3 (lbs.) to SD at Planting		286	514	192	n/a	300	292										
Fertilizer Applied	(# N)	70	70	70	70	70	69										
	(# P ₂ O ₅)	40	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Neeley.

1/ See MCES Bulletin 1098 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, winter hardiness, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending, HW = Hard White Wheat, CL = Clearfield Line.

3/ Only the most recent 5 years shown, but summary calculations include all years noted.

4/ Percent of Neeley yield or test weight for the same data years as those in which a given entry was tested.

5/ 9-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Neeley for the same years, and z = 9-Yr average yield or test weight for the check variety Neeley.

6/ 2002 Nursery abandoned due to extreme drought stress at this location.

7/ April 1 to 14 days prior to harvest maturity.

**TABLE 5. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2008.
(Exp# 08-9951-SW)**

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOISTURE %	TEST WT Lbs/Bu	2/	3/
				YIELD Bu/Ac			PROTEIN %	SAWFLY %
PI619086	EXPLORER	95.4	20.5	21.2	13.7	56.8	15.0	33.3
BZ9M1044	JEDD	90.1	19.0	20.8	13.5	58.2	14.1	23.3
BZ999592	ONEAL	94.4	20.9	20.5	13.9	57.9	14.5	21.7
PI633974	CHOTEAU	97.8	18.2	20.3	12.7	54.5	15.9	13.3
PI642366	VIDA	97.8	18.5	20.2	13.2	55.8	15.2	20.0
PF906408	HANK*6/CHOTEAU	92.0	19.2	20.2	13.5	56.4	14.4	30.0
MTHW0471	MTHW9701/MTHW9904	99.4	20.3	19.7	13.3	57.4	15.0	25.0
MT 0415	MT9408/MT9406//REEDER	97.2	19.5	19.7	13.3	56.5	16.0	21.7
BZ996434	CORBIN	96.3	18.6	19.7	13.7	56.6	16.0	11.7
PI574642	McNEAL	99.1	19.6	19.4	13.7	55.7	14.7	46.7
AGRIPRO3	FREYR	95.7	22.8	19.4	13.3	56.6	15.1	31.7
AGRIPRO6	KELBY	91.0	18.8	19.1	13.3	57.0	16.2	21.7
AP-ST-13	04S0514-3-1	94.1	19.1	19.1	13.0	55.8	15.2	18.3
BZ992588	CONAN	94.4	18.8	18.9	13.3	57.3	15.1	10.0
PI632252	OUTLOOK	99.1	20.0	18.8	13.5	55.6	14.8	30.0
BZ992322	HANK	91.3	20.6	18.4	13.5	56.6	14.7	20.0
AP-ST-14	04S0514-5-3	96.3	18.0	18.3	13.4	57.7	14.7	20.0
ND 695	REEDER	99.1	19.0	18.1	13.5	56.7	15.6	18.3
AP-ST-12	04S0514-1-12	95.7	18.9	17.9	13.4	56.3	15.8	25.0
AP-ST-16	04S0515-2-2	95.1	18.1	17.8	13.0	55.3	15.2	30.0
AGRIPRO7	KUNTZ	92.6	20.0	17.5	13.3	56.7	14.9	35.0
CI 13596	FORTUNA	97.5	20.7	17.5	13.0	56.3	15.5	8.3
AP-ST-15	04S0515-1-1	95.7	17.9	17.4	13.0	55.2	15.3	15.0
AGRIPRO1	NORPRO	95.0	18.9	17.2	13.2	55.6	16.0	23.3
ACS53610	VOLT	94.8	20.4	16.2	13.3	56.7	15.1	70.0
EXPERIMENTAL MEANS		95.5	19.4	18.9	13.3	56.5	15.2	24.9
LSD (0.05)		3.4	2.1	2.4	0.3	0.5	-	10.6
C.V.2: (S of MEAN / MEAN)*100		1.3	3.9	4.5	0.7	0.3	-	14.9

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9951-SW)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	SE		S (ppm) 0-24	50	2" Soil Temp (°F) @ Plnt'g	54
Section	13		Zn (ppm) 0-6	0.6	4" Soil Temp (°F) @ Plnt'g	52
Township	36N		Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran Blend
Range	25E		Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 52.345'		Cu (ppm) 0-6	0.92	Fert. Rate (lbs/ac) N	70
Longitude	W108 23.322'		CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Soil Texture 0-6	CL-	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a		Soil Texture 6-24	CL	Herbicide App. Date	6/16
Org.Matter (%) 0-6	1.5		Soil Texture 24-36	CL	Herbicide Product	Bison/Achieve
N (lbs/ac) 0-6	32		Soil Texture 36-48	CL	Herbicide Rate (/ac)	20 oz
N (lbs/ac) 6-24	39		Init PAW (in.) 0-6"	0.93	Precip (in.) Plnt'g-Harvest	8.92
N (lbs/ac) 24-36	n/a		Init PAW (in.) 6-24"	3.20	Precip (>.1) Plnt'g-Harvest	7.82
N (lbs/ac) 36-48	n/a		Init PAW (in.) 24-36"	1.83	Harvest Date	9/16
N (lbs/ac) 0-48	71		Init PAW (in.) 36-48"	2.13	Rooting Depth (in.)	32
P (ppm) Olsen 0-6	21		Init PAW (in.) 0-48"	8.08	Post PAW (in.) 0-6"	1.09
K (ppm) 0-6	283		Cropping System	NT-MechFlw	Post PAW (in.) 6-24"	1.74
Ca (ppm)	n/a		Previous Crop	DUR	Post PAW (in.) 24-36"	0.79
Mg (ppm) 0-6	n/a		Planting Date	5/12	Post PAW (in.) 36-48"	n/a
Na (MEQ/100g) 0-6	n/a		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	3.63
SaltHaz (MMHOS/cm) 0-6	0.45		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 6. Nine-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 9951-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)						TEST WEIGHT (Pounds Per Bushel)					9-YR COMP. AVE. YIELD 5/	9-YR COMP. AVE. TEST WT 5/			
		2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	2004	2005	2006	2007			2008	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/
PI642366 VIDA (++)	5	64.0	51.0	24.7	23.9	20.2	36.8	122.1	36.6	60.8	59.6	57.5	53.9	55.8	57.5	98.7	58.2
PI549275 HI-LINE	5	55.2					41.2	121.9	36.6	61.3					59.9	99.6	58.7
PI574642 McNEAL	9	58.4	43.0	22.0	23.6	19.4	36.5	121.6	36.5	61.3	59.6	56.9	53.0	55.7	58.2	98.6	58.2
PI633974 CHOTEAU (+)(sawfly res)	8	55.2	45.4	24.1	24.0	20.3	33.9	119.4	35.8	60.3	59.2	56.5	54.3	54.5	57.7	98.3	58.0
CI17430 NEWANA (HW, ++)	5	55.7					39.9	118.0	35.4	61.4					60.7	100.9	59.5
ND695 REEDER (+)	9	56.0	46.0	19.7	22.4	18.1	34.9	116.5	34.9	61.7	61.3	56.4	54.6	56.7	59.2	100.3	59.2
C982-324 WB RAMBO (P+)(mod sf res)	5	57.1					39.4	116.5	34.9	61.2					60.5	100.7	59.4
PI592761 ERNEST (+)(sawfly res)	8	54.5	39.3	23.4	22.4		36.2	114.8	34.4	60.3	59.5	57.7	54.5		59.0	99.5	58.6
PI527682 AMIDON (++)	5	48.3					38.8	114.7	34.4	60.0					59.5	99.0	58.4
PI632252 OUTLOOK (++)	8	54.6	44.5	20.9	24.3	18.8	32.4	114.2	34.3	60.8	59.5	55.8	53.3	55.6	57.7	98.3	57.9
PI607557 SCHOLAR (+)(mod sf res)	8	52.9	41.9	20.6	20.7		35.5	112.7	33.8	61.5	60.1	57.3	54.1		59.3	100.0	59.0
PI619086 EXPLORER (HW, ++)	9	47.6	47.8	23.9	21.4	21.2	33.7	112.4	33.7	60.8	59.5	57.7	54.9	56.8	58.5	99.3	58.5
BZ992588 CONAN (P+)(sawfly tol)	9	53.0	43.7	21.2	24.4	18.9	33.5	111.6	33.5	61.6	60.7	58.6	56.2	57.3	59.6	101.0	59.6
BZ996472 AGAWAM (HW, P++)	3		46.4	23.2	23.1		30.9	111.2	33.3		61.2	60.5	57.4		59.7	103.1	60.8
PI612605 MTHW9420 (HW, P++)	5	46.1					36.6	108.3	32.5	60.4					59.4	98.7	58.2
BZ992322 HANK (P+)	7	51.8	42.1	21.4	25.1	18.4	31.0	107.7	32.3	60.1	59.7	56.2	54.1	56.6	57.6	98.7	58.2
WPB926 WB 926 (P)	8	47.0	43.2	21.4	20.9		33.4	105.7	31.7	60.2	58.8	56.3	54.6		58.4	98.5	58.1
CI13596 FORTUNA (++)	9	49.7	38.9	20.8	23.7	17.5	30.0	100.0	30.0	61.2	60.2	58.3	55.3	56.3	59.0	100.0	59.0
AGRIPRO2 KNUDSON (P+)	3		45.0	19.2	18.6		27.6	99.2	29.8		60.0	58.0	55.5		57.8	99.8	58.9
AGRIPRO1 NORPRO (P+)	4		44.6	19.4	17.3	17.2	24.6	97.7	29.3		57.7	55.9	52.0	55.6	55.3	96.2	56.7
AGRIPRO3 FREYR (P+)	3			19.2	20.3	19.4	19.6	95.0	28.5			57.5	54.7	56.6	56.3	99.4	58.6
MEANS (For Entries Listed)		53.4	44.2	21.6	22.3	19.0			33.4	60.9	59.8	57.3	54.5	56.1			58.6
6/ Growing Season Precipitation (in.)		13.7	9.7	2.5	7.0	6.6	7.1										
Soil PAW (in.) to SD @ Planting		7.4	8.0	8.8	5.8	8.1	7.2										
Total Plant Available Water (in.)		21.1	17.7	11.3	9.6	14.6	12.9										
Soil NO3 (lbs.) to SD at Planting		160	84	64	81	n/a	98										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	70	70	70	70										
	(# P ₂ O ₅)	40	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending, HW = Hard White Wheat.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

5/ 9-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 9-Yr average yield or test weight for the check variety Fortuna.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 7. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-9952-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOISTURE %	TEST WT Lbs/Bu	2/	3/
				YIELD Bu/Ac			PROTEIN %	SAWFLY %
BZ9M1044	JEDD	98.8	24.4	45.8	10.6	61.3	13.3	16.7
PF906408	HANK*6/CHOTEAU	99.7	25.3	45.6	10.4	59.6	13.5	11.7
BZ999592	ONEAL	99.4	27.7	44.5	11.0	61.2	13.2	11.7
PI642366	VIDA	100.0	29.0	42.0	11.0	59.0	12.6	6.7
BZ996434	CORBIN	99.7	29.5	41.9	11.0	60.2	13.6	2.3
AGRIPRO7	KUNTZ	98.4	26.5	41.1	10.9	59.9	13.2	26.7
PI633974	CHOTEAU	99.1	26.8	41.0	10.9	58.4	14.2	18.3
ND 695	REEDER	99.4	26.7	40.3	10.3	58.8	15.3	31.7
AGRIPRO1	NORPRO	100.0	26.0	40.0	10.8	59.4	13.0	25.0
ACS53610	VOLT	98.4	27.5	39.6	11.2	61.1	13.5	6.7
BZ992588	CONAN	99.4	26.9	38.6	10.5	59.7	14.6	4.0
BZ992322	HANK	98.1	25.7	38.2	10.0	58.2	13.9	33.3
AGRIPRO3	FREYR	99.4	29.4	38.1	10.8	60.1	13.4	31.7
MT 0415	MT9408/MT9406//REEDER	100.0	28.9	36.8	10.6	59.8	13.6	30.0
MTHW0471	MTHW9701/MTHW9904	99.4	31.0	36.2	11.0	61.2	12.8	20.0
PI574642	MCNEAL	100.0	28.2	34.9	10.4	58.4	13.1	28.3
PI619086	EXPLORER	99.1	27.3	34.5	10.4	59.5	14.1	23.3
AGRIPRO6	KELBY	99.4	27.0	34.5	10.5	60.6	14.7	25.0
PI632252	OUTLOOK	98.7	26.4	33.4	10.3	57.8	14.7	16.7
CI 13596	FORTUNA	99.1	29.8	25.6	10.9	59.0	14.6	20.0
EXPERIMENTAL MEANS		99.3	27.5	38.6	10.7	59.7	13.7	19.5
LSD (0.05)		1.3	2.0	5.8	0.4	1.7	-	9.6
C.V.2: (S of MEAN / MEAN)*100		0.5	2.5	5.3	1.4	1.0	-	17.2

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9952-SW)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	NE		S (ppm) 0-24	62	2" Soil Temp (°F) @ Plnt'g	58
Section	31		Zn (ppm) 0-6	0.5	4" Soil Temp (°F) @ Plnt'g	55
Township	36N		Fe (ppm) 0-6	25.4	Fertilizer Formulation	Gran Blend
Range	13E		Mn (ppm) 0-6	10.3	Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.234'		Cu (ppm) 0-6	0.9	Fert. Rate (lbs/ac) N	70
Longitude	W110 5.366'		CEC 0-6	10.0	Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	6.40		Soil Texture 6-24	n/a	Herbicide App. Date	6/24
Org.Matter (%) 0-6	0.90		Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	12		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	16oz
N (lbs/ac) 6-24	24		Init PAW (in.) 0-6"	0.99	Precip (in.) Plnt'g-Harvest	4.78
N (lbs/ac) 24-36	8		Init PAW (in.) 6-24"	3.46	Precip (>.1) Plnt'g-Harvest	4.39
N (lbs/ac) 36-48	6		Init PAW (in.) 24-36"	1.91	Harvest Date	8/28
N (lbs/ac) 0-48	50		Init PAW (in.) 36-48"	2.25	Rooting Depth (in.)	n/a
P (ppm) Olsen 0-6	18		Init PAW (in.) 0-48"	8.60	Post PAW (in.) 0-6"	0.2
K (ppm) 0-6	272		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.4
Ca (ppm)	1213		Previous Crop	WW	Post PAW (in.) 24-36"	0.9
Mg (ppm) 0-6	383		Planting Date	5/14	Post PAW (in.) 36-48"	0.5
Na (ppm) 0-6	13		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	3.0
SaltHaz (MMHOS/cm) 0-6	0.20		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 8. Four-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station Mark Peterson Farm North Havre. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 9952-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)				AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	4-YR COMP. AVE. YIELD 5/	TEST WEIGHT (Pounds Per Bushel)				AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	4-YR COMP. TEST WT 5/
		2005	2006	2007	2008				2005	2006	2007	2008			
PI642366 VIDA (++)	4	29.6	16.2	46.4	42.0	33.6	130.8	33.6	52.2	51.2	56.4	59.0	54.7	97.7	54.7
BZ992588 CONAN (P+)(sawfly tol)	4	29.4	18.0	45.3	38.6	32.8	127.9	32.8	54.6	54.2	58.4	59.7	56.7	101.3	56.7
PI633974 CHOTEAU (+)(sawfly res)	4	27.9	16.3	41.5	41.0	31.7	123.5	31.7	52.9	52.0	56.9	58.4	55.1	98.3	55.1
AGRIPRO3 FREYR (P+)	3		12.9	42.1	38.1	31.0	122.0	31.3		50.9	57.6	60.1	56.2	99.4	55.6
PI632252 OUTLOOK (++)	4	25.9	15.3	45.5	33.4	30.0	117.0	30.0	52.0	50.8	54.1	57.8	53.7	95.8	53.7
BZ992322 HANK (P+)	4	25.2	14.8	41.5	38.2	29.9	116.7	29.9	51.1	51.5	55.8	58.2	54.1	96.7	54.1
BZ996472 AGAWAM (P)	3	28.3	18.1	42.7		29.7	115.7	29.7	56.0	55.9	60.4		57.5	104.5	58.5
ND 695 REEDER (+)	4	20.4	11.2	46.5	40.3	29.6	115.4	29.6	51.6	50.6	57.1	58.8	54.5	97.3	54.5
PI619086 EXPLORER (HW, ++)	4	24.8	15.3	42.9	34.5	29.4	114.5	29.4	52.3	50.5	55.7	59.5	54.5	97.3	54.5
PI574642 McNEAL	4	24.3	14.7	40.0	34.9	28.5	110.9	28.5	51.8	50.2	54.6	58.4	53.7	95.9	53.7
AGRIPRO1 NORPRO (P+)	4	15.0	12.1	42.7	40.0	27.4	107.0	27.4	48.1	49.3	57.7	59.4	53.6	95.7	53.6
PI592761 ERNEST (+)(sawfly res)	3	25.1	17.2	39.1		27.1	105.7	27.1	53.0	52.7	56.8		54.2	98.5	55.1
WB 926 WESTBRED 926 (P)	3	22.6	17.7	38.2		26.1	101.9	26.1	51.4	52.2	56.0		53.2	96.7	54.2
CI 13596 FORTUNA (sawfly res)	4	26.3	12.5	38.3	25.6	25.7	100.0	25.7	54.3	53.6	57.1	59.0	56.0	100.0	56.0
AGRIPRO2 KNUDSON (P+)	3	21.5	13.2	40.6		25.1	97.8	25.1	52.6	52.6	58.1		54.4	99.0	55.4
PI607557 SCHOLAR (+)(mod sf res)	3	19.3	13.0	40.9		24.4	95.0	24.4	52.5	52.3	58.4		54.4	98.9	55.4
MEANS (For Entries Listed)		24.4	14.9	42.1	37.0			28.9	52.4	51.9	56.9	58.9			55.1
6/ Growing Season Precipitation (in.)		3.96	4.07	3.88	4.78		4.17								
Soil PAW (in.) to SD @ Planting		2.67	n/a	0.99	8.6		4.09								
Total Plant Available Water (in.)		6.63	n/a	5.69	13.38		8.57								
Soil NO3 (lbs.) to SD at Planting		60	n/a	10	n/a		35								
SD (Sampling Depth in Inches)		48	n/a	6	48		34								
Fertilizer Applied															
	(# N)	70	70	70	70		70								
	(# P ₂ O ₅)	40	40	40	40		40								
	(# K ₂ O)	25	25	25	25		25								

Check Variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending, HW = Hard White Wheat.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

5/ 4-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 4-Yr average yield or test weight for the check variety Fortuna.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 9. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-9955-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOISTURE %	TEST WT Lbs/Bu	2/	3/
				YIELD Bu/Ac			PROTEIN %	SAWFLY %
BZ9M1044	JEDD	96.0	22.6	39.5	14.4	59.6	13.9	1.0
BZ999592	ONEAL	96.0	23.7	38.6	14.7	59.4	14.3	1.0
AP-ST-16	04S0515-2-2	96.3	22.1	37.7	14.0	57.4	14.8	2.3
AP-ST-14	04S0514-5-3	95.7	21.2	37.4	14.5	59.2	13.9	1.0
PF906408	HANK*6/CHOTEAU	93.8	21.3	37.3	14.3	57.6	15.2	1.0
ND 695	REEDER	97.8	22.5	36.9	14.3	58.0	15.0	3.7
BZ992322	HANK	95.3	22.1	35.8	14.1	57.3	14.9	2.3
AP-ST-13	04S0514-3-1	96.6	21.2	35.4	14.4	57.5	14.2	0.7
PI574642	McNEAL	96.9	23.7	34.9	14.6	57.5	14.8	6.7
PI633974	CHOTEAU	96.9	21.6	34.9	14.1	56.2	15.6	2.3
BZ996434	CORBIN	96.0	22.6	34.7	14.7	58.1	14.6	2.3
AGRIPRO7	KUNTZ	97.2	23.5	34.5	14.5	58.0	13.7	5.3
AGRIPRO6	KELBY	91.9	20.1	34.1	14.1	58.5	15.6	5.3
AGRIPRO1	NORPRO	96.6	22.2	33.7	14.5	57.9	14.8	3.7
PI642366	VIDA	97.5	22.8	33.6	14.3	57.6	14.2	6.7
MT 0415	MT9408/MT9406//REEDER	96.9	24.5	33.5	14.5	57.8	15.2	3.7
MTHW0471	MTHW9701/MTHW9904	95.7	24.2	32.7	14.5	59.2	14.8	5.0
AGRIPRO3	FREYR	96.6	24.9	32.4	14.4	58.2	14.4	6.7
AP-ST-15	04S0515-1-1	96.3	21.3	32.0	14.0	57.2	14.4	2.0
PI632252	OUTLOOK	99.4	22.9	31.7	14.5	57.2	14.4	8.3
AP-ST-12	04S0514-1-12	96.9	22.8	31.2	14.4	57.9	15.2	3.7
BZ992588	CONAN	95.1	20.1	30.9	14.4	58.4	15.5	2.3
PI619086	EXPLORER	97.2	23.4	30.4	14.4	57.8	14.4	8.3
ACS53610	VOLT	96.9	22.0	30.0	14.4	58.2	14.6	23.3
CI 13596	FORTUNA	96.9	23.3	29.1	14.3	57.7	15.8	4.0
EXPERIMENTAL MEANS		96.3	22.5	34.1	14.4	58.0	14.7	4.5
LSD (0.05)		3.8	2.0	4.1	0.2	0.6	-	3.6
C.V.2: (S of MEAN / MEAN)*100		1.4	3.1	4.2	0.6	0.4	-	28.3

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9955-SW)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	SW		S (ppm) 0-24	n/a	2" Soil Temp (°F) @ Plnt'g	68
Section	24		Zn (ppm) 0-6	n/a	4" Soil Temp (°F) @ Plnt'g	62
Township	35N		Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran Blend
Range	29E		Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 46.191'		Cu (ppm) 0-6	n/a	Fert. Rate (lbs/ac) N	70
Longitude	W107 52.228'		CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a		Soil Texture 6-24	n/a	Herbicide App. Date	n/a
Org.Matter (%) 0-6	n/a		Soil Texture 24-36	n/a	Herbicide Product	none
N (lbs/ac) 0-6	n/a		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	n/a
N (lbs/ac) 6-24	n/a		Init PAW (in.) 0-6"	0.86	Precip (in.) Plnt'g-Harvest	6.72
N (lbs/ac) 24-36	n/a		Init PAW (in.) 6-24"	3.01	Precip (>.1) Plnt'g-Harvest	6.68
N (lbs/ac) 36-48	n/a		Init PAW (in.) 24-36"	2.04	Harvest Date	9/12
N (lbs/ac) 0-48	n/a		Init PAW (in.) 36-48"	2.14	Rooting Depth (in.)	46
P (ppm) Olsen 0-6	n/a		Init PAW (in.) 0-48"	8.06	Post PAW (in.) 0-6"	0.44
K (ppm) 0-6	n/a		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.49
Ca (ppm)	n/a		Previous Crop	SW	Post PAW (in.) 24-36"	0.63
Mg (ppm) 0-6	n/a		Planting Date	5/7	Post PAW (in.) 36-48"	0.89
Na (ppm) 0-6	n/a		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	3.45
SaltHaz (MMHOS/cm) 0-6	n/a		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 10. Ten-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Flansaas/Lumsden Farm, Loring, Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 9955-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)					10-YR COMP. AVE. YIELD 5/	10-YR COMP. TEST WT 5/				
		2004	2005	2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK YIELD 4/	2004	2005	2006			2007	2008	AVE. YEARS TESTED 3/	% of CHECK TEST WT 4/
BZ996472 AGAWAM (P)	3		43.2	23.8	35.4		34.1	129.2	40.8		60.4	59.6	57.4		59.1	103.8	60.8
PI642366 VIDA (++)	5	59.9	42.8	24.4	36.3	33.6	39.4	128.4	40.6	62.8	57.3	56.3	55.7	57.6	57.9	99.6	58.4
ND 695 REEDER (+)	10	46.4	38.8	21.3	32.4	36.9	37.3	118.1	37.3	62.4	58.2	56.2	55.1	58.0	58.7	100.2	58.7
PI574642 McNEAL	10	46.9	34.5	20.2	30.6	34.9	36.0	114.0	36.0	61.6	56.0	55.6	53.5	57.5	57.3	97.7	57.3
PI549275 HI-LINE	6	46.2					39.1	113.1	35.7	62.9					58.9	98.9	58.0
CI 17430 NEWANA	6	43.4					39.1	113.1	35.7	61.7					59.4	99.6	58.4
PI632252 OUTLOOK (++)	8	49.0	38.3	19.2	33.3	31.7	34.9	112.7	35.6	61.7	56.3	55.7	53.2	57.2	56.8	97.4	57.1
AGRIPRO1 NORPRO (P+)	4		38.3	19.8	29.0	33.7	30.2	111.5	35.2		55.8	55.7	53.4	57.9	55.7	97.5	57.2
PI633974 CHOTEAU (+)(sawfly res)	8	52.7	37.3	22.6	29.5	34.9	34.4	111.2	35.1	61.7	56.6	56.3	54.4	56.2	57.0	97.7	57.3
AGRIPRO2 KNUDSON (P+)	3		36.7	19.2	31.2		29.0	109.9	34.7		57.8	57.8	55.7		57.1	100.3	58.8
C982-324 WB RAMBO (P+)(mod sf res)	6	50.0					37.8	109.4	34.6	62.8					60.0	100.6	59.0
BZ992588 CONAN (P+)(sawfly tol)	10	45.4	36.3	21.2	29.9	30.9	34.4	109.0	34.4	63.3	58.4	58.6	55.6	58.4	59.2	101.1	59.2
PI607557 SCHOLAR (+)(mod sf res)	9	43.0	30.7	22.9	32.8		34.6	108.5	34.3	62.5	57.1	57.5	56.6		59.1	100.7	59.0
AGRIPRO3 FREYR (P+)	3			20.5	30.2	32.4	27.7	108.2	34.2			57.7	54.6	58.2	56.8	99.6	58.4
PI592761 ERNEST (+)(sawfly res)	9	48.2	34.1	22.6	27.2		34.5	108.1	34.2	62.2	56.6	56.7	55.4		58.3	99.3	58.2
BZ992322 HANK (P+)	7	41.5	37.2	20.2	32.2	35.8	33.0	107.6	34.0	60.1	57.1	56.6	52.9	57.3	56.2	97.1	56.9
PI619086 EXPLORER (HW, ++)	9	40.8	38.7	20.3	30.5	30.4	33.2	106.0	33.5	61.0	57.9	57.2	54.9	57.8	58.1	99.0	58.0
PI527682 AMIDON (mod sf res)	6	38.2					36.6	105.7	33.4	61.5					59.0	99.0	58.0
WPB 926 WESTBRED 926 (P)	9	38.7	34.0	21.7	29.9		33.5	105.3	33.2	60.7	56.8	56.8	54.1		57.4	97.8	57.3
PI612605 MTHW9420 (HW, P++)	6	37.8					35.4	102.4	32.4	59.4					57.9	97.2	57.0
CI 13596 FORTUNA (sawfly res)	10	45.0	31.6	21.2	26.5	29.1	31.6	100.0	31.6	62.3	57.3	57.1	56.4	57.7	58.6	100.0	58.6
MEANS (For Entries Listed)		45.5	36.8	21.3	31.1	33.1			35.1	61.8	57.3	57.0	54.9	57.6			58.2
6/ Growing Season Precipitation (in.)		10.9	n/a	2.4	7.4	8.9	7.0										
Soil PAW (in.) to SD @ Planting		4.9	9.1	8.3	8.3	8.2	7.8										
Total Plant Available Water (in.)		15.8	9.1	10.7	15.7	17.2	13.7										
Soil NO3 (lbs.) to SD at Planting		60	54	81	89	n/a	73										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	70	70	70	70										
	(# P ₂ O ₅)	40	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending, HW = Hard White Wheat.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

5/ 10-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 10-Yr average yield or test weight for the check variety Fortuna.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 11. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at McKeever Farm & Seed Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2008.
(Exp# 08-9957-SW)**

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOISTURE %	TEST WT Lbs/Bu	2/	3/
				YIELD Bu/Ac			PROTEIN %	SAWFLY %
PF906408	HANK*6/CHOTEAU	99.7	29.3	64.5	7.4	58.2	13.7	0.3
BZ999592	ONEAL	100.0	31.5	63.1	7.7	59.5	13.3	0.7
BZ9M1044	JEDD	98.7	26.2	60.0	7.4	58.7	13.0	1.0
ACS53610	VOLT	100.0	29.2	55.0	7.7	59.2	13.3	0.3
PI619086	EXPLORER	100.0	29.6	54.8	7.3	57.9	14.0	1.0
AGRIPRO7	KUNTZ	100.0	27.9	53.8	7.5	58.6	12.9	7.0
PI642366	VIDA	99.7	29.2	52.8	7.2	56.1	12.8	1.0
MT 0415	MT9408/MT9406//REEDER	99.1	32.6	52.6	7.3	57.0	13.7	8.3
AGRIPRO6	KELBY	99.1	27.3	52.4	7.7	61.0	14.4	10.0
BZ996434	CORBIN	99.7	29.7	48.7	7.2	56.3	13.8	2.0
ND 695	REEDER	99.7	31.0	47.5	6.9	55.0	14.1	2.3
BZ992322	HANK	100.0	28.9	45.5	6.9	53.2	13.8	0.7
MTHW0471	MTHW9701/MTHW9904	100.0	35.1	45.0	7.4	57.7	12.7	2.3
PI574642	MCNEAL	100.0	32.1	44.1	6.7	53.4	13.7	3.7
PI632252	OUTLOOK	99.7	30.7	44.0	6.6	52.5	12.9	1.0
BZ992588	CONAN	100.0	28.6	43.4	7.3	56.8	15.1	0.0
AGRIPRO3	FREYR	98.8	32.7	43.0	7.2	55.8	13.4	7.0
PI633974	CHOTEAU	99.7	30.1	41.7	6.8	54.1	14.4	1.0
AGRIPRO1	NORPRO	100.0	29.0	40.1	7.1	55.5	13.7	2.3
CI 13596	FORTUNA	100.0	34.2	34.0	7.1	55.6	14.9	5.0
EXPERIMENTAL MEANS		99.7	30.3	49.3	7.2	56.6	13.7	2.9
LSD (0.05)		0.9	2.4	7.1	0.3	1.3	-	4.9
C.V.2: (S of MEAN / MEAN)*100		0.3	2.8	5.1	1.4	0.8	-	60.3

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9957-SW)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	1.00
Quarter	NW		S (ppm) 0-24	n/a	2" Soil Temp (°F) @ Plnt'g	59
Section	28		Zn (ppm) 0-6	n/a	4" Soil Temp (°F) @ Plnt'g	59
Township	27N		Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran Blend
Range	10E		Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 4.165'		Cu (ppm) 0-6	n/a	Fert. Rate (lbs/ac) N	70
Longitude	W110 27.404'		CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a		Soil Texture 6-24	n/a	Herbicide App. Date	5/20
Org.Matter (%) 0-6	n/a		Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	n/a		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	20oz
N (lbs/ac) 6-24	n/a		Init PAW (in.) 0-6"	0.98	Precip (in.) Plnt'g-Harvest	8.92
N (lbs/ac) 24-36	n/a		Init PAW (in.) 6-24"	3.71	Precip (>.1) Plnt'g-Harvest	7.82
N (lbs/ac) 36-48	n/a		Init PAW (in.) 24-36"	2.13	Harvest Date	8/25
N (lbs/ac) 0-48	n/a		Init PAW (in.) 36-48"	1.41	Rooting Depth (in.)	n/a
P (ppm) Olsen 0-6	n/a		Init PAW (in.) 0-48"	8.23	Post PAW (in.) 0-6"	n/a
K (ppm) 0-6	n/a		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	n/a
Ca (ppm) 0-6	n/a		Previous Crop	SW	Post PAW (in.) 24-36"	n/a
Mg (ppm) 0-6	n/a		Planting Date	5/6	Post PAW (in.) 36-48"	n/a
Na (MEQ/100g) 0-6	n/a		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	n/a
SaltHaz (MMHOS/cm) 0-6	n/a		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 12. Ten-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at McKeever Farms, Loma, Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 9957-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)								TEST WEIGHT (Pounds Per Bushel)							
		2004	2005	2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK YIELD 4/	10-YR COMP. AVE. YIELD 5/	2004	2005	2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK TEST WT 4/	10-YR COMP. TEST WT 5/
PI642366 VIDA (++)	6	34.7	38.0	27.8	32.2	52.8	36.8	131.3	32.5	47.7	49.7	54.2	54.1	56.1	51.8	95.8	51.8
MTHW0202 ID377S/MTHW9701	3	36.8	40.7	22.8			33.4	123.4	30.6	49.3	54.0	52.8			52.1	98.6	53.3
BZ992322 HANK (P+)	7	33.1	41.9	27.4	33.1	45.5	32.0	123.0	30.4	45.0	48.6	51.1	50.8	53.2	49.6	92.2	49.8
PI619086 EXPLORER (HW, ++)	9	35.8	38.9	22.4	28.2	54.8	29.4	122.6	30.4	47.4	52.5	52.5	53.3	57.9	52.6	97.4	52.6
AGRIPRO3 FREYR	3			21.4	28.4	43.0	31.0	116.1	28.7			53.4	54.2	55.8	54.5	98.6	53.3
PI632252 OUTLOOK (++)	8	35.5	38.8	23.2	27.2	44.0	27.5	115.9	28.7	46.8	49.9	52.6	51.9	52.5	50.9	94.6	51.2
ND695 REEDER (+)	10	31.8	35.0	20.6	31.5	47.5	28.5	115.2	28.5	47.1	49.8	53.2	53.4	55.0	52.8	97.7	52.8
BZ996472 AGAWAM (P)	3		39.0	20.5	26.8		28.8	113.2	28.0		53.1	56.2	57.4		55.5	102.4	55.4
PI574642 McNEAL	10	31.7	34.9	22.8	28.6	44.1	27.9	112.6	27.9	47.1	49.8	52.8	51.6	53.4	51.4	95.1	51.4
AGRIPRO2 KNUDSON	3		34.7	25.6	25.4		28.6	112.4	27.8		51.6	56.7	55.6		54.6	100.8	54.5
PI633974 CHOTEAU (+)(sawfly res)	8	34.7	36.7	22.5	30.3	41.7	26.6	111.9	27.7	49.3	50.3	53.0	54.4	54.1	52.1	96.8	52.3
AGRIPRO1 NORPRO	4		27.4	26.0	29.2	40.1	30.7	111.4	27.6		45.3	51.3	52.7	55.5	51.2	93.8	50.7
BZ992588 CONAN (P+)(sawfly tol)	10	35.8	35.6	19.4	27.5	43.4	27.4	110.8	27.4	50.0	51.8	53.4	55.4	56.8	54.3	100.5	54.3
PI607557 SCHOLAR (+)(mod sf res)	9	29.1	33.7	22.7	29.4		25.8	108.7	26.9	50.1	52.0	54.5	55.3		54.3	100.7	54.4
WPB926 WESTBRED 926 (P)	8	34.6	32.9	19.3	27.6		24.7	108.7	26.9	46.6	47.0	51.3	52.8		50.8	94.8	51.0
CI17430 NEWANA	6	31.6					24.2	105.8	26.2	47.7					52.7	98.1	53.0
PI527682 AMIDON (mod sawfly res)	6	24.4					23.4	102.1	25.3	51.1					53.7	100.0	54.0
PI549275 HI-LINE	6	30.9					23.1	101.1	25.0	44.5					50.2	93.5	50.6
CI13596 FORTUNA (sawfly res)	10	30.1	30.2	21.0	25.1	34.0	24.8	100.0	24.8	51.3	52.6	54.6	55.5	55.6	54.1	100.0	54.1
PI592761 ERNEST (+)(sawfly res)	9	28.0	32.7	14.9	25.7		23.1	97.3	24.1	50.0	50.4	52.3	54.1		53.2	98.6	53.3
C982-324 WB RAMBO (P+)(mod sf res)	6	27.4					22.2	96.7	24.0	47.5					53.9	100.4	54.3
PI612605 MTHW9420 (HW, P++)	6	32.4					21.7	94.6	23.4	45.2					50.0	93.1	50.3
MEANS (For Entries Listed)		32.1	35.7	22.4	28.5	44.6			27.4	48.0	50.5	53.3	53.9	55.1			52.7
6/ Growing Season Precipitation (in.)		7.4	n/a	6.0	6.9	8.9	6.9										
Soil PAW (in.) to SD @ Planting		6.2	2.4	9.3	n/a	8.2	6.9										
Total Plant Available Water (in.)		13.5	2.4	15.3	6.9	17.2	11.1										
Soil NO3 (lbs.) to SD at Planting		260	200	86	n/a	n/a	173										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	70	70	70	69										
	(# P ₂ O ₅)	40	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending, HW = Hard White Wheat.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

5/ 10-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 10-Yr average yield or test weight for the check variety Fortuna.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 13. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-9851-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOISTURE %	TEST WT Lbs/Bu	2/	3/
				YIELD Bu/Ac			PROTEIN %	SAWFLY %
CIMMYT#8	CIMMYT#8	95.7	18.1	21.9	12.2	58.1	14.0	1.0
CIMMYT11	CIMMYT#11	95.7	18.6	20.6	12.0	55.7	14.2	2.3
MT02525	MT02525	95.1	16.6	20.5	12.0	57.7	15.3	2.3
STRNGFLD	STRONGFIELD	96.3	21.3	19.4	12.7	57.5	16.2	10.0
CIMMYT#5	CIMMYT#5	94.7	16.3	17.2	12.0	56.6	14.2	1.0
DIVIDE	DIVIDE	92.9	18.1	17.2	12.3	57.3	15.6	8.3
YU894-75	ALZADA	97.8	17.3	17.1	11.9	57.4	15.3	10.0
MT03012	MT03012	94.1	16.3	16.5	12.1	56.9	15.5	11.7
GRENORA	GRENORA	95.7	17.4	15.4	12.1	56.5	15.4	21.7
MT04174	MT04174	95.4	16.6	15.3	12.0	57.2	15.8	4.0
D901313	MOUNTRAIL	96.0	19.6	15.3	12.3	57.6	15.6	13.3
PIERCE	PIERCE	97.8	21.1	14.8	12.3	57.0	16.1	26.7
ALKABO	ALKABO	90.1	17.6	14.8	12.0	57.4	15.0	18.3
MT02DH55	MT02DH55	96.9	19.0	12.9	11.7	56.8	15.6	21.7
DILSE	DILSE	94.1	17.7	12.8	12.0	56.9	16.6	28.3
EXPERIMENTAL MEANS		95.2	18.1	16.8	12.1	57.1	15.4	12.0
LSD (0.05)		5.2	2.1	3.0	0.3	0.5	-	12.2
C.V.2: (S of MEAN / MEAN)*100		1.9	4.1	6.1	0.7	0.3	-	34.9

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for durum.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9851-SW)					
Field		SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	SE	S (ppm) 0-24	50	2" Soil Temp (°F) @ Plnt'g	53
Section	13	Zn (ppm) 0-6	0.6	4" Soil Temp (°F) @ Plnt'g	51
Township	36N	Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran Blend
Range	25E	Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 52.345'	Cu (ppm) 0-6	0.92	Fert. Rate (lbs/ac) N	70
Longitude	W108 23.322'	CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk	Soil Texture 0-6	CL-	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a	Soil Texture 6-24	CL	Herbicide App. Date	6/16
Org.Matter (%) 0-6	1.5	Soil Texture 24-36	CL	Herbicide Product	Bison/Achieve
N (lbs/ac) 0-6	32	Soil Texture 36-48	CL	Herbicide Rate (/ac)	20oz
N (lbs/ac) 6-24	39	Init PAW (in.) 0-6"	0.93	Precip (in.) Plnt'g-Harvest	8.92
N (lbs/ac) 24-36	n/a	Init PAW (in.) 6-24"	3.20	Precip (>.1) Plnt'g-Harvest	7.82
N (lbs/ac) 36-48	n/a	Init PAW (in.) 24-36"	1.83	Harvest Date	9/16
N (lbs/ac) 0-48	71	Init PAW (in.) 36-48"	2.13	Rooting Depth (in.)	35
P (ppm) Olsen 0-6	21	Init PAW (in.) 0-48"	8.08	Post PAW (in.) 0-6"	1.0
K (ppm) 0-6	283	Cropping System	NT-MechFlw	Post PAW (in.) 6-24"	1.6
Ca (ppm)	n/a	Previous Crop	DUR	Post PAW (in.) 24-36"	1.1
Mg (ppm) 0-6	n/a	Planting Date	5/9	Post PAW (in.) 36-48"	n/a
Na (ppm) 0-6	n/a	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	3.8
SaltHaz (MMHOS/cm) 0-6	0.45	Moist Soil Depth @Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 14. Seven-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Durum Variety Nurseries Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2002-2008. (Exp# 9851-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)								
		2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	7-YR COMP. AVE. YIELD 5/	2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	7-YR COMP. TEST WT 5/
MT02525 MT02525	3			21.1	26.1	20.5	22.5	119.7	34.3			57.5	56.8	57.7	57.3	101.2	59.3
YU894-75 ALZADA (P+)	4		42.8	23.7	25.2	17.1	27.2	116.3	33.3		59.3	57.0	56.1	57.4	57.5	100.5	58.9
STRONGFIELD STRONGFIELD	3			21.6	24.0	19.4	21.6	114.9	32.9			56.7	56.1	57.5	56.8	100.2	58.7
D91080 PLAZA (+)	5	58.6	37.0	18.9				37.0	113.6	32.5	62.6	59.0	57.3		59.9	101.0	59.2
MT03012 MT03012	3			21.7	24.3	16.5	20.8	110.6	31.6			57.3	55.0	56.9	56.4	99.5	58.3
ACAVONLE AC AVONLEA (+)	5	54.3	37.6	22.0				35.0	107.6	30.8	62.7	59.4	58.1		60.1	101.4	59.4
GRENORA GRENORA	3			19.1	25.6	15.4	20.0	106.3	30.4			57.0	55.7	56.5	56.4	99.5	58.3
D901313 MOUNTRAIL (+)	7	50.3	37.1	18.9	22.3	15.3	28.6	100.0	28.6	61.8	58.7	56.3	56.1	57.6	58.6	100.0	58.6
PI574642 McNEAL (HRSW check)	4	47.8	40.5					35.7	99.3	28.4	61.8	57.9			59.0	98.1	57.5
D89135 MAIER (+)	4	50.5	37.5					35.7	99.3	28.4	61.8	59.2			60.2	100.2	58.7
ALKABO ALKABO	3			18.4	22.5	14.8	18.6	98.6	28.2			58.5	57.5	57.4	57.8	101.9	59.8
CANKYLE KYLE	5	50.2	35.0	19.2				32.0	98.4	28.1	62.5	59.4	58.8		60.3	101.7	59.6
DIVIDE DIVIDE	3			17.9	20.0	17.2	18.4	97.5	27.9			57.3	56.7	57.3	57.1	100.7	59.0
NDMUNICH MUNICH (+)	4	48.4	35.7					34.5	96.1	27.5	60.9	58.9			59.2	98.6	57.8
DILSE DILSE	4	49.1	36.1	18.2		12.8	29.0	95.6	27.3	61.8	59.4	57.5		56.9	58.9	100.5	58.9
PIERCE PIERCE	5	50.4	34.1	17.6	20.0	14.8	27.4	95.1	27.2	62.7	60.1	57.3	57.6	57.0	58.9	101.4	59.4
D901442 LEBSOCK (+)	5	48.3	32.4		20.2			31.4	94.5	27.0	62.0	59.5		57.7	60.1	101.4	59.4
D87130 BEN (+)	4	46.3	35.0					33.7	93.9	26.9	62.0	59.7			60.6	100.8	59.1
CI 17789 VIC	4	45.0	33.2					32.5	90.3	25.8	61.9	59.6			60.4	100.6	58.9
MT02DH55 MT02DH55	3			18.0	19.2	12.9	16.7	88.7	25.4			56.4	55.6	56.8	56.3	99.3	58.2
PI478289 MONROE	4	42.0	31.9					30.9	85.8	24.6	60.9	58.9			59.6	99.1	58.1
MEANS (For Entries Listed)		49.3	36.1	19.7	22.7	16.1				28.9	62.0	59.2	57.4	56.4	57.2		58.8
6/ Growing Season Precipitation (in.)		13.7	9.7	2.5	7.0	6.6	7.5										
Soil PAW (in.) to SD @ Planting		7.4	8.0	8.8	5.8	8.1	7.5										
Total Plant Available Water (in.)		21.1	17.7	11.3	12.8	14.6	14.9										
Soil NO3 (lbs.) to SD at Planting		104	84	64	81	71	88										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied		70	70	70	70	70	69										
	(# N)	40	40	40	40	40	39										
	(# P ₂ O ₅)	25	25	25	25	25	21										
	(# K ₂ O)																

Check Variety is Mountrail.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Mountrail yield or test weight for the same data years as those in which a given entry was tested.

5/ 7-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Mountrail for the same years, and z = 7-Yr average yield or test weight for the check variety Mountrail.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 15. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-9852-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
CIMMYT#8	CIMMYT#8	99.1	24.5	49.3	10.2	61.9	12.0	0.7
CIMMYT#5	CIMMYT#5	98.5	24.8	48.2	10.2	60.7	13.2	0.7
MT02525	MT02525	98.7	24.5	47.9	10.0	61.6	13.6	1.0
MT03012	MT03012	99.4	26.0	46.4	10.2	60.8	13.7	2.3
MT04174	MT04174	100.0	25.2	45.7	10.3	61.3	13.8	3.7
CIMMYT11	CIMMYT#11	99.4	25.8	43.9	10.2	59.1	12.7	1.0
GRENORA	GRENORA	99.4	28.6	39.9	10.3	60.1	14.0	11.7
YU894-75	ALZADA	98.1	27.4	39.6	9.7	59.4	13.7	2.3
MT02DH55	MT02DH55	99.1	29.2	39.1	9.9	59.6	13.5	21.7
STRNGFLD	STRONGFIELD	100.0	28.2	38.5	9.8	59.8	13.7	2.3
DIVIDE	DIVIDE	100.0	28.4	37.8	9.8	59.3	15.3	3.7
D901313	MOUNTRAIL	99.7	28.4	36.6	9.8	59.4	14.7	10.0
DILSE	DILSE	99.1	27.5	35.7	9.9	59.7	14.1	8.3
ALKABO	ALKABO	98.4	28.3	33.5	10.2	60.1	14.7	15.0
PIERCE	PIERCE	100.0	29.0	33.4	10.0	60.2	14.4	8.3
EXPERIMENTAL MEANS		99.3	27.0	41.0	10.0	60.2	13.8	6.2
LSD (0.05)		1.8	2.8	6.9	0.4	1.7	-	3.3
C.V.2: (S of MEAN / MEAN)*100		0.6	3.6	5.8	1.4	1.0	-	18.4

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for durum.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9852-SW)					
Field		SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	NE	S (ppm) 0-24	62	2" Soil Temp (°F) @ Plnt'g	60
Section	31	Zn (ppm) 0-6	0.5	4" Soil Temp (°F) @ Plnt'g	57
Township	36N	Fe (ppm) 0-6	25.4	Fertilizer Formulation	Gran Blend
Range	13E	Mn (ppm) 0-6	10.3	Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.234'	Cu (ppm) 0-6	0.9	Fert. Rate (lbs/ac) N	70
Longitude	W110 5.366'	CEC 0-6	10.0	Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx	Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	6.40	Soil Texture 6-24	n/a	Herbicide App. Date	6/24
Org.Matter (%) 0-6	0.90	Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	12	Soil Texture 36-48	n/a	Herbicide Rate (/ac)	16 oz
N (lbs/ac) 6-24	24	Init PAW (in.) 0-6"	0.99	Precip (in.) Plnt'g-Harvest	4.78
N (lbs/ac) 24-36	8	Init PAW (in.) 6-24"	3.46	Precip (>.1) Plnt'g-Harvest	4.39
N (lbs/ac) 36-48	6	Init PAW (in.) 24-36"	1.91	Harvest Date	8/28
N (lbs/ac) 0-48	50	Init PAW (in.) 36-48"	2.25	Rooting Depth (in.)	35.0
P (ppm) Olsen 0-6	18	Init PAW (in.) 0-48"	8.60	Post PAW (in.) 0-6"	0.20
K (ppm) 0-6	272	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.39
Ca (ppm)	1213	Previous Crop	WW	Post PAW (in.) 24-36"	0.90
Mg (ppm) 0-6	383	Planting Date	5/14	Post PAW (in.) 36-48"	0.54
Na (ppm) 0-6	13	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	3.04
SaltHaz (MMHOS/cm) 0-6	0.20	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 16. Four-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Durum Variety Nurseries Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2005-2008. (Exp# 9852-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)						
						AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	4-YR COMP. AVE. YIELD 5/					AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	4-YR COMP. AVE. TEST WT 5/
		2005	2006	2007	2008				2005	2006	2007	2008			
12 MT02525	3		13.8	46.3	47.9	36.0	110.5	33.8		52.1	59.4	61.6	57.7	103.2	57.4
MT03012 MT03012	3		18.2	40.0	46.4	34.9	107.1	32.7		53.9	57.9	60.8	57.5	102.9	57.2
YU894-75 ALZADA (P+)	4	27.7	18.3	44.0	39.6	32.4	106.0	32.4	55.1	52.5	58.6	59.4	56.4	101.3	56.4
STRONGFIELD STRONGFIELD	3		13.6	46.3	38.5	32.8	100.7	30.8		52.8	57.1	59.8	56.6	101.2	56.3
D901313 MOUNTRAIL (+)	4	24.5	16.0	45.1	36.6	30.6	100.0	30.6	54.9	51.8	56.5	59.4	55.6	100.0	55.6
GRENORA GRENORA	3		15.8	41.9	39.9	32.5	99.9	30.5		51.6	57.6	60.1	56.4	101.0	56.2
DIVIDE DIVIDE	3		15.7	42.1	37.8	31.9	97.8	29.9		54.5	58.1	59.3	57.3	102.5	57.0
MT02DH55 MT02DH55	3		14.6	41.6	39.1	31.8	97.6	29.8		50.1	56.2		53.2	98.2	54.6
DILSE DILSE	3	22.7	15.8		35.7	24.8	96.3	29.4	55.0	51.7		59.7	55.5	100.3	55.8
ALKABO ALKABO	3		16.4	43.7	33.5	31.2	95.8	29.3		52.9	58.5	60.1	57.2	102.3	56.9
PIERCE PIERCE	4	22.0	12.6	40.7	33.4	27.2	89.0	27.2	56.3	52.6	59.2	60.2	57.1	102.6	57.1
MEANS (For Entries Listed)		24.2	15.5	43.2	38.9			30.6	55.3	52.4	57.9	60.0			56.4
6/ Growing Season Precipitation (in.)		4.0	4.1	3.9	4.8	4.2									
Soil PAW (in.) to SD @ Planting		8.2	n/a	1.0	8.6	5.9									
Total Plant Available Water (in.)		12.2	4.1	5.7	13.4	8.8									
Soil NO3 (lbs.) to SD at Planting		60	n/a	10	n/a	35									
SD (Sampling Depth in Inches)		48	n/a	6	48	34									
Fertilizer Applied	(# N)	70	70	70	70	70									
	(# P ₂ O ₅)	40	40	40	40	40									
	(# K ₂ O)	25	25	25	25	25									

Check Variety is Mountrail.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Mountrail yield or test weight for the same data years as those in which a given entry was tested.

5/ 4-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Mountrail for the same years, and z = 4-Yr average yield or test weight for the check variety Mountrail.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 17. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at McKeever Farm & Seed Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-9857-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
CIMMYT#8	CIMMYT#8	100.0	26.8	55.0	6.5	56.9	11.8	1.0
CIMMYT#5	CIMMYT#5	100.0	23.9	50.3	6.7	58.4	12.4	1.0
MT04174	MT04174	100.0	27.4	48.1	6.6	58.2	13.8	0.7
MT03012	MT03012	100.0	27.4	47.5	6.4	57.6	13.8	0.3
MT02525	MT02525	99.7	27.4	43.5	6.5	57.7	13.6	0.3
GRENORA	GRENORA	99.1	29.7	43.5	6.4	57.7	14.6	5.3
CIMMYT11	CIMMYT#11	99.7	25.5	41.8	6.6	58.8	12.3	0.3
DIVIDE	DIVIDE	99.4	32.9	41.2	6.7	58.4	17.4	2.3
MT02DH55	MT02DH55	100.0	31.0	38.6	5.9	55.3	14.4	8.3
D901313	MOUNTRAIL	100.0	30.7	36.6	5.9	55.9	16.4	3.7
STRNGFLD	STRONGFIELD	99.7	31.0	35.2	6.3	56.7	17.3	0.7
DILSE	DILSE	99.1	31.3	32.2	5.9	54.5	17.8	6.7
YU894-75	ALZADA	100.0	28.4	32.0	5.7	55.5	15.8	0.7
PIERCE	PIERCE	100.0	30.6	30.5	5.5	54.0	16.5	12.0
ALKABO	ALKABO	99.4	29.9	28.0	6.0	55.9	16.4	5.3
EXPERIMENTAL MEANS		99.7	28.9	40.3	6.3	56.8	15.0	3.2
LSD (0.05)		0.8	2.3	4.7	0.5	1.9	-	6.1
C.V.2: (S of MEAN / MEAN)*100		0.3	2.8	4.1	2.6	1.2	-	64.6

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for durum.
 2/ Protein values are adjusted to 12 percent grain moisture.
 3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-9857-SW)					
Field		SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	1.00
Quarter	NW	S (ppm) 0-24	n/a	2" Soil Temp (°F) @ Plnt'g	59
Section	28	Zn (ppm) 0-6	n/a	4" Soil Temp (°F) @ Plnt'g	59
Township	27N	Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran.Blend
Range	10E	Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 4.165'	Cu (ppm) 0-6	n/a	Fert. Rate (lbs/ac) N	70
Longitude	W110 27.404'	CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk	Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a	Soil Texture 6-24	n/a	Herbicide App. Date	5/20
Org.Matter (%) 0-6	n/a	Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	n/a	Soil Texture 36-48	n/a	Herbicide Rate (/ac)	20oz
N (lbs/ac) 6-24	n/a	Init PAW (in.) 0-6"	0.98	Precip (in.) Plnt'g-Harvest	8.92
N (lbs/ac) 24-36	n/a	Init PAW (in.) 6-24"	3.71	Precip (>.1) Plnt'g-Harvest	7.82
N (lbs/ac) 36-48	n/a	Init PAW (in.) 24-36"	2.13	Harvest Date	8/25
N (lbs/ac) 0-48	n/a	Init PAW (in.) 36-48"	1.41	Rooting Depth (in.)	n/a
P (ppm) Olsen 0-6	n/a	Init PAW (in.) 0-48"	8.23	Post PAW (in.) 0-6"	n/a
K (ppm) 0-6	n/a	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	n/a
Ca (ppm)	n/a	Previous Crop	SW	Post PAW (in.) 24-36"	n/a
Mg (ppm) 0-6	n/a	Planting Date	5/6	Post PAW (in.) 36-48"	n/a
Na (ppm) 0-6	n/a	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	n/a
SaltHaz (MMHOS/cm) 0-6	n/a	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	n/a

TABLE 18. Six-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Durum Variety Nurseries Grown Off-Station at McKeever Farms, Loma. Northern Agricultural Research Center. Havre, Montana. 2003-2008. (Exp# 9857-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)						TEST WEIGHT (Pounds Per Bushel)									
		2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	6-YR COMP. AVE. YIELD 5/	2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	6-YR COMP. TEST WT 5/
PI574642 McNEAL (HRSW check)	3	33.5	42.0				33.4	119.3	34.6	48.7	52.1				50.2	95.6	51.0
MT03012 MT03012	3			17.9	31.4	47.5	32.3	107.4	31.2			52.4	55.0	57.6	55.0	101.5	54.1
GRENORA GRENORA	3			22.1	30.8	43.5	32.1	106.9	31.0			52.7	54.6	57.7	55.0	101.5	54.1
MT02525 MT02525	3			20.6	31.6	43.5	31.9	106.2	30.8			53.0	56.0	57.7	55.6	102.6	54.7
D87130 BEN (+)	3	29.0	34.2				29.4	105.0	30.5	51.9	54.0				54.0	102.9	54.9
D89135 MAIER (+)	3	27.3	38.1				29.4	104.9	30.4	50.3	53.6				53.1	101.2	53.9
NDMUNICH MUNICH (+)	3	28.8	34.4				28.9	103.2	30.0	50.3	51.2				52.3	99.7	53.1
ACAVONLE AC AVONLEA (+)	4	27.7	34.9	24.0			27.1	102.0	29.6	52.0	53.7	54.2			53.4	101.5	54.1
CI 17789 VIC	3	29.4	33.4				28.5	101.7	29.5	53.7	54.9				55.2	105.2	56.1
PI478289 MONROE	3	28.7	30.9				28.4	101.4	29.4	50.9	52.0				52.9	100.8	53.7
MT02DH55 MT02DH55	3			24.4	28.3	38.6	30.4	101.2	29.4			54.1	52.3	55.3	53.9	99.5	53.0
DIVIDE DIVIDE	3			22.4	27.3	41.2	30.3	100.8	29.3			55.5	55.4	58.4	56.4	104.2	55.5
YU894-75 ALZADA (P+)	4		41.6	19.3	33.4	32.0	31.6	100.4	29.1		51.9	51.9	54.8	55.5	53.5	99.5	53.1
D901313 MOUNTRAIL (+)	6	25.3	35.7	22.5	31.0	36.6	29.0	100.0	29.0	50.2	52.6	52.9	53.8	55.9	53.3	100.0	53.3
STRONGFIELD STRONGFIELD	3			25.0	28.7	35.2	29.6	98.6	28.6			54.4	52.2	56.7	54.5	100.5	53.6
D901442 LEBSOCK (+)	4	31.1	32.2		27.3		28.1	97.6	28.3	54.3	54.2			56.6	55.3	104.7	55.8
ALKABO ALKABO	3			24.1	32.0	28.0	28.0	93.3	27.1			55.0	55.9	55.9	55.6	102.6	54.7
DILSE DILSE	4	27.0	30.3	18.7		32.2	27.1	90.1	26.1	52.3	52.9	53.5		54.5	53.3	100.7	53.7
PIERCE PIERCE	5	26.6	30.7	19.4	28.7	30.5	27.2	89.9	26.1	52.6	54.3	55.3	55.7	54.0	54.4	102.4	54.6
D91080 PLAZA (+)	4	24.5	30.4	16.8			23.5	88.2	25.6	50.1	51.0	52.2			51.9	98.7	52.6
CANKYLE KYLE	4	26.0	26.8	17.7			22.9	85.9	24.9	53.0	53.4	55.0			54.1	103.0	54.9
MEANS (For Entries Listed)		28.1	34.0	21.0	30.0	37.2			29.1	51.6	53.0	53.7	54.8	56.3			54.0
6/ Growing Season Precipitation (in.)		7.4	n/a	7.6	6.9	8.9	6.8										
Soil PAW (in.) to SD @ Planting		6.2	8.8	9.3	n/a	8.2	7.8										
Total Plant Available Water (in.)		13.5	8.8	16.9	5.4	17.2	11.3										
Soil NO3 (lbs.) to SD at Planting		260	200	465	n/a	n/a	221										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	70	70	70	70										
	(# P ₂ O ₅)	40	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Mountrail.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Mountrail yield or test weight for the same data years as those in which a given entry was tested.

5/ 6-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Mountrail for the same years, and z = 6-Yr average yield or test weight for the check variety Mountrail.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 19. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2008 (Exp# 08-3651-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/				2/	
				YIELD Bu/Ac	MOIST. %	TEST WT Lbs/Bu	PLUMP %	THIN %	WILDLIFE DEPREDAATION
ND 15477	DRUMMOND	94.5							100.0
6B952482	TRADITION	93.5							100.0
MT970116	CRAFT	90.7							100.0
MT950186	HAXBY	92.9							100.0
6B932978	LEGACY	89.8							98.3
PI639694	STELLAR-ND	91.7							98.3
YU501385	CHAMPION	95.1							93.3
BZ594-19	XENA	91.4							66.7
BZ596117	BOULDER	93.8							41.7
MT020155	MT960225/H1851195	95.0							13.3
MT910189	HOCKETT	89.8							13.3
MT960228	ESLICK	93.8							11.7
PI568246	BARONESSE	96.9							8.3
2B914947	MERIT	90.1							8.3
MT010158	MT920041/Harrington	90.7							6.7
SK 76333	HARRINGTON	93.5							5.0
TR232	METCALFE	90.1							3.3
MT960101	GERALDINE	95.7							1.7
2B965057	CONRAD	94.7							0.0
MT020204	MTLB 32/H1851195	95.7							0.0
EXPERIMENTAL MEANS		93.0							43.5
LSD (0.05)		5.6							31.5
C.V.2: (S of MEAN / MEAN)*100		2.1							25.3

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

2/ Wildlife depredation (likely deer, but antelope also suspected) consisted of head clipping from 0-100 percent with amazing specificity by variety or cultivar. Such damage likely occurred relatively late in crop development since there was no stem or leaf grazing noted. There were no heads on the ground which further served to confirm wildlife depredation as to the cause of the head loss. Due to late season rain, no animal tracks were present in the plots. Since only two entries suffered no head loss at all, and nearly half of the entries in the trial suffered total or severe head loss; no attempt was made to harvest this trial for grain yield or other performance characters.

Site Resource & Management Data: (Exp# 08-3651-SB)					
Field		SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	SE	S (ppm) 0-24	50	2" Soil Temp (°F) @ Plnt'g	54
Section	13	Zn (ppm) 0-6	0.6	4" Soil Temp (°F) @ Plnt'g	52
Township	36N	Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran Blend
Range	25E	Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 52.345'	Cu (ppm) 0-6	0.92	Fert. Rate (lbs/ac) N	70
Longitude	W108 23.322'	CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk	Soil Texture 0-6	CL-	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a	Soil Texture 6-24	CL	Herbicide App. Date	6/16
Org.Matter (%) 0-6	1.5	Soil Texture 24-36	CL	Herbicide Product	Bison/Achieve
N (lbs/ac) 0-6	32	Soil Texture 36-48	CL	Herbicide Rate (/ac)	20 oz
N (lbs/ac) 6-24	39	Init PAW (in.) 0-6"	0.93	Precip (in.) Plnt'g-Harvest	8.92
N (lbs/ac) 24-36	n/a	Init PAW (in.) 6-24"	3.20	Precip (>.1) Plnt'g-Harvest	7.82
N (lbs/ac) 36-48	n/a	Init PAW (in.) 24-36"	1.83	Harvest Date	9/16
N (lbs/ac) 0-48	71	Init PAW (in.) 36-48"	2.13	Rooting Depth (in.)	n/a
P (ppm) Olsen 0-6	21	Init PAW (in.) 0-48"	8.08	Post PAW (in.) 0-6"	1.03
K (ppm) 0-6	283	Cropping System	CT-MechFlw	Post PAW (in.) 6-24"	1.64
Ca (ppm) 0-6	n/a	Previous Crop	DUR	Post PAW (in.) 24-36"	1.14
Mg (ppm) 0-6	n/a	Planting Date	5/12	Post PAW (in.) 36-48"	n/a
Na (ppm) 0-6	n/a	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	3.82
SaltHaz (MMHOS/cm) 0-6	0.45	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 20. Eight-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Barley Variety Nurseries Grown Off-Station at the Leon Cederberg Farm, Turner, Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 3651-SB)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)									
		2004	2005	2006	2007	2008 **	AVE. YEARS TESTED 3/	% of CHECK YIELD 4/	8-YR COMP. AVE. YIELD 5/	2004	2005	2006	2007	2008 **	AVE. YEARS TESTED 3/	% of CHECK TEST WT 4/	8-YR COMP. AVE. TEST WT 5/	
BZ594-19 WPB XENA (P+)	7		66.5	33.7	12.0		48.6	118.0	56.0		46.8	45.0	41.3		48.0	103.1	48.6	
BZ596117 BOULDER (+)	3			71.2	33.0	12.0		38.8	112.7	53.4		49.5	45.8	44.9		46.8	107.0	50.5
PI568246 BARONESSE (P+)	7	71.9	66.9					61.3	112.3	53.3	50.0	45.9			49.1	101.6	47.9	
2B965057 CONRAD	3		68.0	32.5	12.1			37.5	109.1	51.8		46.7	45.5	43.7		45.3	103.7	48.9
MT960228 ESLICK	8	70.1	70.4	31.5	11.8			47.8	107.9	51.2	50.7	46.9	45.0	43.1		48.7	103.6	48.9
PI610264 VALIER (++)	5	70.1						53.7	107.0	50.7	51.0					50.4	103.1	48.6
MT970229 MT970229	5	72.5	66.6	29.3				51.2	106.6	50.5	52.9	49.6	46.5			49.3	105.9	50.0
MT960101 GERALDINE	5		67.3	31.1	12.1			39.6	106.4	50.5		46.7	44.1	41.4		45.3	100.8	47.6
MT910189 HOCKETT (++)	4	67.5	64.1	34.8	12.1			44.6	105.6	50.1	51.9	50.1	44.9	43.9		47.7	105.2	49.6
TR150 COPELAND	3	68.7	59.9	28.8				52.4	100.0	47.4	48.3	44.6	44.3			45.7	98.8	46.6
TR232 METCALFE	4	67.4	59.7	30.0	11.9			42.2	99.9	47.4	50.4	46.2	44.8	43.5		46.2	102.0	48.1
ND15477 DRUMMOND	3		58.7	32.3	11.8			34.3	99.7	47.3		45.9	42.7	42.8		43.8	100.3	47.3
2B914947 MERIT (P+)	3		60.3	30.0	11.9			34.1	99.1	47.0		42.5	41.7	39.8		41.4	94.7	44.6
MT950186 HAXBY (+)	8	69.7	62.8	11.6	11.7			43.1	97.2	46.1	51.9	49.7	45.7	44.5		49.9	106.3	50.1
6B952482 TRADITION	4	58.4	61.9	30.4	11.5			40.6	96.0	45.5	48.8	47.0	43.5	42.7		45.5	100.4	47.3
PI491534 GALLATIN	6	63.4						51.4	95.3	45.2	51.5					50.1	102.5	48.3
SK76333 HARRINGTON	8	65.9	58.5	32.9	11.7			44.3	93.4	44.3	50.1	44.8	43.9	42.4		47.0	99.6	47.0
6B932978 LEGACY (P+)	3		60.1	23.8	11.6			31.9	92.7	43.9		43.5	40.9	41.2		41.9	95.8	45.2
MT970116 CRAFT	7	65.0	58.0	7.7	11.7			36.7	89.9	42.6	52.3	48.0	45.0	45.1		48.2	104.4	49.2
MT981060 HAYS	5	14.2	39.8	6.0	10.9			16.4	40.5	19.2	46.0	43.9	39.0	39.0		41.7	92.4	43.6
MEANS (For Entries Listed)		63.4	62.3	27.0	11.8					47.2	50.4	46.6	44.0	42.6				47.9
6/ Growing Season Precipitation (in.)		13.7	9.7	2.5	7.0	6.6	7.1											
Soil PAW (in.) to SD @ Planting		7.4	8.0	8.8	5.8	8.1	7.2											
Total Plant Available Water (in.)		21.1	17.7	11.3	12.8	14.6	13.3											
Soil NO3 (lbs.) to SD at Planting		104	84	64	81	71	86											
SD (Sampling Depth in Inches)		48	48	48	48	48	48											
Fertilizer Applied																		
	(# N)	70	70	70	70	70	69											
	(# P ₂ O ₅)	40	40	40	40	40	39											
	(# K ₂ O)	25	25	25	25	25	23											

Check Variety is Harrington.

1/ See MCES Bulletin 1094 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Harrington yield or test weight for the same data years as those in which a given entry was tested.

5/ 8-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Harrington for the same years, and z = 8-Yr average yield or test weight for the check variety Harrington.

6/ Seeding to 14 days prior to harvest maturity.

*1999 nursery not planted due to wet conditions extending throughout and beyond the normal seeding period for this location.

**2008 nursery not harvested due to wildlife depredation.

TABLE 21. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2007. (Exp# 08-3652-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	MOIST. %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/	3/
				YIELD Bu/Ac					PROTEIN	SAWFLY
MT020204	MTLB 32/H1851195	98.8	26.2	68.3	10.9	51.1	71.2	12.2	13.5	3.3
2B965057	CONRAD	98.5	23.8	63.4	10.8	49.3	90.7	2.8	14.3	0.7
PI568246	BARONESSE	99.4	23.5	62.3	10.8	50.1	91.9	2.2	13.7	1.7
MT960228	ESLICK	99.4	23.2	60.0	10.7	48.0	20.8	48.3	14.4	2.0
BZ596117	BOULDER	99.7	23.5	58.4	10.7	50.1	93.8	1.5	14.4	0.7
MT010158	MT920041/Harrington	99.1	23.9	57.0	10.7	51.5	93.7	1.6	14.7	0.7
MT950186	HAXBY	98.4	25.3	56.6	10.8	51.8	93.8	1.4	14.1	2.3
MT970116	CRAFT	99.1	27.6	55.9	10.5	51.2	96.4	1.4	13.9	6.7
MT960101	GERALDINE	97.5	23.4	55.3	10.9	48.6	60.0	17.9	14.2	3.7
YU501385	CHAMPION	99.4	25.4	54.1	10.9	51.8	88.2	2.6	13.5	7.0
2B914947	MERIT	98.4	24.4	51.9	10.6	48.1	85.3	6.4	14.3	3.3
MT020155	MT960225/H1851195	99.4	24.7	51.3	10.4	49.2	90.1	2.7	13.8	2.0
TR232	METCALFE	97.2	25.9	51.0	10.7	49.6	94.2	2.2	14.4	3.7
BZ594-19	XENA	99.1	24.8	49.3	10.6	48.7	86.2	4.3	14.5	0.7
6B952482	TRADITION	99.1	26.5	48.7	10.3	48.4	85.5	3.6	13.7	25.0
SK 76333	HARRINGTON	97.8	25.0	47.5	10.6	48.6	93.0	2.3	14.9	0.7
PI639694	STELLAR-ND	99.4	25.8	43.9	10.3	46.0	56.3	18.2	13.5	13.3
MT910189	HOCKETT	100.0	26.1	43.5	10.6	50.7	86.7	5.7	13.5	11.7
ND 15477	DRUMMOND	99.4	29.4	36.4	10.5	47.5	50.9	19.4	14.2	43.3
6B932978	LEGACY	96.6	27.8	27.5	10.5	45.4	79.0	5.4	13.8	50.0
EXPERIMENTAL MEANS		98.8	25.3	52.1	10.6	49.3	80.4	8.1	14.1	9.1
LSD (0.05)		2.1	2.8	13.6	0.2	2.6	-	-	1.4	7.6
C.V.2: (S of MEAN / MEAN)*100		0.7	3.9	9.1	0.8	1.8	-	-	3.6	29.1

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

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

3/ Sawfly rating is reported as the percentage of cut stems.

Site Resource & Management Data: (Exp# 08-3652-SB)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	NE		S (ppm) 0-24	62	2" Soil Temp (°F) @ Plnt'g	60
Section	31		Zn (ppm) 0-6	0.5	4" Soil Temp (°F) @ Plnt'g	57
Township	36N		Fe (ppm) 0-6	25.4	Fertilizer Formulation	Gran Blend
Range	13E		Mn (ppm) 0-6	10.3	Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.234'		Cu (ppm) 0-6	0.9	Fert. Rate (lbs/ac) N	70
Longitude	W110 5.366'		CEC 0-6	10.0	Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	6.40		Soil Texture 6-24	n/a	Herbicide App. Date	6/24
Org.Matter (%) 0-6	0.90		Soil Texture 24-36	n/a	Herbicide Product	Bronate Adv
N (lbs/ac) 0-6	12		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	16 oz
N (lbs/ac) 6-24	24		Init PAW (in.) 0-6"	1.0	Precip (in.) Plnt'g-Harvest	4.78
N (lbs/ac) 24-36	8		Init PAW (in.) 6-24"	3.5	Precip (>.1) Plnt'g-Harvest	4.39
N (lbs/ac) 36-48	6		Init PAW (in.) 24-36"	1.9	Harvest Date	8/28
N (lbs/ac) 0-48	50		Init PAW (in.) 36-48"	2.2	Rooting Depth (in.)	43"
P (ppm) Olsen 0-6	18		Init PAW (in.) 0-48"	8.6	Post PAW (in.) 0-6"	0.35
K (ppm) 0-6	272		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.20
Ca (ppm) 0-6	1213		Previous Crop	WW	Post PAW (in.) 24-36"	0.80
Mg (ppm) 0-6	383		Planting Date	5/14	Post PAW (in.) 36-48"	0.53
Na (ppm) 0-6	13		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	2.88
SaltHaz (MMHOS/cm) 0-6	0.20		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 22. Four-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Barley Variety Nurseries Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2005-2008. (Exp# 3652-SB)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)						
						AVE. YEARS TESTED 3/	% of CHECK YIELD 4/	4-YR COMP. AVE. YIELD 5/					AVE. YEARS TESTED 3/	% of CHECK TEST WT 4/	4-YR COMP. TEST WT 5/
		2005	2006	2007	2008				2005	2006	2007	2008			
BZ596117 BOULDER (+)	4	63.8	42.2	79.7	58.4	61.0	126.9	61.0	46.2	42.0	49.8	50.1	47.0	105.1	47.0
MT960228 ESLICK	4	56.4	35.7	73.0	60.0	56.3	117.0	56.3	45.1	42.8	45.7	48.0	45.4	101.4	45.4
MT950186 HAXBY	4	58.1	39.5	64.3	56.6	54.6	113.5	54.6	48.3	44.8	48.4	51.8	48.3	108.0	48.3
2B965057 CONRAD	4	55.1	30.9	68.5	63.4	54.5	113.2	54.5	44.5	43.0	44.8	49.3	45.4	101.4	45.4
6B95-248 TRADITION	4	64.9	33.4	68.4	48.7	53.9	111.9	53.9	43.7	38.6	46.4	48.4	44.3	99.0	44.3
MT981060 HAYS	3	54.7	31.5	69.6		51.9	107.5	51.9	40.8	39.6	41.9		40.8	93.8	42.0
BZ594-19 WPB XENA (P+)	4	51.4	32.8	72.0	49.3	51.4	106.8	51.4	43.3	42.6	44.7	48.7	44.8	100.2	44.8
MT970116 CRAFT	4	54.7	34.8	55.8	55.9	50.3	104.6	50.3	46.8	45.4	47.5	51.2	47.7	106.6	47.7
MT960101 GERALDINE	4	55.5	28.6	61.5	55.3	50.2	104.4	50.2	44.1	42.4	44.1	48.6	44.8	100.1	44.8
MT910189 HOCKETT (++)	4	54.5	33.7	64.9	43.5	49.2	102.2	49.2	47.8	43.0	48.0	50.7	47.4	105.9	47.4
SK 76333 HARRINGTON	4	54.7	25.7	64.5	47.5	48.1	100.0	48.1	43.8	43.0	43.6	48.6	44.8	100.0	44.8
2B914947 MERIT (P+)	4	48.6	27.0	64.7	51.9	48.1	99.9	48.1	41.9	40.5	43.0	48.1	43.4	96.9	43.4
TR232 METCALFE	4	50.4	27.7	60.0	51.0	47.3	98.3	47.3	44.4	43.6	46.4	49.6	46.0	102.8	46.0
ND15477 DRUMMOND	4	56.0	34.2	57.4	36.4	46.0	95.6	46.0	41.3	37.5	45.8	47.5	43.0	96.1	43.0
PI639694 STELLAR-ND	3		28.5	51.6	43.9	41.3	90.0	43.3		34.0	43.1	46.0	41.1	91.1	40.8
6B932978 LEGACY (P+)	4	51.8	29.6	55.2	27.5	41.0	85.3	41.0	39.2	37.0	43.0	45.4	41.2	92.0	41.2
MEANS (For Entries Listed)		55.4	32.2	64.4	50.0			50.4	44.1	41.2	45.4	48.8			44.8
6/ Growing Season Precipitation (in.)		4.0	n/a	3.9	4.8			4.2							
Soil PAW (in.) to SD @ Planting		8.2	n/a	1.0	8.6			5.9							
Total Plant Available Water (in.)		12.2	n/a	4.9	13.4			10.2							
Soil NO3 (lbs.) to SD at Planting		60	n/a	10	n/a			35							
SD (Sampling Depth in Inches)		48	n/a	6	48			34							
Fertilizer Applied															
	(# N)	70	70	70	70			70							
	(# P ₂ O ₅)	40	40	40	40			40							
	(# K ₂ O)	25	25	25	25			25							

Check Variety is Harrington.

1/ See MCES Bulletin 1094 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include malting potential, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Harrington yield or test weight for the same data years as those in which a given entry was tested.

5/ 4-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Harrington for the same years, and z = 4-Yr average yield or test weight for the check variety Harrington.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 23. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-3655-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/			PLUMP %	THIN %	2/		3/ %
				YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu			PROTEIN %	HEAD LOSS %	
BZ596117	BOULDER	97.8	20.4	56.0	12.4	48.7	92.0	2.5	15.6	0.3	
MT960228	ESLICK	97.8	19.0	54.2	12.8	48.3	75.3	8.0	15.6	0.7	
MT020204	MTLB 32/H1851195	96.3	21.8	52.8	12.5	49.2	88.7	3.4	15.1	0.3	
PI568246	BARONESSE	98.1	20.2	52.4	12.9	49.0	87.1	3.9	16.1	5.3	
YU501385	CHAMPION	93.5	23.9	50.3	12.9	50.7	91.6	2.7	14.6	5.0	
MT960101	GERALDINE	93.2	18.0	48.4	12.9	49.2	78.7	8.2	15.5	2.3	
BZ594-19	XENA	96.9	20.5	47.7	12.7	48.9	90.4	3.0	14.9	2.0	
MT950186	HAXBY	97.5	22.3	47.2	12.6	51.1	92.1	1.7	14.8	2.3	
ND 15477	DRUMMOND	92.3	22.5	46.5	12.2	47.0	82.3	4.5	15.1	5.3	
MT010158	MT920041/Harrington	94.4	20.9	46.2	12.6	49.8	90.0	3.1	16.2	2.0	
2B965057	CONRAD	93.8	19.7	45.5	12.7	49.0	89.2	2.9	16.3	2.0	
MT020155	MT960225/H1851195	93.5	24.7	45.2	12.3	47.9	85.0	4.2	15.1	0.7	
6B952482	TRADITION	96.6	21.9	42.0	12.1	47.9	84.6	3.3	14.8	6.7	
TR232	METCALFE	88.2	22.9	40.5	12.8	49.8	91.8	2.6	16.1	2.0	
SK 76333	HARRINGTON	94.1	20.8	39.4	12.9	49.3	84.7	4.6	15.9	3.7	
MT910189	HOCKETT	93.5	21.6	39.2	12.8	49.7	89.5	3.7	14.9	6.7	
MT970116	CRAFT	94.4	22.7	39.2	12.8	50.3	94.9	1.7	14.9	6.7	
6B932978	LEGACY	89.5	22.3	36.6	12.2	46.6	85.0	3.9	14.2	6.7	
PI639694	STELLAR-ND	94.8	19.3	32.8	12.0	45.0	78.2	6.9	14.5	11.7	
2B914947	MERIT	91.0	21.0	32.2	12.8	48.1	78.2	8.1	15.9	3.7	
EXPERIMENTAL MEANS		94.4	21.3	44.7	12.6	48.8	88.5	4.1	15.3	3.8	
LSD (0.05)		4.4	2.9	6.4	0.3	0.9	-	-	0.6	4.3	
C.V.2: (S of MEAN / MEAN)*100		1.6	4.8	5.0	0.8	0.6	-	-	1.4	39.6	

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

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

3/ Percent heads noted on the ground.

Site Resource & Management Data: (Exp# 08-3655-SB)						
Field			SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	SW		S (ppm) 0-24	n/a	2" Soil Temp (°F) @ Plnt'g	64
Section	24		Zn (ppm) 0-6	n/a	4" Soil Temp (°F) @ Plnt'g	60
Township	35N		Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran Blend
Range	29E		Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 46.191'		Cu (ppm) 0-6	n/a	Fert. Rate (lbs/ac) N	70
Longitude	W107 52.228'		CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a		Soil Texture 6-24	n/a	Herbicide App. Date	-
Org.Matter (%) 0-6	n/a		Soil Texture 24-36	n/a	Herbicide Product	-
N (lbs/ac) 0-6	n/a		Soil Texture 36-48	n/a	Herbicide Rate (/ac)	-
N (lbs/ac) 6-24	n/a		Init PAW (in.) 0-6"	0.86	Precip (in.) Plnt'g-Harvest	6.72
N (lbs/ac) 24-36	n/a		Init PAW (in.) 6-24"	3.01	Precip (>.1) Plnt'g-Harvest	6.68
N (lbs/ac) 36-48	n/a		Init PAW (in.) 24-36"	2.04	Harvest Date	9/12
N (lbs/ac) 0-48	n/a		Init PAW (in.) 36-48"	2.14	Rooting Depth (in.)	33"
P (ppm) Olsen 0-6	n/a		Init PAW (in.) 0-48"	8.06	Post PAW (in.) 0-6"	0.89
K (ppm) 0-6	n/a		Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	2.15
Ca (ppm) 0-6	n/a		Previous Crop	SW	Post PAW (in.) 24-36"	1.49
Mg (ppm) 0-6	n/a		Planting Date	5/7	Post PAW (in.) 36-48"	1.94
Na (ppm) 0-6	n/a		Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	6.46
SaltHaz (MMHOS/cm) 0-6	n/a		Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0

TABLE 24. Ten-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Barley Variety Nurseries Grown Off-Station at the Flansaas/Lumsden Farm, Loring, Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 3655-SB)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)								
		2004	2005	2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK YIELD 4/	10-YR COMP. AVE. YIELD 5/	2004	2005	2006	2007	2008	AVE. YEARS TESTED 3/	% of CHECK TEST WT 4/	10-YR COMP. TEST WT 5/
BZ596117 BOULDER (+)	4		68.5	32.9	57.8	56.0	53.8	124.7	63.8		49.5	44.2	44.0	48.7	46.6	103.5	48.6
PI568246 BARONESSE (P+)	8	73.3	65.2			52.4	61.7	114.5	58.6	49.1	47.3			49.0	48.2	100.1	47.0
2B965057 CONRAD	4		61.8	29.0	57.4	45.5	48.4	112.3	57.5		48.5	44.9	41.3	49.0	45.9	101.9	47.8
MT950186 HAXBY	10	69.9	57.3	37.7	60.3	47.2	56.9	111.2	56.9	51.8	50.3	47.4	45.4	51.1	50.2	107.0	50.2
BZ594-19 WPB XENA (P+)	9		59.4	29.1	50.6	47.7	53.8	108.9	55.7		47.9	44.2	41.1	48.9	47.2	101.2	47.5
MT960228 ESLICK	10	70.5	61.0	31.2	52.6	54.2	55.2	107.9	55.2	50.1	48.7	45.8	42.2	48.3	48.1	102.4	48.1
MT960101 GERALDINE	6		64.4	30.0	48.2	48.4	48.3	107.5	55.0		47.6	44.9	40.7	49.2	45.7	102.0	47.8
ND15477 DRUMMOND	4		47.5	33.0	54.2	46.5	45.3	105.0	53.7		47.9	43.4	41.3	47.0	44.9	99.7	46.8
PI610264 VALIER (++)	6	71.5					59.3	104.8	53.6	50.8				49.9	103.5	48.6	
MT910189 HOCKETT (++)	5	72.1	57.1	27.4	53.6	39.2	49.9	104.0	53.2	52.1	50.5	46.6	42.9	49.7	48.4	105.4	49.5
TR150 COPELAND	3	70.0	58.1	25.9			51.3	102.8	52.6	47.9	46.1	44.5		46.2	99.0	46.5	
TR232 METCALFE	5	68.1	60.3	22.6	53.2	40.5	48.9	102.1	52.2	49.9	46.4	46.4	42.2	49.8	46.9	102.4	48.0
PI491534 GALLATIN	6	67.9					57.6	101.8	52.1	50.9				49.8	103.3	48.5	
2B914947 MERIT (P+)	4		63.5	26.4	52.0	32.2	43.5	100.9	51.6		45.6	44.5	38.7	48.1	44.2	98.1	46.1
SK76333 HARRINGTON	10	67.2	52.0	30.6	50.5	39.4	51.2	100.0	51.2	49.1	46.7	44.1	40.2	49.3	46.9	100.0	46.9
6B952482 TRADITION	5	63.4	52.2	26.2	54.8	42.0	47.7	99.5	50.9	49.2	48.4	41.8	42.0	47.9	45.9	100.0	46.9
MT970116 CRAFT	8	72.6	27.7	33.1	57.0	39.2	47.6	97.6	50.0	51.5	49.5	49.5	45.2	50.3	49.3	107.0	50.2
MT981060 HAYS	5	69.1	34.5	30.4	53.3		47.9	96.7	49.5	47.6	45.9	41.8	37.3		43.7	97.3	45.6
6B932978 LEGACY (P+)	3			26.2	47.4	36.6	36.7	91.4	46.8			42.3	37.7	46.6	42.2	94.8	44.5
PI639694 STELLAR	3			23.2	46.7	32.8	34.2	85.2	43.6			38.7	37.6	45.0	40.4	90.8	42.6
MEANS (For Entries Listed)		69.6	55.7	29.1	53.1	43.7			53.2	50.0	47.9	44.4	41.2	48.6			47.4
6/ Growing Season Precipitation (in.)		10.9	n/a	2.4	8.8	n/a	6.9										
Soil PAW (in.) to SD @ Planting		4.9	9.1	8.3	8.3	8.1	7.8										
Total Plant Available Water (in.)		15.8	9.1	10.7	17.1	8.1	12.4										
Soil NO3 (lbs.) to SD at Planting		60	54	81	89	n/a	72										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	70	70	70	70										
	(# P ₂ O ₅)	40	40	40	40	40	40										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Harrington.

1/ See MCES Bulletin 1094 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include malting potential, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Harrington yield or test weight for the same data years as those in which a given entry was tested.

5/ 10-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Harrington for the same years, and z = 10-Yr average yield or test weight for the check variety Harrington.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 25. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at McKeever Farm & Seed Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2008. (Exp# 08-3657-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %
PI568246	BARONESSE	100.0	27.7	81.3	8.1	47.9	62.4	15.8	14.5
MT020204	MTLB 32/H1851195	100.0	29.5	79.2	7.9	49.1	91.4	2.9	14.8
BZ596117	BOULDER	99.7	27.3	78.2	7.8	48.5	70.2	12.9	15.6
YU501385	CHAMPION	100.0	30.6	75.0	8.2	51.2	90.0	3.9	13.0
MT010158	MT920041/Harrington	97.8	29.9	73.9	7.9	49.6	70.9	12.3	14.6
ND 15477	DRUMMOND	98.1	31.4	72.1	7.7	47.3	77.5	8.9	14.4
6B952482	TRADITION	99.1	32.1	71.5	7.9	47.7	24.4	42.4	14.2
MT020155	MT960225/H1851195	99.1	29.8	70.0	8.1	49.8	83.6	5.6	14.0
MT960101	GERALDINE	98.4	27.2	69.5	8.0	47.3	61.7	18.9	15.5
SK 76333	HARRINGTON	98.7	28.5	69.2	7.6	46.1	68.5	15.5	15.5
PI639694	STELLAR-ND	99.1	29.6	69.2	7.6	45.5	59.9	15.4	13.5
MT970116	CRAFT	99.4	31.6	68.3	7.9	49.8	58.5	20.0	14.5
MT960228	ESLICK	99.1	25.7	68.3	7.4	46.3	22.4	43.4	16.0
MT950186	HAXBY	99.7	29.0	67.5	8.0	49.1	53.2	15.4	15.1
2B965057	CONRAD	98.5	25.5	67.3	7.4	45.7	55.7	20.3	16.4
BZ594-19	XENA	100.0	28.7	66.0	7.9	46.0	40.1	24.9	14.2
MT910189	HOCKETT	98.7	27.9	64.1	8.0	47.7	38.0	31.2	15.2
TR232	METCALFE	100.0	27.9	63.2	7.6	46.1	52.8	0.2	16.5
6B932978	LEGACY	96.0	31.4	61.4	7.3	43.4	66.1	11.5	14.5
2B914947	MERIT	98.8	26.8	50.8	7.5	43.7	38.4	35.4	18.3
EXPERIMENTAL MEANS		99.0	28.9	69.3	7.8	47.4	60.1	17.4	15.0
LSD (0.05)		1.6	3.2	11.4	0.6	3.2	-	-	1.8
C.V.2: (S of MEAN / MEAN)*100		0.6	3.8	5.7	2.5	2.4	-	-	4.1

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

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

Site Resource & Management Data: (Exp# 08-3657-SB)							
Field			SaltHaz(MMHOS/cm) 6-24	n/a		Dry Surf Soil (in.) @ Plnt'g	1.00
Quarter	NW		S (ppm) 0-24	n/a		2" Soil Temp (°F) @ Plnt'g	59
Section	28		Zn (ppm) 0-6	n/a		4" Soil Temp (°F) @ Plnt'g	59
Township	27N		Fe (ppm) 0-6	n/a		Fertilizer Formulation	Gran Blend
Range	10E		Mn (ppm) 0-6	n/a		Fertilizer Placement	Bnd at Plntg
Latitude	N48 4.165'		Cu (ppm) 0-6	n/a		Fert. Rate (lbs/ac) N	70
Longitude	W110 27.404'		CEC 0-6	n/a		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Soil Texture 0-6	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6	n/a		Soil Texture 6-24	n/a		Herbicide App. Date	5/20
Org.Matter (%) 0-6	n/a		Soil Texture 24-36	n/a		Herbicide Product	Bronate Ad
N (lbs/ac) 0-6	n/a		Soil Texture 36-48	n/a		Herbicide Rate (/ac)	20oz
N (lbs/ac) 6-24	n/a		Init PAW (in.) 0-6"	0.98		Precip (in.) Plnt'g-Harvest	8.92
N (lbs/ac) 24-36	n/a		Init PAW (in.) 6-24"	3.71		Precip (>.1) Plnt'g-Harvest	7.82
N (lbs/ac) 36-48	n/a		Init PAW (in.) 24-36"	2.13		Harvest Date	8/25
N (lbs/ac) 0-48	n/a		Init PAW (in.) 36-48"	1.41		Rooting Depth (in.)	42"
P (ppm) Olsen 0-6	n/a		Init PAW (in.) 0-48"	8.23		Post PAW (in.) 0-6"	0.2
K (ppm) 0-6	n/a		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	1.6
Ca (ppm) 0-6	n/a		Previous Crop	SW		Post PAW (in.) 24-36"	0.6
Mg (ppm) 0-6	n/a		Planting Date	5/6		Post PAW (in.) 36-48"	1.6
Na (ppm) 0-6	n/a		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	4.0
SaltHaz (MMHOS/cm) 0-6	n/a		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0

TABLE 26. Ten-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Barley Variety Nurseries Grown Off-Station at McKeever Farms, Loma. Northern Agricultural Research Center. Havre, Montana. 1999-2008. (Exp# 3657-SB)

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)								
		2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	10-YR COMP. AVE. YIELD 5/	2004	2005	2006	2007	2008	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	10-YR COMP. AVE. TEST WT 5/
BZ596117 BOULDER (+)	4		86.9	40.5	68.6	78.2	68.5	128.1	58.7		50.0	41.4	47.8	48.5	46.9	109.3	48.5
MT950186 HAXBY	10	56.3	80.1	35.7	64.7	67.5	50.7	110.8	50.7	46.6	50.0	44.5	48.9	49.1	48.8	110.0	48.8
PI568246 BARONESSE (P+)	8	62.5	73.1				81.3	51.9	50.5	39.7	44.6			47.9	46.2	102.3	45.4
ND15477 DRUMMOND	4		71.9	32.9	52.9	72.1	57.5	107.4	49.2		44.8	36.8	42.3	47.3	42.8	99.7	44.2
BZ594-19 WPB XENA (P+)	9		68.7	37.7	58.9	66.0	47.5	107.0	49.0		45.0	41.8	43.7	46.0	46.2	102.5	45.5
MT960228 ESLICK	10	60.5	74.6	31.0	57.2	68.3	48.9	106.7	48.9	41.8	46.0	41.5	43.9	46.3	46.2	104.1	46.2
2B965057 CONRAD	4		67.2	36.6	55.7	67.3	56.7	106.0	48.5		45.3	41.7	43.3	45.7	44.0	102.5	45.5
MT910189 HOCKETT (++)	5	60.2	73.9	31.9	57.9	64.1	57.6	105.9	48.5	43.0	47.9	43.5	47.1	47.7	45.8	109.3	48.5
6B952482 TRADITION	5	59.3	71.4	29.0	56.7	71.5	57.6	105.8	48.5	38.6	44.9	37.4	43.7	47.7	42.5	101.3	44.9
MT970116 CRAFT	8	62.9	69.1	30.5	51.9	68.3	47.6	103.7	47.5	44.1	47.7	44.3	46.9	49.8	47.5	108.5	48.1
PI491534 GALLATIN	6	59.4					42.1	103.5	47.4	42.8					46.6	102.8	45.6
MT981060 HAYS	5	50.8	62.9	36.0	57.0		49.2	103.1	47.2	38.4	43.2	39.5	40.5		41.5	98.6	43.7
SK76333 HARRINGTON	10	58.1	63.6	29.3	51.8	69.2	45.8	100.0	45.8	37.9	43.0	40.2	42.4	46.1	44.4	100.0	44.4
PI610264 VALIER (++)	6	62.8					39.7	97.7	44.7	40.8					47.2	104.1	46.2
TR232 METCALFE	5	50.4	61.5	26.2	49.9	63.2	50.2	92.4	42.3	39.3	44.4	42.0	44.9	46.1	43.4	103.4	45.9
PI639694 STELLAR	3			22.4	45.5	69.2	45.7	91.2	41.7			33.6	39.7	45.5	39.6	92.3	41.0
MT960101 GERALDINE	6		61.5	30.9	50.5	69.5	44.9	90.1	41.3		44.0	41.0	42.3	47.3	43.9	98.4	43.6
6B932978 LEGACY (P+)	4		57.3	21.9	48.0	61.4	47.2	88.1	40.4		41.6	36.8	39.0	43.4	40.2	93.6	41.5
2B914947 MERIT (P+)	4		57.5	25.6	50.5	50.8	46.1	86.2	39.5		41.4	39.3	40.6	43.7	41.3	96.1	42.6
TR150 COPELAND	3	43.7	57.5	26.6			42.6	84.6	38.8	37.3	42.5	40.1		40.0	99.0	43.9	
MEANS (For Entries Listed)		57.2	68.2	30.9	54.9	68.0			46.4	40.9	45.1	40.3	43.6	46.8			45.2
6/ Growing Season Precipitation (in.)		7.4	n/a	7.6	6.9	8.9	7.1										
Soil PAW (in.) to SD @ Planting		6.2	4.4	9.3	n/a	8.2	7.3										
Total Plant Available Water (in.)		13.5	4.4	16.9	6.9	17.2	11.7										
Soil NO3 (lbs.) to SD at Planting		260	200	465	n/a	n/a	312										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	70	70	70	69										
	(# P ₂ O ₅)	40	40	40	40	40	41										
	(# K ₂ O)	25	25	25	25	25	25										

Check Variety is Harrington.

1/ See MCES Bulletin 1094 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include malting potential, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 or Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Harrington yield or test weight for the same data years as those in which a given entry was tested.

5/ 10-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Harrington for the same years, and z = 10-Yr average yield or test weight for the check variety Harrington.

6/ Seeding to 14 days prior to harvest maturity.