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, and oat production together in the five counties represents 28.6 percent of the 2001-2005 statewide total (42 percent and 27 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 1982-2005 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 2006 ranged from fair to excellent across North Central Montana. At Havre, total annual growing season precipitation (9/1/05 through 8/31/06) was 10.56 inches, 13.51 percent less than the average for all years since 1916. April 1 through July 31 precipitation was 5.71 inches or 82.6 percent of the 91-year average. Heat units expressed as "Growing Degree Days" (GDD, base 50) were 104.4 percent of the average for the last 56 years (1951-2006). The last spring frost was 10 days early with the first fall frost 18 days late resulting in 156 frost-free days, 29 days longer than the 91-year average. September 2005 through March 2006 precipitation was 96.3 percent of the long-term average. The April through July growing season saw an average daily temperature at 61.5 degrees F, 3.7 degrees above normal. July and August average temperatures were 6.3 percent higher than normal with the high for 2006 recorded on July 23, 24 and August 8 at 100 degrees F. There were 44 days 90 degrees F or above. There were only 3 days with temperatures 100 degrees F or above. Early growing season conditions were generally dry, with 77 percent of the May precipitation occurring between May 26 and May 30. June and July was drier than normal. July precipitation was only 21 percent of the long-term average for that month. The overall growing season was on average warmer than normal and heat stress coinciding with critical growth stages in spring grains resulting in reduced test weights and elevated grain protein; at both on- and off-station locations. The minimum winter temperature was -21 degrees F on February 17. Although 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 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 (114 percent of the 10-year comparable average of 48.6 bu/ac) and higher than normal test weights (1.4 lbs more than the 10-year comparable average of 61.2 lbs/bu); SW had decreased yields (85 percent of the 10-year comparable average of 35.9 bu/ac) and reduced test weights (4.3 lbs less than the 10-year comparable average of 58.4 lbs/ac); BLY had increased yields (108 percent of the 10-year comparable average of 55.6 bu/ac) and reduced test weights (3.1 lbs less than the 10-year comparable average of 49.9 lbs/bu); and, OATS had nearly equal yields (99 percent of the 10-year comparable average of 76.5 bu/ac) and reduced test weights (2.8 lbs less than the 10-year comparable average of 31.6 lbs/bu).

Off-station cropping environments were somewhat variable in 2006. The Loma location had adequate precipitation, but suffered substantial heat stress during periods critical to the production of cereal crops. Compared to seven-year Loma comparable average WW yields, 2006 yields were up 12 percent with test weights up 1.8 lbs/bu. Spring wheat yields decreased 13 percent from the nine-year Loma comparable average with test weights up 1.7 lbs/bu. DURUM yields were down 20 percent from the four-year Loma comparable average with test weights very close to normal. Eight-year Loma comparable average BLY yields were 40 percent higher than 2006 yields with test weight down 5.5 lbs/bu. The Turner location had below normal precipitation. Yields of the SW were down 47 percent from the nine-year comparable average with test weights down 1.7 lbs/bu. DURUM yields were 38 percent lower than the five-year Turner comparable average with test weights down 2.2 lb/bu. Turner BLY yields were down 48 percent with test weights down 4.8 lbs/bu compared to the nine-year comparable average. Ten-year Loring comparable average SW yields were 61 percent higher than the 2006 yield of 21.5 bu/ac, with test weights down 0.9 lbs/bu. Ten-year Loring comparable average barley yields were 82 percent higher than the 2006 yield of 28.7 bu/ac with test weights down 3.6 lbs/bu. The North Havre location, established in 2005 for purposes of conducting agronomic investigations in a wheat stem sawfly environment, saw generally reduced yields and reduced test weights for WW, SW, DURUM and BLY. Sawfly pressure was minimal at Loma, moderate at North Havre and severe at Loring and very severe at Turner. Most locations recorded yields generally commensurate with available moisture. 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 heat stress during critical development stages.

Stand percent, plant height, yield, moisture, test weight, protein, and sawfly cutting data for the 2006 Peterson (North Havre) and McKeever (Loma) dryland winter wheat trial is summarized in Tables 1 and 2, respectively. Multi-year yield and test weight summary data for selected winter wheat entries at the McKeever location for 2002-2006 are presented in Table 3.

Stand percent, plant height, yield, moisture, test weight, protein, sawfly cutting and Hessian fly data, where appropriate, for the 2006 Cederberg (Turner), Peterson (North Havre), Flansaas/Lumsden (Loring) and McKeever (Loma) dryland spring wheat trials are summarized in Tables 4, 6, 7, and 9, 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, Flansaas/Lumsden and McKeever locations are presented in Tables 5, 8 and 10, respectively.

Stand percent, plant height, yield, moisture, test weight, protein, and sawfly cutting and Hessian fly data, where appropriate, for the 2006 Cederberg (Turner), Peterson (North Havre) and McKeever (Loma) dryland durum trials are summarized in Tables 11, 13 and 14, 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 and McKeever locations are presented in Tables 12 and 15, respectively. After three years of data are in place at the Peterson location, multi-year year and test weight summaries will be reported.

Stand percent, plant height, yield, moisture, test weight, plump/thin, protein and sawfly cutting data, where appropriate, for the 2006 Cederberg (Turner), Peterson (North Havre), Flansaas/Lumsden (Loring) and McKeever (Loma) dryland spring barley trials are summarized in Tables 16, 18, 19 and 21 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 barley variety evaluation was not initiated there until 1999. Multi-year yield

and test weight summaries for selected spring barley entries at the Cederberg, Flansaas/Lumsden, and McKeever locations are presented in Tables 17, 20 and 22, respectively.

SUMMARY:

Fourteen, standard, off-station variety performance trials were conducted in 2006 on mechanical or chemical fallow at four locations in four northern Montana counties.

Dryland Winter Wheat Trials:

1. Terry McKeever Farm, Chouteau County	(12N Loma)	21-27N-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)	2-35N-29E
4. Terry McKeever Farm, Chouteau County	(12N Loma)	21-27N-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. Terry McKeever Farm, Chouteau County	(12N Loma)	21-27N-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)	2-35N-29E
4. Terry McKeever Farm, Chouteau County	(12N Loma)	21-27N-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 after end-trimming to 16'. 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. However, it is our intent to continue standard off-station variety evaluation work at Loma until at least ten years of performance data are collected there. This has also been 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), Flansaas/Lumsden (Loring) and McKeever (Loma) locations; and durum evaluations

at the Cederberg, Peterson and McKeever locations. The Loring location is entering its' twelfth 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 at least until 2007 which will mark 20 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. 2006. (Exp# 06-3852-WW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
MTCL0316	NORRIS	99.4	20.3	40.5	7.3	62.9	14.5	35.0
MTS0031	GENOU	98.5	20.7	40.1	7.7	61.6	15.6	3.7
MT00159	YELLOWSTONE	99.4	21.9	40.1	7.3	61.2	14.7	73.3
MTW9441	NUSKY	99.4	20.1	39.7	7.4	61.3	15.5	65.0
PI593891	VANGUARD	98.8	22.0	36.5	7.6	61.5	15.8	6.7
CI 17879	ROCKY	98.8	19.6	35.8	8.0	62.6	15.3	15.0
S94-4	CDC FALCON	98.1	18.0	34.8	7.3	61.2	15.0	53.3
PI599336	MORGAN	99.4	20.8	34.6	7.0	59.6	15.7	51.7
CI 17860	NEELEY	99.4	17.7	34.2	7.3	58.5	14.4	45.0
PI517194	TIBER	98.8	21.4	34.0	7.2	61.3	15.3	40.0
PI593889	RAMPART	99.4	21.3	34.0	7.5	61.2	16.0	3.7
BZ96-788	LEDGER	99.4	18.1	33.5	7.5	61.9	14.8	25.0
MT02113	MT02113	99.7	18.5	33.3	7.4	59.5	14.0	45.0
BZ96-919	PRYOR	100.0	17.0	33.3	7.5	61.2	14.2	35.0
MT 9432	BIGSKY	96.6	17.5	33.2	7.3	61.4	16.0	40.0
MT9426	PAUL	90.1	15.0	32.7	7.8	59.0	14.7	25.0
MTCL0306	MTW9727//Fidel/NuWest	99.7	18.2	31.4	7.5	61.7	16.0	36.7
JAGALENE	JAGALENE	98.5	19.1	30.6	7.4	62.3	15.7	33.3
PI613099	MILLENIUM	99.4	18.4	30.4	7.6	61.1	15.4	20.0
PI619098	WAHOO	99.4	17.7	30.0	7.5	60.8	16.0	33.3
PI555458	PROMONTORY	97.5	21.4	29.4	7.8	61.8	14.1	40.0
MT01148	Judith/Blizzard	98.8	18.4	29.4	7.0	59.6	15.3	51.7
MTCL0318	BYNUM	98.4	20.1	28.7	7.8	60.5	15.9	5.3
ND9257	JERRY	100.0	19.9	27.4	7.3	59.7	15.7	38.3
EXPERIMENTAL MEANS		98.6	19.3	33.6	7.5	61.0	15.2	34.2
LSD (0.05)		6.1	3.3	8.4	0.4	1.1	-	22.8
C.V.2: (S of MEAN / MEAN)*100		2.2	6.0	8.7	2.0	0.7	-	23.4

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 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# 06-3852-WW)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	1.25
Quarter	NW		Soil Texture 6-24"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	63
Section	31		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	59
Township	36N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	13E		Ca (ppm)	n/a		Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.478'		Init Zn (ppm) 0-6"	0.6		Fert. Rate (lbs/ac) N	70
Longitude	W110 05.139'		Init Mn (ppm) 0-6"	14.1		Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx		Mg (ppm) 0-6	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.4		Init Cu (ppm) 0-6"	0.8		Herbicide App. Date	4/28
Org.Matter (%) 0-6"	1.4		Init Fe (ppm) 0-6"	34.2		Herbicide Product	Bronate Adv
Init N (lbs/ac) 0-6"	16		CEC 0-6"	21.8		Herbicide Rate (/ac)	15 oz
Init N (lbs/ac) 6-24"	42		Init PAW (in.) 0-6"	n/a		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	56		Init PAW (in.) 6-24"	n/a		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 36-48"	64		Init PAW (in.) 24-36"	n/a		Harvest Date	8/4
Init N (lbs/ac) 0-48"	178		Init PAW (in.) 36-48"	n/a		Rooting Depth (in.)	34+"
Init P (ppm) Olsen 0-6"	33		Init PAW (in.) 0-48"	n/a		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	431		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	14		Previous Crop	Canola		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	0.1		Planting Date	9/29		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.16		Planting Depth (in.)	1.50		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	0.3		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 2. Dryland Fallow Winter Wheat Cultivar Evaluation Nursery Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-3853-WW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
MT00159	YELLOWSTONE	100.0	30.8	65.2	7.2	60.6	12.0	0.7
CI 17860	NEELEY	100.0	27.7	64.5	7.2	60.6	10.1	2.3
MTCL0316	NORRIS	99.7	24.7	60.9	7.1	62.4	12.5	0.3
MTW9441	NUSKY	100.0	31.9	60.3	7.5	62.0	11.2	0.3
MT9426	PAUL	100.0	24.1	59.2	7.3	60.2	11.9	0.0
PI599336	MORGAN	100.0	30.0	57.7	7.2	60.7	11.9	1.7
BZ96-919	PRYOR	100.0	24.2	57.4	7.5	62.5	10.5	0.3
MTS0031	GENOU	99.7	25.3	57.3	7.3	61.2	12.3	0.0
PI555458	PROMONTORY	99.3	27.3	56.6	7.1	61.7	11.9	3.7
MTCL0306	MTW9727//Fidel/NuWest	100.0	27.3	56.3	7.3	61.8	13.8	2.0
BZ96-788	LEDGER	99.7	26.9	55.2	6.9	61.1	14.0	0.0
MT02113	MT02113	97.9	26.7	53.2	7.0	60.3	12.1	0.3
MT01148	Judith/Blizzard	97.6	26.8	52.4	6.9	59.8	14.4	3.7
PI517194	TIBER	97.9	24.1	51.2	7.1	61.3	12.4	1.7
PI593891	VANGUARD	100.0	27.1	50.3	7.0	60.6	13.3	0.3
PI593889	RAMPART	100.0	25.1	49.0	6.9	61.0	12.5	0.0
S94-4	CDC FALCON	100.0	19.1	48.8	7.2	61.3	12.9	0.3
MT 9432	BIGSKY	100.0	25.0	48.3	6.9	60.7	15.2	5.0
JAGALENE	JAGALENE	99.7	25.3	48.2	7.3	62.8	13.2	2.3
PI619098	WAHOO	99.7	26.0	48.2	7.0	60.1	13.6	0.7
MTCL0318	BYNUM	100.0	27.4	46.7	6.9	60.4	13.5	2.3
PI613099	MILLENIUM	100.0	24.6	45.7	7.1	61.1	13.9	0.3
ND9257	JERRY	99.0	27.7	44.5	7.2	60.2	12.9	0.7
CI 17879	ROCKY	100.0	21.2	28.6	7.0	60.8	14.1	0.7
EXPERIMENTAL MEANS		99.6	26.1	52.7	7.1	61.0	12.7	1.2
LSD (0.05)		2.1	4.3	15.9	0.4	1.3	-	2.4
C.V.2: (S of MEAN / MEAN)*100		0.7	5.8	10.6	1.7	0.7	-	68.7

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.

Site Resource & Management Data: (Exp# 06-3853-WW)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	1.5-2.0
Quarter	SW		Soil Texture 6-24"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	68
Section	21		Soil Texture 24-36"	CL-		4" Soil Temp (^{o}F) @ Plnt'g	66
Township	27N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	10E		Ca (ppm)	n/a		Fertilizer Placement	Bnd at Plntg
Latitude	N48 04.493'		Init Zn (ppm) 0-6"	0.9		Fert. Rate (lbs/ac) N	70
Longitude	W110 27.549'		Init Mn (ppm) 0-6"	23.4		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Mg (ppm) 0-6	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.5		Init Cu (ppm) 0-6"	1.2		Herbicide App. Date	4/26
Org.Matter (%) 0-6"	1.9		Init Fe (ppm) 0-6"	29		Herbicide Product	Bronate Adv
Init N (lbs/ac) 0-6"	30		CEC 0-6"	21.8		Herbicide Rate (/ac)	15 oz
Init N (lbs/ac) 6-24"	90		Init PAW (in.) 0-6"	0.28		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	48		Init PAW (in.) 6-24"	1.50		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 36-48"	24		Init PAW (in.) 24-36"	0.68		Harvest Date	8/8
N (lbs/ac) 0-48	192		Init PAW (in.) 36-48"	2.92		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	35		Init PAW (in.) 0-48"	5.37		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	330		Cropping System	RT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	14		Previous Crop	Barley		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	0.24		Planting Date	9/30		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.2		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	0.54		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 3. Seven-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Winter Wheat Variety Nurseries Grown Off-Station at theTerry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 1999-2006. (Exp# 3853-WW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002 6/	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**7-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002 6/	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**7-YR COMP. AVE. TEST WT 5/**
PI584526	JUDITH	4		35.9				32.0	102.1	**51.3**		52.8				56.7	98.1	**57.6**
CI 17860	NEELEY	7		38.8	82.3	79.4	64.5	50.2	100.0	**50.2**		55.9	56.4	62.9	60.6	58.7	100.0	**58.7**
BZ96-919	PRYOR (P+)	4		43.5	81.8	79.6	57.4	65.6	99.0	**49.7**		55.9	56.0	62.2	62.5	59.1	100.3	**58.9**
PI555458	PROMONTORY	7		46.7	81.0	64.3	56.6	47.6	94.8	**47.6**		56.2	59.7	63.0	61.7	60.4	102.9	**60.4**
CI 17879	ROCKY (P)	7		48.1	91.1	71.9	28.6	47.6	94.7	**47.6**		58.5	60.7	63.2	60.8	60.6	103.2	**60.6**
PI517194	TIBER	7		45.4	74.2	66.2	51.2	47.4	94.3	**47.4**		59.5	57.6	62.0	61.3	60.0	102.2	**60.0**
PI619098	WAHOO	3			88.8	75.3	48.2	70.8	93.8	**47.1**			58.3	61.2	60.1	59.8	99.8	**58.6**
S94-4	CDC FALCON (P+)	4		42.7	81.4	75.0	48.8	62.0	93.5	**47.0**		55.0	57.0	62.8	61.3	59.0	100.2	**58.8**
MT 9426	PAUL (++)	6		37.8	83.8	72.2	59.2	49.2	93.1	**46.8**		53.0	54.5	61.4	60.2	57.2	98.3	**57.7**
PI586806	NUWEST (hard white)(P+)	5		39.8	77.6			38.6	92.9	**46.7**		57.0	58.4			58.7	102.0	**59.9**
PI599336	MORGAN (P+)	7		40.6	79.1	58.3	57.7	46.4	92.3	**46.4**		54.4	54.1	60.1	60.7	58.0	98.8	**58.0**
PI593891	VANGUARD (sawfly res.)	7		40.8	74.4	68.5	50.3	46.3	92.1	**46.3**		59.1	57.3	61.6	60.6	59.7	101.7	**59.7**
MT 9432	BIGSKY (+)	7		35.8	73.7	73.1	48.3	45.8	91.1	**45.8**		55.6	54.7	62.6	60.7	59.2	100.8	**59.2**
JAGALENE	JAGALENE	3			93.0	64.6	48.2	68.6	91.0	**45.7**			61.7	63.6	62.8	62.7	104.6	**61.4**
MTW 9441	NUSKY (hard white)	7		40.7	79.1	63.0	60.3	45.6	90.8	**45.6**		57.6	57.1	61.5	62.0	59.5	101.3	**59.5**
MTS 0031	GENOU (sawfly resis)(++)	3		39.4	73.5	69.3		60.7	90.8	**45.6**		56.1	58.2	62.2		58.8	100.7	**59.1**
ND9257	JERRY	4		43.2	88.2	63.2	44.5	59.8	90.2	**45.3**		57.4	57.1	61.3	60.2	59.0	100.1	**58.8**
PI593889	RAMPART (sawfly resis.)	7		37.0	70.5	61.7	49.0	44.7	89.1	**44.7**		59.2	56.9	61.5	61.0	59.6	101.6	**59.6**
MEANS (For Entries Listed)				41.0	80.8	69.1	51.5			47.1		56.4	57.4	62.1	61.1			59.2
7/ Growing Season Precipitation (in.)				4.03	7.38	n/a	8.60	6.67										
Soil PAW (in.) to SD @ Planting				7.99	5.70	4.04	7.64	6.34										
Total Plant Available Water (in.)				12.02	13.08	4.04	16.24	11.35										
Soil NO3 (lbs.) to SD at Planting				170.0	286.0	514.0	192	290.50										
Fertilizer Applied	(# N)			70.0	70.0	70.0	70.0	69.29										
	(# P_2O_5)			40.0	40.0	40.0	40.0	40.00										
	(# K_2O)			25.0	25.0	25.0	25.0	25.00										

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 selecton decisions.

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

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/ 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 Neeley for the same years, and z = 7-Yr average yield or test weight for the check variety Neeley.

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

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

TABLE 4. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9951-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
MT 0564	MT0013//BZ992632/MT9619	86.5	23.5	26.3	8.2	57.7	17.1	25.0
MT 0245	VIDA	90.6	21.6	24.7	8.2	57.5	16.0	53.3
MT 0515	REEDER/MT9929	88.6	23.9	24.4	8.1	57.4	17.3	31.7
PI633974	CHOTEAU	88.9	20.5	24.1	8.1	56.5	17.5	21.7
PI619086	EXPLORER	89.3	22.3	23.9	8.0	57.7	17.0	68.3
MTHW0202	ID377S/MTHW9701	89.3	26.0	23.5	8.3	56.9	16.6	46.7
PI592761	ERNEST	87.2	25.8	23.4	8.1	57.7	17.0	21.7
BZ996472	AGAWAM	85.7	23.5	23.2	8.8	60.5	16.4	26.7
PI574642	McNEAL	93.7	23.9	22.0	7.9	56.9	17.0	73.3
BZ992322	HANK	90.6	21.1	21.4	8.1	56.2	17.3	78.3
WB 926	WESTBRED 926	90.0	21.8	21.4	7.8	56.3	17.2	78.3
BZ992588	CONAN	94.5	22.9	21.2	8.3	58.6	17.0	26.7
PI632252	OUTLOOK	92.4	20.6	20.9	7.7	55.8	17.0	81.7
CI 13596	FORTUNA	93.7	26.3	20.8	8.3	58.3	17.4	23.3
PI607557	SCHOLAR	96.2	23.5	20.6	7.8	57.3	17.2	60.0
ND 695	REEDER	94.1	24.1	19.7	7.7	56.4	17.3	81.7
ND 747	GLENN	93.1	24.8	19.5	8.3	60.0	16.7	61.7
AGRIPRO1	NORPRO	88.9	22.9	19.4	7.7	55.9	16.8	71.7
AGRIPRO3	FREYR	86.1	25.1	19.2	8.1	57.5	16.6	90.0
AGRIPRO2	KNUDSON	91.7	22.7	19.2	7.8	58.0	17.2	80.0
EXPERIMENTAL MEANS		90.6	23.3	21.9	8.1	57.5	17.0	55.1
LSD (0.05)		7.4	3.4	3.0	0.3	0.9	-	17.6
C.V.2: (S of MEAN / MEAN)*100		2.8	5.1	4.8	1.4	0.5	-	11.2

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# 06-9951-SW)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	0.5
Quarter	SE		Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	69F
Section	13		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	60F
Township	36N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	25E		Ca (ppm)	1102		Fertilizer Placement	Bnd at Plntg
Latitude	N48 52.584'		Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Longitude	W108 23.528'		Init Mn (ppm) 0-6"	12.53		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Mg (ppm) 0-6	323		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.3		Init Cu (ppm) 0-6"	0.85		Herbicide App. Date	6/22
Org.Matter (%) 0-6"	1.7		Init Fe (ppm) 0-6"	50.5		Herbicide Product	DbleUp/Achieve
Init N (lbs/ac) 0-6"	22		CEC 0-6"	9.3		Herbicide Rate (/ac)	1 pt / 6.9 oz
Init N (lbs/ac) 6-24"	24		Init PAW (in.) 0-6"	1.04		Precip (in.) Plnt'g-Harvest	2.59
Init N (lbs/ac) 24-36"	8		Init PAW (in.) 6-24"	3.84		Precip (>.1) Plnt'g-Harvest	1.66
Init N (lbs/ac) 36-48"	10		Init PAW (in.) 24-36"	1.72		Harvest Date	8/15
Init N (lbs/ac) 0-48"	64		Init PAW (in.) 36-48"	2.17		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	24		Init PAW (in.) 0-48"	8.77		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	382		Cropping System	RT-ChemFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	38		Previous Crop	Durum		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	18		Planting Date	5/11		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.08		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 5. 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. 1997-2006. (Exp# 9951-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
MT 0245	VIDA (+)	3			64.0	51.0	24.7	46.6	127.7	**43.6**			60.8	59.6	57.5	59.3	99.0	**59.0**
PI574642	McNEAL	9	44.2	22.3	58.4	43.0	22.0	42.5	124.3	**42.5**	58.4	58.0	61.3	59.6	56.9	58.8	98.7	**58.8**
PI633974	CHOTEAU (++)(sawfly res)	6	40.9	24.5	55.2	45.4	24.1	37.8	122.0	**41.7**	57.6	57.7	60.3	59.2	56.5	58.9	98.5	**58.7**
PI549275	HI-LINE	7	37.4	21.9	55.2			43.1	121.6	**41.6**	58.3	58.1	61.3			59.0	98.8	**58.9**
ND695	REEDER (+)	7	38.7	23.6	56.0	46.0	19.7	39.1	119.8	**41.0**	59.1	58.3	61.7	61.3	56.4	60.2	100.5	**59.9**
CI17430	NEWANA	7	32.6	21.0	55.7			42.1	118.9	**40.6**	58.4	60.4	61.4			59.8	100.0	**59.6**
WBEXPRES	WB EXPRESS (P+)	6	36.5	20.1				39.1	118.4	**40.5**	58.2	58.5				58.7	98.7	**58.9**
PI527682	AMIDON (mod sawfly res)	7	37.5	22.5	48.3			41.6	117.5	**40.2**	57.0	57.9	60.0			59.0	98.8	**58.9**
PI607557	SCHOLAR (+)(mod sfly res)	9	39.3	22.8	52.9	41.9	20.6	40.0	117.2	**40.0**	58.2	59.5	61.5	60.1	57.3	59.8	100.3	**59.8**
PI592761	ERNEST (+)(sawfly res)	9	38.2	25.6	54.5	39.3	23.4	39.8	116.6	**39.8**	57.2	58.7	60.3	59.5	57.7	59.2	99.3	**59.2**
PI632252	OUTLOOK (+)	6	34.2	24.7	54.6	44.5	20.9	36.0	116.4	**39.8**	58.7	57.9	60.8	59.5	55.8	58.8	98.5	**58.7**
WB936	WB 936 (P+)	7	36.5	22.7	48.8			41.1	116.0	**39.6**	57.3	58.7	59.0			58.7	98.2	**58.6**
PI619086	EXPLORER (hard white)(+)	7	32.6	23.3	47.6	47.8	23.9	37.2	113.9	**38.9**	57.4	58.5	60.8	59.5	57.7	59.3	99.1	**59.1**
C982-324	WB RAMBO (P+)(mod sf res)	7	36.9	22.7	57.1			40.1	113.4	**38.7**	58.5	59.6	61.2			59.9	100.3	**59.8**
BZ992588	CONAN (P+)(sawfly tol)	7	37.5	23.6	53.0	43.7	21.2	36.9	112.8	**38.6**	59.1	60.0	61.6	60.7	58.6	60.4	100.8	**60.1**
CI17429	LEW (sawfly resistant)	6	36.3	21.1				36.6	110.8	**37.9**	58.9	59.3				59.9	100.6	**60.0**
WPB926	WB 926 (P)	9	31.8	20.7	47.0	43.2	21.4	37.2	108.7	**37.2**	57.5	58.7	60.2	58.8	56.3	58.4	98.0	**58.4**
BZ992322	HANK (+)	5	35.7	22.2	51.8	42.1	21.4	34.6	108.2	**37.0**	57.7	58.4	60.1	59.7	56.2	58.4	98.5	**58.7**
CI13596	FORTUNA (sawfly res)	9	30.3	20.4	49.7	38.9	20.8	34.2	100.0	**34.2**	58.1	58.8	61.2	60.2	58.3	59.6	100.0	**59.6**
MEANS (For Entries Listed)			36.5	22.5	53.5	43.9	22.0			39.6	58.1	58.7	60.8	59.8	57.1			59.2
6/ Growing Season Precipitation (in.)			Pndg	3.12	13.73	9.66	2.5	7.90										
Soil PAW (in.) to SD @ Planting			5.65	6.96	7.39	8.004	8.77	6.94										
Total Plant Available Water (in.)			5.65	10.08	21.12	17.66	11.27	13.52										
Soil NO3 (lbs.) to SD at Planting			36	160	160	84	64	94.00										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48	48.00										
Fertilizer Applied	(# N)		70.0	70.0	70.0	70.0	70	69.11										
	(# P_2O_5)		40.0	40.0	40.0	40.0	40	38.44										
	(# K_2O)		25.0	25.0	25.0	25.0	25	19.44										

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 selecton 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 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 6. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9952-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
BZ996472	AGAWAM	77.1	22.8	18.1	8.8	55.9	16.9	1.0
BZ992588	CONAN	82.1	24.3	18.0	8.3	54.2	18.0	1.0
WB 926	WESTBRED 926	91.0	22.9	17.7	7.7	52.2	19.0	8.7
PI592761	ERNEST	82.1	26.5	17.2	7.6	52.7	19.2	1.0
PI633974	CHOTEAU	81.8	20.3	16.3	7.9	52.0	18.7	0.7
MT 0245	VIDA	92.6	21.4	16.2	7.9	51.2	19.0	4.0
MTHW0202	ID377S/MTHW9701	83.6	21.5	15.4	8.1	50.0	18.4	1.0
PI632252	OUTLOOK	86.7	22.8	15.3	7.5	50.8	19.5	7.0
PI619086	EXPLORER	88.3	20.9	15.3	7.6	50.5	19.6	11.7
MT 0564	MT0013//BZ992632/MT9619	90.4	21.1	15.1	7.7	52.4	18.9	0.7
BZ992322	HANK	79.7	21.9	14.8	7.8	51.5	19.6	8.3
PI574642	McNEAL	91.1	22.7	14.7	7.9	50.2	19.9	7.0
MT 0515	REEDER/MT9929	90.1	21.8	14.2	7.8	52.8	19.1	1.0
ND 747	GLENN	88.3	23.8	13.4	8.2	52.5	18.2	16.7
AGRIPRO2	KNUDSON	84.3	22.0	13.2	7.7	52.6	18.8	13.3
PI607557	SCHOLAR	84.9	23.1	13.0	7.7	52.3	19.8	6.7
AGRIPRO3	FREYR	79.6	25.0	12.9	7.8	50.9	18.7	6.7
CI 13596	FORTUNA	82.1	26.5	12.5	8.2	53.6	18.6	1.0
AGRIPRO1	NORPRO	87.7	24.0	12.1	7.6	49.3	18.8	5.0
ND 695	REEDER	95.1	21.4	11.2	7.6	50.6	19.2	15.0
EXPERIMENTAL MEANS		85.9	22.8	14.8	7.9	51.9	18.9	5.9
LSD (0.05)		9.9	3.5	3.9	0.2	1.5	-	6.7
C.V.2: (S of MEAN / MEAN)*100		4.0	5.3	9.3	0.8	1.0	-	39.6

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 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# 06-9952-SW)							
Field			Soil Texture 0-6"	n/a		Dry Surf Soil (in.) @Plnt'g	0.25
Quarter	NW		Soil Texture 6-24"	n/a		2" Soil Temp (^{o}F) @ Plnt'g	42F
Section	31		Soil Texture 24-36"	n/a		4" Soil Temp (^{o}F) @ Plnt'g	43F
Township	36N		Soil Texture 36-48"	n/a		Fertilizer Formulation	Gran.Blend
Range	13E		Ca (ppm)	n/a		Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.478'		Init Zn (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) N	70
Longitude	W110 05.139'		Init Mn (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx		Mg (ppm) 0-6	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	n/a		Init Cu (ppm) 0-6"	n/a		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	n/a		Init Fe (ppm) 0-6"	n/a		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	n/a		CEC 0-6"	n/a		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	n/a		Init PAW (in.) 0-6"	n/a		Precip (in.) Plnt'g-Harvest	4.07
Init N (lbs/ac) 24-36"	n/a		Init PAW (in.) 6-24"	n/a		Precip (>.1) Plnt'g-Harvest	3.56
Init N (lbs/ac) 36-48"	n/a		Init PAW (in.) 24-36"	n/a		Harvest Date	8/4
Init N (lbs/ac) 0-48"	n/a		Init PAW (in.) 36-48"	n/a		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	n/a		Init PAW (in.) 0-48"	n/a		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	n/a		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	n/a		Previous Crop	Canola		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	n/a		Planting Date	5/3		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	n/a		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 7. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9955-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
MT 0515	REEDER/MT9929	84.7	19.9	26.1	8.6	57.3	16.3	15.0
MT 0245	VIDA	92.4	20.1	24.4	8.7	56.3	16.0	23.3
BZ996472	AGAWAM	84.7	22.3	23.8	9.1	59.6	15.7	6.7
MT 0564	MT0013//BZ992632/MT9619	85.8	20.0	23.0	8.6	55.8	16.7	6.7
PI607557	SCHOLAR	88.2	22.7	22.9	8.4	57.5	16.5	63.3
PI633974	CHOTEAU	91.3	17.9	22.6	8.6	56.3	17.0	5.0
PI592761	ERNEST	89.2	22.4	22.6	8.6	56.7	16.7	15.0
WB 926	WESTBRED 926	88.6	20.2	21.7	8.3	56.8	16.8	58.3
ND 695	REEDER	88.2	20.6	21.3	8.2	56.2	16.4	55.0
BZ992588	CONAN	88.2	20.9	21.2	8.7	58.6	16.6	13.3
CI 13596	FORTUNA	92.7	22.5	21.2	8.8	57.1	16.4	8.3
MTHW0202	ID377S/MTHW9701	88.2	19.3	21.0	8.8	56.7	16.2	26.7
AGRIPRO3	FREYR	85.4	23.2	20.5	8.6	57.7	16.1	71.7
PI619086	EXPLORER	86.5	19.5	20.3	8.5	57.2	16.6	53.3
PI574642	McNEAL	84.7	21.3	20.2	8.0	55.6	16.5	71.7
BZ992322	HANK	88.9	20.4	20.2	8.4	56.6	16.6	63.3
AGRIPRO1	NORPRO	87.5	20.6	19.8	8.3	55.7	16.2	48.3
AGRIPRO2	KNUDSON	83.0	20.1	19.2	8.5	57.8	16.6	58.3
PI632252	OUTLOOK	95.8	19.8	19.2	8.1	55.7	16.5	68.3
ND 747	GLENN	88.9	22.8	19.0	8.7	59.3	16.4	48.3
EXPERIMENTAL MEANS		88.1	20.8	21.5	8.5	57.0	16.4	39.0
LSD (0.05)		7.5	2.6	3.0	0.2	0.8	-	12.7
C.V.2: (S of MEAN / MEAN)*100		3.0	4.3	4.9	0.8	0.5	-	11.4

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 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# 06-9955-SW)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	0.3
Quarter			Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	64F
Section	2		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	61F
Township	35N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	29E		Ca (ppm)	1160		Fertilizer Placement	Bnd at Plntg
Latitude	N48 46.523		Init Zn (ppm) 0-6"	0.78		Fert. Rate (lbs/ac) N	70
Longitude	W107 52.563		Init Mn (ppm) 0-6"	13.02		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Init Mg (ppm) 0-6"	424		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	7		Init Cu (ppm) 0-6"	0.86		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	1.6		Init Fe (ppm) 0-6"	42.9		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	13		CEC 0-6"	10.2		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	36		Init PAW (in.) 0-6"	1.02		Precip (in.) Plnt'g-Harvest	7.61
Init N (lbs/ac) 24-36"	14		Init PAW (in.) 6-24"	3.36		Precip (>.1) Plnt'g-Harvest	6.04
Init N (lbs/ac) 36-48"	18		Init PAW (in.) 24-36"	1.76		Harvest Date	8/10
Init N (lbs/ac) 0-48"	81		Init PAW (in.) 36-48"	2.13		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	23		Init PAW (in.) 0-48"	8.27		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	301		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	190		Previous Crop	Barley		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	15		Planting Date	5/5		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.07		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 8. 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. 1997-2006. (Exp# 9955-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) - 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**10-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**10-YR COMP. AVE. TEST WT 5/**
MT 0245	VIDA (+)	3			59.9	42.8	24.4	42.4	130.0	**40.9**			62.8	57.3	56.3	58.8	99.7	**58.3**
ND 695	REEDER (+)	8	36.3	28.5	46.4	38.8	21.3	38.0	116.7	**36.7**	58.8	55.0	62.4	58.2	56.2	59.3	100.5	**58.8**
PI574642	McNEAL	10	38.1	25.9	46.9	34.5	20.2	36.2	115.0	**36.2**	58.3	51.4	61.6	56.0	55.6	57.1	97.7	**57.1**
CI 17430	NEWANA	8	34.4	27.0	43.4			37.4	114.2	**35.9**	59.1	54.1	61.7			58.2	99.0	**57.9**
PI549275	HI-LINE	8	35.1	25.0	46.2			37.1	113.5	**35.7**	57.5	53.3	62.9			57.5	97.8	**57.2**
WBEXPRES	WB EXPRESS (P+)	7	32.9	27.3				35.0	113.0	**35.6**	58.2	53.0				57.2	98.1	**57.4**
WB 936	WB 936 (P+)	8	35.0	27.0	40.9			36.8	112.5	**35.4**	56.7	52.9	59.8			57.2	97.3	**56.9**
PI632252	OUTLOOK (+)	6	35.6	28.0	49.0	38.3	19.2	35.7	111.5	**35.1**	58.0	52.5	61.7	56.3	55.7	57.4	97.6	**57.1**
PI633974	CHOTEAU (++)(sawfly res)	6	33.4	27.3	52.7	37.3	22.6	35.1	109.8	**34.5**	57.1	53.6	61.7	56.6	56.3	57.6	98.0	**57.3**
PI607557	SCHOLAR (+)(mod sf res)	10	37.0	25.1	43.0	30.7	22.9	34.5	109.7	**34.5**	59.9	56.1	62.5	57.1	57.5	59.1	101.1	**59.1**
PI592761	ERNEST (+)(sawfly res.)	10	34.7	26.7	48.2	34.1	22.6	34.5	109.7	**34.5**	58.2	54.6	62.2	56.6	56.7	58.1	99.3	**58.1**
BZ992588	CONAN (P+)(sawfly tol)	8	34.1	26.9	45.4	36.3	21.2	35.5	108.9	**34.3**	59.9	55.1	63.3	58.4	58.6	59.8	101.3	**59.3**
PI527682	AMIDON (mod swfly res)	8	33.7	22.9	38.2			35.3	107.9	**33.9**	58.2	54.3	61.5			58.3	99.1	**58.0**
C982-324	WB RAMBO (P+)(mod sf res)	8	33.4	24.0	50.0			35.3	107.8	**33.9**	60.1	54.7	62.8			59.3	100.8	**58.9**
WPB 926	WB 926 (P)	10	35.6	26.7	38.7	34.0	21.7	33.4	106.3	**33.4**	57.5	53.1	60.7	56.8	56.8	57.3	97.9	**57.3**
PI619086	EXPLORER (hard white)(+)	7	34.8	28.6	40.8	38.7	20.3	33.9	105.2	**33.1**	58.2	54.5	61.0	57.9	57.2	58.6	99.0	**57.9**
CI 17429	LEW (sawfly resistant)	7	34.5	23.8				31.8	102.8	**32.3**	60.0	54.7				58.7	100.7	**58.9**
BZ992322	HANK (P+)	5	36.1	28.1	41.5	37.2	20.2	32.6	102.5	**32.2**	56.2	53.1	60.1	57.1	56.6	56.6	97.3	**56.9**
CI 13596	FORTUNA (sawfly res)	10	31.5	30.0	45.0	31.6	21.2	31.5	100.0	**31.5**	59.1	55.2	62.3	57.3	57.1	58.5	100.0	**58.5**
MEANS (For Entries Listed)			34.8	26.6	45.7	36.2	21.5			34.7	58.4	54.0	61.8	57.1	56.7			57.9
6/ Growing Season Precipitation (in.)			Pndg	Pndg	5.59	10.88	n/a	6.44										
Soil PAW (in.) to SD @ Planting			Pndg	Pndg	8.25	4.91	9.07	6.56										
Total Plant Available Water (in.)			Pndg	Pndg	13.84	15.79	9.07	11.93										
Soil NO3 (lbs.) to SD at Planting			Pndg	80.0	76.0	60.0	54.0	68.57										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48.0	48.00										
Fertilizer Applied	(# N)		70.0	70.0	70.0	70.0	70.0	70.70										
	(# P_2O_5)		40.0	40.0	40.0	40.0	40.0	39.60										
	(# K_2O)		25.0	25.0	25.0	25.0	25.0	22.10										

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 selecton 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 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 9. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9957-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ HESSIAN %
MT 0245	VIDA	94.8	24.6	27.8	6.6	54.2	17.1	15.0
BZ992322	HANK	79.5	23.7	27.4	6.3	51.1	18.3	8.3
AGRIPRO1	NORPRO	91.0	25.0	26.0	6.1	51.3	17.6	8.3
AGRIPRO2	KNUDSON	87.5	25.3	25.6	6.6	56.7	17.2	11.7
ND 747	GLENN	95.5	28.1	25.3	6.9	55.4	16.7	15.0
MT 0564	MT0013//BZ992632/MT9619	90.0	23.8	23.7	6.2	53.9	18.3	13.3
PI632252	OUTLOOK	98.6	25.5	23.2	5.8	52.6	17.7	21.7
MTHW0202	ID377S/MTHW9701	85.1	24.9	22.8	6.4	52.8	18.0	5.0
PI574642	McNEAL	96.2	25.0	22.8	6.1	52.8	18.2	18.3
PI607557	SCHOLAR	93.4	29.7	22.7	6.0	54.5	18.7	13.3
PI633974	CHOTEAU	93.1	23.4	22.5	6.2	53.0	17.1	10.0
PI619086	EXPLORER	92.4	26.5	22.4	6.1	52.5	18.5	18.3
MT 0515	REEDER/MT9929	86.5	22.4	22.2	6.3	53.9	18.1	15.0
AGRIPRO3	FREYR	94.1	25.7	21.4	6.2	53.4	17.6	15.0
CI 13596	FORTUNA	91.7	26.3	21.0	6.5	54.6	17.8	10.0
ND 695	REEDER	97.6	24.2	20.6	6.2	53.2	17.8	16.7
BZ996472	AGAWAM	83.3	23.0	20.5	7.0	56.2	16.8	5.0
BZ992588	CONAN	84.7	23.4	19.4	6.5	53.4	18.5	6.7
WB 926	WESTBRED 926	92.0	23.1	19.3	6.0	51.3	18.9	8.3
PI592761	ERNEST	92.3	25.4	14.9	6.0	52.3	18.4	10.0
EXPERIMENTAL MEANS		91.0	25.0	22.6	6.3	53.5	17.9	12.3
LSD (0.05)		10.3	2.7	5.8	0.4	2.5	-	6.8
C.V.2: (S of MEAN / MEAN)*100		3.9	3.7	9.0	2.2	1.6	-	19.5

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/ Hessian fly rating is reported as percent 90° stem bending just above 1st joint.

Site Resource & Management Data: (Exp# 06-9957-SW)							
Field			Soil Texture 0-6"	CL		Dry Surf Soil (in.) @Plnt'g	0.25
Quarter	SW		Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	60F
Section	21		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	58F
Township	27N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	10E		Ca (ppm)	1135		Fertilizer Placement	Bnd at Plntg
Latitude	N48 04.493'		Init Zn (ppm) 0-6"	0.81		Fert. Rate (lbs/ac) N	70
Longitude	W110 27.549'		Init Mn (ppm) 0-6"	15.02		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Init Mg (ppm) 0-6"	402		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.9		Init Cu (ppm) 0-6"	1.06		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	1.4		Init Fe (ppm) 0-6"	32.8		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	24		CEC 0-6"	10.2		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	123		Init PAW (in.) 0-6"	1.15		Precip (in.) Plnt'g-Harvest	7.61
Init N (lbs/ac) 24-36"	232		Init PAW (in.) 6-24"	4.02		Precip (>.1) Plnt'g-Harvest	6.04
Init N (lbs/ac) 36-48"	86		Init PAW (in.) 24-36"	2.15		Harvest Date	8/8
Init N (lbs/ac) 0-48"	465		Init PAW (in.) 36-48"	1.93		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	34		Init PAW (in.) 0-48"	9.25		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	357		Cropping System	RT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	216		Previous Crop	Barley		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	62		Planting Date	5/8		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.27		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 10. Nine-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 1998-2006. (Exp# 9957-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
MT 0245	VIDA (+)	3			34.7	38.0	27.8	33.5	123.7	**30.3**			47.7	49.7	54.2	50.5	95.7	**51.2**
BZ992322	HANK (P+)	5	14.5	28.5	33.1	41.9	27.4	29.1	118.1	**28.9**	48.3	50.0	45.0	48.6	51.1	48.6	91.6	**49.0**
PI619086	EXPLORER (hard white)(+)	7	18.1	26.3	35.8	38.9	22.4	25.9	115.8	**28.3**	50.2	51.3	47.4	52.5	52.5	51.8	96.6	**51.7**
WB936	WB 936 (P+)	5	20.2	28.0	38.0			24.1	113.8	**27.8**	50.0	50.2	46.1			51.0	95.1	**50.9**
PI632252	OUTLOOK (+)	6	16.1	26.2	35.5	38.8	23.2	24.8	113.7	**27.8**	50.4	49.8	46.8	49.9	52.6	50.5	94.8	**50.7**
ND695	REEDER (+)	8	22.0	25.2	31.8	35.0	20.6	25.8	109.4	**26.8**	52.4	52.5	47.1	49.8	53.2	52.5	97.8	**52.3**
PI574642	McNEAL	9	13.2	28.6	31.7	34.9	22.8	26.6	108.9	**26.6**	50.7	50.2	47.1	49.8	52.8	50.7	94.8	**50.7**
WBEXPRES	WB EXPRESS (P+)	4	23.8	24.4				20.5	108.5	**26.5**	52.7	50.7				52.6	97.1	**51.9**
WPB926	WB 926 (P)	8	15.4	27.8	34.6	32.9	19.3	25.5	108.4	**26.5**	50.0	50.5	46.6	47.0	51.3	50.2	94.0	**50.3**
BZ992588	CONAN (P+)(sawfly tol)	8	18.0	24.9	35.8	35.6	19.4	25.4	107.9	**26.4**	52.8	54.2	50.0	51.8	53.4	53.9	100.3	**53.7**
PI633974	CHOTEAU (++)(sawfly res)	6	14.4	24.7	34.7	36.7	22.5	23.4	107.4	**26.2**	49.3	52.9	49.3	50.3	53.0	51.4	96.5	**51.6**
PI607557	SCHOLAR (+)(mod sf res)	9	19.3	26.7	29.1	33.7	22.7	26.2	107.2	**26.2**	53.8	56.0	50.1	52.0	54.5	53.8	100.5	**53.8**
CI17430	NEWANA	7	17.2	25.7	31.6			24.6	102.0	**24.9**	52.5	50.4	47.7			51.6	96.5	**51.6**
PI549275	HI-LINE	7	14.1	26.7	30.9			24.5	101.4	**24.8**	49.0	49.2	44.5			49.6	92.7	**49.6**
PI527682	AMIDON (mod sawfly res)	7	15.4	25.9	24.4			24.5	101.4	**24.8**	52.3	55.0	51.1			53.3	99.8	**53.4**
CI13596	FORTUNA (sawfly res)	9	13.8	28.0	30.1	30.2	21.0	24.4	100.0	**24.4**	52.1	54.9	51.3	52.6	54.6	53.5	100.0	**53.5**
PI592761	ERNEST (+)(sawfly res)	9	16.0	23.7	28.0	32.7	14.9	23.6	96.5	**23.6**	52.6	54.1	50.0	50.4	52.3	52.7	98.6	**52.7**
C982-324	WB RAMBO (P+)(mod sf res)	7	11.9	23.2	27.4			22.7	94.0	**23.0**	53.6	54.6	47.5			53.1	99.4	**53.2**
CI17429	LEW (sawfly resistant)	6	13.0	23.9				20.6	89.2	**21.8**	52.0	51.4				52.9	98.2	**52.5**
MEANS (For Entries Listed)			16.5	26.0	32.2	35.8	22.0			26.1	51.4	52.1	48.0	50.4	53.0			51.8
6/ Growing Season Precipitation (in.)			8.75	3.15	7.38	n/a	6.04	6.33										
Soil PAW (in.) to SD @ Planting			Pndg	8.43	6.16	2.38	9.25	6.56										
Total Plant Available Water (in.)			Pndg	11.58	13.54	2.38	15.29	10.70										
Soil NO3 (lbs.) to SD at Planting			Pndg	146.0	260.0	200.0	86.0	173.0										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48.0	48.0										
Fertilizer Applied	(# N)		70.0	70.0	70.0	70.0	70.0	68.9										
	(# P_2O_5)		40.0	40.0	40.0	40.0	40.0	40.0										
	(# K_2O)		25.0	25.0	25.0	25.0	25.0	25.0										

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 selecton 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 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.

Research is being conducted at this location is to evaluate varieties and breeding materials in the presence of wheat stem sawfly. Sawfly pressure was weak in 1998, but was significant in 1999 and 2000. Hail damage at the location confounded studies in 1999. Heat and/or drought stress was prevalent at critical growth stages during most years since 1999. The plot combine was equipped with pick-up guards similar to those commonly used on full-scale combines for straight-cut harvest under sawfly damage conditions.

TABLE 11. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9851-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
YU894-75	ALZADA	84.7	23.6	23.7	7.3	57.0	17.2	20.0
ACAVONLE	AVONLEA	85.1	26.3	22.0	7.1	58.1	18.6	30.0
MT03011	MT03012	91.7	21.4	21.7	7.3	57.3	18.4	11.7
STRONGFIEL	STRONGFIELD	92.7	24.1	21.6	7.0	56.7	19.6	16.7
MT02524	MT02525	89.6	20.4	21.1	7.5	57.5	18.3	8.3
CANKYLE	KYLE	88.9	25.6	19.2	7.4	58.8	18.2	45.0
GRENORA	GRENORA	92.0	24.6	19.1	6.9	57.0	18.1	50.0
MOUNTRAIL	MOUNTRAIL	95.1	21.8	18.9	7.0	56.3	18.9	48.3
D91080	PLAZA	84.4	21.4	18.9	7.2	57.3	19.0	11.7
ALKABO	ALKABO	91.7	24.5	18.4	7.3	58.5	17.8	48.3
DILSE	DILSE	89.2	24.1	18.2	7.0	57.5	18.8	50.0
MT02DH54	MT02DH55	94.8	21.8	18.0	6.8	56.4	17.9	46.7
DIVIDE	DIVIDE	94.5	26.9	17.9	7.3	57.3	18.1	26.7
PIERCE	PIERCE	93.1	25.6	17.6	7.1	57.3	19.1	43.3
EXPERIMENTAL MEANS		90.5	23.7	19.7	7.2	57.4	18.4	32.6
LSD (0.05)		8.0	2.9	3.3	0.4	1.2	-	14.2
C.V.2: (S of MEAN / MEAN)*100		3.0	4.2	5.7	2.1	0.7	-	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 durum.
2/ Protein values are adjusted to 12 percent grain moisture.

Site Resource & Management Data: (Exp# 06-9851-SW)							
Field		Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	0.5
Quarter	SE	Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	69
Section	13	Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	62
Township	36N	Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	25E	Ca (ppm)	1102		Fertilizer Placement	Bnd at Plntg
Latitude	N48 52.584'	Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Longitude	W108 23.528'	Init Mn (ppm) 0-6"	12.53		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk	Init Mg (ppm) 0-6"	323		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.3	Init Cu (ppm) 0-6"	0.85		Herbicide App. Date	6/22
Org.Matter (%) 0-6"	1.7	Init Fe (ppm) 0-6"	50.5		Herbicide Product	DbleUp/Achve
Init N (lbs/ac) 0-6"	22	CEC 0-6"	9.3		Herbicide Rate (/ac)	1 pt / 6.9 oz
Init N (lbs/ac) 6-24"	24	Init PAW (in.) 0-6"	1.04		Precip (in.) Plnt'g-Harvest	2.39
Init N (lbs/ac) 24-36"	8	Init PAW (in.) 6-24"	3.84		Precip (>.1) Plnt'g-Harvest	1.66
Init N (lbs/ac) 36-48"	10	Init PAW (in.) 24-36"	1.72		Harvest Date	8/10
Init N (lbs/ac) 0-48"	64	Init PAW (in.) 36-48"	2.17		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	24	Init PAW (in.) 0-48"	8.77		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	382	Cropping System	RT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	38	Previous Crop	Durum		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	18	Planting Date	5/11		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.08	Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a	Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 12. Five-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. 2002-2006. (Exp# 9851-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**5-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**5-YR COMP. AVE. TEST WT 5/**
D91080	PLAZA (+)	5	49.5	20.9	58.6	37.0	18.9	37.0	115.5	**37.0**	61.9	58.8	62.6	59.0	57.3	59.9	99.4	**59.9**
ACAVONLE	AC AVONLEA (+)	5	39.8	21.2	54.3	37.6	22.0	35.0	109.3	**35.0**	61.2	59.2	62.7	59.4	58.1	60.1	99.7	**60.1**
D901313	MOUNTRAIL (+)	5	34.5	21.9	50.3	37.1	18.9	32.5	101.6	**32.5**	61.4	58.4	61.8	58.7	56.3	59.3	98.4	**59.3**
PI574642	McNEAL (HRSW Check)	4	32.3	22.2	47.8	40.5		35.7	101.4	**32.5**	59.5	56.6	61.8	57.9		59.0	97.2	**58.6**
D89135	MAIER (+)	4	33.3	21.4	50.5	37.5		35.7	101.3	**32.4**	60.9	58.7	61.8	59.2		60.2	99.2	**59.8**
CANKYLE	KYLE	5	34.2	21.4	50.2	35.0	19.2	32.0	100.0	**32.0**	60.9	59.8	62.5	59.4	58.8	60.3	100.0	**60.3**
DILSE	DILSE	3			49.1	36.1	18.2	34.4	99.0	**31.7**			61.8	59.4	57.5	59.6	97.7	**58.9**
NDMUNICH	MUNICH (+)	4	32.1	21.9	48.4	35.7		34.5	98.1	**31.4**	59.0	58.2	60.9	58.9		59.2	97.7	**58.9**
PIERCE	PIERCE	3			50.4	34.1	17.6	34.0	97.8	**31.3**			62.7	60.1	57.3	60.0	98.5	**59.4**
D901442	LEBSOCK (+)	4	34.6	21.4	48.3	32.4		34.2	97.1	**31.1**	61.6	59.7	62.0	59.5		60.7	100.1	**60.3**
D87130	BEN (+)	4	31.1	22.7	46.3	35.0		33.7	95.8	**30.7**	60.6	59.9	62.0	59.7		60.6	99.8	**60.2**
CI 17789	VIC	4	29.0	22.6	45.0	33.2		32.5	92.2	**29.5**	60.3	59.9	61.9	59.6		60.4	99.6	**60.0**
PI478289	MONROE	4	27.7	21.8	42.0	31.9		30.9	87.6	**28.0**	59.5	58.9	60.9	58.9		59.6	98.2	**59.2**
MEANS (For Entries Listed)			34.4	21.8	49.3	35.6	19.1			31.9	60.6	58.9	62.0	59.2	57.5			59.6
6/ Growing Season Precipitation (in.)			9.60	3.12	13.73	9.66	2.50	7.72										
Soil PAW (in.) to SD @ Planting			7.24	6.96	7.39	8.00	8.77	7.67										
Total Plant Available Water (in.)			16.84	10.08	21.12	17.66	11.27	15.39										
Soil NO3 (lbs.) to SD at Planting			52	160	104	84	64	92.8										
SD (Sampling Depth in Inches)			48	48	48	48	48	48.0										
Fertilizer Applied	(# N)		62	70	70	70	70	68.4										
	(# P_2O_5)		35	40	40	40	40	39.0										
	(# K_2O)		0	25	25	25	25	20.0										

Check Variety is Kyle

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 selecton 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 Kyle 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 Kyle for the same years, and z = 5-Yr average yield or test weight for the check variety Kyle.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 13. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9852-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ SAWFLY %
YU894-75	ALZADA	82.7	18.7	18.3	8.3	52.5	19.0	1.0
MT03011	MT03012	88.9	19.0	18.2	8.4	53.9	19.9	0.7
ALKABO	ALKABO	90.7	22.9	16.4	8.1	52.9	20.5	2.3
D901313	MOUNTRAIL	85.2	21.6	16.0	7.8	51.8	21.4	0.7
DILSE	DILSE	89.2	24.6	15.8	8.0	51.7	21.8	1.0
GRENORA	GRENORA	84.2	22.1	15.8	8.2	51.6	20.6	0.7
DIVIDE	DIVIDE	92.3	24.3	15.7	8.3	54.5	19.7	0.7
MT02DH54	MT02DH55	88.6	23.7	14.6	7.6	50.1	21.0	2.3
ACAVONLE	AVONLEA	85.8	23.4	14.3	8.0	52.3	20.8	0.7
MT02524	MT02525	91.3	22.5	13.8	8.4	52.1	20.5	0.3
STRONGFIEL	STRONGFIELD	88.3	23.9	13.6	8.2	52.8	21.7	0.7
CANKYLE	KYLE	90.5	23.3	12.9	8.7	54.4	20.3	1.0
PIERCE	PIERCE	92.0	22.7	12.6	8.1	52.6	20.7	1.0
D91080	PLAZA	75.9	20.3	11.8	8.2	51.8	21.0	0.7
EXPERIMENTAL MEANS		87.6	22.4	15.0	8.2	52.5	20.6	1.0
LSD (0.05)		9.1	4.2	4.0	0.4	1.4	-	1.7
C.V.2: (S of MEAN / MEAN)*100		3.6	6.5	9.1	1.6	0.9	-	59.5

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# 06-9852-SW)							
Field		Soil Texture 0-6"	n/a	Dry Surf Soil (in.) @Plnt'g	0.3
Quarter	NW	Soil Texture 6-24"	n/a	2" Soil Temp (°F) @ Plnt'g	52
Section	31	Soil Texture 24-36"	n/a	4" Soil Temp (°F) @ Plnt'g	47
Township	36N	Soil Texture 36-48"	n/a	Fertilizer Formulation	Gran.Blend
Range	13E	Ca (ppm)	n/a	Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.478'	Init Zn (ppm) 0-6"	n/a	Fert. Rate (lbs/ac) N	70
Longitude	W110 05.139'	Init Mn (ppm) 0-6"	n/a	Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx	Init Mg (ppm) 0-6"	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6"	n/a	Init Cu (ppm) 0-6"	n/a	Herbicide App. Date	n/a
Org.Matter (%) 0-6"	n/a	Init Fe (ppm) 0-6"	n/a	Herbicide Product	n/a
Init N (lbs/ac) 0-6"	n/a	CEC 0-6"	n/a	Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	n/a	Init PAW (in.) 0-6"	n/a	Precip (in.) Plnt'g-Harvest	4.07
Init N (lbs/ac) 24-36"	n/a	Init PAW (in.) 6-24"	n/a	Precip (>.1) Plnt'g-Harvest	3.56
Init N (lbs/ac) 36-48"	n/a	Init PAW (in.) 24-36"	n/a	Harvest Date	8/4
Init N (lbs/ac) 0-48"	n/a	Init PAW (in.) 36-48"	n/a	Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	n/a	Init PAW (in.) 0-48"	n/a	Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	n/a	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	n/a	Previous Crop	Canola	Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	n/a	Planting Date	5/4	Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	n/a	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a	Moist Soil Depth @Plnt'g	48+	Precip (>.1) Hvst-Post	n/a

TABLE 14. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-9857-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	3/ HESSIAN %
STRONGFIEL	STRONGFIELD	95.17	26.9	25.0	5.5	54.4	20.7	6.7
MT02DH54	MT02DH55	97.2	25.8	24.4	5.9	54.1	19.5	8.3
ALKABO	ALKABO	97.9	30.0	24.1	6.2	55.0	18.5	5.0
ACAVONLE	AVONLEA	91.67	30.0	24.0	5.7	54.2	20.3	8.3
D901313	MOUNTRAIL	99.3	28.2	22.5	5.9	52.9	19.6	5.0
DIVIDE	DIVIDE	93.73	27.5	22.4	6.0	55.5	19.0	6.7
GRENORA	GRENORA	95.83	26.6	22.1	5.6	52.7	19.7	5.0
MT02524	MT02525	97.2	21.9	20.6	5.8	53.0	19.5	5.0
PIERCE	PIERCE	97.2	29.8	19.4	6.0	55.3	19.8	5.0
YU894-75	ALZADA	95.83	25.0	19.3	5.6	51.9	19.5	11.7
DILSE	DILSE	97.9	27.3	18.7	5.7	53.5	21.1	6.7
MT03011	MT03012	96.5	24.4	17.9	5.6	52.4	20.3	10.0
CANKYLE	KYLE	96.53	30.1	17.7	5.6	55.0	20.6	13.3
D91080	PLAZA	90.27	22.8	16.8	5.5	52.2	20.6	10.0
EXPERIMENTAL MEANS		95.9	26.9	21.1	5.8	53.7	19.9	7.6
LSD (0.05)		5.4	2.8	6.8	0.5	1.9	-	5.2
C.V.2: (S of MEAN / MEAN)*100		1.9	3.6	11.1	3.0	1.2	-	23.6

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/ Hessian fly rating is reported as percent 90° stem bending just above 1st joint.

Site Resource & Management Data: (Exp# 06-9857-SW)							
Field		Soil Texture 0-6"	CL		Dry Surf Soil (in.) @Plnt'g	0.3
Quarter	SW	Soil Texture 6-24"	CL		2" Soil Temp (°F) @ Plnt'g	60
Section	21	Soil Texture 24-36"	CL		4" Soil Temp (°F) @ Plnt'g	56
Township	27N	Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	10E	Ca (ppm)	1135		Fertilizer Placement	Bnd at Plntg
Latitude	N48 04.493'	Init Zn (ppm) 0-6"	0.81		Fert. Rate (lbs/ac) N	70
Longitude	W110 27.549'	Init Mn (ppm) 0-6"	15.02		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk	Init Mg (ppm) 0-6"	402		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.9	Init Cu (ppm) 0-6"	1.06		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	1.4	Init Fe (ppm) 0-6"	32.8		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	24	CEC 0-6"	10.2		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	123	Init PAW (in.) 0-6"	1.15		Precip (in.) Plnt'g-Harvest	7.61
Init N (lbs/ac) 24-36"	232	Init PAW (in.) 6-24"	4.02		Precip (>.1) Plnt'g-Harvest	6.04
Init N (lbs/ac) 36-48"	86	Init PAW (in.) 24-36"	2.15		Harvest Date	8/8
Init N (lbs/ac) 0-48"	465	Init PAW (in.) 36-48"	1.93		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	34	Init PAW (in.) 0-48"	9.25		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	357	Cropping System	RT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	216	Previous Crop	Barley		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	62	Planting Date	5/8		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.27	Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a	Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 15. Four-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Durum Variety Nurseries Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 2003-2006. (Exp# 9857-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**4-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**4-YR COMP. AVE. TEST WT 5/**
PI574642	McNEAL (HRSW Check)	3	24.7	33.5	42.0		33.4	135.8	**31.0**	49.7	48.7	52.1		50.2	93.2	**50.4**
D87130	BEN (+)	3	24.9	29.0	34.2		29.4	119.5	**27.3**	56.1	51.9	54.0		54.0	100.3	**54.3**
D89135	MAIER (+)	3	22.7	27.3	38.1		29.4	119.5	**27.3**	55.3	50.3	53.6		53.1	98.6	**53.4**
ACAVONLE	AC AVONLEA (+)	4	22.0	27.7	34.9	24.0	27.1	118.8	**27.1**	53.5	52.0	53.7	54.2	53.4	98.6	**53.4**
NDMUNICH	MUNICH (+)	3	23.5	28.8	34.4		28.9	117.5	**26.9**	55.3	50.3	51.2		52.3	97.1	**52.6**
D901313	MOUNTRAIL (+)	4	22.9	25.3	35.7	22.5	26.6	116.5	**26.6**	54.5	50.2	52.6	52.9	52.6	97.1	**52.6**
CI 17789	VIC	3	22.7	29.4	33.4		28.5	115.8	**26.5**	56.9	53.7	54.9		55.2	102.5	**55.5**
PI478289	MONROE	3	25.6	28.7	30.9		28.4	115.5	**26.4**	55.8	50.9	52.0		52.9	98.2	**53.2**
D901442	LEBSOCK (+)	3	21.6	31.1	32.2		28.3	115.1	**26.3**	56.0	54.3	54.2		54.8	101.8	**55.1**
PIERCE	PIERCE	3		26.6	30.7	19.4	25.6	108.8	**24.9**		52.6	54.3	55.3	54.1	100.5	**54.4**
DILSE	DILSE	3		27.0	30.3	18.7	25.3	107.9	**24.6**		52.3	52.9	53.5	52.9	98.3	**53.2**
D91080	PLAZA (+)	4	22.3	24.5	30.4	16.8	23.5	102.8	**23.5**	54.3	50.1	51.0	52.2	51.9	95.8	**51.9**
CANKYLE	KYLE	4	21.0	26.0	26.8	17.7	22.9	100.0	**22.9**	55.1	53.0	53.4	55.0	54.1	100.0	**54.1**
MEANS (For Entries Listed)			23.1	28.1	33.4	19.8			26.3	54.8	51.6	53.1	53.8			53.4
6/ Growing Season Precipitation (in.)			3.15	7.38	n/a	7.61	6.05									
Soil PAW (in.) to SD @ Planting			8.43	6.16	8.81	9.25	7.66									
Total Plant Available Water (in.)			11.58	13.54	8.81	16.86	11.29									
Soil NO3 (lbs.) to SD at Planting			146.0	260.0	200	465	221.40									
SD (Sampling Depth in Inches)			48.0	48.0	48	48	48.00									
Fertilizer Applied	(# N)		70	70	70	70	70.00									
	(# P_2O_5)		40.0	40.0	40	40	40.00									
	(# K_2O)		25.0	25.0	25	25	25.00									

Check Variety is Kyle

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 selecton 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 Kyle 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 Kyle for the same years, and z = 4-Yr average yield or test weight for the check variety Kyle.

6/ Seeding to 14 days prior to harvest maturity.

TABLE 16. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-3651-SB)

ID	CULTIVAR or SELECTIO	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOIST. %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %	3/ SAWFLY %
MT910189	MT910189	92.0	21.6	34.8	7.8	44.9	29.2	40.0	17.1	13.3
XENA	XENA	96.2	25.2	33.7	7.7	45.0	12.6	47.9	18.0	1.0
BOULDER	BOULDER	92.4	22.1	33.0	7.5	45.8	38.5	28.3	18.1	3.7
HARRINGTOI	HARRINGTON	93.1	22.2	32.9	7.7	43.9	30.6	41.7	18.9	2.3
CONAD	CONAD	94.4	23.0	32.5	8.2	45.5	34.1	35.6	18.6	3.7
DRUMMOND	DRUMMOND	90.3	25.1	32.3	7.5	42.7	24.2	43.4	17.2	2.3
ESLICK	ESLICK	91.7	23.9	31.5	7.7	45.0	11.3	50.6	18.4	3.7
MT960101	MT960101	88.2	24.2	31.1	7.9	44.1	25.1	44.0	19.0	4.0
KENDALL	KENDALL	94.1	23.9	30.7	7.7	43.6	29.0	38.5	19.5	5.3
TRADITIO	TRADITION	86.1	21.8	30.4	7.4	43.5	22.9	43.9	17.7	2.3
METCALFE	METCALFE	89.2	23.3	30.0	7.8	44.8	34.1	32.5	19.6	3.7
MERIT	MERIT	94.5	22.0	30.0	7.8	41.7	17.7	52.6	19.7	2.3
MT970229	MT970229	97.2	22.7	29.3	7.7	46.5	52.4	20.0	18.4	5.3
COPELAND	COPELAND	95.5	22.0	28.8	7.7	44.3	27.6	36.4	20.1	2.3
LEGACY	LEGACY	87.2	22.5	23.8	7.4	40.9	16.7	55.1	17.8	1.0
STELLAR	STELLAR	96.5	23.5	21.7	7.1	38.4	14.9	63.3	17.6	3.7
ROBUST	ROBUST	93.1	21.7	20.9	7.4	39.3	14.2	62.5	18.1	2.3
HAXBY	HAXBY	92.0	21.6	11.6	7.7	45.7	7.3	62.4	18.4	10.0
MT970116	MT970116	84.7	20.8	7.7	7.7	45.0	30.5	41.0	18.5	7.0
HAYS	HAYS	95.1	21.5	6.0	7.1	39.0	8.1	75.0	18.2	8.7
EXPERIMENTAL MEANS		92.2	22.7	26.6	7.6	43.5	24.1	45.7	18.4	4.4
LSD (0.05)		8.7	2.4	4.8	0.4	1.4	-	-	-	6.3
C.V.2: (S of MEAN / MEAN)*100		3.3	3.6	6.3	1.6	1.1	-	-	-	49.8

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# 06-3651-SB)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	0.5
Quarter	SE		Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	69
Section	13		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	60
Township	36N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	25E		Ca (ppm)	1102		Fertilizer Placement	Bnd at Plntg
Latitude	N48 52.584'		Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Longitude	W108 23.528'		Init Mn (ppm) 0-6"	12.53		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Init Mg (ppm) 0-6"	323		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.3		Init Cu (ppm) 0-6"	0.85		Herbicide App. Date	6/22
Org.Matter (%) 0-6"	1.7		Init Fe (ppm) 0-6"	50.5		Herbicide Product	DbleUp/Achieve
Init N (lbs/ac) 0-6"	22		CEC 0-6"	9.3		Herbicide Rate (/ac)	1 pt / 6.9 oz
Init N (lbs/ac) 6-24"	24		Init PAW (in.) 0-6"	1.04		Precip (in.) Plnt'g-Harvest	2.59
Init N (lbs/ac) 24-36"	8		Init PAW (in.) 6-24"	3.84		Precip (>.1) Plnt'g-Harvest	1.66
Init N (lbs/ac) 36-48"	10		Init PAW (in.) 24-36"	1.72		Harvest Date	8/15
Init N (lbs/ac) 0-48"	64		Init PAW (in.) 36-48"	2.17		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	24		Init PAW (in.) 0-48"	8.77		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	382		Cropping System	RT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	38		Previous Crop	Durum		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	18		Planting Date	5/11		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.08		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 17. Nine-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. 1997-2006. (Exp# 3651-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**	2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
BZ594-19	WPB XENA (P+)	6	60.9	40.2		66.5	33.7	54.7	118.7	**62.3**	50.1	46.4		46.8	45.0	49.1	103.9	**49.6**
PI568246	BARONESSE (P+)	8	55.7	34.3	71.9	66.9		62.3	113.6	**59.6**	49.3	44.3	50.0	45.9		48.8	101.3	**48.3**
MT960228	ESLICK (+)	7	44.0	34.3	70.1	70.4	31.5	52.9	108.1	**56.7**	50.5	45.8	50.7	46.9	45.0	49.5	103.9	**49.6**
PI610264	VALIER (+)	5	52.9	32.6	70.1			53.7	107.0	**56.1**	50.1	46.1	51.0			50.4	103.1	**49.2**
PI491534	GALLATIN	7	43.3	37.8	63.4			55.3	101.7	**53.4**	49.4	43.9	51.5			50.0	102.8	**49.0**
SK76333	HARRINGTON	9	49.1	33.8	65.9	58.5	32.9	52.4	100.0	**52.4**	49.2	44.5	50.1	44.8	43.9	47.7	100.0	**47.7**
TR150	COPELAND	3			68.7	59.9	28.8	52.4	100.0	**52.4**			48.3	44.6	44.3	45.7	98.8	**47.1**
TR232	METCALFE	3			67.4	59.7	30.0	52.4	99.8	**52.4**			50.4	46.2	44.8	47.1	101.8	**48.6**
ND13299	CONLON (+)	4	41.2	38.8	51.7			44.9	98.2	**51.5**	48.9	47.9	50.5			48.1	100.2	**47.8**
MT950186	HAXBY (+)	7	43.7	48.5	69.7	62.8	11.6	47.5	97.1	**51.0**	50.7	48.5	51.9	49.7	45.7	50.7	106.5	**50.8**
6B952482	TRADITION	3			58.4	61.9	30.4	50.2	95.8	**50.2**			48.8	47.0	43.5	46.4	100.3	**47.8**
MT981060	HAYS	4		11.1	14.2	39.8	6.0	17.8	37.2	**19.5**		40.6	46.0	43.9	39.0	42.4	92.5	**44.1**
MEANS (For Entries Listed)			48.9	34.6	61.0	60.7	25.6			51.5	49.8	45.3	49.9		43.9			48.3
6/ Growing Season Precipitation (in.)			Pndg	Pndg	3.11	13.73	9.66	8.12										
Soil PAW (in.) to SD @ Planting			Pndg	5.65	6.96	7.39	8.004	6.15										
Total Plant Available Water (in.)			Pndg	5.65	10.07	21.12	17.66	13.11										
Soil NO3 (lbs.) to SD at Planting			Pndg	36	160	104	84	78.86										
SD (Sampling Depth in Inches)			48	48	48	48.0	48.0	48.00										
Fertilizer Applied	(# N)		70	62	70	70.0	70.0	67.60										
	(# P2O5)		40	35	40	40.0	40.0	36.70										
	(# K2O)		25	0	25	25.0	25.0	17.10										

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 selecton 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/ 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 Harrington for the same years, and z = 9-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.

TABLE 18. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Mark Peterson Farm, North Havre. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-3652-SB)

ID	CULTIVAR or SELECTIOI	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOIST. %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %	3/ SAWFLY %
BOULDER	BOULDER	90.4	20.8	42.2	6.7	42.0	12.2	55.9	18.9	0.7
HAXBY	HAXBY	95.4	24.1	39.5	7.2	44.8	2.9	69.7	19.6	0.7
ESLICK	ESLICK	95.4	20.6	35.7	7.0	42.8	2.8	77.5	20.1	1.0
MT970116	MT970116	86.4	27.3	34.8	7.4	45.4	16.9	44.9	20.5	0.3
MT970229	MT970229	96.3	22.7	34.3	7.5	44.1	23.9	40.8	20.0	1.0
DRUMMOND	DRUMMOND	90.1	24.5	34.2	6.9	37.5	3.2	87.1	19.5	0.0
MT910189	MT910189	93.8	24.0	33.7	7.2	43.0	6.7	66.8	19.8	1.0
TRADITIO	TRADITION	88.6	24.5	33.4	6.7	38.6	1.9	88.1	19.2	0.0
XENA	XENA	93.2	23.1	32.8	7.2	42.6	2.0	71.6	18.9	1.0
HAYS	HAYS	97.2	23.3	31.5	6.8	39.6	2.6	82.4	20.4	0.7
CONRAD	CONRAD	91.7	22.5	30.9	7.4	43.0	7.7	67.7	21.2	0.3
LEGACY	LEGACY	87.0	24.9	29.6	7.1	37.0	4.2	84.2	18.9	0.0
KENDALL	KENDALL	89.2	22.7	28.7	7.0	42.5	16.6	54.1	20.3	0.7
MT960101	MT960101	94.8	21.8	28.6	6.9	42.4	3.3	78.5	21.6	0.3
STELLAR	STELLAR	94.8	23.5	28.5	6.4	34.0	2.9	87.0	19.4	0.0
METCALFE	METCALFE	91.0	23.9	27.7	7.1	43.6	13.2	54.7	21.7	0.3
MERIT	MERIT	95.4	22.3	27.0	7.2	40.5	6.0	74.9	21.7	0.3
COPELAND	COPELAND	95.7	23.2	26.2	7.2	42.2	13.3	53.9	22.2	0.3
ROBUST	ROBUST	92.6	25.3	26.1	6.9	35.3	2.5	89.4	18.8	0.3
HARRINGTOI	HARRINGTON	95.4	23.5	25.7	7.2	43.0	11.8	62.7	20.6	0.0
EXPERIMENTAL MEANS		92.7	23.4	31.6	7.1	41.2	7.8	69.6	20.2	0.5
LSD (0.05)		7.3	2.3	5.4	0.4	2.0	-	-	-	0.7
C.V.2: (S of MEAN / MEAN)*100		2.7	3.4	5.9	2.2	1.7	-	-	-	56.0

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# 06-3652-SB)							
Field			Soil Texture 0-6"	n/a		Dry Surf Soil (in.) @Plnt'g	0.3
Quarter	NW		Soil Texture 6-24"	n/a		2" Soil Temp (^{o}F) @ Plnt'g	42
Section	31		Soil Texture 24-36"	n/a		4" Soil Temp (^{o}F) @ Plnt'g	43
Township	36N		Soil Texture 36-48"	n/a		Fertilizer Formulation	Gran.Blend
Range	13E		Ca (ppm)	n/a		Fertilizer Placement	Bnd at Plntg
Latitude	N48 50.478'		Init Zn (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) N	70
Longitude	W110 05.139'		Init Mn (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) P2O5	40
Soil Series	Assnbn Cplx		Init Mg (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	n/a		Init Cu (ppm) 0-6"	n/a		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	n/a		Init Fe (ppm) 0-6"	n/a		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	n/a		CEC 0-6"	n/a		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	n/a		Init PAW (in.) 0-6"	n/a		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	n/a		Init PAW (in.) 6-24"	n/a		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 36-48"	n/a		Init PAW (in.) 24-36"	n/a		Harvest Date	8/4
Init N (lbs/ac) 0-48"	n/a		Init PAW (in.) 36-48"	n/a		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	n/a		Init PAW (in.) 0-48"	n/a		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	n/a		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	n/a		Previous Crop	Canola		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	n/a		Planting Date	5/3		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	n/a		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 19. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-3655-SB)

ID	CULTIVAR or SELECTIOI	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %	3/ SAWFLY %
HAXBY	HAXBY	83.3	20.1	37.7	8.9	47.4	19.1	36.3	16.9	1.0
MT970116	MT970116	72.6	21.3	33.1	8.9	49.5	65.0	13.3	16.9	1.0
DRUMMOND	DRUMMOND	77.8	20.5	33.0	8.7	43.4	26.2	42.7	15.9	1.0
BOULDER	BOULDER	88.2	19.7	32.9	8.7	44.2	32.3	33.9	16.8	1.0
ESLICK	ESLICK	81.9	18.5	31.2	8.7	45.8	18.5	42.8	17.2	5.0
HARRINGTOI	HARRINGTON	89.3	19.0	30.6	8.7	44.1	43.0	28.5	18.0	2.3
HAYS	HAYS	95.5	20.4	30.4	8.5	41.8	15.0	53.4	17.5	3.7
MT960101	MT960101	81.9	18.9	30.0	8.8	44.9	21.8	44.8	18.5	2.3
XENA	XENA	89.3	21.4	29.1	8.6	44.2	14.0	46.9	17.0	3.7
CONRAD	CONRAD	85.8	19.2	29.0	8.9	44.9	30.2	37.5	18.8	3.7
MT970229	MT970229	86.8	20.6	27.8	8.8	46.6	45.2	23.5	17.4	1.0
MT910189	MT910189	80.9	19.8	27.4	8.8	46.6	33.7	35.6	16.7	5.0
MERIT	MERIT	88.2	17.8	26.4	8.9	44.5	27.0	40.5	18.5	1.0
TRADITIO	TRADITION	87.8	20.9	26.2	8.3	41.8	12.5	65.0	16.9	2.3
LEGACY	LEGACY	78.8	20.2	26.2	8.5	42.3	21.9	51.5	16.9	1.0
COPELAND	COPELAND	93.1	20.7	25.9	8.8	44.5	35.3	33.1	18.9	1.0
ROBUST	ROBUST	80.9	20.8	25.7	8.6	42.5	23.1	51.8	17.5	3.7
KENDALL	KENDALL	90.6	18.9	24.6	8.6	43.5	36.6	34.2	18.8	5.0
STELLAR	STELLAR	84.4	19.4	23.2	8.4	38.7	14.7	65.7	16.5	1.0
METCALFE	METCALFE	85.4	21.2	22.6	8.8	46.4	52.0	19.1	18.7	2.3
EXPERIMENTAL MEANS		85.1	20.0	28.7	8.7	44.4	29.4	40.0	17.5	2.4
LSD (0.05)		10.8	2.3	7.2	0.3	1.8	-	-	-	35.0
C.V.2: (S of MEAN / MEAN)*100		4.4	4.0	8.7	1.2	1.4	-	-	-	2.4

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# 06-3655-SB)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	0.3
Quarter			Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	64
Section	2		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	61
Township	35N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	29E		Ca (ppm)	1160		Fertilizer Placement	Bnd at Plntg
Latitude	N48 46.523		Init Zn (ppm) 0-6"	0.78		Fert. Rate (lbs/ac) N	70
Longitude	W107 52.563		Init Mn (ppm) 0-6"	13.02		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Init Mg (ppm) 0-6"	424		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	7		Init Cu (ppm) 0-6"	0.86		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	1.6		Init Fe (ppm) 0-6"	42.9		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	13		CEC 0-6"	10.2		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	36		Init PAW (in.) 0-6"	1.02		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	14		Init PAW (in.) 6-24"	3.36		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 36-48"	18		Init PAW (in.) 24-36"	1.76		Harvest Date	8/10
Init N (lbs/ac) 0-48"	81		Init PAW (in.) 36-48"	2.13		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	23		Init PAW (in.) 0-48"	8.27		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	301		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	190		Previous Crop	Barley		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	15		Planting Date	5/5		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.07		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 20. 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. 1997-2006. (Exp# 3655-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**10-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**10-YR COMP. AVE. TEST WT 5/**
PI568246	BARONESSE (P+)	9	57.3	51.0	73.3	65.2		59.5	113.1	**57.0**	43.4	45.0	49.1	47.3		47.5	99.6	**47.2**
MT950186	HAXBY (+)	8	56.1	56.2	69.9	57.3	37.7	57.7	109.4	**55.2**	47.6	48.9	51.8	50.3	47.4	50.7	106.8	**50.6**
BZ594-19	WPB XENA (P+)	7	56.4	53.1		59.4	29.1	55.1	108.8	**54.8**	44.9	45.7		47.9	44.2	47.9	101.3	**48.0**
MT960228	ESLICK (+)	8	52.2	48.6	70.5	61.0	31.2	55.7	105.6	**53.2**	45.3	46.2	50.1	48.7	45.8	48.8	102.7	**48.7**
PI610264	VALIER (+)	6	56.0	48.6	71.5			59.3	104.8	**52.8**	46.2	47.0	50.8			49.9	103.5	**49.0**
PI491534	GALLATIN	8	51.5	50.9	67.9			55.0	104.4	**52.6**	45.8	46.1	50.9			49.1	102.7	**48.6**
TR150	COPELAND	3			70.0	58.1	25.9	51.3	102.8	**51.8**			47.9	46.1	44.5	46.2	99.0	**46.9**
ND13299	CONLON (+)	4	52.7	52.0	59.6			54.9	101.0	**50.9**	44.0	45.1	50.5			47.7	101.3	**48.0**
TR232	METCALFE	3			68.1	60.3	22.6	50.3	100.8	**50.8**			49.9	46.4	46.4	47.6	102.0	**48.3**
SK76333	HARRINGTON	10	49.6	47.6	67.2	52.0	30.6	50.4	100.0	**50.4**	44.5	44.4	49.1	46.7	44.1	47.4	100.0	**47.4**
6B952482	TRADITION	3			63.4	52.2	26.2	47.3	94.7	**47.7**			49.2	48.4	41.8	46.5	99.6	**47.2**
MT981060	HAYS	4		52.3	69.1	34.5	30.4	46.6	94.4	**47.6**		45.8	47.6	45.9	41.8	45.3	98.2	**46.5**
MEANS (For Entries Listed)			54.0	51.1	68.2	55.6	29.2			52.1	45.2	46.0	49.7	47.5	44.5			48.0
6/ Growing Season Precipitation (in.)			Pndg	Pndg	5.59	10.88	n/a	6.33										
Soil PAW (in.) to SD @ Planting			Pndg	Pndg	8.25	4.91	9.07	6.56										
Total Plant Available Water (in.)			Pndg	Pndg	13.84	15.79	9.07	11.83										
Soil NO3 (lbs.) to SD at Planting			Pndg	Pndg	76.0	60.0	54.0	66.67										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48.0	48.00										
Fertilizer Applied	(# N)		70.0	70.0	70.0	70.0	70.0	70.70										
	(# P_2O_5)		40.0	40.0	40.0	40.0	40.0	39.60										
	(# K_2O)		25.0	25.0	25.0	25.0	25.0	22.10										

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 selecton 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 21. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 2006. (Exp# 06-3657-SB)

ID	CULTIVAR or SELECTIOI	STAND %	PLNT HT Inches	lodging Score	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %
BOULDER	BOULDER	96.5	22.8	8.7	40.5	5.6	41.4	7.2	63.9	18.5
MT970229	MT970229	95.5	24.9	8.0	39.5	6.4	43.3	19.5	46.2	18.9
XENA	XENA	97.6	26.9	7.7	37.7	6.2	41.8	1.5	80.9	17.1
CONRAD	CONRAD	98.3	25.4	5.3	36.6	6.1	41.7	8.2	69.7	18.6
HAYS	HAYS	95.8	25.4	9.0	36.0	5.9	39.5	5.1	74.0	18.8
HAXBY	HAXBY	97.9	29.5	8.7	35.7	6.2	44.5	4.8	65.0	17.9
DRUMMOND	DRUMMOND	99.3	25.8	9.0	32.9	5.5	36.8	2.9	88.8	17.8
MT910189	MT910189	94.8	26.3	5.7	31.9	6.2	43.5	11.1	57.4	18.0
ESLICK	ESLICK	96.2	25.2	5.0	31.0	6.1	41.5	1.6	81.6	18.7
MT960101	MT960101	97.9	23.6	7.3	30.9	5.9	41.0	3.3	81.7	20.2
MT970116	MT970116	96.9	28.8	5.3	30.5	6.2	44.3	22.2	44.5	18.1
HARRINGTOI	HARRINGTON	97.6	25.3	3.7	29.3	6.0	40.2	8.9	67.3	19.9
TRADITIO	TRADITIO	95.8	26.7	9.0	29.0	5.5	37.4	2.2	88.6	17.8
KENDALL	KENDALL	97.9	26.9	8.0	28.1	5.9	40.3	9.7	62.4	20.5
COPELAND	COPELAND	98.3	25.2	4.0	26.6	5.9	40.1	4.7	71.9	20.2
METCALFE	METCALFE	95.1	26.7	6.0	26.2	6.4	42.0	12.3	61.0	20.5
MERIT	MERIT	96.2	25.8	3.7	25.6	6.0	39.3	4.5	78.8	20.3
ROBUST	ROBUST	97.9	26.0	9.0	23.2	5.5	35.4	6.3	79.2	17.5
STELLAR	STELLAR	95.5	25.6	9.0	22.4	5.6	33.6	3.3	86.6	17.4
LEGACY	LEGACY	94.8	26.9	8.3	21.9	5.6	36.8	3.0	89.2	18.0
EXPERIMENTAL MEANS		96.8	26.0	7.0	30.8	5.9	40.2	7.1	71.9	18.7
LSD (0.05)		5.0	3.6	2.2	7.7	0.5	2.3	-	-	-
C.V.2: (S of MEAN / MEAN)*100		1.8	4.8	10.8	8.7	2.6	2.0	-	-	-

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# 06-3657-SB)							
Field			Soil Texture 0-6"	CL-		Dry Surf Soil (in.) @Plnt'g	0.3
Quarter	SW		Soil Texture 6-24"	CL		2" Soil Temp (^{o}F) @ Plnt'g	60
Section	21		Soil Texture 24-36"	CL		4" Soil Temp (^{o}F) @ Plnt'g	58
Township	27N		Soil Texture 36-48"	CL		Fertilizer Formulation	Gran.Blend
Range	10E		Ca (ppm)	1135		Fertilizer Placement	Bnd at Plntg
Latitude	N48 04.493'		Init Zn (ppm) 0-6"	0.81		Fert. Rate (lbs/ac) N	70
Longitude	W110 27.549'		Init Mn (ppm) 0-6"	15.02		Fert. Rate (lbs/ac) P2O5	40
Soil Series	unk		Init Mg (ppm) 0-6"	402		Fert. Rate (lbs/ac) K2O	25
pH 0-6"	6.9		Init Cu (ppm) 0-6"	1.06		Herbicide App. Date	n/a
Org.Matter (%) 0-6"	1.4		Init Fe (ppm) 0-6"	32.8		Herbicide Product	n/a
Init N (lbs/ac) 0-6"	24		CEC 0-6"	10.2		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 6-24"	123		Init PAW (in.) 0-6"	1.15		Precip (in.) Plnt'g-Harvest	7.61
Init N (lbs/ac) 24-36"	232		Init PAW (in.) 6-24"	4.02		Precip (>.1) Plnt'g-Harvest	6.04
Init N (lbs/ac) 36-48"	86		Init PAW (in.) 24-36"	2.15		Harvest Date	8/8
Init N (lbs/ac) 0-48"	465		Init PAW (in.) 36-48"	1.93		Rooting Depth (in.)	n/a
Init P (ppm) Olsen 0-6"	34		Init PAW (in.) 0-48"	9.25		Post PAW (in.) 0-6"	n/a
Init K (ppm) 0-6"	357		Cropping System	RT-ChmFlw		Post PAW (in.) 6-24"	n/a
Init S (ppm) 0-24"	216		Previous Crop	Barley		Post PAW (in.) 24-36"	n/a
Init Na (MEQ/100g) 0-6"	62		Planting Date	5/8		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.27		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)6-24"	n/a		Moist Soil Depth @Plnt'g	48+		Precip (>.1) Hvst-Post	n/a

TABLE 22. Eight-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Barley Variety Nurseries Grown Off-Station at the Terry McKeever Farm, Loma. Northern Agricultural Research Center. Havre, Montana. 1999-2006. (Exp# 3657-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED	% of CHECK YIELD 4/	**8-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	AVE. for YEARS TESTED	% of CHECK TEST WT 4/	**8-YR COMP. AVE. TEST WT 5/**
ND13299	CONLON (+)	4	41.2	54.1	72.0			44.6	116.2	**48.9**	48.9	50.1	47.5			47.2	105.7	**46.9**
MT950186	HAXBY (+)	8	43.7	47.3	56.3	80.1	35.7	46.9	111.4	**46.9**	50.7	50.8	46.6	50.0	44.5	48.7	109.8	**48.7**
BZ594-19	WPB XENA (P+)	7	60.9	39.6		68.7	37.7	43.3	108.7	**45.8**	50.1	48.0		45.0	41.8	46.6	102.9	**45.7**
PI568246	BARONESSE (P+)	7	55.1	42.4	62.5	73.1		47.7	108.6	**45.7**	49.3	46.9	39.7	44.6		45.9	102.1	**45.3**
MT960228	ESLICK (+)	8	44.0	42.4	60.5	74.6	31.0	45.4	107.8	**45.4**	50.5	49.2	41.8	46.0	41.5	46.5	104.7	**46.5**
6B952482	TRADITION	3			59.3	71.4	29.0	53.3	105.8	**44.6**			38.6	44.9	37.4	40.3	99.9	**44.3**
PI491534	GALLATIN	6	43.3	42.1	59.4			42.1	103.5	**43.6**	49.4	47.3	42.8			46.6	102.8	**45.6**
MT981060	HAYS	4		39.6	50.8	62.9	36.0	47.3	101.2	**42.6**		45.8	38.4	43.2	39.5	41.7	99.3	**44.1**
SK76333	HARRINGTON	8	49.1	36.0	58.1	63.6	29.3	42.1	100.0	**42.1**	49.2	46.9	37.9	43.0	40.2	44.4	100.0	**44.4**
PI610264	VALIER (+)	6	52.9	34.4	62.8			39.7	97.7	**41.1**	50.1	48.5	40.8			47.2	104.1	**46.2**
CI15856	LEWIS	4	44.9					35.0	93.3	**39.3**	50.1					48.3	103.2	**45.8**
TR232	METCALFE	3			50.4	61.5	26.2	46.0	91.5	**38.5**			39.3	44.4	42.0	41.9	103.8	**46.1**
TR150	COPELAND	3			43.7	57.5	26.6	42.6	84.6	**35.6**			37.3	42.5	40.1	40.0	99.0	**43.9**
MEANS (For Entries Listed)			48.4	42.0	57.8	68.2	31.4			43.1	49.8	48.2	41.0	44.9	40.9			45.7
6/ Growing Season Precipitation (in.)			8.75	3.15	7.38	n/a	7.61	6.4										
Soil PAW (in.) to SD @ Planting			Pndg	8.43	6.16	4.41	9.25	7.3										
Total Plant Available Water (in.)			Pndg	11.58	13.54	4.41	16.86	12.6										
Soil NO3 (lbs.) to SD at Planting			490.0	146.0	260.0	200.0	465.0	298.7										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48.0	48.0										
Fertilizer Applied	(# N)		61.0	70.0	70.0	70.0	70	68.3										
	(# P_2O_5)		52.0	40.0	40.0	40.0	40.0	41.5										
	(# K_2O)		25.0	25.0	25.0	25.0	25.0	25.0										

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 selecton 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/ 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.