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% of the 2000-2004 statewide total (39% and 28% 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 1982-2004 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 2005 ranged from fair to excellent across North Central Montana. At Havre, total annual growing season precipitation (9/1/04 through 8/31/05) was 11.9 inches, 2.5 percent less than the average for all years since 1916. April 1 through July 31 precipitation was 7.37 inches or 105.7 percent of the 90-year average. Heat units expressed as "Growing Degree Days" (GDD, base 50) were 95.3 percent of the average for the last 55 years (1951-2005). The last spring frost was 9 days late with the first fall frost 3 days late resulting in 123 frost-free days, 6 days shorter longer than the 90-year average. September 2004 through March 2005 precipitation was 91 percent of the long-term average. The April through July growing season saw an average daily temperature at 58.0 degrees F, right at normal. July and August average temperatures were less than 0.1 percent lower than normal with the high for 2005 recorded on August 1 at 103 degrees F. There were 28 days 90 degrees F or above. There were only 2 days with temperatures over 100 degrees F. Early growing season conditions were generally good, with June precipitation 195 percent of normal. July was drier than normal at 36 percent of average. The overall growing season was on average warmer than normal and heat stress coinciding with critical growth stages in spring grains resulted in reduced test weights and elevated grain protein; particularly at off-station locations. Minimum winter temperature was -31 degrees F on January 14. 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 (115% of the 10-year comparable average of 48.2 bu/ac) and normal test weights (only 0.2 lbs less than the 10-year

comparable average of 60.6 lbs/bu), SW had increased yields (154% of the 10-year comparable average of 33.4 bu/ac) and reduced test weights (1.2 lbs less than the 10-year comparable average of 59.0 lbs/ac), BLY had increased yields (137% of the 10-year comparable average of 55.4 bu/ac) and reduced test weights (2.5 lbs less than the 10-year comparable average of 49.4 lbs/bu), and OATS had increased yields (140% of the 10-year comparable average of 78.8 bu/ac) and sharply reduced test weights (4.0 lbs less than the 10-year comparable average of 31.4 lbs/bu).

Off-station cropping environments were somewhat variable in 2005. The Loma location had adequate precipitation, but suffered short yet substantial heat stress during periods critical to the production of cereal crops. Six-year Loma comparable average WW yields were up 44% with test weights up 3.1 lbs/bu. Nine-year Loma comparable average SW yields were up 34% with test weights down 1.1 lbs/bu. Three-year Loma comparable average DURUM yields were up 19% with average test weights. Seven-year Loma comparable average BLY yields were up 53% with test weight down 0.6 lbs/bu. The Turner location had slightly above normal precipitation. Nine-year comparable average Turner SW yields were up 7% with average test weights. Four-year Turner comparable average DURUM yields were average with test weights down 1 lb/bu. Nine-year Turner comparable average BLY yields were up 14% with test weights down 2.4 lbs/bu. Ten-year Loring comparable average SW yields were up 2% with test weights down 1.2 lbs/bu. Ten-year Loring comparable average barley yields were up 4% with test weights down 0.7 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 Turner, severe at Loring and very severe at North Havre. 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 2005 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 1999-2005 are presented in Table 3.

Stand percent, plant height, yield, moisture, test weight, protein, and sawfly cutting data for the 2005 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 data for the 2005 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 and protein data for the 2005 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:

Thirteen, standard, off-station variety performance trials were conducted in 2005 on mechanical or chemical fallow at four locations in four northern Montana counties.

Dryland Winter Wheat Trials:

1. McKeever Farm & Seed, Inc., Chouteau County	(12N Loma)	28-27N-10E
2. Mark Peterson Grain & Cattle, Inc., 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 Grain & Cattle, Inc., Hill County	(35NW Havre)	31-36N-13E
3. Flansaas/Lumsden Farm, Phillips County	(1SW Loring)	2-35N-29E
4. McKeever Farm & Seed, Inc., Chouteau County	(12N Loma)	28-27N-10E

Dryland Spring Durum Trials:

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

Dryland Spring Barley Trials:

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

All trials were seeded in replicated, 3-row, 20-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 Committee. 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 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' eleventh 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 Mark Peterson Grain & Cattle Inc., North Havre. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-3852-WW)

ID	CULTIVAR or SELECTION	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % cut
PI593891	VANGUARD (sawfly resistant)	28.4	38.2	11.0	55.4	16.1	8.3
PI555458	PROMONTORY	27.9	37.2	10.7	57.4	14.8	80.0
MTS0031	GENOU (sawfly resistant)	29.5	36.9	10.9	55.1	16.0	8.3
MT01148	Judith/Blizzard	29.2	36.6	10.5	53.7	15.6	86.7
PI593889	RAMPART (sawfly resistant)	29.7	35.9	10.9	55.1	16.2	6.7
MTCL0316	BigSky/IMMIBC304-6	25.7	35.8	10.1	55.7	15.0	81.7
CI 17879	ROCKY	31.2	35.8	11.2	57.2	14.8	35.0
MT00159	Promontory/Judith	26.0	35.5	10.4	54.5	15.5	70.0
MTW01133	NuWest/SD88191	22.2	35.4	10.8	56.6	15.2	40.0
PI599336	MORGAN	29.6	35.3	10.5	53.6	16.0	80.0
PI517194	TIBER	27.8	34.5	10.9	55.4	15.6	70.0
MTCL0306	MTW9727//Fidel/NuWest	27.4	34.4	11.0	56.3	15.4	76.7
ND9257	JERRY	29.0	34.3	10.8	54.1	15.7	88.3
MTCL0318	Rampart/Fidel//Kestrel (sawfly resistant)	27.0	33.8	10.8	56.4	15.7	16.7
JAGALENE	Jagalene	26.3	32.9	10.7	56.9	15.0	50.0
MT 9432	BIGSKY	28.5	32.8	10.8	55.0	16.3	40.0
MT0097	Erhardt//Judith/Kestrel	26.3	31.8	10.6	53.0	16.4	80.0
BZ96-919	PRYOR	26.4	31.6	10.7	54.0	15.4	43.3
S94-4	CDC FALCON	25.9	31.4	10.8	54.3	15.5	48.3
PI619098	WAHOO	25.5	31.4	10.6	53.8	15.3	46.7
CI 17860	NEELEY	28.2	31.4	10.7	55.2	15.6	51.7
MTW9441	NUSKY	27.9	30.5	10.5	55.3	16.0	81.7
MTI01159	Fidel/Tiber	25.8	26.9	10.3	54.0	14.7	20.0
MT9426	PAUL	25.0	25.7	10.9	53.0	16.0	83.3
EXPERIMENTAL MEANS		27.4	33.6	10.7	55.0	15.6	53.9
LSD (0.05)		4.6	6.5	0.4	1.3	-	16.9
C.V.2: (S of MEAN / MEAN)*100		5.9	6.8	1.2	0.8	-	11.0

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# 05-3852-WW)							
Field			Soil Texture 0-6"	n/a		2" Soil Temp (°F) @ Plnt'g	51
Quarter	NW		Soil Texture 6-24"	n/a		4" Soil Temp (°F) @ Plnt'g	53
Section	31		Soil Texture 24-36"	n/a		Fertilizer Formulation	Gran.Blend
Township	36N		Soil Texture 36-48"	n/a		Fertilizer Placement	Bnd at Plntg
Range	13E		Init Zn (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) N	70
Latitude	N48 50.478'		Init Mn (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 05.021'		Init Cu (ppm) 0-6"	n/a		Fert. Rate (lbs/ac) K2O	25
Soil Series	Assnbn Cplx		Init Fe (ppm) 0-6"	n/a		Herbicide App. Date	5/12
pH 0-6"	n/a		CEC 0-6"	n/a		Herbicide Product	Bronate Adv
Org.Matter (%) 0-6"	n/a		Init PAW (in.) 0-6"	n/a		Herbicide Rate (/ac)	20 oz
Init N (lbs/ac) 0-6"	n/a		Init PAW (in.) 6-24"	n/a		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	n/a		Init PAW (in.) 24-36"	n/a		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	n/a		Init PAW (in.) 36-48"	n/a		Harvest Date	8/27
Init N (lbs/ac) 36-48"	n/a		Init PAW (in.) 0-48"	n/a		Rooting Depth (in.)	32"
Init P (ppm) Olsen 0-6"	n/a		Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.28
Init K (ppm) 0-6"	n/a		Previous Crop	Spr Wheat		Post PAW (in.) 6-24"	0.99
Init S (ppm) 0-24"	n/a		Planting Date	9/30		Post PAW (in.) 24-36"	0.92
Init Na (MEQ/100g) 0-6"	n/a		Planting Depth (in.)	1.50		Post PAW (in.) 36-48"	0.95
SaltHaz (MMHOS/cm) 0-6"	n/a		Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	3.15
SaltHaz(MMHOS/cm)6-24"	n/a		Dry Surf Soil (in.) @Plnt'g	0.25		Precip (>.1) Hvst-Post	0.34

TABLE 2. Dryland Fallow Winter Wheat Cultivar Evaluation Nursery Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-3853-WW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % Cut
BZ96-919	PRYOR	98.6	32.4	79.6	8.9	62.2	12.9	1.7
CI 17860	NEELEY	96.9	37.1	79.4	8.9	62.9	13.3	1.7
MT01148	Judith/Blizzard	97.6	35.9	77.1	8.7	61.5	13.7	1.7
PI619098	WAHOO	98.6	33.9	75.3	8.8	61.2	13.7	3.3
S94-4	CDC FALCON	98.3	31.3	75.0	8.7	62.8	13.4	0.0
MT0097	Erhardt//Judith/Kestrel	100.0	34.2	73.8	8.7	61.5	14.4	5.0
MT 9432	BIGSKY	99.3	38.8	73.1	8.8	62.6	14.1	3.3
MT9426	PAUL	98.3	32.1	72.2	8.9	61.4	13.8	5.0
CI 17879	ROCKY	99.7	36.0	71.9	9.0	63.2	13.3	1.7
MTCL0316	BigSky/IMMIBC304-6	99.3	34.6	71.5	8.6	62.8	13.2	1.7
MTW01133	NuWest/SD88191	97.9	28.5	71.1	8.5	61.7	14.2	0.0
MTCL0306	MTW9727//Fidel/NuWest	98.3	34.5	69.9	8.9	62.5	14.9	1.7
MTS0031	GENOU	99.7	36.2	69.3	8.7	62.2	14.3	0.0
PI593891	VANGUARD	99.3	33.8	68.5	8.5	61.6	15.0	0.0
PI517194	TIBER	98.6	40.0	66.2	8.7	62.0	14.0	0.0
JAGALENE	Jagalene	98.6	32.0	64.6	8.9	63.6	14.6	5.0
PI555458	PROMONTORY	98.3	34.5	64.3	8.8	63.0	13.2	3.3
ND9257	JERRY	100.0	38.4	63.2	8.6	61.3	14.6	1.7
MTW9441	NUSKY	99.7	35.9	63.0	9.0	61.5	14.3	0.0
MT00159	Promontory/Judith	99.7	34.5	62.1	8.9	61.0	14.4	0.0
PI593889	RAMPART	99.7	34.9	61.7	8.5	61.5	14.9	0.0
MTCL0318	Rampart/Fidel//Kestrel(sawfly resis)	97.6	32.1	61.2	8.4	61.4	15.3	0.0
PI599336	MORGAN	98.6	37.7	58.3	8.3	60.1	14.1	1.7
MTI01159	Fidel/Tiber	95.8	30.2	57.3	8.3	60.5	13.6	0.0
EXPERIMENTAL MEANS		98.7	34.6	68.7	8.7	61.9	14.1	1.6
LSD (0.05)		3.1	2.9	13.2	0.2	0.8	-	3.3
C.V.2: (S of MEAN / MEAN)*100		1.1	3.0	6.7	0.9	0.5	-	72.0

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

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

Site Resource & Management Data: (Exp# 05-3853-WW)							
Field			Soil Texture 0-6"	CL		2" Soil Temp (^{o}F) @ Plnt'g	57
Quarter			Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	52
Section	28		Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	27N		Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	10E		Init Zn (ppm) 0-6"	0.6		Fert. Rate (lbs/ac) N	70
Latitude	N48 05.814'		Init Mn (ppm) 0-6"	5.6		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 27.491'		Init Cu (ppm) 0-6"	1		Fert. Rate (lbs/ac) K2O	25
Soil Series			Init Fe (ppm) 0-6"	9.5		Herbicide App. Date	n/a
pH 0-6"	6.4		CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	1.6		Init PAW (in.) 0-6"	1.00		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	34		Init PAW (in.) 6-24"	2.86		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	66		Init PAW (in.) 24-36"	1.96		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	252		Init PAW (in.) 36-48"	1.96		Harvest Date	7/29
Init N (lbs/ac) 36-48"	136		Init PAW (in.) 0-48"	7.78		Rooting Depth (in.)	39"
Init P (ppm) Olsen 0-6"	21		Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.52
Init K (ppm) 0-6"	383		Previous Crop	Spr Wheat		Post PAW (in.) 6-24"	1.18
Init S (ppm) 0-24"	26		Planting Date	10/1		Post PAW (in.) 24-36"	0.87
Init Na (MEQ/100g) 0-6"	0.09		Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	1.46
SaltHaz (MMHOS/cm) 0-6"	0.64		Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	4.04
SaltHaz(MMHOS/cm)6-24"	0.72		Dry Surf Soil (in.) @Plnt'g	0.25		Precip (>.1) Hvst-Post	n/a

TABLE 3. Six-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Winter Wheat Variety Nurseries Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 1999-2005. (Exp# 05-3853-WW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002 6/	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**6-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002 6/	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**6-YR COMP. AVE. TEST WT 5/**
CI 17879	ROCKY (P)	6	13.3		48.1	91.1	71.9	50.8	106.1	**50.8**	54.6		58.5	60.7	63.2	60.6	103.7	**60.6**
BZ96-919	PRYOR (P+)	3			43.5	81.8	79.6	68.3	142.7	**68.3**			55.9	56.0	62.2	58.0	99.3	**58.0**
PI584526	JUDITH	4	12.4		35.9			32.0	66.9	**32.0**	51.9		52.8			56.7	97.0	**56.7**
CI 17860	NEELEY	6	12.3		38.8	82.3	79.4	47.9	100.0	**47.9**	51.7		55.9	56.4	62.9	58.4	100.0	**58.4**
S94-4	CDC FALCON	3			42.7	81.4	75.0	66.4	138.7	**66.4**			55.0	57.0	62.8	58.3	99.8	**58.3**
RH78W296	BIGHORN (P+)	4	10.7		41.2			30.9	64.5	**30.9**	54.9		58.5			59.7	102.2	**59.7**
PI517194	TIBER	6	13.1		45.4	74.2	66.2	46.8	97.7	**46.8**	54.3		59.5	57.6	62.0	59.8	102.3	**59.8**
ND9257	JERRY	3			43.2	88.2	63.2	64.9	135.5	**64.9**			57.4	57.1	61.3	58.6	100.3	**58.6**
PI555458	PROMONTORY	6	9.3		46.7	81.0	64.3	46.1	111.0	**53.1**	55.2		56.2	59.7	63.0	60.2	104.7	**61.1**
PI593891	VANGUARD (sawfly res.)	6	15.7		40.8	74.4	68.5	45.6	109.7	**52.5**	54.6		59.1	57.3	61.6	59.5	103.5	**60.5**
MT 9432	BIGSKY (+)	6	11.4		35.8	73.7	73.1	45.4	89.9	**43.0**	55.0		55.6	54.7	62.6	58.9	102.0	**59.6**
MTW 9441	NUSKY (hard white)	5	13.2		40.7	79.1		39.2	125.1	**59.9**	55.0		57.6	57.1		58.5	101.3	**59.2**
CI 17735	NORSTAR	4	9.2		36.1			29.4	93.7	**44.9**	54.0		58.7			59.0	102.1	**59.6**
MT 9426	PAUL (++)	5	8.5		37.8	83.8	72.2	47.2	150.3	**72.0**	53.0		53.0	54.5	61.4	56.6	98.0	**57.3**
PI599336	MORGAN (P+)	6	10.9		40.6	79.1	58.3	44.5	66.5	**31.8**	53.1		54.4	54.1	60.1	57.6	98.6	**57.6**
PI586806	NUWEST (hard white)(P+)	5	8.8		39.8	77.6		38.6	57.7	**27.6**	55.3		57.0	58.4		58.7	100.4	**58.6**
PI593889	RAMPART (sawfly resis.)	6	16.4		37.0	70.5	61.7	44.0	65.9	**31.5**	55.0		59.2	56.9	61.5	59.4	101.7	**59.4**
MTS 0031	GENOU (sawfly res.)(++)	3			39.4	73.5	69.3	60.7	90.8	**43.5**			56.1	58.2	62.2	58.8	100.7	**58.8**
MEANS (For Entries Listed)			11.8		40.8	79.5	69.5			48.2	54.1		56.7	57.0	62.1			59.0
7/ Growing Season Precipitation (in.)			Pndg		4.03	7.38	n/a	5.71										
Soil PAW (in.) to SD @ Planting			Pndg		7.99	5.70	4.04	5.91										
Total Plant Available Water (in.)			Pndg		12.02	13.08	4.04	9.71										
Soil NO3 (lbs.) to SD at Planting			Pndg		170.0	286.0	514.0	323.33										
Fertilizer Applied	(# N)		70.0		70.0	70.0	70.0	69.17										
	(# 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 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/ 6-Yr Comparable Average = (x/y) * z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Neeley for the same years, and z = 6-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. 2005. (Exp# 05-9951-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % cut
MT 0245	MT9433/ND695	100.0	31.8	51.0	11.6	59.6	12.5	0.0
MT 0260	MT9653/ND695	100.0	31.7	50.7	11.3	59.9	12.3	6.7
MTHW0202	ID377S/MTHW9701	99.0	28.0	49.8	11.4	59.7	13.1	13.3
MT 0266	ND695/MT9755	99.7	30.2	49.7	10.7	57.4	13.7	18.3
MT 0336	MT9609/MT9806	100.0	29.8	48.2	11.5	59.6	12.0	5.0
PI619086	EXPLORER	100.0	28.7	47.8	11.2	59.5	13.2	11.7
ALSEN	ALSEN	100.0	31.8	47.4	11.4	60.2	13.2	8.3
BZ996472	AGAWAM	100.0	29.4	46.4	11.9	61.2	11.6	5.0
ND 695	REEDER	100.0	29.5	46.0	11.2	61.3	12.0	5.0
PI633974	CHOTEAU (sawfly resistant)	99.0	26.3	45.4	11.4	59.2	12.6	5.0
AGRIPRO2	KNUDSON	99.7	28.8	45.0	11.7	60.0	12.5	5.0
AGRIPRO1	NORPRO	99.3	29.0	44.6	11.4	57.7	13.0	11.7
PI632252	OUTLOOK	100.0	30.2	44.5	11.0	59.5	12.0	8.3
BZ992588	CONAN (sawfly tolerant)	99.3	26.7	43.7	11.1	60.7	13.1	5.0
WB 926	WESTBRED 926	99.0	29.0	43.2	11.0	58.8	13.1	10.0
PI574642	McNEAL	100.0	30.4	43.0	11.0	59.6	13.1	16.7
BZ992322	HANK	99.3	26.8	42.1	11.2	59.7	12.2	6.7
PI607557	SCHOLAR (mod. sawfly resistant)	100.0	33.7	41.9	11.1	60.1	13.1	10.0
PI592761	ERNEST (sawfly resistant)	100.0	33.1	39.3	11.3	59.5	12.3	5.0
CI 13596	FORTUNA (sawfly resistant)	100.0	34.6	38.9	11.3	60.2	12.9	5.0
EXPERIMENTAL MEANS		99.7	30.0	45.4	11.3	59.7	12.7	8.1
LSD (0.05)		1.2	3.1	6.3	0.2	1.7	-	7.6
C.V.2: (S of MEAN / MEAN)*100		0.4	3.6	4.8	0.7	1.0	-	33.0

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# 05-9951-SW)							
Field			Soil Texture 0-6"	CL-		2" Soil Temp (°F) @ Plnt'g	67F
Quarter			Soil Texture 6-24"	CL		4" Soil Temp (°F) @ Plnt'g	59F
Section	13		Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	36N		Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	25E		Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Latitude	N48 52.587'		Init Mn (ppm) 0-6"	16.7		Fert. Rate (lbs/ac) P2O5	40
Longitude	W108 23.539'		Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series			Init Fe (ppm) 0-6"	45.6		Herbicide App. Date	6/20
pH 0-6"	5		CEC 0-6"	21.8		Herbicide Product	Bison/Achieve
Org.Matter (%) 0-6"	1.4		Init PAW (in.) 0-6"	0.92		Herbicide Rate (/ac)	1 pt / 6.9 oz
Init N (lbs/ac) 0-6"	10		Init PAW (in.) 6-24"	3.14		Precip (in.) Plnt'g-Harvest	10.89
Init N (lbs/ac) 6-24"	30		Init PAW (in.) 24-36"	1.98		Precip (>.1) Plnt'g-Harvest	10.29
Init N (lbs/ac) 24-36"	20		Init PAW (in.) 36-48"	1.96		Harvest Date	9/2
Init N (lbs/ac) 36-48"	24		Init PAW (in.) 0-48"	8.00		Rooting Depth (in.)	31"
Init P (ppm) Olsen 0-6"	21		Cropping System	CT-MechFlw		Post PAW (in.) 0-6"	0.70
Init K (ppm) 0-6"	246		Previous Crop	Durum		Post PAW (in.) 6-24"	1.67
Init S (ppm) 0-24"	33		Planting Date	5/7		Post PAW (in.) 24-36"	0.69
Init Na (MEQ/100g) 0-6"	0.09		Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.36		Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	3.06
SaltHaz(MMHOS/cm)6-24"	0.92		Dry Surf Soil (in.) @Plnt'g	0.3		Precip (>.1) Hvst-Post	0.00

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. 1996-2005. (Exp# 9951-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
PI574642	McNEAL	9	42.6	44.2	22.3	58.4	43.0	43.3	124.0	**43.3**	60.6	58.4	58.0	61.3	59.6	59.1	98.4	**59.1**
ND695	REEDER (+)	5	40.1	38.7	23.6	56.0		41.7	123.3	**43.0**	62.4	59.1	58.3	61.7		60.7	100.9	**60.6**
PI633974	CHOTEAU (++)(sawfly resis.)	5	36.4	40.9	24.5	55.2	45.4	40.5	122.7	**42.8**	61.8	57.6	57.7	60.3	59.2	59.3	98.8	**59.3**
PI549275	HI-LINE	8	42.6	37.4	21.9	55.2		41.4	120.3	**42.0**	61.2	58.3	58.1	61.3		59.1	98.5	**59.1**
PI607557	SCHOLAR (+)(mod.sf res)	9	38.8	39.3	22.8	52.9	41.9	41.0	119.0	**41.5**	62.0	58.2	59.5	61.5	60.1	60.2	100.3	**60.2**
PI632252	OUTLOOK (+)	5	37.3	34.2	24.7	54.6	44.5	39.0	118.4	**41.3**	60.3	58.7	57.9	60.8	59.5	59.4	99.0	**59.4**
CI17430	NEWANA	8	41.6	32.6	21.0	55.7		40.6	118.0	**41.2**	61.9	58.4	60.4	61.4		60.0	99.9	**60.0**
PI527682	AMIDON (mod.swfly res.)	8	39.5	37.5	22.5	48.3		40.1	116.5	**40.6**	61.6	57.0	57.9	60.0		59.2	98.7	**59.2**
WBEXPRES	WB EXPRESS (P+)	7	37.7	36.5	20.1			37.4	116.2	**40.5**	60.9	58.2	58.5			58.9	98.4	**59.1**
PI592761	ERNEST (+)(sawfly res.)	9	41.0	38.2	25.6	54.5	39.3	40.4	115.7	**40.4**	62.4	57.2	58.7	60.3	59.5	59.6	99.3	**59.6**
BZ992588	CONAN (P+)(sawfly tol)	6	36.0	37.5	23.6	53.0	43.7	39.5	113.9	**39.7**	62.0	59.1	60.0	61.6	60.7	60.6	100.8	**60.5**
PI619086	EXPLORER (hard white)(+)	6	33.9	32.6	23.3	47.6	47.8	39.4	113.9	**39.7**	60.9	57.4	58.5	60.8	59.5	59.6	99.1	**59.5**
WB936	WB 936 (P+)	8	35.2	36.5	22.7	48.8		39.0	113.3	**39.5**	61.8	57.3	58.7	59.0		58.9	98.1	**58.9**
C982-324	WB RAMBO (P+)(mod sf)	8	36.8	36.9	22.7	57.1		38.3	111.4	**38.9**	62.3	58.5	59.6	61.2		60.1	100.1	**60.1**
MTHW9420	MTHW9420 (hrd wht)(+)	8	36.3	32.4	18.6	46.1		38.0	110.4	**38.5**	61.4	56.8	57.9	60.4		58.8	97.9	**58.8**
CI17429	LEW (sawfly resistant)	7	36.9	36.3	21.1			35.5	110.1	**38.4**	62.2	58.9	59.3			60.1	100.4	**60.2**
BZ992322	HANK (P+)	4		35.7	22.2	51.8	42.1	38.0	109.0	**38.0**		57.7	58.4	60.1	59.7	59.0	99.0	**59.4**
WPB926	WB 926 (P)	9	35.5	31.8	20.7	47.0	43.2	37.7	108.0	**37.7**	61.1	57.5	58.7	60.2	58.8	58.9	98.1	**58.9**
CI13596	FORTUNA (sawfly resis.)	9	25.6	30.3	20.4	49.7	38.9	34.9	100.0	**34.9**	61.9	58.1	58.8	61.2	60.2	60.0	100.0	**60.0**
MEANS (For Entries Listed)			37.4	36.3	22.3	52.5	43.0			40.1	61.6	58.0	58.7	60.8	59.7			59.6
6/ Growing Season Precipitation (in.)			Pndg	Pndg	3.12	13.73	9.66	8.12										
Soil PAW (in.) to SD @ Planting			Pndg	5.65	6.96	7.39	8.004	6.48										
Total Plant Available Water (in.)			Pndg	5.65	10.08	21.12	17.66	13.25										
Soil NO3 (lbs.) to SD at Planting			Pndg	36	160	160	84	92.33										
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	68.67										
	(# P_2O_5)		40.0	40.0	40.0	40.0	40.0	37.67										
	(# K_2O)		25.0	25.0	25.0	25.0	25.0	16.67										

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 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.

7/ 1999 Nursery not planted due to wet conditions extending throughout and beyond the normal seeding period for this location.

TABLE 6. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at Mark Peterson Grain & Cattle Inc., North Havre. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-9952-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % cut
MT 0245	MT9433/ND695	98.8	24.1	29.6	9.8	52.2	16.0	28.3
BZ992588	CONAN (sawfly tolerant)	100.0	24.3	29.4	10.0	54.6	16.4	26.7
BZ996472	AGAWAM	99.1	24.5	28.3	10.5	56.0	15.7	18.3
PI633974	CHOTEAU (sawfly resistant)	99.4	25.0	27.9	9.6	52.9	16.8	8.3
MTHW0202	ID377S/MTHW9701	96.9	24.9	27.3	9.7	52.3	16.5	40.0
CI 13596	FORTUNA (sawfly resistant)	98.8	29.8	26.3	10.3	54.3	15.7	21.7
PI632252	OUTLOOK	99.7	21.8	25.9	9.1	52.0	16.5	63.3
MT 0336	MT9609/MT9806	99.7	22.4	25.7	9.6	51.7	16.2	35.0
BZ992322	HANK	95.4	23.8	25.2	9.4	51.1	17.4	60.0
PI592761	ERNEST (sawfly resistant)	99.7	30.3	25.1	9.6	53.0	17.2	28.3
PI619086	EXPLORER	99.4	23.9	24.8	9.2	52.3	17.2	70.0
PI574642	McNEAL	99.1	27.9	24.3	9.3	51.8	16.3	71.7
MT 0266	ND695/MT9755	100.0	24.8	23.6	9.1	49.4	16.6	80.0
MT 0260	MT9653/ND695	98.8	25.9	23.3	9.7	51.1	16.1	63.3
WB 926	WESTBRED 926	99.1	27.6	22.6	9.3	51.4	17.4	51.7
ALSEN	ALSEN	97.2	25.4	22.1	9.5	50.9	16.4	60.0
AGRIPRO2	KNUDSON	99.7	22.8	21.5	9.5	52.6	16.4	60.0
ND 695	REEDER	100.0	24.4	20.4	9.4	51.6	16.8	65.0
PI607557	SCHOLAR (mod. sawfly resistant)	99.1	27.5	19.3	9.4	52.5	16.5	61.7
AGRIPRO1	NORPRO	98.1	21.7	15.0	9.5	48.1	16.4	45.0
EXPERIMENTAL MEANS		98.9	25.1	24.4	9.6	52.1	16.5	47.9
LSD (0.05)		2.7	3.6	4.2	0.4	1.6	-	15.3
C.V.2: (S of MEAN / MEAN)*100		0.9	5.0	6.0	1.4	1.0	-	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.

Site Resource & Management Data: (Exp# 05-9952-SW)							
Field			Soil Texture 0-6"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	70F
Quarter	NW		Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	62F
Section	31		Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	36N		Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	13E		Init Zn (ppm) 0-6"	0.7		Fert. Rate (lbs/ac) N	70
Latitude	N48 50.478'		Init Mn (ppm) 0-6"	12		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 05.021'		Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series	Assnbn Cplx		Init Fe (ppm) 0-6"	18.4		Herbicide App. Date	n/a
pH 0-6"	6.1		CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	0.7		Init PAW (in.) 0-6"	0.87		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	10		Init PAW (in.) 6-24"	3.59		Precip (in.) Plnt'g-Harvest	4.60
Init N (lbs/ac) 6-24"	30		Init PAW (in.) 24-36"	1.93		Precip (>.1) Plnt'g-Harvest	4.53
Init N (lbs/ac) 24-36"	12		Init PAW (in.) 36-48"	1.81		Harvest Date	8/27
Init N (lbs/ac) 36-48"	8		Init PAW (in.) 0-48"	8.20		Rooting Depth (in.)	40"
Init P (ppm) Olsen 0-6"	12		Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.39
Init K (ppm) 0-6"	327		Previous Crop	Spr Wht		Post PAW (in.) 6-24"	1.00
Init S (ppm) 0-24"	32		Planting Date	5/6		Post PAW (in.) 24-36"	0.47
Init Na (MEQ/100g) 0-6"	0.19		Planting Depth (in.)	1.25		Post PAW (in.) 36-48"	0.80
SaltHaz (MMHOS/cm) 0-6"	0.44		Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	2.67
SaltHaz(MMHOS/cm)6-24"	0.8		Dry Surf Soil (in.) @Plnt'g	0.3		Precip (>.1) Hvst-Post	0.61

TABLE 7. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-9955-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % Cut
MT 0266	ND695/MT9755	100.0	30.0	43.9	8.8	55.0	14.4	30.0
BZ996472	AGAWAM	100.0	30.0	43.2	9.6	60.4	12.0	28.3
MT 0245	MT9433/ND695	94.4	30.6	42.8	9.1	57.3	13.5	33.3
MT 0260	MT9653/ND695	100.0	29.1	38.9	9.0	57.1	13.4	36.7
ND 695	REEDER	100.0	30.5	38.8	8.9	58.2	14.3	33.3
PI619086	EXPLORER	100.0	29.3	38.7	9.1	57.9	14.4	33.3
MTHW0202	ID377S/MTHW9701	99.7	28.4	38.5	9.3	57.6	13.5	40.0
PI632252	OUTLOOK	100.0	28.1	38.3	8.7	56.3	13.7	38.3
AGRIPRO1	NORPRO	99.4	27.8	38.3	9.0	55.8	13.4	20.0
PI633974	CHOTEAU (sawfly resistant)	99.7	27.6	37.3	8.8	56.6	14.4	26.7
BZ992322	HANK	100.0	28.2	37.2	9.1	57.1	13.8	31.7
AGRIPRO2	KNUDSON	100.0	29.6	36.7	9.2	57.8	14.5	28.3
BZ992588	CONAN (sawfly tolerant)	94.4	28.7	36.3	9.2	58.4	14.9	35.0
MT 0336	MT9609/MT9806	100.0	29.2	36.2	8.9	56.2	14.2	53.3
ALSEN	ALSEN	100.0	29.6	36.1	9.1	57.1	13.9	33.3
PI574642	McNEAL	99.7	29.5	34.5	8.7	56.0	14.0	88.3
PI592761	ERNEST (sawfly resistant)	99.1	34.1	34.1	8.7	56.6	14.4	40.0
WB 926	WESTBRED 926	98.8	28.0	34.0	8.8	56.8	14.7	41.7
CI 13596	FORTUNA (sawfly resistant)	100.0	34.6	31.6	9.2	57.3	14.6	30.0
PI607557	SCHOLAR (mod. sawfly resistant)	100.0	31.5	30.7	8.9	57.1	14.0	40.0
EXPERIMENTAL MEANS		99.3	29.7	37.3	9.0	57.1	14.0	37.1
LSD (0.05)		5.1	2.1	5.2	0.2	1.2	-	15.6
C.V.2: (S of MEAN / MEAN)*100		1.8	2.5	4.8	0.9	0.7	-	14.7

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# 05-9955-SW)							
Field			Soil Texture 0-6"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	59F
Quarter			Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	59F
Section	2		Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	35N		Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	29E		Init Zn (ppm) 0-6"	1.1		Fert. Rate (lbs/ac) N	70
Latitude	N48 46.613		Init Mn (ppm) 0-6"	12.4		Fert. Rate (lbs/ac) P2O5	40
Longitude	W107 50.001		Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series			Init Fe (ppm) 0-6"	34		Herbicide App. Date	pending
pH 0-6"	5.5		CEC 0-6"	21.8		Herbicide Product	pending
Org.Matter (%) 0-6"	1		Init PAW (in.) 0-6"	0.79		Herbicide Rate (/ac)	pending
Init N (lbs/ac) 0-6"	6		Init PAW (in.) 6-24"	4.02		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	24		Init PAW (in.) 24-36"	2.17		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	12		Init PAW (in.) 36-48"	2.09		Harvest Date	8/29
Init N (lbs/ac) 36-48"	12		Init PAW (in.) 0-48"	9.07		Rooting Depth (in.)	41"
Init P (ppm) Olsen 0-6"	15		Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.53
Init K (ppm) 0-6"	228		Previous Crop	Barley		Post PAW (in.) 6-24"	1.20
Init S (ppm) 0-24"	32		Planting Date	5/11		Post PAW (in.) 24-36"	1.05
Init Na (MEQ/100g) 0-6"	0.21		Planting Depth (in.)	1.25		Post PAW (in.) 36-48"	1.24
SaltHaz (MMHOS/cm) 0-6"	0.32		Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	4.02
SaltHaz(MMHOS/cm)6-24"	0.8		Dry Surf Soil (in.) @Plnt'g	0.3		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. 1996-2005. (Exp# 05-9955-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**10-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**10-YR COMP. AVE. TEST WT 5/**
ND 695	REEDER (+)	7	42.0	36.3	28.5	46.4	38.8	40.4	118.2	**37.4**	61.7	58.8	55.0	62.4	58.2	59.7	100.8	**59.4**
PI574642	McNEAL	10	39.3	38.1	25.9	46.9	34.5	37.0	117.0	**37.0**	59.9	58.3	51.4	61.6	56.0	57.6	97.7	**57.6**
CI 17430	NEWANA	9	40.6	34.4	27.0	43.4		36.6	115.6	**36.6**	61.3	59.1	54.1	61.7		58.6	99.2	**58.4**
PI549275	HI-LINE	9	43.3	35.1	25.0	46.2		36.1	114.2	**36.1**	60.9	57.5	53.3	62.9		57.9	98.0	**57.7**
PI632252	OUTLOOK (+)	5	44.0	35.6	28.0	49.0	38.3	39.0	114.1	**36.1**	60.0	58.0	52.5	61.7	56.3	57.7	97.6	**57.5**
WBEXPRES	WB EXPRESS (P+)	8	38.0	32.9	27.3			34.1	113.8	**36.0**	60.2	58.2	53.0			57.6	98.1	**57.8**
WB 936	WB 936 (P+)	9	40.6	35.0	27.0	40.9		35.7	112.9	**35.7**	60.4	56.7	52.9	59.8		57.6	97.5	**57.4**
PI607557	SCHOLAR (+)(mod.sf res)	10	36.5	37.0	25.1	43.0	30.7	35.1	110.9	**35.1**	61.6	59.9	56.1	62.5	57.1	59.5	101.1	**59.5**
PI592761	ERNEST (+) (sawfly res.)	10	38.2	34.7	26.7	48.2	34.1	35.0	110.5	**35.0**	61.8	58.2	54.6	62.2	56.6	58.6	99.5	**58.6**
PI633974	CHOTEAU (++)(sawfly resis.)	5	37.6	33.4	27.3	52.7	37.3	37.7	110.2	**34.9**	60.3	57.1	53.6	61.7	56.6	57.9	97.9	**57.7**
BZ992588	CONAN (P+) (sawfly tol)	7	39.0	34.1	26.9	45.4	36.3	37.5	109.7	**34.7**	61.4	59.9	55.1	63.3	58.4	60.0	101.2	**59.6**
PI527682	AMIDON (mod.swfly res.)	9	40.4	33.7	22.9	38.2		34.6	109.5	**34.6**	61.1	58.2	54.3	61.5		58.6	99.2	**58.4**
C982-324	WB RAMBO (P+) (mod sf)	9	37.2	33.4	24.0	50.0		34.3	108.5	**34.3**	61.5	60.1	54.7	62.8		59.5	100.8	**59.3**
WPB 926	WB 926 (P)	10	36.4	35.6	26.7	38.7	34.0	33.8	106.9	**33.8**	60.1	57.5	53.1	60.7	56.8	57.7	97.9	**57.7**
MTHW9420	MTHW9420 (hrd wht)(+)	9	35.7	33.9	25.9	37.8		33.7	106.4	**33.6**	60.9	57.4	51.4	59.4		57.5	97.4	**57.4**
PI619086	EXPLORER (hard white)(+)	6	36.2	34.8	28.6	40.8	38.7	36.2	106.1	**33.6**	60.5	58.2	54.5	61.0	57.9	58.8	98.9	**58.2**
CI 17429	LEW (sawfly resistant)	8	35.6	34.5	23.8			31.2	104.2	**33.0**	61.9	60.0	54.7			59.0	100.6	**59.3**
BZ992322	HANK (P+)	4		36.1	28.1	41.5	37.2	35.7	103.5	**32.7**		56.2	53.1	60.1	57.1	56.6	96.8	**57.0**
CI 13596	FORTUNA (sawfly resis.)	10	32.8	31.5	30.0	45.0	31.6	31.6	100.0	**31.6**	61.7	59.1	55.2	62.3	57.3	58.9	100.0	**58.9**
MEANS (For Entries Listed)			38.5	34.7	26.6	44.4	35.6			34.8	60.9	58.3	53.8	61.6	57.1			58.3
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 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 McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-9957-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % Cut	3/ HESSIAN %
BZ992322	HANK	98.3	31.4	41.9	11.1	48.6	17.4	0.0	8.3
MT 0336	MT9609/MT9806	100.0	32.9	41.4	11.1	51.7	15.7	0.0	25.0
MTHW0202	ID377S/MTHW9701	98.6	31.8	40.7	11.9	54.0	15.6	0.0	6.7
BZ996472	AGAWAM	99.3	30.5	39.0	11.9	53.1	15.5	0.0	5.0
PI619086	EXPLORER	99.0	33.4	38.9	11.2	52.5	16.3	0.0	23.3
PI632252	OUTLOOK	98.6	30.4	38.8	11.1	49.9	16.5	0.0	13.3
MT 0245	MT9433/ND695	100.0	30.9	38.0	11.5	49.7	16.3	0.0	36.7
PI633974	CHOTEAU (sawfly resistant)	99.7	31.4	36.7	11.7	50.3	16.7	0.0	6.7
BZ992588	CONAN (sawfly tolerant)	97.6	31.4	35.6	11.5	51.8	16.9	0.0	13.3
ND 695	REEDER	99.3	33.5	35.0	11.3	49.8	16.9	0.0	75.0
PI574642	McNEAL	98.6	33.9	34.9	11.5	49.8	17.4	0.0	30.0
AGRIPRO2	KNUDSON	100.0	32.5	34.7	11.6	51.6	16.5	0.0	15.0
ALSEN	ALSEN	100.0	33.5	34.4	11.5	51.2	16.5	0.0	56.7
MT 0260	MT9653/ND695	100.0	32.2	34.4	11.5	50.2	16.0	0.0	53.3
PI607557	SCHOLAR (mod. sawfly resistant)	98.3	36.9	33.7	10.7	52.0	16.4	0.0	16.7
MT 0266	ND695/MT9755	100.0	32.0	33.1	11.3	46.9	16.1	0.0	46.7
WB 926	WESTBRED 926	98.6	31.0	32.9	11.2	47.0	18.2	0.0	10.0
PI592761	ERNEST (sawfly resistant)	98.3	37.1	32.7	11.2	50.4	17.4	0.0	13.3
CI 13596	FORTUNA (sawfly resistant)	97.9	38.3	30.2	11.8	52.6	16.2	0.0	8.3
AGRIPRO1	NORPRO	99.0	30.8	27.4	11.6	45.3	16.7	0.0	18.3
EXPERIMENTAL MEANS		99.1	32.8	35.7	11.4	50.4	16.6	0.0	24.1
LSD (0.05)		2.5	2.1	8.4	0.4	2.7	-	0.0	16.3
C.V.2: (S of MEAN / MEAN)*100		0.9	2.2	8.2	1.3	1.9	-	0.0	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 wheat.
2/ Protein values are adjusted to 12 percent grain moisture.
3/ Hessian fly rating: percent 90^{o} stem bending just above 1st joint.

Site Resource & Management Data: (Exp# 05-9957-SW)							
Field			Soil Texture 0-6"	CL		2" Soil Temp (^{o}F) @ Plnt'g	66F
Quarter	SE		Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	58F
Section	28		Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	27N		Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	10E		Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Latitude	N48 05.814'		Init Mn (ppm) 0-6"	11.4		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 27.491'		Init Cu (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) K2O	25
Soil Series			Init Fe (ppm) 0-6"	16.1		Herbicide App. Date	n/a
pH 0-6"	6.2		CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	0.9		Init PAW (in.) 0-6"	1.11		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	6		Init PAW (in.) 6-24"	3.60		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	54		Init PAW (in.) 24-36"	2.05		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	36		Init PAW (in.) 36-48"	2.03		Harvest Date	8/26
Init N (lbs/ac) 36-48"	104		Init PAW (in.) 0-48"	8.81		Rooting Depth (in.)	31"
Init P (ppm) Olsen 0-6"	15		Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.64
Init K (ppm) 0-6"	245		Previous Crop	Spr Wht		Post PAW (in.) 6-24"	1.17
Init S (ppm) 0-24"	39		Planting Date	5/3		Post PAW (in.) 24-36"	0.57
Init Na (MEQ/100g) 0-6"	0.16		Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	n/a
SaltHaz (MMHOS/cm) 0-6"	0.48		Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	2.38
SaltHaz(MMHOS/cm)6-24"	0.92		Dry Surf Soil (in.) @Plnt'g	0.25		Precip (>.1) Hvst-Post	n/a

TABLE 10. Eight-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 1998-2005. (Exp# 05-9957-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**8-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**8-YR COMP. AVE. TEST WT 5/**
PI619086	EXPLORER (hard white)(+)	6	9.2	18.1	26.3	35.8	38.9	26.5	117.1	**29.1**	53.5	50.2	51.3	47.4	52.5	51.6	96.7	**51.6**
BZ992322	HANK (P+)	4		14.5	28.5	33.1	41.9	29.5	115.5	**28.8**		48.3	50.0	45.0	48.6	48.0	91.0	**48.6**
PI632252	OUTLOOK (+)	5	9.0	16.1	26.2	35.5	38.8	25.1	114.3	**28.4**	53.4	50.4	49.8	46.8	49.9	50.1	94.5	**50.4**
WB936	WB 936 (P+)	5	6.6	20.2	28.0	38.0		24.1	113.8	**28.3**	52.9	50.0	50.2	46.1		51.0	95.1	**50.8**
ND695	REEDER (+)	7	7.1	22.0	25.2	31.8	35.0	26.5	110.8	**27.6**	53.6	52.4	52.5	47.1	49.8	52.4	97.8	**52.2**
WPB926	WB 926 (P)	7	7.6	15.4	27.8	34.6	32.9	26.4	110.4	**27.5**	53.0	50.0	50.5	46.6	47.0	50.0	94.1	**50.2**
BZ992588	CONAN (P+) (sawfly tol)	7	7.1	18.0	24.9	35.8	35.6	26.3	109.8	**27.3**	56.7	52.8	54.2	50.0	51.8	53.9	100.7	**53.7**
PI574642	McNEAL	8	9.2	13.2	28.6	31.7	34.9	27.1	108.9	**27.1**	53.4	50.7	50.2	47.1	49.8	50.4	94.5	**50.4**
PI633974	CHOTEAU (++)(sawfly resis.)	5	7.4	14.4	24.7	34.7	36.7	23.6	107.3	**26.7**	53.4	49.3	52.9	49.3	50.3	51.0	96.4	**51.4**
PI607557	SCHOLAR (+)(mod.sf res)	8	8.0	19.3	26.7	29.1	33.7	26.6	107.1	**26.6**	55.6	53.8	56.0	50.1	52.0	53.7	100.6	**53.7**
CI17430	NEWANA	7	8.4	17.2	25.7	31.6		24.6	102.0	**25.4**	55.7	52.5	50.4	47.7		51.6	96.5	**51.5**
PI549275	HI-LINE	7	9.1	14.1	26.7	30.9		24.5	101.4	**25.2**	51.6	49.0	49.2	44.5		49.6	92.7	**49.5**
PI527682	AMIDON (mod.swfly res.)	7	9.0	15.4	25.9	24.4		24.5	101.4	**25.2**	54.3	52.3	55.0	51.1		53.3	99.8	**53.2**
CI13596	FORTUNA (sawfly resis.)	8	7.7	13.8	28.0	30.1	30.2	24.9	100.0	**24.9**	54.0	52.1	54.9	51.3	52.6	53.4	100.0	**53.4**
PI592761	ERNEST (+) (sawfly res.)	8	8.6	16.0	23.7	28.0	32.7	24.7	99.2	**24.7**	54.7	52.6	54.1	50.0	50.4	52.8	98.9	**52.8**
MTHW9420	MTHW9420 (hrd wht)(+)	6	6.7	14.6	23.7	32.4		21.7	94.6	**23.5**	51.9	49.0	48.9	45.2		50.0	93.1	**49.7**
C982-324	WB RAMBO (P+) (mod sf)	7	8.9	11.9	23.2	27.4		22.7	94.0	**23.4**	56.1	53.6	54.6	47.5		53.1	99.4	**53.0**
MEANS (For Entries Listed)			8.1	16.1	26.1	32.1	35.6			26.5	54.0	51.1	52.0	47.8	50.4			51.5
6/ Growing Season Precipitation (in.)			Pndg	8.75	3.15	7.38	n/a	6.43										
Soil PAW (in.) to SD @ Planting			Pndg	Pndg	8.43	6.16	2.38	5.66										
Total Plant Available Water (in.)			Pndg	Pndg	11.58	13.54	2.38	9.17										
Soil NO3 (lbs.) to SD at Planting			Pndg	Pndg	146.0	260.0	200.0	202.0										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48.0	48.0										
Fertilizer Applied	(# N)		65.0	70.0	70.0	70.0	70.0	68.8										
	(# 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 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/ 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 Fortuna for the same years, and z = 8-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. 2005. (Exp# 05-9851-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % Cut
YU894-75	ALZADA	100.0	28.4	42.8	10.5	59.3	15.1	10.0
PI574642	McNEAL (hrsw check)	100.0	30.0	40.5	10.2	57.9	14.5	25.0
ACAVONLE	AC AVONLEA	100.0	30.3	37.6	10.5	59.4	16.2	11.7
D89135	MAIER	100.0	29.8	37.5	10.8	59.2	15.9	20.0
D901313	MOUNTRAIL	99.7	30.8	37.1	10.7	58.7	15.3	16.7
D91080	PLAZA	99.3	26.4	37.0	10.6	59.0	16.0	15.0
DILSE	DILSE	100.0	31.1	36.1	10.6	59.4	16.6	15.0
NDMUNICH	MUNICH	100.0	29.9	35.7	10.6	58.9	14.7	13.3
CANKYLE	KYLE	99.7	33.8	35.0	11.0	59.4	15.4	16.7
D87130	BEN	99.3	31.9	35.0	11.0	59.7	15.6	13.3
PIERCE	PIERCE	100.0	32.2	34.1	10.8	60.1	14.7	20.0
CI 17789	VIC	100.0	34.0	33.2	10.7	59.6	16.0	26.7
D901442	LEBSOCK	100.0	29.7	32.4	10.8	59.5	15.7	31.7
PI478289	MONROE	100.0	33.5	31.9	10.5	58.9	15.2	30.0
EXPERIMENTAL MEANS		99.9	30.9	36.1	10.7	59.2	15.5	18.9
LSD (0.05)		0.8	3.1	4.9	0.2	0.8	-	13.9
C.V.2: (S of MEAN / MEAN)*100		0.3	3.4	4.6	0.8	0.5	-	25.3

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

Site Resource & Management Data: (Exp# 05-9851-SW)							
Field		Soil Texture 0-6"	CL-	2" Soil Temp (°F) @ Plnt'g	69F
Quarter		Soil Texture 6-24"	CL	4" Soil Temp (°F) @ Plnt'g	60F
Section	13	Soil Texture 24-36"	CL	Fertilizer Formulation	Gran.Blend
Township	36N	Soil Texture 36-48"	CL	Fertilizer Placement	Bnd at Plntg
Range	25E	Init Zn (ppm) 0-6"	0.8	Fert. Rate (lbs/ac) N	70
Latitude	N48 52.587'	Init Mn (ppm) 0-6"	16.7	Fert. Rate (lbs/ac) P2O5	40
Longitude	W108 23.539'	Init Cu (ppm) 0-6"	0.5	Fert. Rate (lbs/ac) K2O	25
Soil Series		Init Fe (ppm) 0-6"	45.6	Herbicide App. Date	6/20
pH 0-6"	5	CEC 0-6"	21.8	Herbicide Product	Bison/Achieve
Org.Matter (%) 0-6"	1.4	Init PAW (in.) 0-6"	0.92	Herbicide Rate (/ac)	1 pt / 6.9 oz
Init N (lbs/ac) 0-6"	10	Init PAW (in.) 6-24"	3.14	Precip (in.) Plnt'g-Harvest	10.89
Init N (lbs/ac) 6-24"	30	Init PAW (in.) 24-36"	1.98	Precip (>.1) Plnt'g-Harvest	10.29
Init N (lbs/ac) 24-36"	20	Init PAW (in.) 36-48"	1.96	Harvest Date	9/2
Init N (lbs/ac) 36-48"	24	Init PAW (in.) 0-48"	8.00	Rooting Depth (in.)	30"
Init P (ppm) Olsen 0-6"	21	Cropping System	CT-MechFlw	Post PAW (in.) 0-6"	0.68
Init K (ppm) 0-6"	246	Previous Crop	Durum	Post PAW (in.) 6-24"	1.42
Init S (ppm) 0-24"	33	Planting Date	5/7	Post PAW (in.) 24-36"	0.76
Init Na (MEQ/100g) 0-6"	0.09	Planting Depth (in.)	1.5	Post PAW (in.) 36-48"	1.33
SaltHaz (MMHOS/cm) 0-6"	0.36	Moist Soil Depth @Plnt'g	48+	Post PAW (in.) 0-48"	4.19
SaltHaz(MMHOS/cm)6-24"	0.92	Dry Surf Soil (in.) @Plnt'g	0.3	Precip (>.1) Hvst-Post	0.00

TABLE 12. Four-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. 2002-2005. (Exp# 05-9851-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/	**4-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/	**4-YR COMP. AVE. TEST WT 5/**
D91080	PLAZA (+)	4	49.5	20.9	58.6	37.0		41.5	117.8	**41.5**	61.9	58.8	62.6	59.0		60.6	99.8	**60.6**
ACAVONLE	AC AVONLEA (+)	4	39.8	21.2	54.3	37.6		38.2	108.6	**38.2**	61.2	59.2	62.7	59.4		60.6	99.9	**60.6**
D901313	MOUNTRAIL (+)	4	34.5	21.9	50.3	37.1		35.9	102.1	**35.9**	61.4	58.4	61.8	58.7		60.1	99.0	**60.1**
PI574642	McNEAL (HRSW Check)	4	32.3	22.2	47.8	40.5		35.7	101.4	**35.7**	59.5	56.6	61.8	57.9		59.0	97.2	**59.0**
D89135	MAIER (+)	4	33.3	21.4	50.5	37.5		35.7	101.3	**35.7**	60.9	58.7	61.8	59.2		60.2	99.2	**60.2**
CANKYLE	KYLE	4	34.2	21.4	50.2	35.0		35.2	100.0	**35.2**	60.9	59.8	62.5	59.4		60.7	100.0	**60.7**
NDMUNICH	MUNICH (+)	4	32.1	21.9	48.4	35.7		34.5	98.1	**34.5**	59.0	58.2	60.9	58.9		59.2	97.7	**59.2**
D901442	LEBSOCK (+)	4	34.6	21.4	48.3	32.4		34.2	97.1	**34.2**	61.6	59.7	62.0	59.5		60.7	100.1	**60.7**
D87130	BEN (+)	4	31.1	22.7	46.3	35.0		33.7	95.8	**33.7**	60.6	59.9	62.0	59.7		60.6	99.8	**60.6**
CI 17789	VIC	4	29.0	22.6	45.0	33.2		32.5	92.2	**32.5**	60.3	59.9	61.9	59.6		60.4	99.6	**60.4**
PI478289	MONROE	4	27.7	21.8	42.0	31.9		30.9	87.6	**30.9**	59.5	58.9	60.9	58.9		59.6	98.2	**59.6**
MEANS (For Entries Listed)			34.4	21.8	49.3	35.7				35.3	60.6	58.9	61.9	59.1				60.1
6/ Growing Season Precipitation (in.)			9.60	3.12	13.73	9.66		9.03										
Soil PAW (in.) to SD @ Planting			7.24	6.96	7.39	8.00		7.40										
Total Plant Available Water (in.)			16.84	10.08	21.12	17.66		16.43										
Soil NO3 (lbs.) to SD at Planting			52	160	104	84		100.0										
SD (Sampling Depth in Inches)			48	48	48	48		48.0										
Fertilizer Applied		(# N)	62	70	70	70		68.0										
		(# P_2O_5)	35	40	40	40		38.8										
		(# K_2O)	0	25	25	25		18.8										

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

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 13. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at Mark Peterson Grain & Cattle Inc., North Havre. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-9852-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % Cut
YU894-75	ALZADA	99.7	23.8	27.7	8.9	55.1	18.5	5.0
D91080	PLAZA	99.7	21.8	26.9	9.4	56.0	18.7	5.0
CI 17789	VIC	98.4	29.1	26.9	9.4	57.2	17.4	53.3
D901442	LEBSOCK	99.4	25.2	26.8	9.6	56.9	18.9	38.3
ACAVONLE	AC AVONLEA	100.0	26.7	26.5	9.5	56.2	18.9	5.0
CANKYLE	KYLE	98.5	28.7	26.1	9.7	57.0	18.4	35.0
PI478289	MONROE	98.8	26.8	25.1	9.3	55.7	18.1	55.0
D901313	MOUNTRAIL	98.8	23.9	24.5	9.2	54.9	19.6	28.3
NDMUNICH	MUNICH	100.0	25.0	24.3	9.1	54.6	19.3	26.7
PI574642	McNEAL (hrsw check)	99.7	24.9	23.7	9.0	53.7	18.4	65.0
D89135	MAIER	99.4	25.7	23.7	9.2	55.1	20.0	23.3
D87130	BEN	99.4	25.2	23.1	9.2	55.6	19.6	36.7
DILSE	DILSE	100.0	25.9	22.7	8.9	55.0	19.7	36.7
PIERCE	PIERCE	99.4	28.7	22.0	9.3	56.3	19.1	38.3
EXPERIMENTAL MEANS		99.4	25.8	25.0	9.3	55.7	18.9	32.3
LSD (0.05)		1.2	3.4	4.4	0.4	1.4	-	9.5
C.V.2: (S of MEAN / MEAN)*100		0.4	4.6	6.0	1.3	0.8	-	10.2

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

Site Resource & Management Data: (Exp# 05-9852-SW)							
Field		Soil Texture 0-6"	CL-		2" Soil Temp (°F) @ Plnt'g	71F
Quarter	NW	Soil Texture 6-24"	CL		4" Soil Temp (°F) @ Plnt'g	64F
Section	31	Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	36N	Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	13E	Init Zn (ppm) 0-6"	0.7		Fert. Rate (lbs/ac) N	70
Latitude	N48 50.478'	Init Mn (ppm) 0-6"	12		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 05.021'	Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series	Assnbn Cplx	Init Fe (ppm) 0-6"	18.4		Herbicide App. Date	n/a
pH 0-6"	6.1	CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	0.7	Init PAW (in.) 0-6"	0.87		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	10	Init PAW (in.) 6-24"	3.59		Precip (in.) Plnt'g-Harvest	4.60
Init N (lbs/ac) 6-24"	30	Init PAW (in.) 24-36"	1.93		Precip (>.1) Plnt'g-Harvest	4.53
Init N (lbs/ac) 24-36"	12	Init PAW (in.) 36-48"	1.81		Harvest Date	8/27
Init N (lbs/ac) 36-48"	8	Init PAW (in.) 0-48"	8.20		Rooting Depth (in.)	30"
Init P (ppm) Olsen 0-6"	12	Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.68
Init K (ppm) 0-6"	327	Previous Crop	Spr Wht		Post PAW (in.) 6-24"	1.42
Init S (ppm) 0-24"	32	Planting Date	5/6		Post PAW (in.) 24-36"	0.76
Init Na (MEQ/100g) 0-6"	0.19	Planting Depth (in.)	1.25		Post PAW (in.) 36-48"	1.33
SaltHaz (MMHOS/cm) 0-6"	0.44	Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	4.19
SaltHaz(MMHOS/cm)6-24"	0.8	Dry Surf Soil (in.) @Plnt'g	0.3		Precip (>.1) Hvst-Post	0.61

TABLE 14. Dryland Fallow Spring Durum Cultivar Evaluation Nursery Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-9857-SW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	2/ PROTEIN %	SAWFLY % Cut	3/ HESSIAN %
PI574642	McNEAL (hrsw check)	99.7	32.6	42.0	10.9	52.1	18.4	0.0	23.3
YU894-75	ALZADA	99.3	31.4	41.6	10.6	51.9	18.4	0.0	6.7
D89135	MAIER	97.6	34.7	38.1	11.1	53.6	19.0	0.0	6.7
D901313	MOUNTRAIL	96.9	35.9	35.7	11.1	52.6	19.7	0.0	0.0
ACAVONLE	AC AVONLEA	99.7	39.0	34.9	10.9	53.7	19.5	0.0	6.7
NDMUNICH	MUNICH	97.9	34.8	34.4	10.8	51.2	19.1	0.0	1.7
D87130	BEN	97.3	36.0	34.2	11.2	54.0	18.4	0.0	0.0
CI 17789	VIC	99.0	38.9	33.4	11.1	54.9	18.6	0.0	1.7
D901442	LEBSOCK	100.0	36.7	32.2	11.4	54.2	19.8	0.0	6.7
PI478289	MONROE	99.0	38.9	30.9	11.0	52.0	19.8	0.0	6.7
PIERCE	PIERCE	100.0	37.8	30.7	11.1	54.3	19.5	0.0	1.7
D91080	PLAZA	99.0	27.2	30.4	10.6	51.0	20.0	0.0	13.3
DILSE	DILSE	100.0	35.9	30.3	10.9	52.9	21.3	0.0	3.3
CANKYLE	KYLE	98.6	38.2	26.8	11.3	53.4	19.0	0.0	11.7
EXPERIMENTAL MEANS		98.8	35.6	34.0	11.0	53.0	19.3	0.0	6.4
LSD (0.05)		2.4	2.8	6.6	0.4	1.8	-	0.0	3.5
C.V.2: (S of MEAN / MEAN)*100		0.8	2.7	6.7	1.1	1.2	-	0.0	18.5

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/ Hessian fly rating: Percent 90^0 stem bending just above 1st joint.

Site Resource & Management Data: (Exp# 05-9857-SW)							
Field		Soil Texture 0-6"	CL		2" Soil Temp (^{o}F) @ Plnt'g	63F
Quarter	SE	Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	57F
Section	28	Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	27N	Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	10E	Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Latitude	N48 05.814'	Init Mn (ppm) 0-6"	11.4		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 27.491'	Init Cu (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) K2O	25
Soil Series		Init Fe (ppm) 0-6"	16.1		Herbicide App. Date	n/a
pH 0-6"	6.2	CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	0.9	Init PAW (in.) 0-6"	1.11		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	6	Init PAW (in.) 6-24"	3.60		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	54	Init PAW (in.) 24-36"	2.05		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	36	Init PAW (in.) 36-48"	2.03		Harvest Date	8/26
Init N (lbs/ac) 36-48"	104	Init PAW (in.) 0-48"	8.81		Rooting Depth (in.)	31"
Init P (ppm) Olsen 0-6"	15	Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.30
Init K (ppm) 0-6"	245	Previous Crop	3.675818946		Post PAW (in.) 6-24"	1.10
Init S (ppm) 0-24"	39	Planting Date	5/3		Post PAW (in.) 24-36"	0.95
Init Na (MEQ/100g) 0-6"	0.16	Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	1.33
SaltHaz (MMHOS/cm) 0-6"	0.48	Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	Spr Wht
SaltHaz(MMHOS/cm)6-24"	0.92	Dry Surf Soil (in.) @Plnt'g	0.25		Precip (>.1) Hvst-Post	n/a

TABLE 15. Three-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Durum Variety Nurseries Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2003-2005. (Exp#05-9857-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2003	2004	2005	2006	2007	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**3-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2003	2004	2005	2006	2007	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**3-YR COMP. AVE. TEST WT 5/**
PI574642	McNEAL (HRSW Check)	3	24.7	33.5	42.0			33.4	135.8	**33.4**	49.7	48.7	52.1			50.2	93.2	**50.2**
D87130	BEN (+)	3	24.9	29.0	34.2			29.4	119.5	**29.4**	56.1	51.9	54.0			54.0	100.3	**54.0**
D89135	MAIER (+)	3	22.7	27.3	38.1			29.4	119.5	**29.4**	55.3	50.3	53.6			53.1	98.6	**53.1**
NDMUNICH	MUNICH (+)	3	23.5	28.8	34.4			28.9	117.5	**28.9**	55.3	50.3	51.2			52.3	97.1	**52.3**
CI 17789	VIC	3	22.7	29.4	33.4			28.5	115.8	**28.5**	56.9	53.7	54.9			55.2	102.5	**55.2**
PI478289	MONROE	3	25.6	28.7	30.9			28.4	115.5	**28.4**	55.8	50.9	52.0			52.9	98.2	**52.9**
D901442	LEBSOCK (+)	3	21.6	31.1	32.2			28.3	115.1	**28.3**	56.0	54.3	54.2			54.8	101.8	**54.8**
ACAVONLE	AC AVONLEA (+)	3	22.0	27.7	34.9			28.2	114.7	**28.2**	53.5	52.0	53.7			53.1	98.6	**53.1**
D901313	MOUNTRAIL (+)	3	22.9	25.3	35.7			28.0	113.9	**28.0**	54.5	50.2	52.6			52.4	97.4	**52.4**
D91080	PLAZA (+)	3	22.3	24.5	30.4			25.7	104.7	**25.7**	54.3	50.1	51.0			51.8	96.2	**51.8**
CANKYLE	KYLE	3	21.0	26.0	26.8			24.6	100.0	**24.6**	55.1	53.0	53.4			53.8	100.0	**53.8**
MEANS (For Entries Listed)			23.1	28.3	33.9					28.4	54.8	51.4	53.0					53.0
6/ Growing Season Precipitation (in.)			3.15	7.38	n/a			5.27										
Soil PAW (in.) to SD @ Planting			8.43	6.16	8.81			7.26										
Total Plant Available Water (in.)			11.58	13.54	8.81			9.89										
Soil NO3 (lbs.) to SD at Planting			146.0	260.0	200			160.50										
SD (Sampling Depth in Inches)			48.0	48.0	48			48.00										
Fertilizer Applied		(# N)	70	70	70			70.00										
		(# P_2O_5)	40.0	40.0	40			40.00										
		(# K_2O)	25.0	25.0	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

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/ 3-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 = 3-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. 2005. (Exp# 05-3651-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	LODGING Score	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %
BZ596117	Boulder	100.0	26.4	0.0	71.2	10.6	49.5	87.6	4.4	13.8
MT960228	Eslick	100.0	24.5	0.0	70.4	10.4	46.9	48.6	23.4	14.3
2B965057	Conrad	98.3	24.7	0.0	68.0	10.5	46.7	81.2	6.7	15.1
MT960101	MT960101	100.0	25.9	0.0	67.3	10.5	46.7	51.3	23.5	14.2
PI568246	Baronesse	100.0	25.3	0.3	66.9	10.3	45.9	62.5	14.5	15.0
MT970229	MT970229	100.0	26.5	0.0	66.6	10.7	49.6	89.8	3.5	15.1
BZ594-19	Xena	100.0	27.2	0.0	66.5	10.5	46.8	67.4	10.9	12.6
TR133	Kendall	99.3	26.9	0.0	64.8	10.3	46.1	80.8	7.2	14.6
MT910189	MT910189	99.7	26.5	0.3	64.1	10.9	50.1	90.8	3.8	12.7
MT950186	Haxby	100.0	28.9	0.3	62.8	10.5	49.7	76.7	7.1	13.2
6B95-248	Tradition	96.9	29.3	2.3	61.9	10.3	47.0	64.4	11.9	14.3
2B914947	Merit	99.7	29.4	0.0	60.3	10.3	42.5	54.2	21.9	15.0
6B932978	Legacy	97.6	26.4	2.3	60.1	10.0	43.5	41.7	27.6	13.7
TR150	Copeland	99.0	28.2	0.7	59.9	10.3	44.6	63.9	15.0	14.1
TR232	Metcalfe	98.6	28.2	1.0	59.7	10.5	46.2	71.2	11.8	15.1
ND15477	Drummond	99.0	28.1	3.0	58.7	10.1	45.9	65.6	13.0	14.6
SK 76333	Harrington	100.0	26.0	1.0	58.5	10.2	44.8	61.8	15.6	15.2
PI476976	Robust	98.3	28.0	5.3	58.1	10.0	45.2	54.5	17.8	13.9
MT970116	MT970116	99.7	32.5	1.0	58.0	10.4	48.0	71.9	12.7	14.4
MT981060	Hays	100.0	25.6	0.0	39.8	10.1	43.9	60.4	20.1	13.8
EXPERIMENTAL MEANS		99.3	27.2	0.9	62.2	10.4	46.5	67.3	13.6	14.2
LSD (0.05)		2.9	2.8	2.1	9.2	0.2	1.4	-	-	-
C.V.2: (S of MEAN / MEAN)*100		1.0	3.6	81.7	5.1	0.8	1.0	-	-	-

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# 05-3651-SB)							
Field		Soil Texture 0-6"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	71
Quarter		Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	63
Section	13	Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	36N	Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	25E	Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Latitude	N48 52.587'	Init Mn (ppm) 0-6"	16.7		Fert. Rate (lbs/ac) P2O5	40
Longitude	W108 23.539'	Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series		Init Fe (ppm) 0-6"	45.6		Herbicide App. Date	6/20
pH 0-6"	5	CEC 0-6"	21.8		Herbicide Product	Bison/Achieve
Org.Matter (%) 0-6"	1.4	Init PAW (in.) 0-6"	0.63		Herbicide Rate (/ac)	1 pt / 6.9 oz
Init N (lbs/ac) 0-6"	5	Init PAW (in.) 6-24"	1.56		Precip (in.) Plnt'g-Harvest	10.89
Init N (lbs/ac) 6-24"	5	Init PAW (in.) 24-36"	1.16		Precip (>.1) Plnt'g-Harvest	10.29
Init N (lbs/ac) 24-36"	5	Init PAW (in.) 36-48"	1.42		Harvest Date	9/2
Init N (lbs/ac) 36-48"	6	Init PAW (in.) 0-48"	8.00		Rooting Depth (in.)	36"
Init P (ppm) Olsen 0-6"	21	Cropping System	CT-MechFlw		Post PAW (in.) 0-6"	0.63
Init K (ppm) 0-6"	246	Previous Crop	Durum		Post PAW (in.) 6-24"	1.56
Init S (ppm) 0-24"	33	Planting Date	5/7		Post PAW (in.) 24-36"	1.16
Init Na (MEQ/100g) 0-6"	0.09	Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	1.42
SaltHaz (MMHOS/cm) 0-6"	0.36	Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	4.76
SaltHaz(MMHOS/cm)6-24"	0.92	Dry Surf Soil (in.) @Plnt'g	0.3		Precip (>.1) Hvst-Post	0.00

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. 1996-2005. (Exp# 05-3651-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
BZ594-19	WPB XENA (P+)	5	49.3	60.9	40.2		66.5	58.9	120.9	**63.3**	52.7	50.1	46.4		46.8	49.9	104.2	**50.1**
MT960100	MT960100	3	46.1	54.6				58.5	115.8	**60.6**	51.4	50.3				51.7	103.2	**49.6**
MT960099	MT960099	4	42.2	56.3	35.1			53.5	115.5	**60.5**	50.4	49.8	45.3			49.7	102.3	**49.1**
PI568246	BARONESSE (P+)	9	57.9	55.7	34.3	71.9	66.9	60.2	115.0	**60.2**	52.1	49.3	44.3	50.0	45.9	48.8	101.6	**48.8**
MT960101	MT960101	3		55.5	32.0		67.3	51.6	109.5	**57.3**		50.4	44.1		46.7	47.0	101.9	**49.0**
MT960228	ESLICK (+)	6	44.0	44.0	34.3	70.1	70.4	56.5	109.5	**57.3**	53.3	50.5	45.8	50.7	46.9	50.2	104.1	**50.0**
MT970229	MT970229	4		51.0	36.8	72.5	66.6	56.7	109.4	**57.3**		51.1	46.2	52.9	49.6	50.0	106.0	**50.9**
PI610264	VALIER (+)	5	40.8	52.9	32.6	70.1		53.7	107.0	**56.0**	51.7	50.1	46.1	51.0		50.4	103.1	**49.5**
MT950186	HAXBY (+)	6	33.5	43.7	48.5	69.7	62.8	53.5	103.7	**54.3**	54.1	50.7	48.5	51.9	49.7	51.5	106.8	**51.4**
PI491534	GALLATIN	8	43.9	43.3	37.8	63.4		53.0	102.7	**53.8**	51.8	49.4	43.9	51.5		49.8	102.7	**49.4**
CI11856	LEWIS	6	38.0	44.9				53.1	101.9	**53.3**	50.6	50.1				50.9	104.2	**50.1**
SK76333	HARRINGTON	9	33.9	49.1	33.8	65.9	58.5	52.4	100.0	**52.4**	48.0	49.2	44.5	50.1	44.8	48.1	100.0	**48.1**
MT970116	MT970116 (++)	5	38.0	42.9	33.6	65.0	58.0	47.5	98.4	**51.5**	51.2	49.4	46.2	52.3	48.0	49.4	104.4	**50.2**
ND13299	CONLON (+)	4	47.8	41.2	38.8	51.7		44.9	98.2	**51.4**	45.0	48.9	47.9	50.5		48.1	100.2	**48.2**
MT981060	HAYS	3			11.1	14.2	39.8	21.7	41.2	**21.6**			40.6	46.0	43.9	43.5	93.6	**45.0**
MEANS (For Entries Listed)			42.9	49.7	34.5	61.4	61.9			54.1	51.0	50.0	45.4	50.7	46.9			49.3
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 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 Mark Peterson Grain & Cattle Inc., North Havre. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-3652-WW)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %	SAWFLY %
6B95-248	Tradition	100.0	29.0	64.9	9.6	43.7	43.8	31.3	17.5	6.7
BZ596117	Boulder	98.8	27.4	63.8	9.9	46.2	65.3	16.8	18.8	3.3
MT970229	MT970229	98.1	27.5	59.6	10.0	47.1	71.0	12.6	19.1	6.7
MT950186	Haxby	98.1	27.2	58.1	10.3	48.3	73.3	14.0	17.6	5.0
MT960228	Eslick	98.5	26.9	56.4	9.9	45.1	37.9	31.7	18.0	5.0
ND15477	Drummond	99.7	25.6	56.0	9.4	41.3	33.0	40.4	18.0	0.0
MT960101	MT960101	100.0	24.4	55.5	10.0	44.1	35.6	37.2	19.6	6.7
2B965057	Conrad	99.1	25.5	55.1	10.1	44.5	52.5	22.9	19.0	5.0
MT970116	MT970116	98.5	32.1	54.7	10.1	46.8	60.5	18.6	18.4	5.0
SK 76333	Harrington	99.7	27.1	54.7	10.0	43.8	44.6	28.0	18.3	0.0
MT981060	Hays	99.7	28.0	54.7	9.7	40.8	30.8	39.0	18.8	3.3
MT910189	MT910189	98.7	26.6	54.5	10.3	47.8	63.9	18.8	16.8	10.0
PI568246	Baronesse	98.8	25.4	54.3	9.9	43.5	44.9	27.7	19.3	5.0
6B932978	Legacy	97.8	29.0	51.8	9.5	39.2	22.8	46.7	17.9	5.0
BZ594-19	Xena	100.0	28.1	51.4	9.7	43.3	34.9	34.9	17.4	6.7
PI476976	Robust	98.5	28.6	51.1	9.6	41.9	27.4	39.6	18.0	6.7
TR133	Kendall	99.7	27.6	50.7	10.0	42.8	56.9	21.0	19.9	6.7
TR232	Metcalfe	99.7	26.5	50.4	10.1	44.4	52.0	19.9	19.5	5.0
2B914947	Merit	99.4	25.7	48.6	9.8	41.9	38.1	32.3	20.6	5.0
TR150	Copeland	100.0	26.8	42.1	9.9	40.7	41.7	0.0	20.0	0.0
EXPERIMENTAL MEANS		99.1	27.3	54.4	9.9	43.9	46.6	26.7	18.6	4.8
LSD (0.05)		2.1	2.7	7.0	0.3	1.6	-	-	-	3.5
C.V.2: (S of MEAN / MEAN)*100		0.8	3.5	4.5	0.9	1.3	-	-	-	25.1

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 48 lbs/bu as the standard test weight for barley.
2/ Protein values are reported on a 100% dry matter basis.

Site Resource & Management Data: (Exp# 05-3652-SB)							
Field		Soil Texture 0-6"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	75
Quarter	NW	Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	65
Section	31	Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	36N	Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	13E	Init Zn (ppm) 0-6"	0.7		Fert. Rate (lbs/ac) N	70
Latitude	N40 50.478'	Init Mn (ppm) 0-6"	12		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 05.023	Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series	Assnbn Cplx	Init Fe (ppm) 0-6"	18.4		Herbicide App. Date	n/a
pH 0-6"	6.1	CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	0.7	Init PAW (in.) 0-6"	0.87		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	5	Init PAW (in.) 6-24"	3.59		Precip (in.) Plnt'g-Harvest	4.60
Init N (lbs/ac) 6-24"	5	Init PAW (in.) 24-36"	1.93		Precip (>.1) Plnt'g-Harvest	4.53
Init N (lbs/ac) 24-36"	3	Init PAW (in.) 36-48"	1.81		Harvest Date	8/27
Init N (lbs/ac) 36-48"	2	Init PAW (in.) 0-48"	8.20		Rooting Depth (in.)	32"
Init P (ppm) Olsen 0-6"	12	Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.33
Init K (ppm) 0-6"	327	Previous Crop	Spr Wheat		Post PAW (in.) 6-24"	1.45
Init S (ppm) 0-24"	32	Planting Date	5/6		Post PAW (in.) 24-36"	0.70
Init Na (MEQ/100g) 0-6"	0.19	Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	0.74
SaltHaz (MMHOS/cm) 0-6"	0.44	Moist Soil Depth @Plnt'g	48		Post PAW (in.) 0-48"	3.22
SaltHaz(MMHOS/cm)6-24"	0.8	Dry Surf Soil (in.) @Plnt'g	0.3		Precip (>.1) Hvst-Post	0.61

TABLE 19. Dryland Fallow Spring Barley Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-3655-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %
BZ596117	Boulder	100.0	26.6	68.5	9.3	49.5	86.0	5.7	12.6
PI568246	Baronesse	100.0	22.4	65.2	9.0	47.3	71.5	12.2	15.0
MT960101	MT960101	100.0	25.8	64.4	9.3	47.6	54.4	22.1	15.0
2B914947	Merit	100.0	25.6	63.5	9.2	45.6	63.1	16.3	14.7
2B965057	Conrad	100.0	25.2	61.8	9.3	48.5	72.8	11.4	17.2
MT960228	Eslick	100.0	27.5	61.0	9.2	48.7	85.5	4.9	13.3
MT970229	MT970229	100.0	25.9	60.9	9.5	50.6	85.8	5.2	14.6
TR232	Metcalfe	100.0	25.0	60.3	9.1	46.4	51.9	20.6	18.2
6B932978	Legacy	100.0	26.9	59.8	9.1	45.7	51.3	19.2	13.9
BZ594-19	Xena	100.0	28.3	59.4	9.1	47.9	54.6	16.6	13.1
TR133	Kendall	100.0	26.1	59.4	9.2	46.1	74.9	10.7	13.7
TR150	Copeland	100.0	26.9	58.1	9.3	46.1	62.2	16.6	13.7
MT950186	Haxby	100.0	26.7	57.3	9.1	50.3	63.5	12.2	14.6
MT910189	MT910189	100.0	25.8	57.1	9.4	50.5	91.1	3.6	14.1
6B95-248	Tradition	100.0	29.5	52.2	9.1	48.4	75.7	7.6	13.8
SK 76333	Harrington	100.0	26.1	52.0	9.3	46.7	57.0	17.4	14.7
ND15477	Drummond	100.0	28.7	47.5	9.1	47.9	79.7	6.6	14.2
PI476976	Robust	100.0	30.1	41.1	9.2	48.0	69.8	10.4	13.6
MT981060	Hays	100.0	23.7	34.5	9.1	45.9	56.4	21.1	14.9
MT970116	MT970116	100.0	28.6	27.7	9.4	49.5	76.7	9.6	13.6
EXPERIMENTAL MEANS		100.0	26.6	55.6	9.2	47.9	69.2	12.5	14.4
LSD (0.05)		0.0	2.6	13.9	0.3	1.7	-	-	-
C.V.2: (S of MEAN / MEAN)*100		0.0	3.5	8.7	1.2	1.2	-	-	-

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# 05-3655-SB)							
Field		Soil Texture 0-6"	CL-		2" Soil Temp (^{o}F) @ Plnt'g	59
Quarter		Soil Texture 6-24"	CL		4" Soil Temp (^{o}F) @ Plnt'g	59
Section	2	Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	35N	Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	29E	Init Zn (ppm) 0-6"	1.1		Fert. Rate (lbs/ac) N	70
Latitude	N48 46.602'	Init Mn (ppm) 0-6"	12.4		Fert. Rate (lbs/ac) P2O5	40
Longitude	W107 52.929'	Init Cu (ppm) 0-6"	0.5		Fert. Rate (lbs/ac) K2O	25
Soil Series		Init Fe (ppm) 0-6"	34		Herbicide App. Date	pending
pH 0-6"	5.5	CEC 0-6"	21.8		Herbicide Product	pending
Org.Matter (%) 0-6"	1	Init PAW (in.) 0-6"	0.79		Herbicide Rate (/ac)	pending
Init N (lbs/ac) 0-6"	3	Init PAW (in.) 6-24"	4.02		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	4	Init PAW (in.) 24-36"	2.17		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	3	Init PAW (in.) 36-48"	2.09		Harvest Date	8/29
Init N (lbs/ac) 36-48"	3	Init PAW (in.) 0-48"	9.07		Rooting Depth (in.)	31"
Init P (ppm) Olsen 0-6"	15	Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.63
Init K (ppm) 0-6"	228	Previous Crop	Barley		Post PAW (in.) 6-24"	1.11
Init S (ppm) 0-24"	32	Planting Date	5/11		Post PAW (in.) 24-36"	0.82
Init Na (MEQ/100g) 0-6"	0.21	Planting Depth (in.)	1.25		Post PAW (in.) 36-48"	0.60
SaltHaz (MMHOS/cm) 0-6"	0.32	Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	3.15
SaltHaz(MMHOS/cm)6-24"	0.8	Dry Surf Soil (in.) @Plnt'g	0.3		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. 1996-2005. (Exp# 05-3655-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	**10-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/	**10-YR COMP. AVE. TEST WT 5/**
MT970229	MT970229	4		60.2	53.0	77.7	60.9	62.9	116.3	**59.3**		47.5	45.5	51.8	50.6	48.9	105.8	**50.5**
PI568246	BARONESSE (P+)	10	57.8	57.3	51.0	73.3	65.2	57.3	112.4	**57.3**	51.3	43.4	45.0	49.1	47.3	47.6	99.7	**47.6**
BZ594-19	WPB XENA (P+)	6	59.1	56.4	53.1		59.4	59.4	110.1	**56.1**	52.1	44.9	45.7		47.9	48.5	101.5	**48.4**
MT960101	MT960101	3		50.5	48.5		64.4	54.5	109.6	**55.9**		45.8	46.1		47.6	46.5	102.9	**49.1**
MT950186	HAXBY (+)	7	54.7	56.1	56.2	69.9	57.3	60.5	108.3	**55.3**	53.4	47.6	48.9	51.8	50.3	51.2	106.7	**50.9**
MT960099	MT960099	4	53.5	55.1	51.9			54.5	107.3	**54.7**	51.0	45.4	46.5			48.8	102.6	**49.0**
MTLB5	MTLB 5	4	57.2					56.8	106.9	**54.5**	52.5					50.7	103.1	**49.2**
MT960228	ESLICK (+)	7	51.2	52.2	48.6	70.5	61.0	59.2	105.9	**54.0**	51.6	45.3	46.2	50.1	48.7	49.2	102.6	**48.9**
PI610264	VALIER (+)	6	51.4	56.0	48.6	71.5		59.3	104.8	**53.5**	52.4	46.2	47.0	50.8		49.9	103.5	**49.4**
PI491534	GALLATIN	9	54.4	51.5	50.9	67.9		53.1	104.3	**53.2**	52.2	45.8	46.1	50.9		49.1	102.6	**49.0**
CI15856	LEWIS	7	51.5	51.8				50.5	103.1	**52.6**	52.3	45.7				49.6	103.1	**49.2**
ND13299	CONLON (+)	4	55.2	52.7	52.0	59.6		54.9	101.0	**51.5**	51.3	44.0	45.1	50.5		47.7	101.3	**48.3**
SK76333	HARRINGTON	10	53.0	49.6	47.6	67.2	52.0	51.0	100.0	**51.0**	50.6	44.5	44.4	49.1	46.7	47.7	100.0	**47.7**
MT981060	HAYS	3			52.3	69.1	34.5	52.0	93.5	**47.7**			45.8	47.6	45.9	46.4	99.3	**47.4**
MT970116	MT970116 (++)	5	46.3	51.6	53.3	72.6	27.7	50.3	93.3	**47.6**	53.7	47.7	47.2	51.5	49.5	49.9	106.1	**50.6**
MEANS (For Entries Listed)			53.8	53.9	51.3	69.9	53.6			53.6	52.0	45.7	46.1	50.3	48.3			49.0
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 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 McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2005. (Exp# 05-3657-SB)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	lodging Score	1/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PLUMP %	THIN %	2/ PROTEIN %
BZ596117	Boulder	98.6	32.9	0.7	86.9	11.6	50.0	71.4	10.2	16.2
MT950186	Haxby	99.0	35.7	0.7	80.1	10.7	50.0	42.4	13.2	16.2
MT970229	MT970229	97.6	34.4	0.0	77.3	11.2	48.8	63.9	15.5	17.5
MT960228	Eslick	98.6	35.9	1.0	74.6	10.7	46.0	33.5	32.3	16.8
MT910189	MT910189	100.0	33.5	0.3	73.9	10.7	47.9	53.6	20.4	16.8
PI568246	Baronesse	98.6	31.8	0.0	73.1	10.4	44.6	27.2	35.6	18.4
ND15477	Drummond	99.3	36.6	1.0	71.9	10.2	44.8	34.2	34.6	16.5
6B95-248	Tradition	99.3	36.6	0.3	71.4	9.9	44.9	26.8	36.3	16.9
MT970116	MT970116	98.3	38.3	0.7	69.1	10.8	47.7	49.9	24.6	17.1
BZ594-19	Xena	97.9	35.9	1.0	68.7	10.6	45.0	24.1	37.3	16.5
2B965057	Conrad	98.3	33.6	0.3	67.2	10.8	45.3	40.1	31.1	18.3
SK 76333	Harrington	95.5	34.4	2.3	63.6	10.1	43.0	26.1	38.6	18.5
MT981060	Hays	98.6	34.8	0.3	62.9	10.3	43.2	18.0	49.9	16.7
TR133	Kendall	97.2	32.8	1.3	62.0	10.1	43.2	34.8	36.2	20.2
TR232	Metcalfe	99.7	38.8	1.0	61.5	10.2	44.4	42.2	26.3	19.0
MT960101	MT960101	100.0	33.8	1.3	61.5	10.5	44.0	13.4	47.2	18.3
PI476976	Robust	100.0	38.6	5.3	59.1	10.2	43.7	18.3	48.6	16.8
TR150	Copeland	97.6	35.1	1.0	57.5	10.3	42.5	19.7	43.6	19.0
2B914947	Merit	100.0	35.5	0.3	57.5	10.2	41.4	29.7	35.2	18.4
6B932978	Legacy	100.0	37.2	4.7	57.3	10.0	41.6	12.5	61.9	17.4
EXPERIMENTAL MEANS		98.7	35.3	1.2	67.9	10.5	45.1	34.1	33.9	17.6
LSD (0.05)		3.0	2.5	1.5	10.5	0.5	1.8	-	-	-
C.V.2: (S of MEAN / MEAN)*100		1.1	2.5	43.2	5.4	1.6	1.4	-	-	-

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.

Site Resource & Management Data: (Exp# 05-3657-SB)							
Field		Soil Texture 0-6"	CL-		2" Soil Temp (°F) @ Plnt'g	63
Quarter	SE	Soil Texture 6-24"	CL		4" Soil Temp (°F) @ Plnt'g	57
Section	28	Soil Texture 24-36"	CL		Fertilizer Formulation	Gran.Blend
Township	27N	Soil Texture 36-48"	CL		Fertilizer Placement	Bnd at Plntg
Range	10E	Init Zn (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) N	70
Latitude	N48 05.814'	Init Mn (ppm) 0-6"	11.4		Fert. Rate (lbs/ac) P2O5	40
Longitude	W110 27.491'	Init Cu (ppm) 0-6"	0.8		Fert. Rate (lbs/ac) K2O	25
Soil Series		Init Fe (ppm) 0-6"	16.1		Herbicide App. Date	n/a
pH 0-6"	6.2	CEC 0-6"	21.8		Herbicide Product	n/a
Org.Matter (%) 0-6"	0.9	Init PAW (in.) 0-6"	1.11		Herbicide Rate (/ac)	n/a
Init N (lbs/ac) 0-6"	3	Init PAW (in.) 6-24"	3.60		Precip (in.) Plnt'g-Harvest	n/a
Init N (lbs/ac) 6-24"	9	Init PAW (in.) 24-36"	2.05		Precip (>.1) Plnt'g-Harvest	n/a
Init N (lbs/ac) 24-36"	9	Init PAW (in.) 36-48"	2.03		Harvest Date	7/29
Init N (lbs/ac) 36-48"	26	Init PAW (in.) 0-48"	8.81		Rooting Depth (in.)	38"
Init P (ppm) Olsen 0-6"	15	Cropping System	NT-ChmFlw		Post PAW (in.) 0-6"	0.51
Init K (ppm) 0-6"	245	Previous Crop	Spr Wheat		Post PAW (in.) 6-24"	1.54
Init S (ppm) 0-24"	39	Planting Date	5/3		Post PAW (in.) 24-36"	0.98
Init Na (MEQ/100g) 0-6"	0.16	Planting Depth (in.)	1.5		Post PAW (in.) 36-48"	1.39
SaltHaz (MMHOS/cm) 0-6"	0.48	Moist Soil Depth @Plnt'g	48+		Post PAW (in.) 0-48"	4.41
SaltHaz(MMHOS/cm)6-24"	0.92	Dry Surf Soil (in.) @Plnt'g	0.25		Precip (>.1) Hvst-Post	n/a

TABLE 22. Seven-Year Yield and Test Weight Summary of Selected Entries from Dryland Fallow Barley Variety Nurseries Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 1999-2005. (Exp# 05-3657-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED	% of CHECK YIELD 4/	**7-YR COMP. AVE. YIELD 5/**	TEST WEIGHT (Pounds Per Bushel) 2001	2002	2003	2004	2005	AVE. for YEARS TESTED	% of CHECK TEST WT 4/	**7-YR COMP. AVE. TEST WT 5/**
ND13299	CONLON (+)	4	11.0	41.2	54.1	72.0		44.6	116.2	**51.0**	42.5	48.9	50.1	47.5		47.2	105.7	**47.6**
MT960099	MT960099	4	9.6	56.3	43.1			38.7	112.6	**49.5**	44.3	49.8	47.2			46.8	100.9	**45.4**
MT970229	MT970229	4		40.1	42.9	69.2	77.3	57.4	111.1	**48.8**		43.4	48.5	43.8	48.8	46.1	104.2	**46.9**
MT950186	HAXBY (+)	7	13.1	43.7	47.3	56.3	80.1	48.5	110.4	**48.5**	47.2	50.7	50.8	46.6	50.0	49.4	109.7	**49.4**
PI568246	BARONESSE (P+)	7	11.3	55.1	42.4	62.5	73.1	47.7	108.6	**47.7**	45.4	49.3	46.9	39.7	44.6	45.9	102.1	**45.9**
MT960228	ESLICK (+)	7	11.3	44.0	42.4	60.5	74.6	47.5	108.0	**47.5**	46.3	50.5	49.2	41.8	46.0	47.2	104.9	**47.2**
BZ594-19	WPB XENA (P+)	6	10.9	60.9	39.6		68.7	44.2	106.3	**46.7**	46.1	50.1	48.0		45.0	47.4	102.7	**46.2**
MT970116	MT970116 (++)	5	11.2	42.9	44.1	62.9	69.1	46.0	106.1	**46.6**	47.0	51.0	49.4	44.1	47.7	47.8	107.9	**48.5**
PI491534	GALLATIN	6	12.7	43.3	42.1	59.4		42.1	103.5	**45.5**	44.1	49.4	47.3	42.8		46.6	102.8	**46.2**
SK76333	HARRINGTON	7	10.3	49.1	36.0	58.1	63.6	43.9	100.0	**43.9**	44.7	49.2	46.9	37.9	43.0	45.0	100.0	**45.0**
PI610264	VALIER (+)	6	8.3	52.9	34.4	62.8		39.7	97.7	**42.9**	47.7	50.1	48.5	40.8		47.2	104.1	**46.8**
MT981060	HAYS	3			39.6	50.8	62.9	51.1	97.2	**42.7**			45.8	38.4	43.2	42.4	99.6	**44.8**
MT960101	MT960101	3		18.7	38.5		61.5	39.6	79.8	**35.1**		41.2	47.6		44.0	44.3	95.5	**43.0**
MEANS (For Entries Listed)			11.0	45.7	42.0	61.4	70.1			45.9	45.5	48.6	48.2	42.3	45.8			46.4
6/ Growing Season Precipitation (in.)			Pndg	8.75	3.15	7.38	n/a	6.4										
Soil PAW (in.) to SD @ Planting			Pndg	Pndg	8.43	6.16	4.41	7.3										
Total Plant Available Water (in.)			Pndg	Pndg	11.58	13.54	4.41	12.6										
Soil NO3 (lbs.) to SD at Planting			Pndg	490.0	146.0	260.0	200.0	298.7										
SD (Sampling Depth in Inches)			48.0	48.0	48.0	48.0	48.0	48.0										
Fertilizer Applied	(# N)		70.0	61.0	70.0	70.0	70.0	68.0										
	(# P_2O_5)		40.0	52.0	40.0	40.0	40.0	41.7										
	(# 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 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/ 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 Harrington for the same years, and z = 7-Yr average yield or test weight for the check variety Harrington.

6/ Seeding to 14 days prior to harvest maturity.