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INTRODUCTION

Content:

This preliminary draft report is intended to serve as a popularized 2002 summary of “primary” on-going cereal and oilseed crop variety investigations traditionally conducted on-station by the Agronomy Division at Northern Agricultural Research Center. These data represent approximately 21 percent of NARC-Agronomy’s total research project effort on-station at Havre, and approximately 28 percent of the cereal and oilseed variety evaluation effort on-station. The remaining 72 percent of the cereal and oilseed variety evaluation effort not reported here is associated with larger nurseries featuring early generation or other unnamed experimental materials not of general interest to the public. Long-term data summaries reported here are limited to the most recent ten years, largely due to need for report brevity and the fact that most varieties have approximately a 10-year life span before they are replaced in common use with newer materials having superior production characteristics. However, variety performance data has been continuously collected and maintained at the Havre station for 87 years beginning in 1916.

Detailed data pertaining to multiple performance characters, along with associated climatic and management inputs are presented for 2002. Abridged, multi-year summaries for each trial are limited to two crop characters. Individuals desiring detailed data for other than the current year may contact the research center or refer to previous editions of this report for the year(s) of interest.

2002 Data:

It should be noted that 2002 data tables in this report represent varietal performance for a single crop year at a single location only, and thus cannot be considered representative of performance expected when differing conditions due to location, year and management are imposed. Therefore, by itself, such 2000 data shall not constitute in any form a recommendation for or against any entry or practice included.

Multi-Year Summary Data:

Use of a “Comparable Average” provides a mechanism for “estimating” the performance of varieties over a period of time longer than that for which actual data is available for them. This is accomplished by comparing the performance of a “variety of interest” for the years it was actually tested with that of a designated long-term “check” or reference variety grown in the same trial in the same years. The performance of the variety is then expressed as a percent of the check variety’s performance. This actual percentage or index is then applied to the actual long-term performance of the check to estimate the performance of the variety of interest had it been grown over the same long term. The reliability of comparable average figures improves with increasing years of actual evaluation. For this reason, no entries with less than three years actual data have been included in long-term summaries.

Other References:

It is intended that this report be used as a supplement to variety performance summaries prepared by MSU’s Plant Science and Plant Pathology Department on statewide evaluations by MSU-Montana Agricultural Experiment Station:

Winter Wheat Varieties, Extension Service 2B 1098 (Revised February-March annually)
Spring Wheat Varieties, Extension Service 2B 1093 (Revised February-March annually)
Barley Varieties, Extension Service 2B 1094 (Revised February-March annually)
Oat Varieties, Extension Service 2B 1095 (Revised periodically, last revised in 2001)

These summaries include performance data, descriptions, quality assessments, disease and insect considerations, cropping district recommendations, cultural practices, and general crop production management information. These publications are available from MSU-Extension Service offices and can further be accessed via the Internet at <http://plantsciences.montana.edu/MTgrower.htm>

Summary of climatic data by months for the 2001-2002 crop year (September to August) and averages for the period 1916-2002 at the Northern Agricultural Research Center, Havre, Montana.

Month Year	Sep 2001	Oct 2001	Nov 2001	Dec 2001	Jan 2002	Feb 2002	Mar 2002	Apr 2002	May 2002	Jun 2002	Jul 2002	Aug 2002	Crop Year
Precipitation (inches)													Total
Current Year	0.34	0.38	0.04	0.01	0.27	0.33	0.59	0.22	1.77	4.62	2.26	2.46	13.29
86-Year Average (1916 to 2001-02)	1.15	0.66	0.42	0.46	0.43	0.32	0.56	0.97	1.75	2.56	1.49	1.23	12.00
Mean Temperature (°F)													Average
Current Year	61.8	44.7	38.9	22.4	21.6	29.0	11.1	39.4	50.2	62.3	72.0	63.5	43.1
86-Year Average (1916 to 2001-02)	56.7	46.4	30.2	19.6	15.3	20.1	30.1	44.0	54.8	62.6	69.8	68.0	43.1

Last killing frost in spring*

2002 _____ May 24th
Ave. 1916-2002 _____ May 15th

First killing frost in fall*

2002 _____ September 22nd
Ave. 1916-2002 _____ September 20th

Frost free period

2002 _____ 121 days
Ave. 1916-2002 _____ 128 days

Growing degree days (base 50)

May 1-Oct 31, 2002 _____ 2130.5
Ave. 1951-2002 _____ 2388.8

Maximum summer temperature _____ 99° on July 13, 2002

Minimum winter temperature _____ -25° on March 9, 2002

*In this summary 32° is considered a killing frost

TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-3502-WW)

ID	CULTIVAR or SELECTION	STAND %	1/	PLNT HT Inches	2/	MOISTURE %	TEST WT Lbs/Bu	3/
			HEAD DATE		YIELD Bu/Ac			PROTEIN %
BZ96-895	BZ9W96-895	82.0	176.3	25.2	44.6	11.2	58.8	14.1
ND9257	JERRY	85.1	176.7	26.9	42.9	11.0	57.7	14.7
MTW9441	NuSky (hard white wheat)	87.5	178.3	28.7	42.5	11.3	60.0	14.7
MT0097	Erhardt//Judith/Kestrel	86.1	179.3	25.9	41.3	11.1	58.7	14.7
MT00154	SD88191//Judith/Blizzard	82.3	176.7	27.0	40.9	11.1	59.8	15.0
PI586806	NUWEST (hard white wheat)	81.3	178.0	27.5	40.5	11.3	60.0	14.7
CI 17735	NORSTAR	81.3	178.3	30.4	40.2	11.1	59.6	14.5
MT9951	Tiber/Centurk	84.0	179.0	28.2	40.0	11.0	57.5	15.1
MT0088	S86-736/SD89341	82.6	176.3	26.6	39.8	10.8	56.3	12.9
PI619098	WAHOO	81.6	172.7	24.4	39.8	11.2	57.5	14.1
MT00159	Promontory/Judith	77.4	178.0	24.5	39.6	11.3	59.2	14.3
BZ96-919	BZ9W96-919	82.6	179.7	24.8	39.0	11.2	58.8	13.7
QT 542	QUANTUM 542	72.2	176.0	27.0	39.0	11.1	59.0	14.7
S94-4	CDC FALCON	75.0	175.7	21.5	38.9	11.0	57.7	14.2
MT00117	Judith/PI499377	86.1	175.7	25.7	38.5	10.9	56.3	14.8
MTS0023	MTS92021//Judith/Arapahoe	83.7	179.3	26.7	38.2	11.1	58.8	15.3
MT9989	Blizzard/Arapahoe	81.9	177.3	25.7	37.5	11.0	57.1	14.5
PI599336	MORGAN	85.1	179.3	24.3	37.5	11.0	57.9	15.0
MTR9997	PI262605/MT7863//Redwin	84.4	175.3	27.0	37.4	11.1	60.0	15.5
PI605741	NUPLAINS	72.2	176.7	23.6	37.3	11.5	61.1	14.6
MT0099	Erhardt//Judith/Kestrel	87.8	175.0	26.5	37.3	10.4	55.4	15.9
GM10002	NUHORIZON	78.5	171.3	24.0	36.9	11.2	59.0	13.9
MTW0049	Judith/PI262605//S86-740	84.7	178.3	21.9	36.8	11.1	60.2	14.8
PI593889	RAMPART (sawfly resistant)	76.4	175.0	26.6	36.8	10.9	58.8	15.5
PI605389	PROWERS 99	76.4	171.7	27.5	36.8	11.1	59.4	14.8
BZ97-761	BZ9W97-761	88.2	177.0	25.5	36.5	11.2	58.2	14.9
MT9904	MT85200/Tiber	77.7	175.7	25.3	36.4	11.1	58.3	14.7
CI 17879	ROCKY	76.4	174.0	27.0	35.6	11.4	59.7	14.2
GM10001	NUFRONTEIR	77.1	172.0	25.9	35.3	11.1	57.7	13.6
MT9982	Promontory/Judith	78.1	178.3	24.3	35.1	11.4	60.1	14.3
PI564761	ERHARDT	76.1	175.3	26.3	35.0	11.1	59.3	15.2
ID550	GARY	76.4	178.7	24.8	34.9	11.2	58.7	13.7
PI593890	McGUIRE	71.5	171.0	27.4	34.5	11.1	59.1	15.9
CI 17860	NEELEY	77.4	177.0	25.3	34.4	11.4	57.0	14.3
MT9426	JDH/NLY	71.9	177.7	24.4	33.6	11.3	57.9	14.2
UT94415	GOLDEN SPIKE	79.9	180.0	26.1	33.2	10.5	55.6	14.5
MT00118	PI262605/MT7863//Redwin	81.3	176.7	25.2	33.2	11.2	59.9	15.5
PI584526	JUDITH	79.5	178.0	24.6	33.1	11.1	57.9	14.5
PI607569	RANSOM	73.2	174.7	26.4	32.8	11.1	57.0	14.2
MTS0031	MTS92015//Vanguard/Norsta	78.5	177.7	25.5	32.6	11.1	58.4	14.8
MT 9432	BIGSKY	79.2	178.3	25.9	32.5	11.3	60.9	15.1
RH78W296	BIGHORN	80.9	177.7	23.3	32.5	10.9	58.3	14.9
PI517194	TIBER	72.9	177.3	27.8	32.1	11.2	60.7	14.9

TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-3502-SW)

ID	CULTIVAR or SELECTION	STAND %	1/	PLNT HT Inches	2/	MOISTURE %	TEST WT Lbs/Bu	3/
			HEAD DATE		YIELD Bu/Ac			PROTEIN %
PI555458	PROMONTORY	79.9	175.0	24.4	31.6	11.2	59.9	13.9
PI596352	ELKHORN	73.9	178.3	26.8	31.0	10.9	57.5	14.8
PI593891	VANGUARD (sawfly resistant)	63.9	176.7	26.4	30.8	10.9	58.1	15.3
ID513	DW RED	75.7	177.0	23.5	30.4	11.1	58.4	14.7
SD97457	Tomahawk/Bennett	68.4	172.0	23.9	30.0	11.2	59.6	14.0
ABOVE	ABOVE	71.9	171.3	23.6	28.1	11.2	57.9	13.5
EXPERIMENTAL MEANS		78.9	176.4	25.7	36.2	11.1	58.6	14.4
LSD (0.05)		15.2	2.5	3.1	9.2	0.3	1.7	.
C.V.2: (S of MEAN / MEAN)*100		6.8	0.5	4.4	9.1	1.0	1.0	.

1/ No. of Days from January 1 (176 = June 25)

2/ 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.

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

Site Resource & Management Data:							
Field	A-5-2	Na (MEQ/100g) 0-6	0.03	Cropping System	NT-ChmFlw		
Quarter	NW	SaltHaz (MMHOS/cm) 0-6	0.48	Planting Date	26-Sep		
Section	33	SaltHaz(MMHOS/cm) 6-24	0.72	Planting Depth (in.)	1		
Township	32N	Soil Texture 0-6"	CL	Moist Soil Depth @Plnt'g	24		
Range	15E	Soil Texture 6-24"	CL	Dry Surf Soil (in.) @Plnt'g	2.25		
Soil Series	Scobey CLm	Soil Texture 24-36"	CL-	2" Soil Temp (oF) @ Plnt'g	83		
pH 0-6"	6.4	Soil Texture 36-48"	CL	4" Soil Temp (oF) @ Plnt'g	79		
Org.Matter (%) 0-6"	0.8	Zn (ppm) 0-6	0.6	Fertilizer Formulation	Gran.Blend		
N (lbs/ac) 0-6"	18	Mn (ppm) 0-6	6.5	Fertilizer Placement	Bnd at Plntg		
N (lbs/ac) 6-24"	24	Cu (ppm) 0-6	0.8	Fert. Rate (lbs/ac) N	70		
N (lbs/ac) 24-36"	20	Fe (ppm) 0-6	16.7	Fert. Rate (lbs/ac) P2O5	40		
N (lbs/ac) 36-48"	48	CEC 0-6	21.8	Fert. Rate (lbs/ac) K2O	25		
P (ppm) Olsen 0-6"	26	Herbicide App. Date	4-Jun	Precip (in.) Plnt'g-Harvest	12.73		
K (ppm) 0-6"	319	Herbicide Product	Bronate	Precip (>.1) Plnt'g-Harvest	10.95		
S (ppm) 0-24"	24	Herbicide Rate (/ac)	24 oz	Harvest Date	20-Aug		

TABLE 2. Ten-Year Yield Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ YIELD (Bushels Per Acre)											AVE. for YEARS TESTED	% of CHECK YIELD 3/	10-YR COMP. AVE. YIELD 4/
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002				
CI 17860	NEELEY	10	22.7	56.47	82.03	47.7	42.6	49.7	64.6	69.0	19.9	34.4	48.9	115.0	48.9
PI555458	PROMONTORY (+)	10	18.93	55.83	81.13	52.9	43.2	44.3	78.3	59.1	22.9	31.6	48.8	114.8	48.8
CI 17879	ROCKY (P+)	10	29.7	61.37	69.73	48.6	50.0	47.0	57.4	62.7	25.3	35.6	48.7	114.7	48.7
PI517194	TIBER	10	30.87	52.23	79.37	47.4	46.8	45.1	59.1	61.8	22.5	32.1	47.7	112.3	47.7
MT 8039	JUDITH	10	17.5	53.37	78.9	46.6	47.1	48.1	64.0	62.2	23.7	33.1	47.5	111.6	47.5
PI586806	NUWEST (+) (hard white)	10	12.13	56.67	63.27	49.1	49.1	45.9	62.3	57.9	25.2	40.5	46.2	108.7	46.2
PI564761	ERHARDT	10	15.1	57.37	72.23	42.7	47.4	43.9	52.6	52.3	21.0	35.0	44.0	103.4	44.0
CI 17735	NORSTAR	10	25.33	46.1	66.63	44.9	42.5	53.4	36.0	49.0	20.9	40.2	42.5	100.0	42.5
PI593891	VANGUARD (sawfly resistant)	10	30.73	48.23	58.97	38.9	48.2	42.4	48.7	52.4	22.5	30.8	42.2	99.2	42.2
QT 542	QUANTUM 542 (P)	9		61.93	69.8	51.2	56.6	52.1	60.7	64.7	23.1	39.0	53.2	119.9	51.0
PI512302	BLIZZARD	9	34.13	59.2	80.57	45.6	44.6	49.0	56.6	63.3	23.5		50.7	118.6	50.4
CI 17846	MANNING	9	23.53	51.57	81.03	42.0	44.9	41.7	70.7	59.1	21.0		48.4	113.2	48.1
PI593889	RAMPART (sawfly resistant)	9		48.63	67.13	38.6	45.2	50.0	51.9	55.8	22.4	36.8	46.3	104.2	44.3
CO910927	HALT	7			58.13	47.0	44.7	42.2	66.6	66.6	21.5		49.5	110.6	47.0
S89-142	MORGAN	7			48.4	49.4	44.9	59.5	56.3	20.7	37.5		45.3	110.4	46.9
S86-15	KESTREL	7	25.53	50.53	81.1	52.0	46.1	48.0	60.8				52.0	104.0	44.2
MT9426	MT9426	4						70.0	65.4	21.8	33.6		47.7	130.6	55.5
MTW9441	NUSKY (hard white)	4						61.1	59.7	25.3	42.5		47.1	129.1	54.9
MT 9432	BIGSKY	4						64.7	54.5	21.1	32.5		43.2	118.3	50.3
ID513	DW RED	4						62.9	56.6	22.1	30.4		43.0	117.7	50.0
PI605741	NUPLAINS (hard white)	4						55.1	57.2	22.3	37.3		43.0	117.6	50.0
BZ9W96-895	BZ9W96-895	3							67.0	26.9	44.6		46.2	125.8	53.5
BZ9W96-919	BZ9W96-919	3							71.0	23.6	39.0		44.5	121.3	51.6
S94-4	CDC FALCON	3							66.0	26.4	38.9		43.8	119.2	50.7
GM10002	NUHORIZON (hard white)	3							61.0	24.3	36.9		40.7	111.0	47.2
GM10001	NUFRONTIER (hard white)	3							63.5	22.7	35.3		40.5	110.3	46.9
MEANS (For Entries Listed)			29.7	49.1	62.4	46.6	47.0	45.4	54.7	55.5	24.0	38.4			48.4
April-July Precip. (in.)			12.07	5.61	12.83	5.57	6.20	8.78	8.57	6.01	4.81	8.87	7.93		
Tot. Annual Precip. (in.)			19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74		
Soil NO3(lbs) to SD@Pltg			88	98	70	130	132	92	Pndg	Pndg	Pndg	110	103		
SD (Smpng Depth inches)			48	48	48	48	48	48	Pndg	Pndg	Pndg	48	48		
Fertilizer Applied (# N)			(# N)	70	70	70	70	70	70	70	70	70	70		
			(# P ₂ O ₅)	40	40	40	40	40	40	40	40	40	40		
			(# K ₂ O)	0	0	25	25	25	25	25	25	25	20		

Long-term check variety is Norstar

1/ See MCES Bulletin 1098 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety

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

4/ 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 Norstar for the same years, and z = 10-Yr average yield or test weight for the check variety Norstar.

TABLE 3. Ten-Year Test Weight Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel)										AVE. for YEARS TESTED	% of CHECK TEST WT 3/	10-YR COMP. AVE. TEST WT 4/
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
PI517194 TIBER	10	51.5	62.1	64.0	62.8	63.5	64.4	61.5	61.3	60.7	60.7	61.3	102.1	61.3
CI 17879 ROCKY (P+)	10	50.3	62.5	62.7	62.4	64.8	64.6	62.1	62.4	60.0	59.7	61.2	101.9	61.2
PI555458 PROMONTORY (+)	10	44.0	63.2	63.6	62.8	64.4	64.2	64.0	62.6	61.0	59.9	61.0	101.6	61.0
PI564761 ERHARDT	10	47.4	62.0	63.4	62.2	64.1	63.8	63.0	62.0	60.1	59.3	60.7	101.2	60.7
PI593891 VANGUARD (sawfly resistant)	10	53.9	60.7	63.1	61.5	63.6	63.7	60.6	60.1	58.6	58.1	60.4	100.6	60.4
CI 17735 NORSTAR	10	47.8	60.8	63.8	62.0	61.9	63.8	59.4	61.0	59.8	59.6	60.0	100.0	60.0
PI586806 NUWEST(+) (hard white)	10	41.8	60.8	62.5	62.1	63.0	62.6	61.4	61.7	59.9	60.0	59.6	99.3	59.6
CI 17860 NEELEY	10	44.8	61.0	63.0	61.4	62.5	63.1	62.5	61.7	58.2	57.0	59.5	99.2	59.5
MT 8039 JUDITH	10	42.9	59.8	62.2	60.8	62.2	62.5	61.7	59.8	58.0	57.9	58.8	98.0	58.8
ID 279 BLIZZARD	9	50.5	62.3	63.9	62.7	63.6	63.0	62.1	62.6	60.2		61.2	101.9	61.2
QT 542 QUANTUM 542 (P)	9		61.4	63.0	62.0	63.1	64.1	62.2	61.2	58.9	59.0	61.6	100.5	60.3
CI 17846 MANNING	9	44.5	61.8	63.1	62.2	63.3	63.2	62.0	61.0	59.3		60.0	100.0	60.0
PI593889 RAMPART (sawfly resistant)	9		60.5	62.9	61.6	63.5	64.2	60.8	59.8	58.3	58.8	61.2	99.7	59.8
CO910927 HALT	7			61.4	61.8	63.4	64.1	62.3	61.5	58.8		61.9	100.3	60.2
S89-142 MORGAN	7				61.9	63.4	63.4	61.5	60.8	59.4	57.9	61.2	100.2	60.1
S86-15 KESTREL	7	46.2	60.0	62.2	60.8	62.0	62.8	61.8				59.4	99.1	59.5
PI605741 NUPLAINS (hard white)	4							64.5	63.5	62.0	61.1	62.8	104.7	62.8
MT9432 BIGSKY	4							62.7	61.3	60.8	60.9	61.4	102.5	61.5
MTW9441 NUSKY	4							61.3	61.8	60.3	60.0	60.9	101.5	60.9
ID513 DW RED	4							61.3	61.2	60.4	58.4	60.3	100.6	60.4
MT9426 MT9426	4							61.5	60.6	57.8	57.9	59.5	99.2	59.5
GM10002 NUHORIZON (hard white)	3								63.9	60.7	60.2	61.6	102.4	61.5
GM10001 NUFRONTIER (hard white)	3								63.6	61.3	57.7	60.9	101.2	60.7
BZ9W96-895 BZ9W96-895	3								62.1	60.2	58.8	60.4	100.4	60.2
BZ9W96-919 BZ9W96-919	3								61.8	59.1	58.8	59.9	99.6	59.8
S94-4 CDC FALCON	3								61.5	57.4	57.7	58.9	97.9	58.7
MEANS (For Entries Listed)		47.1	61.4	63.0	61.9	63.3	63.6	61.9	61.6	59.6	59.1			60.4
April-July Precip. (in.)		12.07	5.61	12.83	5.57	6.20	8.78	8.57	6.01	4.81	8.87	7.93		
Tot. Annual Precip. (in.)		19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74		
Soil NO3(lbs) to SD@Pltg		88	98	70	130	132	92	Pndg	Pndg	Pndg	110	103		
SD (Smpng Depth inches)		48	48	48	48	48	48	Pndg	Pndg	Pndg	48	48		
Fertilizer Applied (# N)	(# N)	70	70	70	70	70	70	70	70	70	70	70		
	(# P ₂ O ₅)	40	40	40	40	40	40	40	40	40	40	40		
	(# K ₂ O)	0	0	25	25	25	25	25	25	25	25	25		

Long-term check variety is Norstar

1/ See MCES Bulletin 1098 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety

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

4/ 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 Norstar for the same years, and z = 10-Yr average yield or test weight for the check variety Norstar.

TABLE 4. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-3102-SW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	3/ PROTEIN %
SX1501B	SEEDEX SX1501B	63.2	189.0	18.7	43.8	11.4	60.6	13.9
MT 9874	RGABC199/MT9312 (russian grain aphid resist)	88.5	188.0	24.0	43.4	11.2	59.9	15.6
MT 0108	ERNEST/McNEAL	89.6	187.0	25.3	42.0	11.1	59.5	16.4
MTHW0168	MTHW9520/ID493	75.4	188.7	25.3	41.7	11.7	62.3	16.1
MT 9918	MT9328/MT9419	85.1	186.3	25.1	41.3	11.2	59.0	15.4
PI527682	AMIDON (moderately sawfly resistant)	92.4	187.0	26.4	40.6	11.0	59.8	15.3
GM40019	PLATA	71.5	188.0	20.5	40.1	11.2	60.4	16.3
MT 0141	MT9410/MT9619	81.3	188.3	24.7	39.6	11.2	61.3	15.8
MT 0103	BZ992632/McNEAL	87.8	187.3	24.4	39.4	11.3	60.1	15.7
MT 9955	MCNEAL/KS27//McNEAL	72.2	188.3	23.5	39.4	11.3	60.3	15.4
MT 0063	REDWIN/LEW//MT9406	91.3	186.7	23.9	38.9	11.0	58.6	15.8
MT 0076	MT9406/MTHW9520	87.2	186.0	24.6	38.5	11.1	60.2	16.7
CI 17430	NEWANA	85.4	188.3	23.4	38.5	11.4	62.0	15.2
MT 0154	MT9565/MONROE	68.8	189.0	22.6	38.3	11.6	61.6	15.2
MT 0147	MT9565/ERNEST	78.5	186.0	24.2	38.1	11.6	62.4	16.5
MT 0134	MT9410/ERNEST	85.4	187.0	24.8	37.9	11.2	60.0	15.5
SX1502B	SEEDEX SX1502B	85.8	188.3	23.6	37.9	10.9	58.1	15.9
MT 0149	MT9565/McNEAL	72.9	188.0	24.3	37.8	11.6	62.2	17.1
BZ996472	WPB BZ996472	80.6	185.7	22.3	37.7	11.4	61.2	15.6
MT 0127	MCNEAL/MT9410	77.4	187.0	22.9	37.7	11.4	61.3	16.0
MT 9931	MT9401/MT9328	68.7	187.3	24.1	37.5	11.4	61.6	16.0
MT 0135	MT9410/ERNEST	72.6	187.0	24.8	37.3	11.3	61.7	15.8
MT 9806	MINNPRO/AMIDON	76.8	187.3	25.0	37.2	11.0	60.6	17.2
MT 0140	MT9410/MT9619	86.8	188.7	25.0	36.8	11.5	62.1	15.7
PI607557	SCHOLAR (moderately sawfly resistant)	77.1	188.3	25.3	36.8	11.2	61.3	16.5
PI619086	EXPLORER (hard white wheat)	82.3	186.7	22.4	36.7	11.4	60.3	15.8
MT 0117	ERNEST/MT9410	82.3	187.0	25.0	36.6	11.4	60.1	15.9
MT 9905	MT9311/MT9328	67.7	188.0	24.0	36.5	11.7	62.0	15.6
PI574642	McNEAL	72.9	187.7	24.2	36.5	11.3	60.1	15.7
BZ992322	HANK	76.0	186.3	21.5	36.4	11.3	59.6	16.1
PI592761	ERNEST (sawfly resistant)	74.6	186.7	25.8	36.1	11.0	60.0	16.5
PI549275	HI-LINE	86.5	187.0	22.2	36.0	11.2	60.7	16.1
MT 0113	ERNEST/MT9410	78.1	187.0	24.9	35.8	11.3	60.8	16.1
MT 9929	MT9401/MT9328	71.2	187.3	22.7	35.7	11.2	60.2	16.3
AGRIPRO1	NORPRO	53.1	188.0	21.9	35.5	11.4	61.8	15.8
MT 0118	ERNEST/MT9410	70.5	186.3	23.5	35.4	11.0	58.8	15.7
BZ996434	WPB BZ996434	68.8	187.3	23.5	35.4	11.3	60.9	16.4
MT 0125	ERNEST/MT9668	74.7	187.0	22.7	35.3	11.4	60.4	15.6
ND 695	REEDER	70.1	187.0	23.2	34.9	11.1	60.6	16.4
CI 10003	THATCHER	80.5	186.0	28.6	34.2	11.1	58.3	16.2
MT 0124	ERNEST/MT9668	74.7	186.7	24.0	34.2	11.2	60.0	16.4
MT 0012	McNEAL/MT9410	77.4	186.7	21.6	34.1	11.1	59.7	17.6
MT 0009	McNEAL/MT9410	86.8	187.3	21.3	34.1	11.4	61.0	15.7

TABLE 4. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-3102-SW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	3/ PROTEIN %
MT 0148	MT9565/McNEAL	61.1	188.3	23.9	34.0	11.7	62.6	15.9
MTHW0001	MTHW9520/MTHW9427	83.0	187.3	23.7	33.9	11.5	61.6	15.9
BZ992588	CONAN (sawfly tolerant)	72.9	187.7	22.6	33.7	11.4	61.1	16.6
GM40003	GENERAL MILLS GM40003	74.6	184.0	21.9	33.2	11.5	61.1	15.2
MT 9923	MT9401/MT9311	67.0	187.3	23.0	33.2	11.5	61.9	16.6
MT 0008	McNEAL/MT9408	79.1	185.3	24.5	33.1	11.0	60.5	16.6
MT 0121	ERNEST/MT9619	64.3	186.7	24.4	32.9	11.4	62.6	17.0
GM40004	GENERAL MILLS GM40004	61.1	186.7	22.0	32.5	11.2	60.1	15.7
MTHW9905	MTHW9417/MTHW9430	66.7	186.7	23.5	32.5	11.3	60.1	15.7
MT 0158	MT9619/ERNEST	62.5	187.7	23.6	32.1	11.5	61.1	16.0
SAXON	SAXON	72.6	187.3	23.7	31.8	11.2	59.0	16.0
MTHW0002	MTHW9520/MTHW9427	70.1	187.7	21.0	31.7	11.2	59.8	15.7
AGRIPRO2	KNUDSON	79.5	187.3	20.3	31.6	11.1	60.5	16.6
MTHW9901	MT9311/MTHW9417	58.0	187.0	25.0	31.6	11.5	61.0	15.9
MT 0013	McNEAL/MT9410	64.6	187.3	19.7	31.2	11.0	59.2	16.0
PI612605	MTHW9420	66.0	187.7	22.7	30.8	11.2	60.6	16.1
WB 926	WESTBRED 926	69.4	187.0	22.0	30.4	11.0	60.3	16.9
MT 0112	ERNEST/MT9410	60.4	186.7	22.6	30.3	11.2	60.6	16.1
CI 13596	FORTUNA (sawfly resistant)	75.0	187.0	25.1	29.9	11.2	59.2	16.5
MTHW0167	MTHW9420/SRHW4	74.3	186.3	22.6	28.4	11.1	61.2	17.2
GM40002	GENERAL MILLS GM40002	74.3	183.7	20.2	27.5	11.1	58.9	16.4
EXPERIMENTAL MEANS		75.1	187.2	23.4	35.7	11.3	60.6	16.2
LSD (0.05)		20.4	1.6	1.7	6.8	0.2	0.7	.
C.V.2: (S of MEAN / MEAN)*100		9.7	0.3	2.6	6.8	0.8	0.4	.

1/ No. of Days from January 1 (187 = July 6)

2/ 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.

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

Site Resource & Management Data:					
Field	A-5-3	Na (MEQ/100g) 0-6	0.03	Cropping System	NT-ChmFlw
Quarter	NW	SaltHaz (MMHOS/cm) 0-6	0.48	Planting Date	13-May
Section	33	SaltHaz (MMHOS/cm) 6-24	0.76	Planting Depth (in.)	1.5
Township	32N	Soil Texture 0-6"	CL	Moist Soil Depth @Plnt'g	18
Range	15E	Soil Texture 6-24"	CL	Dry Surf Soil (in.) @Plnt'g	0.25
Soil Series	Telstad CLm	Soil Texture 24-36"	CL	2" Soil Temp (oF) @ Plnt'g	73
pH 0-6"	6.7	Soil Texture 36-48"	CL	4" Soil Temp (oF) @ Plnt'g	63
Org.Matter (%) 0-6"	1.2	Zn (ppm) 0-6	0.5	Fertilizer Formulation	Gran.Blend
N (lbs/ac) 0-6"	14	Mn (ppm) 0-6	3.7	Fertilizer Placement	Bnd at Plntg
N (lbs/ac) 6-24"	36	Cu (ppm) 0-6	0.8	Fert. Rate (lbs/ac) N	70
N (lbs/ac) 24-36"	16	Fe (ppm) 0-6	14.5	Fert. Rate (lbs/ac) P2O5	40
N (lbs/ac) 36-48"	32	CEC 0-6	21.8	Fert. Rate (lbs/ac) K2O	25
P (ppm) Olsen 0-6"	37	Herbicide App. Date	18-Jun	Precip (in.) Plnt'g-Harvest	10.32
K (ppm) 0-6"	449	Herbicide Product	Bronate	Precip (>.1) Plnt'g-Harvest	9.5
S (ppm) 0-24"	27	Herbicide Rate (/ac)	24 oz	Harvest Date	31-Aug

TABLE 5. Ten-Year Yield Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ YIELD (Bushels Per Acre)										AVE. for YEARS TESTED	% of CHECK YIELD ^{3/}	10-YR COMP. AVE. YIELD ^{4/}	
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002				
PI486139	KLASIC (hard white)	3	45.1							36.7	16.8		32.9	134.5	46.4
MT 9755	MTRWA141/PONDERA	3							48.1	38.0	21.1		35.7	131.8	45.5
BZ684-23	VANNA (P+) (soft white)	5	59.4	47.3	66.5	34.8	49.9						51.6	131.6	45.4
MT 9874	RGABC199/MT9312	4							44.1	41.0	22.9	43.4	37.8	131.0	45.2
PI574642	McNEAL	10	55.8	41.4	73.0	36.6	54.4	44.9	49.2	40.2	18.9	36.5	45.1	130.6	45.1
ND 695	REEDER	4							49.1	43.3	22.5	34.9	37.5	129.7	44.7
PI483235	GLENMAN	5	48.5	42.3	65.1	40.4	51.9						49.6	126.6	43.7
CI 17430	NEWANA	10	50.3	42.5	69.2	39.0	52.1	39.3	45.9	35.6	21.5	38.5	43.4	125.7	43.4
PI549275	HI-LINE	10	48.5	41.0	63.9	45.8	45.0	40.0	45.3	37.6	19.7	36.0	42.3	122.5	42.3
BZ992588	CONAN	7			65.9	36.7	48.0		47.8	36.0	20.4	33.7	41.2	121.9	42.1
WB 936	WB 936 (P+)	5	50.3	50.3	58.6	34.1	44.7						47.6	121.4	41.9
MT 9806	MINNPRO/AMIDON	4							46.3	35.7	20.0	37.2	34.8	120.5	41.6
BZ996472	BZ992-634/GOLDEN86	3							44.7	37.8	18.6	37.7	34.7	120.1	41.5
BZ992322	HANK	3								41.7	20.5	36.4	32.9	118.7	40.9
PI592761	ERNEST (+)	9		39.0	64.3	35.7	47.1	35.7	39.9	37.3	19.6	36.1	39.4	118.1	40.7
WBEXPRES	WB EXPRESS (P+)	5	50.0	47.0	55.7	34.9	40.8						45.7	116.5	40.2
MT 9918	MT9328/MT9419	3								37.7	17.7	41.3	32.2	116.3	40.1
PI527682	AMIDON	10	51.4	40.5	70.5	35.3	47.6	47.3	4.0	35.9	22.2	40.6	39.5	114.6	39.5
PI607557	SCHOLAR	8			69.5	38.5	52.1	45.5	42.2	38.5	21.0	36.8	43.0	113.9	39.3
WB 926	WB 926 (P)	10	52.2	46.1	51.9	33.9	46.1	33.7	41.9	38.0	18.7	30.4	39.3	113.9	39.3
CI 17429	LEW	9	49.4	35.6	59.9	33.7	41.6	38.3	37.2	35.5	17.9		38.8	112.3	38.8
MT 9929	MT9401/MT9328	3								34.2	19.3	35.7	29.7	107.3	37.0
MTRWA116	PI372129/2*PONDERA	3			51.4	33.2				33.0			39.2	106.3	36.7
CI 13596	FORTUNA	10	40.9	40.7	46.3	33.6	44.0	40.1	35.9	35.9	16.7	29.9	36.4	105.5	36.4
PI612605	MTHW9420	4							35.6	38.7	16.4	30.8	30.4	105.2	36.3
CI 10003	THATCHER	10	44.6	30.6	49.2	31.0	40.5	33.6	32.5	30.4	18.4	34.2	34.5	100.0	34.5
MEANS (For Entries Listed)			49.5	46.4	55.0	39.4	46.5	43.7	38.5	35.9	22.5	38.1			41.1
April-July Precip. (in.)			12.96	6.04	12.42	5.17	5.65	8.78	8.57	6.01	4.81	8.87	7.93		
Tot. Annual Precip. (in.)			19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74		
Soil N (lbs) to SD @PLtg			152	210	72	130	116	140	Pndg	Pndg	Pndg	98	137		
SD (Smping Depth inches)			48	48	48	48	48	48	Pndg	Pndg	48	48	48		
Fertilizer Applied		(# N)	70	70	70	70	70	70	70	70	70	70	70		
		(# P2O5)	40	40	40	40	40	40	40	40	40	40	40		
		(# K2O)	0	0	25	25	25	25	25	25	25	25	19		

Long-term check variety is Thatcher

1/ See MCES Bulletin 1093 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P=Private variety,

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

4/ 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 Thatcher for the same years, and z = 10-Yr average yield or test weight for the check variety Thatcher.

TABLE 6. Ten-Year Test Weight Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel)										AVE. for YEARS TESTED	% of CHECK TEST WT 3/	10-YR COMP. AVE. TEST WT 4/	
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002				
BZ996472 WPB BZ996472	4								60.5	60.6	60.0	61.2	60.6	108.4	61.6
ND 695 REEDER	4								58.6	60.1	58.2	60.6	59.4	106.3	60.4
BZ992588 CONAN	7			62.3	61.6	61.5			58.2	59.4	59.5	61.1	60.5	105.9	60.1
PI592761 ERNEST (+)	9		59.1	62.0	62.0	61.4	61.9		57.4	59.7	58.0	60.0	60.2	105.8	60.1
CI 13596 FORTUNA	10	57.5	59.7	62.0	62.2	60.4	62.6		57.9	59.2	57.2	59.2	59.8	105.2	59.8
CI 17429 LEW	9	58.8	58.1	63.2	60.9	60.0	61.3		57.0	58.5	58.1		59.5	105.1	59.7
PI527682 AMIDON	10	56.4	58.2	61.9	61.2	61.0	60.9		57.0	59.1	57.7	59.8	59.3	104.5	59.3
MT 9806 MINNPRO/AMIDON	4								57.5	57.8	57.4	60.6	58.3	104.4	59.3
CI 17430 NEWANA	10	56.7	57.8	61.1	61.0	60.2	60.5		55.0	57.7	59.6	62.0	59.2	104.2	59.2
MT 9929 MT9401/MT9328	3								58.5	57.0	60.2	58.6	58.6	103.5	58.8
WB 926 WB 926 (P)	10	57.8	56.7	59.8	61.3	59.0	60.9		56.6	56.5	58.3	60.3	58.7	103.4	58.7
MT 9755 MTRWA141/PONDERA	3								55.7	57.2	57.5		56.8	103.1	58.6
PI549275 HI-LINE	10	57.6	55.2	61.2	60.3	59.5	61.6		57.1	56.0	56.4	60.7	58.6	103.1	58.6
MT 9874 RGABC199/MT9312	4								56.6	56.9	56.9	59.9	57.6	103.0	58.5
BZ992322 HANK	3								57.3	57.7	59.6	58.2	58.2	102.9	58.4
PI574642 McNEAL	10	58.1	56.0	62.3	57.8	58.7	59.1		56.6	57.4	57.7	60.1	58.4	102.8	58.4
PI612605 MTHW9420	4								54.5	57.1	57.0	60.6	57.3	102.5	58.3
MTRWA116 PI372129/2*PONDERA	3			60.1	60.7					57.8			59.5	102.2	58.0
PI607557 SCHOLAR	8			63.0	61.8	61.3	62.3		58.1	60.7	59.4	61.3	61.0	101.9	57.9
MT 9918 MT9328/MT9419	3									57.6	56.2	59.0	57.6	101.8	57.8
PI483235 GLENMAN	5	56.7	56.8	60.9	60.0	59.6							58.8	101.7	57.8
WBEXPRES WB EXPRESS (P+)	5	57.2	57.1	60.4	59.9	59.1							58.7	101.6	57.7
PI486139 KLASIC (hard white)	3		54.7							57.4	56.2		56.1	100.7	57.2
WB 936 WB 936 (P+)	5	56.7	55.8	59.1	60.9	58.4							58.2	100.6	57.2
CI 10003 THATCHER	10	56.3	53.9	60.7	58.2	57.7	57.5	53.8	55.9	55.5	58.3		56.8	100.0	56.8
BZ684-23 VANNA (P+) (soft white)	5	54.9	52.4	59.6	55.9	56.9							55.9	96.7	55.0
MEANS (For Entries Listed)		56.9	56.7	61.2	60.4	59.7	60.9	56.9	58.1	57.7	60.2				58.6
April-July Precip. (in.)		12.96	6.04	12.42	5.17	5.65	8.78	8.57	6.01	4.81	8.87	7.93			
Tot. Annual Precip. (in.)		19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74			
Soil N (lbs) to SD @PLtg		152	210	72	130	116	140	Pndg	Pndg	Pndg	98	137			
SD (Smpng Depth inches)		48	48	48	48	48	48	Pndg	Pndg	Pndg	48	48			
Fertilizer Applied	(# N)	70	70	70	70	70	70	70	70	70	70	70			
	(# P2O5)	40	40	40	40	40	40	40	40	40	40	40			
	(# K2O)	0	0	25	25	25	25	25	25	25	25	19			

Long-term check variety is Thatcher

1/ See MCES Bulletin 1093 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P=Private variety,

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

4/ 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 Thatcher for the same years, and z = 10-Yr average yield or test weight for the check variety Thatcher.

TABLE 7. Montana Spring Durum Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-9802-SW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	3/ PROTEIN %
GM90005	GM90005	97.9	188.3	23.9	41.1	10.9	62.1	15.2
ACAVONLE	AC AVONLEA	87.5	188.3	26.0	40.3	11.0	62.8	15.9
WPBLAKER	LAKER	91.3	188.7	23.1	39.9	11.0	62.3	15.5
D901313	MOUNTRAIL	94.1	188.7	24.3	39.5	11.0	61.7	15.7
DT 433	MEDORA	91.0	188.0	26.7	39.5	10.8	61.3	15.8
YU894-75	WPB YU 894-75	86.8	187.7	22.0	39.2	10.9	61.4	15.7
PI574642	McNEAL (hard red spring wheat check)	91.7	188.3	23.8	39.1	11.3	60.2	15.4
D89135	MAIER	94.5	189.0	25.2	39.0	10.9	62.1	15.8
NDMUNICH	MUNICH	93.1	187.7	23.7	38.7	10.7	60.4	15.9
D91080	PLAZA	84.4	189.0	23.8	38.0	11.1	62.0	15.8
CI 15892	WARD	89.9	188.0	27.0	37.9	11.0	61.6	16.4
PI510696	RENVILLE	88.2	187.7	26.3	37.8	11.0	61.7	14.6
97DU2	UTOPIA	84.0	187.7	18.9	37.6	10.8	61.6	15.5
CANKYLE	KYLE	80.2	189.0	27.7	36.7	11.4	62.9	16.6
D87130	BEN	84.7	188.7	25.3	35.9	11.0	62.3	15.8
CI 17789	VIC	82.6	188.7	26.9	35.3	11.1	62.2	15.8
D901442	LEBSOCK	83.0	188.0	23.6	35.2	11.0	62.3	14.9
PI478289	MONROE	81.6	187.3	24.5	33.7	10.9	61.0	15.7
GM90015	GM90015	81.6	188.0	20.2	33.4	10.6	60.7	15.4
DT 380	SCEPTRE	75.3	188.3	22.9	31.2	10.8	60.7	16.1
EXPERIMENTAL MEANS		87.2	188.3	24.3	37.5	11.0	61.7	15.7
LSD (0.05)		12.3	0.8	1.3	4.6	0.2	0.6	.
C.V.2: (S of MEAN / MEAN)*100		4.9	0.1	1.9	4.3	0.7	0.3	.

1/ No. of Days from January 1 (188 = July 7)

2/ 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.

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

Site Resource & Management Data:					
Field	A-5-3	Na (MEQ/100g) 0-6	0.03	Cropping System	NT-ChmFlw
Quarter	NW	SaltHaz (MMHOS/cm) 0-6	0.48	Planting Date	13-May
Section	33	SaltHaz(MMHOS/cm) 6-24	0.76	Planting Depth (in.)	1
Township	32N	Soil Texture 0-6"	CL	Moist Soil Depth @Plnt'g	18
Range	15E	Soil Texture 6-24"	CL	Dry Surf Soil (in.) @Plnt'g	0.25
Soil Series	Telstad CLm	Soil Texture 24-36"	CL	2" Soil Temp (oF) @ Plnt'g	73
pH 0-6"	6.7	Soil Texture 36-48"	CL	4" Soil Temp (oF) @ Plnt'g	63
Org.Matter (%) 0-6"	1.2	Zn (ppm) 0-6	0.5	Fertilizer Formulation	Gran.Blend
N (lbs/ac) 0-6"	14	Mn (ppm) 0-6	3.7	Fertilizer Placement	Bnd at Plntg
N (lbs/ac) 6-24"	36	Cu (ppm) 0-6	0.8	Fert. Rate (lbs/ac) N	70
N (lbs/ac) 24-36"	16	Fe (ppm) 0-6	14.5	Fert. Rate (lbs/ac) P2O5	40
N (lbs/ac) 36-48"	32	CEC 0-6	21.8	Fert. Rate (lbs/ac) K2O	25
P (ppm) Olsen 0-6"	37	Herbicide App. Date	18-Jun	Precip (in.) Plnt'g-Harvest	10.32
K (ppm) 0-6"	449	Herbicide Product	Bronate	Precip (>.1) Plnt'g-Harvest	9.5
S (ppm) 0-24"	27	Herbicide Rate (/ac)	24 oz	Harvest Date	1-Sep

TABLE 8. Intrastate Spring Barley Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-2102-SB)

ID	CULTIVAR or SELECTION	STAND %	1/		2/		MOIST %	TEST WT Lbs/Bu	PLUMP %	THIN %	3/ PROTEIN %
			HEAD DATE	PLNT HT Inches	YIELD Bu/Ac						
MT960099	Manley/Baronesse	89.27	193.67	19.65	61.47	10.87	48.77	69.60	11.30	16.98	
MT970116	Klages/Baronesse	87.50	193.00	24.44	60.90	10.67	50.50	92.70	2.20	15.76	
MT970026	Baronesse/MT860756	88.87	193.33	23.92	60.13	10.43	49.67	91.20	2.70	16.16	
MT960228	Stark/Baronesse	84.70	192.67	22.39	59.73	10.83	49.57	87.70	3.80	15.86	
BZ596117	WPB BZ596-117	89.60	192.67	21.46	59.33	10.90	49.23	90.90	3.00	16.62	
B99AL621	B99AL-621	88.20	192.33	20.45	58.87	10.43	48.30	87.20	3.90	16.48	
MT990172	Apex/MT890070	81.93	193.67	22.23	58.53	11.57	48.37	94.10	1.70	16.53	
MT960222	Stark/Baronesse	91.00	193.33	21.93	58.27	10.60	49.40	86.70	4.90	15.78	
MT000063	H3860224/MT920041	85.07	193.67	19.65	57.73	11.70	50.07	88.90	4.30	16.81	
BZ594-20	WPB BZ594-20	73.60	192.33	21.17	57.60	11.03	49.87	96.20	1.20	15.44	
MT000092	MT890008/Lewis	87.13	193.33	21.44	57.57	10.60	48.73	92.10	2.80	15.21	
MT960101	Manley/Baronesse	81.23	192.33	22.26	57.57	11.47	49.13	80.50	7.40	16.94	
MT970155	MT886610/MT140523	81.63	192.33	21.92	57.27	11.20	48.70	90.50	2.90	17.16	
PI568246	BARONESSE	90.97	193.67	21.13	57.20	10.77	48.87	86.00	4.40	16.33	
MT981210	MT910150/Stark	91.30	193.67	21.69	56.33	10.67	49.43	91.20	2.70	17.23	
MT970229	MT890021/Stark	94.10	193.33	22.73	56.27	10.50	50.17	93.40	1.90	16.32	
MT990106	Apex/H1851195	91.33	194.00	21.19	55.30	10.50	48.23	91.70	2.80	17.07	
MT981060	Haybet/Baronesse	87.17	192.33	22.20	55.10	10.40	45.33	81.80	6.70	16.64	
MT990244	MT890018/Stark	85.07	192.67	22.20	54.80	10.50	49.97	95.60	1.50	17.35	
MT981004	Baronesse/H2860224	87.83	193.33	22.13	54.70	11.20	48.33	87.80	3.70	16.24	
NORD1958	NORD 1958	92.37	192.67	21.04	54.57	10.80	49.50	92.40	2.10	15.94	
MT000138	MT920041/H1851195	84.73	192.67	23.40	54.57	10.73	50.27	93.70	1.80	17.88	
ND13299	CONLON	88.53	193.00	20.71	54.57	10.20	48.47	97.20	0.90	15.62	
MT981177	MT910033/Targhee	93.43	193.33	19.66	54.53	11.00	48.60	84.00	5.40	17.46	
MT960100	Manley/Baronesse	92.73	193.67	20.18	54.53	10.57	49.53	76.50	6.90	17.40	
6B952482	(BA6B95-2482) 6B89--2126/	97.93	191.67	21.56	54.50	10.10	46.80	79.00	5.00	16.19	
SK 76333	HARRINGTON	80.57	192.33	22.31	54.47	10.67	48.37	88.70	3.50	16.64	
MT981042	H5860219/Baronesse	90.60	193.33	20.71	54.33	10.90	49.00	81.80	6.00	16.02	
PI610264	VALIER	92.03	192.67	20.46	54.30	10.53	49.77	83.20	5.70	17.04	
MT981091	MT851195/MT140523	84.37	193.00	20.72	54.20	11.27	49.73	85.90	5.00	16.03	
MT950186	HAXBY	94.43	194.33	21.13	54.03	10.67	50.37	83.50	3.60	16.25	
H3860224	Lewis/Apex (MT860224 HR#3	81.27	194.00	21.00	53.87	11.80	48.93	89.50	4.00	17.84	
MT000047	Chinook/MT920161	82.67	193.67	21.64	53.60	10.90	49.13	81.00	6.80	16.65	
MT981030	Baronesse/MT910160	93.40	192.33	21.25	53.47	10.37	48.77	74.20	9.50	16.42	
MT000153	MT920059/Baronesse	91.67	193.00	21.33	53.20	10.77	49.87	91.10	1.70	17.40	
NORD1963	NORD 1963	84.00	192.67	17.34	53.17	11.40	47.50	83.10	6.50	15.46	
MT970110	Klages/Baronesse	88.53	193.67	22.57	53.10	11.43	49.60	85.00	4.00	17.05	
MT000156	MT920059/Baronesse	87.17	193.00	21.00	52.97	10.43	49.23	93.40	2.00	17.02	
PI491534	GALLATIN	92.00	193.00	21.68	52.93	10.43	48.53	79.60	7.60	16.62	
MT981212	MT910150/Stark	94.80	191.67	21.94	52.90	10.90	49.20	84.20	5.40	16.73	
MT981006	Baronesse/H2860224	89.93	193.00	20.75	52.83	10.87	47.77	88.50	2.90	16.79	
MT000130	MT910189/MT890070	92.37	193.00	22.68	52.77	10.30	49.67	87.70	4.30	15.74	
MT000178	MT930029/Baronesse	91.33	193.00	20.50	52.43	9.77	47.90	90.60	2.80	16.55	

TABLE 8. Intrastate Spring Barley Cultivar Evaluation Nursery Grown Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-2102-SB)

ID	CULTIVAR or SELECTION	1/		2/		MOIST %	TEST WT Lbs/Bu	PLUMP %	THIN %	3/ PROTEIN %
		STAND %	HEAD DATE	PLNT HT Inches	YIELD Bu/Ac					
MTLB 13	Lewis/Baronesse #13	92.73	195.67	20.59	52.10	11.03	48.50	75.50	7.90	16.38
MT000177	MT930029/Baronesse	85.43	192.00	21.10	51.93	10.30	48.53	96.60	0.90	17.25
MT910189	ND 7293/Bearpaw	85.77	193.33	21.82	51.90	10.87	49.73	89.60	3.60	16.47
MT000237	Harrington/MT920059	71.20	193.67	21.98	51.83	9.80	49.03	93.40	2.00	17.85
6B932978	LEGACY	85.10	193.00	23.36	51.80	10.10	45.20	70.60	8.40	16.23
MT000040	Chinook/MT920161	91.70	193.33	19.36	51.00	11.37	50.30	85.40	4.50	17.18
MT970148	MT861596/ND 11120	95.13	192.00	18.46	50.80	10.60	47.10	86.40	5.20	15.69
PI605472	GARNET	91.67	193.67	20.85	50.53	11.03	48.03	90.30	3.00	17.09
MT000045	Chinook/MT920161	90.63	193.67	19.89	50.33	10.43	49.43	84.60	3.90	17.70
MT000239	Harrington/MT920059	96.87	193.00	22.52	50.33	9.37	47.67	85.90	5.00	17.81
N96/1116	JUSTINA	95.13	193.00	21.31	50.13	10.67	47.67	87.70	3.50	15.96
MT990249	MT890018/Stark	94.80	193.00	20.71	49.80	10.43	50.83	95.70	1.00	17.79
MT000180	MT930029/Baronesse	84.73	193.67	20.79	49.63	10.50	50.60	91.50	2.40	16.69
MT981238	ND112311/Lewis	95.83	192.33	21.36	49.33	11.07	49.17	79.30	6.90	16.62
MT000157	MT920059/Baronesse	89.57	193.00	21.43	49.10	10.47	48.47	72.80	9.80	17.34
2B914947	MERIT	93.43	193.00	21.30	49.03	10.40	47.30	84.10	6.30	16.30
MT000125	MT910189/Lewis	93.40	193.33	20.68	48.83	11.07	49.07	88.70	4.10	16.77
MT000066	H3860224/MT920161	88.20	194.00	21.98	47.23	10.40	48.93	86.90	4.60	17.49
MT000159	MT920059/Baronesse	88.87	193.33	20.20	46.47	10.00	49.00	90.40	2.20	17.29
MT960226	Stark/Baronesse	88.90	193.67	22.73	44.73	10.43	49.13	91.70	2.90	16.34
PI533600	HAYBET	85.40	192.67	24.09	37.33	10.07	45.50	58.60	9.80	17.58
EXPERIMENTAL MEANS		88.79	193.10	21.38	53.51	10.69	48.85	85.03	4.66	16.94
LSD (0.05)		14.31	1.29	2.00	8.02	0.67	1.38	.	.	.
C.V.2: (S of MEAN / MEAN)*100		5.76	0.24	3.35	5.35	2.24	1.01	.	.	.

1/ No. of Days from January 1 (193 = July 12)

2/ 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.

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

Site Resource & Management Data:					
Field	A-5-4	Na (MEQ/100g) 0-6	0.09	Cropping System	NT-ChmFlw
Quarter	NW	SaltHaz (MMHOS/cm) 0-6	1.04	Planting Date	14-May
Section	33	SaltHaz(MMHOS/cm) 6-24	0.8	Planting Depth (in.)	1
Township	32N	Soil Texture 0-6"	CL	Moist Soil Depth @Plnt'g	55+
Range	15E	Soil Texture 6-24"	CL	Dry Surf Soil (in.) @Plnt'g	0.25
Soil Series	Joplin Cl-Lm	Soil Texture 24-36"	CL	2" Soil Temp (oF) @ Plnt'g	64
pH 0-6"	7.6	Soil Texture 36-48"	CL	4" Soil Temp (oF) @ Plnt'g	59
Org.Matter (%) 0-6"	1	Zn (ppm) 0-6	0.4	Fertilizer Formulation	Gran.Blend
N (lbs/ac) 0-6"	42	Mn (ppm) 0-6	1.8	Fertilizer Placement	Bnd at Plntg
N (lbs/ac) 6-24"	24	Cu (ppm) 0-6	0.8	Fert. Rate (lbs/ac) N	70
N (lbs/ac) 24-36"	20	Fe (ppm) 0-6	4.6	Fert. Rate (lbs/ac) P2O5	40
N (lbs/ac) 36-48"	16	CEC 0-6	21.8	Fert. Rate (lbs/ac) K2O	25
P (ppm) Olsen 0-6"	24	Herbicide App. Date	18-Jun	Precip (in.) Plnt'g-Harvest	10.15
K (ppm) 0-6"	302	Herbicide Product	Bronate	Precip (>.1) Plnt'g-Harvest	9.5
S (ppm) 0-24"	38	Herbicide Rate (/ac)	24 oz	Harvest Date	26-Aug

TABLE 9. Ten-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ YIELD (Bushels Per Acre)										AVE. for YEARS TESTED	% of CHECK YIELD 3/	10-YR COMP. AVE. YIELD 4/	
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002				
MT960099	Manley/Baronesse	6				89.1	77.0	80.6	64.5	30.9	61.5	67.3	112.5	72.3	
PI568246	BARONESSE (P+)	10	111.7	70.3	87.4	52.0	83.8	70.6	85.3	62.5	32.2	57.2	71.3	110.9	71.3
MT960228	Stark/Baronesse	4							80.6	63.5	28.1	59.7	58.0	108.5	69.7
MT960226	Stark/Baronesse	4							78.4	64.1	30.6	58.3	57.8	108.2	69.6
MT970229	MT890021/Stark	4							81.6	60.6	32.1	56.3	57.6	107.8	69.3
BZ594-19	WPB XENA	4				85.0	77.3	65.2			29.0		64.1	106.7	68.6
MT970110	Klages/Baronesse	4							70.1	66.7	26.4	60.9	56.0	104.8	67.4
PI591823	CHINOOK (+)	7	98.6	68.3	71.3	59.3	81.0	73.0	59.4				73.0	103.6	66.6
MT970155	MT886610/MT140523	3								60.6	37.1	57.3	51.7	103.3	66.4
PI610264	VALIER	6					80.5	71.4	71.0	62.4	30.2	54.3	61.6	103.1	66.3
MT960101	Manley/Baronesse	4							79.2	56.8	26.8	57.6	55.1	103.1	66.3
MT970026	Baronesse/MT860756	4							64.8	62.8	32.5	60.1	55.1	103.0	66.2
MT910189	ND 7293/Bearpaw	9		67.9	79.2	62.0	79.5	72.5	57.8	65.8	29.5	51.9	62.9	102.9	66.1
CI15856	LEWIS	9	105.1	68.9	74.7	57.3	78.1	66.6	64.9	60.1	33.3		67.7	102.6	66.0
MTLB 13	LEWIS/BARONESSE #13	5					78.6	67.9	77.4	58.3		52.1	66.9	102.2	65.7
11231-11	LOGAN	6			63.8	58.0	79.3	72.0	66.1	63.7			67.2	100.9	64.9
MT970148	MT861596/ND 11120	4							73.0	59.3	32.3	50.8	53.9	100.7	64.8
MT950186	MT860756/MT83533	4							65.9	66.0	28.9	54.0	53.7	100.5	64.6
PI491534	GALLATIN	10	92.7	66.5	65.5	59.6	76.4	68.5	63.8	65.5	31.6	52.9	64.3	100.0	64.3
CI15514	HECTOR	6	93.7	68.5	68.6	52.0		62.8	69.0				69.1	99.5	64.0
ND 9866	STARK	9	99.0	65.5	72.2	59.6	77.2	75.3	59.5	54.9	25.8		65.4	99.2	63.8
BA 1202	BA 1202 (P+)	7	101.7	51.9	73.6	52.9	68.7	59.7	76.8				69.3	98.4	63.3
H3860224	LEWIS/APEX (HR#3)	8		60.8	89.3	53.5	76.3	66.8	76.1		28.3	53.9	63.1	98.3	63.2
SK76333	HARRINGTON	10	90.2	59.4	63.9	52.5	75.7	58.6	71.8	53.5	31.2	54.5	61.1	95.1	61.1
2B914947	MERIT	6				49.5	67.1	60.0	71.9	54.9	28.5		55.3	90.8	58.4
CI15773	MOREX	6			48.1	54.8		67.7	43.1	54.6	20.7		48.2	81.5	52.4
MEANS (For Entries Listed)			99.1	64.8	71.5	55.6	78.4	68.7	70.1	61.0	29.8	56.1			65.5
April-July Precip. (in.)			12.86	5.59	11.80	5.18	5.65	8.78	8.57	6.01	4.81	8.87	7.81		
Tot. Annual Precip. (in.)			19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74		
Soil NO3(lbs) to SD@Pltg			370	212	54	130	114	172	Pndg	Pndg	Pndg	102	175		
SD (Smping Depth inches)			48	48	48	48	48	48	Pndg	Pndg	Pndg	48	48	48	
Fertilizer Applied (# N)		(# N)	0	70	70	70	70	70	70	70	70	70	70	63	
		(# P ₂ O ₅)	0	40	40	40	40	40	40	40	40	40	40	36	
		(# K ₂ O)	0	0	25	25	25	25	25	25	25	25	25	20	

Long-term check variety is Gallatin

1/ See MCES Bulletin 1094 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety

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

4/ 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 Gallatin for the same years, and z = 10-Yr average yield or test weight for the check variety Gallatin.

TABLE 10. Ten-Year Test Weight Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel)										AVE. for YEARS TESTED	% of CHECK TEST WT 3/	10-YR COMP. AVE. TEST WT 4/	
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002				
MT950186	MT860756/MT83533	6					55.4	52.1	53.1	51.9	49.4	50.4	52.0	104.1	51.6
MT970229	MT890021/Stark	4							52.3	50.6	49.2	50.2	50.6	102.6	50.9
ND 9866	STARK	9	48.6	49.6	52.0	50.4	54.3	51.1	51.9	51.1	49.4	50.9	102.5	50.8	
MT970026	Baronesse/MT860756	4							52.0	50.0	49.8	49.7	50.4	102.2	50.7
MT910189	ND 7293/Bearpaw	9		47.8	48.6	51.2	50.1	53.6	52.5	50.2	48.2	49.7	50.2	101.0	50.1
PI610264	VALIER	6						54.6	49.5	51.4	49.0	48.5	50.5	101.0	50.1
CI15856	LEWIS	9	47.5	48.0	52.3	47.9	53.8	51.0	52.5	49.9	48.9	49.8	50.2	101.0	50.1
MT970110	Klages/Baronesse	4							51.6	47.9	49.6	49.6	49.7	100.8	50.0
11231-11	LOGAN	6			51.3	49.0	53.9	50.2	51.9	50.1			51.1	100.8	50.0
MT970155	MT886610/MT140523	3							48.6	49.0	48.7	48.7	48.8	100.5	49.8
MT960228	Stark/Baronesse	4							51.4	49.3	47.7	49.6	49.5	100.4	49.8
PI491534	GALLATIN	10	48.6	46.5	52.3	48.7	53.5	49.1	51.5	49.0	48.1	48.5	49.6	100.0	49.6
MT960226	Stark/Baronesse	4							51.3	48.3	48.1	49.1	49.2	99.8	49.5
BZ594-19	WPB XENA	4					53.0	48.9	51.3		48.4		50.4	99.7	49.4
PI591823	CHINOOK (+)	7	47.4	45.2	51.4	48.3	53.4	49.6	52.2				49.6	99.2	49.2
H3860224	LEWIS/APEX (HR#3)	8		45.0	50.8	47.1	53.5	48.7	50.7		48.7	48.9	49.2	99.0	49.1
MTLB 13	LEWIS/BARONESSE #13	5					52.8	48.9	50.7	47.6		48.5	49.7	98.7	49.0
MT960101	Manley/Baronesse	4							49.0	47.3	48.6	49.1	48.5	98.4	48.8
MT960099	Manley/Baronesse	4							49.1	47.6	47.3	48.8	48.2	97.8	48.5
PI568246	BARONESSE (P+)	10	46.8	45.6	49.3	47.2	52.8	47.0	51.2	47.6	48.1	48.9	48.5	97.7	48.5
MT970148	MT861596/ND 11120	4							50.9	47.9	46.5	47.1	48.1	97.6	48.4
CI15514	HECTOR	6	47.8	45.6	50.5	47.5		50.3	51.3				48.8	97.1	48.2
SK76333	HARRINGTON	10	46.4	42.7	49.9	46.5	50.7	46.0	49.1	46.8	46.2	48.4	47.3	95.3	47.3
CI15773	MOREX	6			48.6	48.1		49.4	48.3	45.4	43.5		47.2	94.8	47.0
BA 1202	BA 1202 (P+)	7	47.6	41.6	48.8	45.0	49.8	44.9	50.3				46.9	93.6	46.4
2B914947	MERIT	7				43.4	49.1	43.6	49.0	46.8	46.6	47.3	46.5	93.1	46.2
MEANS (For Entries Listed)			47.6	45.8	50.5	47.7	52.7	49.1	51.1	48.7	48.1	49.0			49.2
April-July Precip. (in.)			12.86	5.59	11.80	5.18	5.65	8.78	8.57	6.01	4.81	8.87	7.81		
Tot. Annual Precip. (in.)			19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74		
Soil NO3(lbs) to SD@Pltg			370	212	54	130	114	172	Pndg	Pndg	Pndg	102	175		
SD (Smping Depth inches)			48	48	48	48	48	48	Pndg	Pndg	Pndg	48	48	48	
Fertilizer Applied (# N)		(# N)	0	70	70	70	70	70	70	70	70	70	70	63	
		(# P ₂ O ₅)	0	40	40	40	40	40	40	40	40	40	40	36	
		(# K ₂ O)	0	0	25	25	25	25	25	25	25	25	25	20	

Long-term check variety is Gallatin

1/ See MCES Bulletin 1094 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety

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

4/ 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 Gallatin for the same years, and z = 10-Yr average yield or test weight for the check variety Gallatin.

TABLE 11. Montana Spring Oat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-0402-OA)

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/		2/	
				YIELD Bu/Ac	MOISTURE %	TEST WT Lbs/Bu	PROTEIN %
90Ab1322	90Ab1322	100.0	22.0	78.0	11.6	31.9	14.1
87AB5632	Monida/75Ab861	99.3	25.6	77.3	11.7	33.2	14.0
ABSP 9-2	83Ab3119/Monida	99.7	23.8	72.5	12.0	34.6	14.2
OT351	CDC Pacer	99.0	27.7	72.3	11.5	32.8	13.1
ABSP14-6	83Ab3119/Monida	99.3	24.4	72.2	11.1	32.5	14.1
CI483126	Monida	99.0	25.1	70.5	11.9	32.0	13.7
ABSP19-9	83Ab3083/Monida	100.0	21.7	69.3	10.9	31.6	15.1
OT373	CDC Dancer	99.7	28.5	68.1	11.5	35.5	14.9
CI 9252	Otana	100.0	28.1	67.3	11.5	33.5	15.9
PI537436	Ajay	100.0	17.9	66.4	10.5	31.0	14.5
PI583735	Celsia	98.3	26.0	66.1	10.6	29.7	14.1
81Ab5792	Rio Grande	99.7	20.9	65.2	10.7	30.3	14.8
95A10854	(95Ab10854) 84Ab835/Monid	97.2	23.5	64.5	12.1	32.9	14.4
ND930122	Killdeer	100.0	25.1	64.5	12.1	33.0	14.0
PI591810	Whitestone(ND870258)	99.3	25.0	63.1	11.3	31.7	14.2
94AB5543	83Ab3119/86Ab1867A	100.0	23.2	62.6	11.7	33.7	14.8
EXPERIMENTAL MEANS		99.4	24.3	68.7	11.4	32.5	14.4
LSD (0.05)		1.5	2.1	11.2	0.8	1.5	.
C.V.2: (S of MEAN / MEAN)*100		0.5	3.0	5.7	2.5	1.6	.

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 32 lbs/bu as the standard test weight for oats.
2/ Protein values are reported on a 100% dry matter basis.

Site Resource & Management Data:					
Field	A-5-4	Na (MEQ/100g) 0-6	0.09	Cropping System	NT-ChmFlw
Quarter	NW	SaltHaz (MMHOS/cm) 0-6	1.04	Planting Date	14-May
Section	33	SaltHaz(MMHOS/cm) 6-24	0.8	Planting Depth (in.)	1
Township	32N	Soil Texture 0-6"	CL	Moist Soil Depth @Plnt'g	55+
Range	15E	Soil Texture 6-24"	CL	Dry Surf Soil (in.) @Plnt'g	0.25
Soil Series	Joplin Cl-Lm	Soil Texture 24-36"	CL	2" Soil Temp (oF) @ Plnt'g	64
pH 0-6"	7.6	Soil Texture 36-48"	CL	4" Soil Temp (oF) @ Plnt'g	59
Org.Matter (%) 0-6"	1	Zn (ppm) 0-6	0.4	Fertilizer Formulation	Gran.Blend
N (lbs/ac) 0-6"	42	Mn (ppm) 0-6	1.8	Fertilizer Placement	Bnd at Plntg
N (lbs/ac) 6-24"	24	Cu (ppm) 0-6	0.8	Fert. Rate (lbs/ac) N	70
N (lbs/ac) 24-36"	20	Fe (ppm) 0-6	4.6	Fert. Rate (lbs/ac) P2O5	40
N (lbs/ac) 36-48"	16	CEC 0-6	21.8	Fert. Rate (lbs/ac) K2O	25
P (ppm) Olsen 0-6"	24	Herbicide App. Date	18-Jun	Precip (in.) Plnt'g-Harvest	10.15
K (ppm) 0-6"	302	Herbicide Product	Bronate	Precip (>.1) Plnt'g-Harvest	9.5
S (ppm) 0-24"	38	Herbicide Rate (/ac)	24 oz	Harvest Date	26-Aug

TABLE 12. Ten-Year Yield Summary on Selected Entries from Dryland Northwestern State Oat Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

VARIETY or SELECTION	No. of YEARS TESTED	1/ YIELD (Bushels Per Acre)										AVE. for YEARS TESTED	% of CHECK YIELD 2/	10-YR COMP. AVE. YIELD 3/
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
ABSP19-9	83/AB3083/MONIDA	4						109.5	77.0	36.7	69.3	73.1	103.2	97.1
ND930122	KILLDEER	3							79.1	35.8	64.5	59.8	102.6	96.6
CI483126	MONIDA	10	140.9	85.0	161.3	88.4	93.9	97.9	103.8	80.5	37.7	70.5	101.9	96.0
87AB5125	OGLE/75AB861	5					94.1	95.6	114.9	74.3	33.4	82.5	100.1	94.2
CI 9252	OTANA	10	132.4	88.5	153.8	87.4	95.9	100.2	108.7	73.9	33.6	67.3	100.0	94.2
90AB1322	80AB988/MONIDA	9		77.2	156.3	77.0	99.2	98.4	106.1	72.5	37.5	78.0	99.1	93.3
ABSP 9-2	83/AB3119/MONIDA	6					92.4	93.0	111.3	73.0	29.7	72.5	78.7	92.7
CELSIA	CELSIA	6					97.8	89.4	103.4	75.5	32.1	66.1	77.4	91.2
ND870258	WHITESTONE	8			147.0	88.3	98.1	99.1	94.3	75.6	36.6	63.1	87.8	91.2
81AB5792	RIO GRANDE	10	68.2	88.5	162.0	86.0	97.0	103.1	97.4	81.0	36.3	65.2	88.5	88.5
PI537463	AJAY	10	96.4	69.8	141.0	63.7	90.3	87.3	98.0	66.0	34.5	66.4	81.3	81.3
ND862915	PAUL	4			106.7	60.7			68.9	45.2		70.4	66.4	62.5
MEANS (For Entries Listed)			109.5	81.8	146.9	78.8	95.4	96.0	101.5	72.8	34.9	68.3		89.9
April-July Precip. (in.)			10.70	5.59	11.80	4.57	5.46	8.79	8.57	6.01	4.81	8.87	7.52	
Tot. Annual Precip. (in.)			19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74	
Soil NO3 (lbs.) to SD at Planting			152	212	NA	130	114	172	Pndg	Pndg	Pndg	102	156	
SD (Sampling Depth in Inches)			48	48	0	48	48	48	Pndg	Pndg	Pndg	48	40	
Fertilizer Applied		(# N)	70	70	70	70	70	70	70	70	70	70	70	
		(# P ₂ O ₅)	40	40	40	40	40	40	40	40	40	40	40	
		(# K ₂ O)	0	0	25	25	25	25	25	25	25	25	20	

Long-term check variety is Otana.

1/ See MCES Bulletin 1095 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

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

3/ 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 Otana for the same years, and z = 10-Yr average yield or test weight for the check variety Otana.

TABLE 13. Ten-Year Test Weight Summary on Selected Entries from Dryland Northwestern State Oat Nursery. Northern Agricultural Research Center. Havre, Montana. 1993-2002.

VARIETY or SELECTION	No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel)										AVE. for YEARS TESTED	% of CHECK TEST WT 2/	10-YR COMP. AVE. TEST WT 3/
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
ND862915 PAUL	4			43.8	33.1			38.6	45.1			40.1	116.0	39.7
ABSP 9-2 83/AB3119/MONIDA	6					33.8	30.8	33.5	34.6	37.0	34.6	34.1	100.3	34.3
CI 9252 OTANA	10	35.0	33.2	37.0	33.0	33.4	31.6	33.1	35.3	36.8	33.5	34.2	100.0	34.2
ND930122 KILLDEER	3								35.7	35.0	33.0	34.6	98.2	33.6
ABSP19-9 83/AB3083/MONIDA	4							30.8	35.7	37.0	31.6	33.8	97.4	33.3
ND870258 WHITESTONE	8			35.1	31.3	32.8	29.4	31.7	36.3	36.2	31.7	33.1	96.5	33.0
81AB5792 RIO GRANDE	10	31.1	31.5	34.9	31.3	32.0	29.7	31.8	37.2	34.0	30.3	32.4	94.7	32.4
87AB5125 OGLE/75AB861	5					33.1	28.1	30.8	33.4	35.3		32.1	94.4	32.3
PI537463 AJAY	10	30.0	32.5	33.5	31.1	33.1	28.4	30.6	32.9	35.5	31.0	31.9	93.2	31.9
90AB1322 80AB988/MONIDA	9		30.7	33.9	29.2	30.6	27.6	29.1	33.1	36.1	31.9	31.4	92.0	31.4
CI483126 MONIDA	10	30.5	30.2	33.5	29.3	30.2	28.6	29.3	33.4	35.9	32.0	31.3	91.5	31.3
CELSIA CELSIA	6					30.9	28.0	30.0	33.9	32.2	29.7	30.8	90.7	31.0
MEANS (For Entries Listed)		31.7	31.6	36.0	31.2	32.2	29.1	31.8	35.6	35.5	31.9			33.2
April-July Precip. (in.)		10.70	5.59	11.80	4.57	5.46	8.79	8.57	6.01	4.81	8.87	7.52		
Tot. Annual Precip. (in.)		19.71	10.23	16.36	10.20	12.06	12.17	14.30	10.27	8.83	13.29	12.74		
Soil NO3 (lbs.) to SD at Planting		152	212	NA	130	114	172	Pndg	Pndg	Pndg	102	156		
SD (Sampling Depth in Inches)		48	48	0	48	48	48	Pndg	Pndg	Pndg	48	40		
Fertilizer Applied	(# N)	70	70	70	70	70	70	70	70	70	70	70		
	(# P ₂ O ₅)	40	40	40	40	40	40	40	40	40	40	40		
	(# K ₂ O)	0	0	25	25	25	25	25	25	25	25	20		

Long-term check variety is Otana.

1/ See MCES Bulletin 1095 for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

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

3/ 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 Otana for the same years, and z = 10-Yr average yield or test weight for the check variety Otana.

TABLE 14. Montana Safflower Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, Montana. 2002. (Exp# 02-7702-SA)

ENTRY	SOURCE	1/								
		STAND %	FLWR DATE	PLNT HT Inches	YIELD Lbs/Ac	MOIST %	TEST WT Lbs/Bu	OIL % 0%Mois.	OIL % 8%Mois.	Lbs OIL 8%Mois.
S-541	Will	63.9	213.7	20.8	1848.6	6.9	41.5	40.3	37.0	684.8
CENTENNL	Will	45.6	218.0	19.2	1744.7	7.1	40.3	40.5	37.2	648.2
00B1027	01DLI2 7107	47.0	214.3	19.8	1545.2	5.9	39.1	44.6	41.0	634.0
91B3842	99MTDSVT 203/101	60.4	213.7	19.6	1585.8	6.4	39.5	42.8	39.4	624.8
97B1286	99MTDSVT 311/120	50.2	213.7	18.9	1791.8	6.5	41.1	37.7	34.7	622.3
MORLIN	011-2180	54.9	218.0	18.4	1839.9	6.8	38.9	36.7	33.8	621.7
S-518	Will 95FI	62.7	214.0	16.3	1870.3	6.7	39.8	36.1	33.2	621.1
95B7446	99MTDSVT 218/108	50.5	215.0	17.5	1950.3	7.0	42.6	34.5	31.7	618.4
GW9051	Calif-Barney Hill	56.2	211.7	17.5	2151.5	6.7	44.3	30.8	28.4	610.0
GW9048	Calif-Barney Hill	55.6	211.3	17.7	2133.6	7.0	44.4	30.8	28.4	605.4
95B3538	99MTDSVT 104	60.9	215.3	18.6	1832.6	6.9	42.8	35.5	32.7	598.2
MT 2003S	Calif 0298	68.3	214.0	16.1	1827.9	6.5	42.8	35.5	32.7	597.0
MT 2000	Will	54.8	213.0	14.7	1787.3	6.6	39.7	35.5	32.7	583.9
97B1744	99DLI2 319/107	53.5	213.0	17.8	1785.7	6.3	30.0	35.1	32.3	577.0
96B6054	99MTDSVT 109	50.9	212.3	18.0	1503.9	5.3	38.3	41.6	38.3	575.3
00B6524	01DOL3 3102	51.6	214.0	17.0	1755.2	7.0	44.6	34.9	32.1	564.1
00B6878	01DOL3 3110	60.2	212.0	18.2	1666.2	7.0	43.8	36.4	33.5	558.2
MT 2003	Will WOMA2003	59.9	216.0	16.4	1715.2	6.6	42.0	35.3	32.4	556.5
00B6521	01DOL2 2129	55.3	211.0	16.3	1445.2	5.6	38.5	41.4	38.1	550.2
96B6527	99MTDSVT 317/111	46.3	211.0	17.0	1701.4	6.4	41.3	35.0	32.2	548.2
95B7174	99MTDSVT 222/106	51.9	214.3	17.4	1691.4	7.2	42.1	35.1	32.3	546.1
97B7182	99DOL4 201/122	50.5	215.3	17.7	1602.0	6.8	40.7	36.6	33.7	539.2
00B8208	01DOL4 4126	59.0	217.0	16.5	1754.2	6.8	43.5	33.3	30.6	537.8
91B2166	99DLI1 212/106	53.0	216.0	17.8	1552.8	7.3	39.9	37.3	34.3	534.1
95B7456	99DOL1 327/116	57.6	215.3	17.7	1710.6	6.8	41.8	33.9	31.2	534.1
MT 2001	991-122-6503	53.2	215.0	15.8	1605.3	6.1	38.4	36.0	33.1	532.5
00B7627	01DOL4 4115	58.3	212.7	16.5	1562.6	6.4	41.0	36.5	33.6	524.5
MT 2004	Will	48.8	210.3	14.2	1617.1	6.2	40.0	34.7	32.0	516.8
95B7181	99MTDSVT 228/107	34.7	216.7	17.1	1541.5	7.1	43.1	35.3	32.4	500.2
96B6731	99DOL2 125	46.3	215.3	16.2	1473.8	7.1	38.6	36.2	33.3	490.7
00B6144	01DOL2 2124	45.6	214.0	15.5	1293.2	5.7	38.6	41.2	37.9	490.0
GW9022	Calif-Barney Hill	43.3	213.3	20.9	1674.6	7.5	41.6	30.5	28.1	470.0
98B1475	99DLI2 316/130	53.5	217.0	18.6	1406.1	6.9	41.2	35.9	33.1	464.6
FINCH	Will 95FI	41.9	215.3	19.0	1383.7	6.9	15.1	35.2	32.4	448.4
ERLIN	99MTDSVT 224/130	41.2	211.7	15.8	1262.5	6.2	41.5	37.7	34.7	437.7
00B11267	01DLI2 7112	42.4	212.3	18.0	1323.9	7.0	37.9	34.9	32.1	424.6
EXPERIMENTAL MEANS		52.5	214.1	17.5	1664.9	6.7	40.0	36.4	33.5	555.3
LSD (0.05)		12.1	2.0	2.3	277.7	0.7	10.2	0.9	0.8	96.2
C.V.2: (S of MEAN / MEAN)*100		8.2	0.3	4.6	5.9	3.9	9.1	0.8	0.8	6.1

1/ No. of Days from January 1 (214 = August 2)

Site Resource & Management Data:							
Field	An-3-5		Moist Soil Depth @ Plnt'g	34		Fert. Rate (lbs/ac) P2O5	40
Quarter	NW		Dry Surf Soil (in.) @ Plnt'g	0.25		Fert. Rate (lbs/ac) K2O	25
Section	33		2" Soil Temp (oF) @ Plnt'g	60		Precip (in.) Plnt'g-Harvest	12.03
Township	32N		4" Soil Temp (oF) @ Plnt'g	52		Precip (>.1) Plnt'g-Harvest	11.02
Range	15E		Cropping System	CT-MechFlw		Herbicide App. Date	16-May
Soil Series	Joplin CLm		Fertilizer Formulation	Gran.Blend		Herbicide Product	Treflan 5G
Planting Date	16-May		Fertilizer Placement	Bnd at Plntg		Herbicide Rate (/ac)	17.5 lb
Planting Depth (in.)	1		Fert. Rate (lbs/ac) N	70		Harvest Date	17-Oct