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INTRODUCTION

Content:

This report is intended to serve as a popularized 2010 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 12 percent of NARC-Agronomy’s total research project effort on-station at Havre, and approximately 27 percent of the cereal and oilseed variety evaluation effort on-station. The remaining 73 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 95 years beginning in 1916. Collection of sawfly stem cutting data was added beginning in 2003.

Detailed data pertaining to multiple performance characters, along with associated climatic and management inputs are presented for 2010. Abridged, multi-year summaries for each cereal trial are limited to three crop characters (yield, test weight and sawfly rating), while the safflower summary is limited to two crop characters (yield and oil content). 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.

2010 Data:

It should be noted that 2010 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 2010 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)

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/crops>

Summary of climatic data by months for the 2009-2010 crop year (September to August) and averages for the period 1916-2010 at the Northern Agricultural Research Center. Havre, Montana.

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Crop Year
Year	2009	2009	2009	2009	2010	2010	2010	2010	2010	2010	2010	2010	
Precipitation (inches)													Total
Current Year	0.39	1.25	0.00	0.69	0.72	0.28	0.31	2.39	3.36	2.54	1.40	1.28	14.61
95-Year Average (1916 to 2009-10)	1.14	0.66	0.43	0.45	0.44	0.32	0.54	0.99	1.78	2.55	1.43	1.19	11.92
Mean Temperature (°F)													Average
Current Year	64.1	38.8	38.8	7.0	13.1	12.2	32.7	44.7	49.4	60.3	66.7	66.7	41.2
95-Year Average (1916 to 2009-10)	56.2	45.7	30.2	19.5	15.4	19.9	30.0	43.6	54.0	61.8	69.2	67.3	42.7

Last killing frost in spring*

2010 _____ May 13th (31°)
Ave. 1916-2010 _____ May 14th

First killing frost in fall*

2010 _____ October 14th (31°)
Ave. 1916-2010 _____ September 20th

Frost free period

2010 _____ 154 days
Ave. 1916-2010 _____ 129 days

Growing degree days (base 50)

May 1-Oct 31, 2010 _____ 2219.5
Ave. 1951-2010 _____ 2379.2

Maximum summer temperature _____ 102° August 27th

Minimum winter temperature _____ -35° December 7th

*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. 2010. (Exp# 10-3502-WW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	3/ PROTEIN %	4/ SAWFLY %
OVERLAND	OVERLAND	96.2	167.3	36.7	82.7	10.3	62.9	11.5	11.7
PI555458	PROMONTORY	95.8	170.3	35.3	81.1	10.1	63.6	11.0	23.3
MTS0819	93X312E14/NuHorizon	99.3	170.7	35.9	79.9	10.2	61.7	11.9	1.0
ART	ART	97.9	167.7	34.5	79.6	10.0	61.8	12.4	8.3
SETTLER	SETTLER CL	97.6	168.0	34.0	79.3	10.1	62.3	11.2	21.7
MT0866	MT9994//TX95V6409/MTR9814	97.6	170.3	37.9	79.1	10.5	62.7	11.7	11.7
JAGALENE	JAGALENE	97.6	168.7	34.1	78.7	10.5	64.4	11.6	12.0
MT0871	MT9982//MTW0072/NW97S151	98.6	171.3	38.3	77.8	10.0	60.1	11.9	8.7
MTS0532	L'Govskaya 167/Rmp//MT940	99.0	170.0	36.4	76.1	10.5	61.5	11.7	7.0
BZ022060	CARTER	97.9	170.7	33.0	75.9	10.2	62.9	11.5	5.3
MT0890	MT98123//MT9409/G1720	98.6	170.0	39.1	74.5	10.5	62.0	12.0	10.0
AP503CL2	AP503 CL2	98.3	168.3	34.8	74.5	10.2	62.2	12.7	8.7
PI619098	WAHOO	99.0	167.3	34.9	74.3	10.3	61.7	11.4	13.3
BRODVIEW	BROADVIEW	96.5	169.3	36.4	73.8	10.2	61.0	11.4	8.7
MT0892	MT98123//MT9409/G1720	100.0	170.3	35.8	73.3	10.2	61.4	11.7	2.3
DH001819	ACCIPITER	99.0	171.7	36.6	73.1	10.0	61.5	10.6	11.7
BZ96-788	LEDGER	98.3	169.7	35.3	73.1	10.2	61.9	11.5	15.0
S94-4	CDC FALCON	97.2	169.3	32.4	72.5	10.3	61.5	11.1	7.0
MTS0713	93X312E14/NuHorizon	96.2	170.7	35.0	72.2	10.0	61.0	12.5	4.0
MTCL0306	HYALITE	99.0	167.3	38.0	72.2	10.7	63.0	10.9	20.0
NI04221	NI04221	99.7	167.7	35.8	71.9	10.0	61.2	11.5	11.7
BZ052039	BZ9W05-2039	99.3	167.0	37.0	71.5	10.1	62.0	12.4	10.0
BZ96-919	PRYOR	99.0	171.7	34.0	71.4	10.0	61.2	12.0	3.7
BOOMER	BOOMER	99.3	170.7	38.5	70.8	9.8	59.8	12.0	15.0
MT00159	YELLOWSTONE	97.9	171.7	37.8	70.7	10.3	61.2	11.8	11.7
MTS0705	MT9524/G14048//Rampart	97.9	171.3	39.9	70.3	9.9	60.0	12.9	8.3
DH993710	PEREGRINE	97.2	171.0	44.2	69.8	9.9	60.4	12.0	23.3
MTS0532L	MTS0532 low PPO	97.9	170.3	34.0	69.5	10.4	61.6	12.1	8.3
MT0861	MT0071//N95L1229/MT9834	99.7	171.3	37.9	69.3	10.5	62.8	12.3	28.3
MT0552	N95L159/CDC Clair	99.7	167.3	35.5	69.3	10.3	62.3	11.5	3.7
BZ052043	BZ9W05-2043	98.3	171.3	34.7	68.9	10.0	62.4	11.0	2.3
STRIKER	STRIKER	98.6	169.3	33.4	68.7	10.5	63.4	11.3	2.3
MTS0832	92X73E70/MTW9911	99.3	173.3	37.7	67.8	10.5	61.0	11.2	3.7
ND9257	JERRY	99.0	171.0	40.8	67.6	10.3	61.1	11.6	28.3
RADIANT	RADIANT	96.5	171.7	38.5	67.6	10.2	61.8	10.7	6.7
MT06103	MT9409/W94-137	99.0	167.3	37.7	67.4	10.1	61.8	12.3	8.3
CI 17860	NEELEY	99.7	172.0	39.5	67.2	10.3	61.5	11.0	13.3
MTS0721	DMS/Rmp//Pronghorn/3/2*Rm	99.0	170.0	34.5	67.1	10.0	61.4	11.6	2.3
CI 17879	ROCKY	100.0	168.3	40.6	66.8	10.3	62.8	11.9	18.3
MTS0827	MT9524/G15048//Rampart	100.0	173.3	38.4	66.1	10.0	61.0	12.0	2.3
MTCL0316	NORRIS	98.3	169.0	40.5	65.9	9.5	60.4	12.6	18.3
CA907817	CA9W07-817	99.7	171.0	39.3	65.7	10.5	62.4	11.7	38.3
MTS04114	L'Govskaya 167/Rmp//MT940	96.2	169.3	33.7	65.5	10.8	62.5	11.3	8.7

**TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland
Continued Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2010.
(Exp# 10-3502-WW)**

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	3/ PROTEIN %	4/ SAWFLY %
MTS0031	GENOU	98.3	170.3	39.7	63.4	10.1	60.7	12.4	15.0
MTS0826	MT9524/G15048//Rampart	96.9	172.3	36.4	63.0	10.4	61.9	10.6	1.0
MTS4114L	MTS04114 low PPO	99.0	169.0	33.5	62.4	10.5	62.5	13.0	5.3
UT932555	CURLEW	99.7	170.0	37.4	60.7	10.0	61.1	12.3	35.0
MTCL0318	BYNUM	99.3	169.3	37.6	60.3	10.2	62.5	13.0	10.0
PI593889	RAMPART	99.0	171.3	39.3	59.9	9.9	60.4	12.9	3.7
EXPERIMENTAL MEANS		98.4	170.0	36.8	70.8	10.2	61.8	11.8	11.4
LSD (0.05)		1.1	0.3	2.8	5.3	1.4	0.9	-	32.7
C.V.2: (S of MEAN / MEAN)*100		2.9	1.5	2.9	10.6	0.4	1.5	-	10.5

1/ No. of Days from January 1 (170 = June 19).

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.

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

Site Resource & Management Data: (Exp# 10-3502-WW)					
Field	A-7-4	SaltHaz(MMHOS/cm) 6-24	0.4	Dry Surf Soil (in.) @ Plnt'g	4.00
Quarter	NW	S (ppm) 0-24	20	2" Soil Temp (°F) @ Plnt'g	66
Section	33	Zn (ppm) 0-6	0.52	4" Soil Temp (°F) @ Plnt'g	64
Tow nship	32N	Fe (ppm) 0-6	9.3	Fertilizer Formulation	Gran Blend
Range	15E	Mn (ppm) 0-6	5.19	Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.461'	Cu (ppm) 0-6	1.61	Fert. Rate (lbs/ac) N	70
Longitude	W109 47.984'	CEC 0-6	29.2	Fert. Rate (lbs/ac) P2O5	40
Soil Series	Hillon Clay	Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25
pH 0-6	8	Soil Texture 6-24	n/a	Herbicide App. Date	n/a
Org.Matter (%) 0-6	1.6	Soil Texture 24-36	n/a	Herbicide Product	n/a
N (lbs/ac) 0-6	41	Soil Texture 36-48	n/a	Herbicide Rate (/ac)	n/a
N (lbs/ac) 6-24	51	Init PAW (in.) 0-6"	1.03	Precip (in.) Plnt'g-Harvest	13.24
N (lbs/ac) 24-36	50	Init PAW (in.) 6-24"	3.51	Precip (>.1) Plnt'g-Harvest	11.53
N (lbs/ac) 36-48	62	Init PAW (in.) 24-36"	2.40	Harvest Date	8/7
N (lbs/ac) 0-48	204	Init PAW (in.) 36-48"	2.48	Rooting Depth (in.)	34"
P (ppm) Olsen 0-6	15	Init PAW (in.) 0-48"	9.43	Post PAW (in.) 0-6"	0.57
K (ppm) 0-6	295	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.52
Ca (ppm)	4953	Previous Crop	SW	Post PAW (in.) 24-36"	1.16
Mg (ppm) 0-6	428	Planting Date	9/24	Post PAW (in.) 36-48"	1.75
Na (ppm) 0-6	22	Planting Depth (in.)	1.00	Post PAW (in.) 0-48"	5.00
SaltHaz(MMHOS/cm)0-6	0.57	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0.71

TABLE 2. Ten-Year Yield Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (Exp# 3502-WW)

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/
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010			
S94-4 CDC FALCON (P+)	10	26.4	38.9	30.4	69.3	62.3	58.9	61.4	68.2	42.1	72.5	53.0	114.2	53.0
PI619098 WAHOO (++)	9		39.8	28.5	72.8	54.7	69.0	54.4	73.5	38.5	74.3	56.2	113.7	52.8
MT00159 YELLOWSTONE (++)	9		39.6	30.2	70.3	58.7	65.6	58.0	69.8	39.7	70.7	55.8	113.1	52.5
BZ9W96-919 PRYOR (P+)	10	23.6	39.0	37.7	73.1	63.6	57.5	47.8	68.0	41.1	71.4	52.3	112.5	52.3
BZ022060 CARTER (P++)	6					63.1	48.3	57.2	65.8	38.0	75.9	58.0	110.8	51.5
GM10001 NUFRONTIER (HW, P+)	6	22.7	35.3	34.5	69.7	58.4	54.6					45.9	110.8	51.5
BZ96-788 LEDGER (P+)	8			32.3	65.2	69.6	52.5	61.1	57.9	39.3	73.1	56.4	110.0	51.1
CI 17879 ROCKY (P)	10	25.3	35.6	27.6	74.7	59.9	61.4	49.9	64.4	39.5	66.8	50.5	108.7	50.5
MTCL0306 HYALITE (HW, P, CL++)	6					53.5	53.2	56.4	67.3	37.2	72.2	56.7	108.2	50.2
MTCL0316 NORRIS (P, CL++)	6					62.8	54.0	56.0	64.6	36.2	65.9	56.6	108.0	50.2
MT9426 PAUL	6	21.8	33.6	33.3	65.0	54.8	57.8					44.4	107.2	49.8
MTS0031 GENOU (++) (saw fly res)	9		32.6	28.7	68.7	63.8	54.7	57.0	61.0	46.4	63.4	52.9	107.1	49.8
JAGALENE JAGALENE (P+)	8			22.5	68.0	58.4	50.6	54.4	68.2	35.1	78.7	54.5	106.3	49.4
MTW9441 NUSKY (HW)	9	25.3	42.5	28.1	63.4	49.4	56.8	54.0	58.3	43.1		46.8	106.0	49.2
ABOVE ABOVE (CL+)	5		28.1	34.5	70.6	54.5	53.9					48.3	105.8	49.1
PI555458 PROMONTORY	10	22.9	31.6	30.1	66.2	45.9	53.9	50.7	66.5	37.2	81.1	48.6	104.7	48.6
PI586806 NUWEST (HW, ++)	8	25.2	40.5	24.2	63.9	55.2	58.5	46.8	59.6			46.7	104.1	48.4
PI593891 VANGUARD (saw fly res)	8	22.5	30.8	30.8	61.7	65.3	51.2	57.5	53.8			46.7	104.1	48.3
MT9432 BIGSKY (++)	7	21.1	32.5	29.6	64.3	49.0	58.6	53.7				44.1	103.6	48.1
ND9257 JERRY	9		42.9	25.5	60.6	48.6	55.9	52.9	59.9	38.3	67.6	50.2	101.7	47.2
PI593889 RAMPART (saw fly res)	10	22.4	36.8	32.4	63.2	60.6	49.0	55.3	53.7	37.8	59.9	47.1	101.4	47.1
PI517194 TIBER	9	22.5	32.1	26.8	65.5	49.1	55.9	52.3	59.1	36.8		44.5	100.7	46.8
MTCL0318 BYNUM (P, CL++) (sf res)	6					49.9	47.7	53.5	61.1	42.2	60.3	52.5	100.2	46.5
CI 17860 NEELEY	10	19.9	34.4	30.3	65.6	44.6	53.6	49.8	60.8	38.2	67.2	46.4	100.0	46.4
PI599336 MORGAN (P+)	7	20.7	37.5	26.8	58.1	44.0	56.0	53.2				42.3	99.4	46.2
MEANS (For Entries Listed)		23.0	36.0	29.7	66.7	56.0	55.6	54.2	63.1	39.3	70.1			49.5
April-July Precip. (in.)		4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40		
Total Annual Precip. (in.)		8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20		
Soil NO ₃ (lbs.) to SD at Planting		Phdg	110	150	418	138	390	416	275	172	204	253		
SD (Sampling Depth in Inches)		Phdg	48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied		(# 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)	25	25	25	25	25	25	25	25	25	25		

Long-term 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, disease resistance, etc. before making cultivar selection decisions.

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

3/ Percent of Neeley yield 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 of a given entry for years tested, y = average yield for Neeley for the same years, and z = 10-Yr average yield for the check variety Neeley.

TABLE 3. Ten-Year Test Weight Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (Exp# 3502-WW)

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/	
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010				
JAGALENE	JAGALENE (P+)	8			60.7	62.4	62.1	64.2	61.7	62.7	63.0	64.4	62.7	104.0	62.1
CI 17879	ROCKY (P)	10	60.0	59.7	62.1	62.4	61.6	65.4	61.3	59.9	62.8	62.8	61.8	103.5	61.8
PI555458	PROMONTORY	10	61.0	59.9	61.4	60.9	61.3	64.1	61.2	61.5	62.6	63.6	61.8	103.4	61.8
GM10001	NUFRONTIER (HW, P+)	6	61.3	57.7	62.1	62.3	60.8	63.9					61.3	102.8	61.4
MTCL0316	NORRIS (P, CL++)	6					63.2	63.5	61.3	60.3	62.6	60.4	61.9	102.7	61.3
PI517194	TIBER	9	60.7	60.7	61.7	59.7	61.0	62.6	60.0	60.2	62.1		61.0	102.5	61.2
MTCL0318	BYNUM (P, CL++)(sf res)	6					61.5	62.9	60.2	61.4	61.4	62.5	61.6	102.3	61.1
MTCL0306	HYALITE (HW, P, CL++)	6					61.0	63.2	60.5	60.4	61.9	63.0	61.6	102.3	61.1
BZ96-788	LEDGER (P+)	8			61.4	60.8	62.2	63.2	60.6	60.1	60.4	61.9	61.3	101.8	60.8
MT9432	BIGSKY (++)	7	60.8	60.9	61.3	58.5	59.9	63.1	59.3				60.5	101.6	60.6
MTW9441	NUSKY (HW)	9	60.3	60.0	60.7	59.3	60.3	62.6	59.5	58.3	62.0		60.3	101.4	60.5
PI586806	NUWEST (HW, ++)	8	59.9	60.0	60.2	60.0	60.3	63.1	59.2	58.1			60.1	101.4	60.5
BZ022060	CARTER (P++)	6					62.0	62.0	59.1	59.4	60.4	62.9	61.0	101.2	60.4
ABOVE	ABOVE (CL+)	5		57.9	59.6	61.6	61.0	62.9					60.6	101.0	60.3
MTS0031	GENOU (++) (saw fly res)	9		58.4	61.3	59.7	60.9	62.5	59.7	58.7	62.0	60.7	60.4	100.9	60.3
PI593891	VANGUARD (saw fly res)	8	58.6	58.1	61.0	60.0	61.2	62.0	59.3	58.4			59.8	100.9	60.3
S94-4	CDC FALCON (P+)	10	57.4	57.7	59.8	60.7	60.3	63.1	59.0	60.2	61.8	61.5	60.1	100.7	60.1
PI593889	RAMPART (saw fly res)	10	58.3	58.8	61.1	59.1	60.5	62.5	58.6	59.1	61.3	60.4	60.0	100.4	60.0
BZ9W96-919	PRYOR (P+)	10	59.1	58.8	61.9	58.4	59.3	62.1	57.4	59.4	61.7	61.2	59.9	100.3	59.9
PI619098	WAHOO (++)	9		57.5	60.6	59.5	59.0	62.3	58.6	58.4	61.4	61.7	59.9	100.0	59.7
CI 17860	NEELEY	10	58.2	57.0	61.2	59.2	60.2	62.3	59.2	57.1	61.2	61.5	59.7	100.0	59.7
MT00159	YELLOWSTONE (++)	9		59.2	60.0	57.9	59.4	62.2	58.3	57.5	61.7	61.2	59.7	99.7	59.6
PI599336	MORGAN (P+)	7	59.4	57.9	60.3	58.7	57.9	61.9	58.2				59.2	99.3	59.3
ND9257	JERRY	9		57.7	60.5	58.8	59.3	62.1	58.0	56.7	60.5	61.1	59.4	99.2	59.3
MT9426	PAUL	6	57.8	57.9	61.2	57.0	58.1	61.8					59.0	98.8	59.0
MEANS (For Entries Listed)			59.5	58.7	61.0	59.9	60.6	62.9	59.6	59.4	61.7	61.9			60.5
April-July Precip. (in.)			4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40		
Total Annual Precip. (in.)			8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20		
Soil NO ₃ (lbs.) to SD at Planting			Pndg	110	150	418	138	390	416	275	172	204	253		
SD (Sampling Depth in Inches)			Pndg	48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied			(# 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)	25	25	25	25	25	25	25	25	25	25		

Long-term 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, disease resistance, etc. before making cultivar selection decisions.

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

3/ Percent of Tiber 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 test weight of a given entry for years tested, y = average test weight for Neeley for the same years, and z = 10-Yr average test weight for the check variety Neeley.

TABLE 4. Eight-Year Sawfly Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2003-2010. (Exp# 3502-WW)

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged)								AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	8-YR COMP. AVE SAWFLY 4/	
		2003	2004	2005	2006	2007	2008	2009	2010				
PI593889	RAMPART (saw fly res)	8	0.3	3.3	8.3	2.3	2.3	13.3	1.0	3.7	4.3	100.0	4.3
PI593891	VANGUARD (saw fly res)	6	0.2	1.7	6.7	8.3	6.7	13.3			6.1	122.9	5.3
MTS0031	GENOU (++) (saw fly res)	8	0.5	3.3	10.0	6.7	5.0	11.7	1.0	15.0	6.6	153.5	6.6
MTCL0318	BYNUM (P, CL++) (sf res)	6			15.0	8.3	6.7	13.3	10.0	10.0	10.6	204.4	8.9
BZ022060	CARTER (P++)	6			13.3	15.0	10.0	10.0	11.7	5.3	10.9	210.8	9.1
BZ96-919	PRYOR (P+)	8	0.7	3.3	8.3	20.0	35.0	13.3	13.3	3.7	12.2	281.9	12.2
CI 17879	ROCKY	8	0.8	10.0	28.3	8.3	30.0	13.3	15.0	18.3	15.5	358.3	15.5
MTCL0316	NORRIS (P, CL++)	6			21.7	8.3	23.3	23.3	18.3	18.3	18.9	365.7	15.8
S94-4	CDC FALCON (P+)	8	1.0	8.3	33.3	25.0	26.7	36.7	13.3	7.0	18.9	436.8	18.9
BZ96-788	LEDGER (P+)	8	0.2	10.0	21.7	36.7	13.3	46.7	11.7	15.0	19.4	448.0	19.4
PI619098	WAHOO (++)	8	0.7	5.0	26.7	23.3	36.7	35.0	23.3	13.3	20.5	473.3	20.5
MT00159	YELLOWSTONE (++)	8	0.5	13.3	40.0	18.3	40.0	18.3	23.3	11.7	20.7	477.6	20.7
PI517194	TIBER	7	0.8	6.7	31.7	26.7	41.7	26.7	25.0		22.7	513.8	22.3
WENDY	WENDY (HW++)	4				11.7	20.0	38.3	28.3		24.6	517.7	22.4
MTCL0306	HYALITE (HW, P, CL++)	6			40.0	28.3	25.0	30.0	18.3	20.0	26.9	521.7	22.6
JAGALENE	JAGALENE (P+)	8	0.5	10.0	55.0	23.3	23.3	38.3	23.3	12.0	23.2	536.3	23.2
CI 17860	NEELEY	8	1.2	11.7	56.7	36.7	28.3	23.3	21.7	13.3	24.1	556.5	24.1
ND9257	JERRY	8	0.7	8.3	45.0	18.3	45.0	21.7	40.0	28.3	25.9	598.4	25.9
MTW9441	NUSKY (HW)	7	0.8	8.3	35.0	28.3	63.3	33.3	18.3		26.8	605.1	26.2
MT 9432	BIGSKY (++)	5	1.2	5.0	30.0	50.0	15.0				20.2	608.0	26.3
PI586806	NUWEST	6	0.5	6.7	60.0	55.0	53.3	28.3			34.0	679.8	29.4
PI555458	PROMONTORY	8	1.5	15.0	41.7	28.3	56.7	28.3	48.3	23.3	30.4	701.8	30.4
PI599336	MORGAN (P+)	5	0.7	8.3	53.3	36.7	26.7				25.1	755.1	32.7
MEANS (For Entries Listed)			0.7	7.7	31.0	22.8	27.6	24.6	19.2	13.6			19.3
April-July Precip. (in.)			7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69		7.54	
Total Annual Precip. (in.)			11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61		12.48	
Soil NO ₃ (lbs.) to SD at Planting			150	418	138	390	416	275	172	204		270	
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48		48	
Fertilizer Applied		(# N)	70	70	70	70	70	70	70	70		70	
		(# P ₂ O ₅)	40	40	40	40	40	40	40	40		40	
		(# K ₂ O)	25	25	25	25	25	25	25	25		25	

Long-term check variety is Rampart.

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, disease resistance, etc. before making cultivar selection decisions.

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

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

4/ 8-Yr Comparable Average = (x/y) * z where x = average saw fly rating of a given entry for years tested, y = average saw fly rating for Rampart for the same years, and z = 8-Yr average saw fly rating for the check variety Rampart.

TABLE 5. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2010. (Exp# 10-3102-SW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	3/ PROTEIN %	4/ SAWFLY %
MT 0964	BZ992592/MT0425	97.9	180.7	29.9	63.0	13.8	57.3	12.4	16.7
BZ92413R	CONAN/AGAWAM	92.4	179.7	30.9	62.4	14.1	59.5	11.4	1.0
MT 0855	MT0249/MT0266	95.8	179.7	33.1	61.5	13.4	57.1	12.9	10.0
MT 0953	MT0245/MCNEAL/REEDER	86.5	180.7	34.3	60.9	13.9	57.8	12.3	15.0
MT 0969	CHOTEAU/3*MT0266	85.7	180.3	32.8	60.9	13.6	58.6	13.2	46.7
BZ93461W	CONAN/AGAWAM	78.8	179.0	30.6	59.0	13.8	57.3	12.0	30.0
MT 0847	MT0245/NDSW0246	92.7	179.7	32.5	58.4	13.5	58.0	12.4	10.0
MT 0814	HANK/MT0249	93.4	179.3	31.7	58.3	13.6	57.2	13.4	16.7
PI642366	VIDA	90.6	181.0	30.7	58.3	13.7	57.7	11.5	7.0
MT 0972	CHOTEAU/2*MT0245	96.9	180.0	33.0	58.2	13.9	57.9	12.6	11.7
BZ999592	ONEAL	93.4	181.0	32.1	58.0	13.9	58.9	12.3	10.0
MT 0927	CHOTEAU/3/MT9410/MT9619//	96.2	181.3	33.0	57.9	13.2	54.1	13.2	23.3
MT 0852	MT0249/CHOTEAU	94.1	180.3	33.7	57.4	13.8	57.2	12.6	7.0
MT 0869	CHOTEAU/REEDER	100.0	179.3	33.8	57.2	13.1	56.5	12.8	21.7
MT 0909	CHOTEAU/MT0336	96.9	181.7	33.7	56.8	13.5	57.6	13.3	16.7
MT 0747	MT0223/MT0266	92.7	179.7	32.1	56.7	13.1	56.6	13.9	28.3
MT 0750	MT0220/MT0261	89.2	179.7	34.2	56.6	13.3	56.5	13.2	43.3
PI632252	OUTLOOK	96.5	181.7	34.8	56.4	13.5	56.4	12.7	26.7
MT 0755	MT0220/MT0266	96.9	178.0	32.9	56.4	13.3	57.0	13.0	40.0
MT 0801	MCNEAL/MT0245	97.3	179.3	34.2	56.4	13.9	57.1	12.9	36.7
MT 0912	CHOTEAU/MT0336	90.3	180.7	29.8	56.3	13.2	56.4	13.0	10.3
MT 0832	CHOTEAU/MT0249	86.5	179.0	31.4	55.5	13.5	57.3	12.8	13.3
MT 0975	CHOTEAU/2*MT0245	89.9	180.7	33.2	55.5	13.6	55.3	12.0	25.0
MT 0861	MT0249/SD3540	98.6	180.7	30.6	55.3	13.6	56.4	11.8	11.7
MT 0923	CHOTEAU/3/MT9410/MT9619//	95.5	180.0	30.4	55.0	13.5	56.6	12.4	21.7
MT 0914	CHOTEAU/MT0412	92.7	179.0	30.7	55.0	13.2	55.9	12.8	30.0
IMICHT79	CHOTEAU*3/CHOTEAU/IMI8134	93.4	179.7	31.4	54.8	13.3	56.9	12.8	18.3
MT 0965	BZ992592/MCNEAL/REEDER	94.8	183.0	33.2	54.7	13.7	58.4	13.1	13.3
ND 695	REEDER	94.4	179.7	33.5	54.6	13.5	57.8	12.7	33.3
MT 0943	HANK/MT0351	96.5	179.7	32.9	54.5	13.2	53.1	12.6	25.0
BZ992322	HANK	80.6	180.0	30.8	54.3	13.5	55.4	12.9	35.0
AGRIPR10	BRENNAN	95.8	178.0	31.7	53.9	13.5	58.4	12.7	18.3
PI633974	CHOTEAU	96.5	179.3	31.6	53.3	13.2	56.5	13.0	31.7
BZ996434	CORBIN	96.9	179.0	32.5	53.3	13.9	57.2	12.5	12.0
MT 0802	MCNEAL/MT0266	97.9	182.3	34.3	53.1	13.8	58.8	12.0	40.0
MTHW0867	ID597/MTHW0201	94.8	181.0	31.0	52.9	13.8	56.6	11.9	26.7
BZ9M1044	JEDD	72.6	179.3	26.9	52.6	13.8	57.4	12.1	23.3
MT 0967	CHOTEAU/3*MT0266	91.7	179.0	31.5	52.6	13.6	57.8	12.8	35.0
MT 0968	CHOTEAU/3*MT0266	92.7	180.0	33.4	52.3	13.7	59.1	12.9	23.3
AGRIPRO8	AP604 CL	97.6	178.0	33.5	52.2	13.5	57.6	13.1	26.7
MT 0941	HANK/MT0336	84.4	184.0	31.1	52.0	13.5	56.7	12.0	20.0
MT 0944	HANK/MT0351	92.0	179.3	30.8	51.9	13.4	56.6	12.5	31.7
NDSW0449	MOTT	93.1	180.3	33.5	51.1	13.3	56.4	13.3	11.7

**TABLE 5. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till
Continued Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2010.
(Exp# 10-3102-SW)**

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	3/ PROTEIN %	4/ SAWFLY %
AGRIPR12	CHOTEAU/4*NORPRO	97.6	180.7	29.5	51.0	13.6	56.7	12.6	20.0
MT 0921	CHOTEAU/SD3747	92.0	179.3	31.7	51.0	13.4	55.7	12.7	25.0
MT 0928	CHOTEAU/3/MT9929//BZ99263	94.8	180.0	32.1	50.4	13.2	56.4	12.2	11.7
CI 13596	FORTUNA	81.6	180.7	40.0	50.1	13.6	57.7	13.0	20.0
MT 0959	BZ992592/MT0336	95.5	179.7	30.4	50.1	13.9	58.8	12.1	20.0
MT 0827	CHOTEAU/MT0249	99.3	178.7	34.8	50.0	13.4	56.9	12.6	30.0
BZ992588	CONAN	95.5	179.3	32.5	50.0	13.7	58.5	12.1	11.7
MT 0930	CHOTEAU/3/MT9929//BZ99263	90.3	180.3	30.6	49.9	13.3	55.4	12.5	13.3
MT 0974	CHOTEAU/2*MT0245	94.5	181.7	32.7	49.9	13.4	57.8	13.2	11.7
PI574642	MCNEAL	94.1	180.3	33.6	49.9	13.7	57.4	12.6	25.0
ACS52610	VOLT	94.1	181.0	29.5	49.7	13.3	58.0	11.5	60.0
AGRIPRO9	JENNA	92.0	182.3	30.0	49.1	13.5	55.7	12.2	26.7
BZ92413W	CONAN/AGAWAM	79.5	179.0	31.7	48.8	13.8	58.7	13.0	15.0
MT 0940	HANK/MT0260	96.2	180.7	31.6	48.5	13.8	58.3	12.4	30.0
AGRIPRO6	KELBY	85.1	178.7	29.6	47.2	13.3	58.2	14.0	25.0
AGRIPRO3	FREYR	89.6	180.0	33.7	46.6	13.6	57.8	13.2	51.7
MT 0950	HANK//MCNEAL/REEDER	99.3	181.7	34.4	46.4	13.5	55.9	12.8	20.0
AGRIPR13	AGRIPRO SY605 CL	95.1	177.7	34.7	46.4	14.1	59.5	12.3	21.7
AGRIPRO7	KUNTZ	84.0	180.7	31.0	44.9	13.3	56.7	12.0	56.7
AGRIPR11	CHOTEAU/3*NORPRO	92.7	181.3	30.8	44.9	13.9	57.2	12.3	38.3
CI 10003	THATCHER	88.2	183.0	42.3	40.6	13.2	55.5	13.8	30.0
EXPERIMENTAL MEANS		92.4	180.2	32.4	53.5	13.6	57.2	12.6	23.7
LSD (0.05)		4.0	0.3	2.8	5.4	0.9	0.7	-	22.8
C.V.2: (S of MEAN / MEAN)*100		10.4	1.2	2.5	8.1	0.3	1.1	-	15.2

1/ No. of Days from January 1 (180 = June 29).

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.

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

Site Resource & Management Data: (Exp# 10-3102-SW)							
Field	A-7-2		SaltHaz(MMHOS/cm) 6-24	0.25		Dry Surf Soil (in.) @ Plnt'g	0.25
Quarter	NW		S (ppm) 0-24	13		2" Soil Temp (°F) @ Plnt'g	65
Section	33		Zn (ppm) 0-6	0.56		4" Soil Temp (°F) @ Plnt'g	62
Township	32N		Fe (ppm) 0-6	9		Fertilizer Formulation	Gran Blend
Range	15E		Mn (ppm) 0-6	4.76		Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.613'		Cu (ppm) 0-6	1.11		Fert. Rate (lbs/ac) N	70
Longitude	W109 47.986'		CEC 0-6	16.3		Fert. Rate (lbs/ac) P2O5	40
Soil Series	Telstad Loam		Soil Texture 0-6	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6	7.6		Soil Texture 6-24	n/a		Herbicide App. Date	6/4
Org.Matter (%) 0-6	1.2		Soil Texture 24-36	n/a		Herbicide Product	Brox- M
N (lbs/ac) 0-6	30		Soil Texture 36-48	n/a		Herbicide Rate (/ac)	24 oz
N (lbs/ac) 6-24	45		Init PAW (in.) 0-6"	0.92		Precip (in.) Plnt'g-Harvest	10.33
N (lbs/ac) 24-36	34		Init PAW (in.) 6-24"	3.49		Precip (>.1) Plnt'g-Harvest	9.23
N (lbs/ac) 36-48	32		Init PAW (in.) 24-36"	2.27		Harvest Date	9/8
N (lbs/ac) 0-48	141		Init PAW (in.) 36-48"	1.94		Rooting Depth (in.)	35"
P (ppm) Olsen 0-6	29		Init PAW (in.) 0-48"	8.62		Post PAW (in.) 0-6"	0.76
K (ppm) 0-6	344		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	1.80
Ca (ppm)	2235		Previous Crop	Oilseed		Post PAW (in.) 24-36"	1.21
Mg (ppm) 0-6	497		Planting Date	4/21		Post PAW (in.) 36-48"	1.85
Na (ppm) 0-6	20		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	5.61
SaltHaz (MMHOS/cm) 0-6	0.29		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0.82

TABLE 6. Ten-Year Yield Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana 2001-2010. (Exp# 3102-SW)

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/
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010			
PI642366 VIDA (++)	8			15.2	51.8	59.3	35.8	42.4	55.3	55.6	58.3	46.7	146.3	45.1
BZ999592 ONEAL (P+)	7				54.9	57.2	31.2	33.6	52.2	48.7	58.0	48.0	135.1	41.6
BZ996472 AGAWAM (P++) (saw fly res)	6	18.6	37.7	11.5	52.6	53.8	34.03					34.7	131.1	40.4
PI632252 OUTLOOK (++)	10	22.9	43.4	15.7	49.4	58.9	31.2	35.7	45.2	43.1	56.4	40.2	130.5	40.2
BZ9M1044 JEDD (P+)	6					59.9	33.7	34.4	48.2	42.9	52.6	45.3	127.3	39.2
ND695 REEDER (+)	10	22.5	34.9	13.0	40.3	51.9	30.0	36.2	51.0	49.9	54.6	38.4	124.8	38.4
BZ996434 CORBIN (P+) (saw fly res)	9	20.0	35.4	10.3	48.6		28.9	42.0	47.8	45.2	53.3	36.8	123.3	38.0
PI633974 CHOTEAU (++) (saw fly res)	10	19.3	35.7	12.7	43.2	58.0	32.1	36.0	45.1	42.3	53.3	37.8	122.6	37.8
BZ992588 CONAN (P+) (saw fly tol)	10	20.4	33.7	13.9	42.7	57.1	32.9	36.1	46.6	44.1	50.0	37.8	122.5	37.8
BZ992322 HANK (P+)	10	20.5	36.4	11.0	44.7	54.3	31.7	34.0	45.1	45.3	54.3	37.7	122.5	37.7
AGRIPRO1 NORPRO (P+)	7		35.5	8.9	39.9	50.3	30.0	35.9	45.0			35.1	120.6	37.1
PI527682 AMIDON (mod saw fly res)	4	22.2	40.6	11.1	38.2							28.0	118.4	36.5
ACS52610 VOLT (P+)	6					53.0	28.4	35.1	42.4	43.4	49.7	42.0	118.1	36.4
AGRIPRO6 KELBY (P+)	6				38.7		30.8	37.7	48.9	42.4	47.2	40.9	117.3	36.1
PI574642 McNEAL	10	18.9	36.5	13.2	40.4	51.8	27.2	35.4	45.9	41.9	49.9	36.1	117.2	36.1
AGRIPRO3 FREYR (P+)	7				40.6	48.8	31.9	33.8	45.2	43.2	46.6	41.4	116.7	36.0
PI607557 SCHOLAR (+) (mod saw fly res)	6	21.0	36.8	11.0	44.1	45.8	26.0					30.8	116.2	35.8
PI619086 EXPLORER (HW, ++)	6	19.8	36.7	13.1	35.8	47.2	30.5					30.5	115.2	35.5
CI13596 FORTUNA (saw fly res)	10	16.7	29.9	9.5	42.0	49.7	33.8	31.5	46.1	45.6	50.1	35.5	115.2	35.5
CI17430 NEWANA	4	21.5	38.5	12.1	35.7							27.0	113.8	35.1
PI549275 HI-LINE	4	19.7	36.0	11.1	40.7							26.9	113.5	35.0
PI592761 ERNEST (+) (saw fly res)	7	19.6	36.1	12.7	39.5	45.0	24.9	32.5				30.0	111.4	34.3
AGRIPRO2 KNUDSON (P+)	5		31.6	7.6	38.8	46.7	28.0					30.5	108.7	33.5
AGRIPRO7 KUNTZ (P+)	5						26.1	31.3	39.0	45.2	44.9	37.3	107.1	33.0
CI10003 THATCHER	10	18.4	34.2	6.9	35.2	39.3	24.9	29.9	33.2	45.5	40.6	30.8	100.0	30.8
MEANS (For Entries Listed)		20.1	36.1	11.6	42.6	52.0	30.4	35.5	46.4	45.1	51.7			37.1
April-July Precip. (in.)		4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40		
Total Annual Precip. (in.)		8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20		
Soil NO ₃ (lbs.) to SD at Planting		Pndg	98	44	86	142	119	220	252	139	141	138		
SD (Sampling Depth in Inches)		48	48	48	48	48	48	48	48	48	48	48		
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)	25	25	25	25	25	25	25	25	25	25	25		

Long-term check variety is Thatcher.

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

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

3/ Percent of Thatcher yield 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 of a given entry for years tested, y = average yield for Thatcher for the same years, and z = 10-Yr average yield for the check variety Thatcher.

TABLE 7. Ten-Year Test Weight Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (Exp# 3102-SW)

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/	
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010				
BZ996472	AGAWAM (P++) (saw fly res)	6	60.0	61.2	60.3	63.0	59.9	58.6					60.5	111.8	61.1
CI17430	NEWANA	4	59.6	62.0	56.2	58.8							59.2	108.6	59.4
AGRIPRO6	KELBY (P+)	6				60.0		57.2	59.2	59.6	59.5	58.2	58.9	108.2	59.2
PI607557	SCHOLAR (+) (mod saw fly res)	6	59.4	61.3	57.3	58.7	58.3	55.8					58.5	108.0	59.1
AGRIPRO2	KNUDSON (P+)	5		60.5	57.4	59.0	57.5	54.8					57.8	107.4	58.7
PI527682	AMIDON (mod saw fly res)	4	57.7	59.8	57.1	59.1							58.4	107.3	58.7
BZ992588	CONAN (P+) (saw fly tol)	10	59.5	61.1	56.6	59.9	59.4	54.6	57.5	58.6	59.8	58.5	58.6	107.1	58.6
PI592761	ERNEST (+) (saw fly res)	7	58.0	60.0	56.8	59.4	56.9	54.5	57.3				57.5	106.8	58.4
ACS52610	VOLT (P+)	6				60.1	56.4	57.5	59.1	59.8	58.0		58.5	106.7	58.3
BZ996434	CORBIN (P+) (saw fly res)	9	57.4	60.9	57.7	60.1		54.7	57.6	57.0	59.9	57.2	58.1	106.4	58.2
BZ999592	ONEAL (P+)	7				60.5	58.8	54.1	56.0	57.8	60.6	58.9	58.1	106.3	58.1
PI619086	EXPLORER (HW, ++)	6	58.0	60.3	56.8	58.5	56.7	54.6					57.5	106.2	58.1
CI13596	FORTUNA (saw fly res)	10	57.2	59.2	56.8	59.2	59.2	56.0	56.8	58.8	59.4	57.7	58.0	106.1	58.0
AGRIPRO3	FREYR (P+)	7				61.0	58.8	55.1	57.1	56.9	59.4	57.8	58.0	106.1	58.0
ND695	REEDER (+)	10	58.2	60.6	57.4	58.9	58.6	53.6	56.8	58.2	60.0	57.8	58.0	106.1	58.0
BZ9M1044	JEDD (P+)	6				59.9	55.5	58.1	57.9	59.7	57.4		58.1	105.9	57.9
PI549275	HI-LINE	4	56.4	60.7	56.6	56.9							57.6	105.8	57.9
PI642366	VIDA (++)	8			55.9	58.6	57.8	52.0	55.8	58.6	58.8	57.7	56.9	105.1	57.5
AGRIPRO1	NORPRO (P+)	7		61.8	57.1	58.4	56.8	51.9	55.4	54.7			56.6	105.1	57.5
PI633974	CHOTEAU (+) (saw fly res)	10	57.0	60.2	57.8	59.5	58.7	52.8	55.7	56.3	57.9	56.5	57.2	104.7	57.2
BZ992322	HANK (P+)	10	57.7	59.6	56.5	58.3	55.2	53.7	54.9	56.2	58.8	55.4	56.6	103.6	56.6
PI632252	OUTLOOK (++)	10	56.9	59.9	54.3	57.6	58.0	51.3	55.3	57.0	59.2	56.4	56.6	103.5	56.6
AGRIPRO7	KUNTZ (P+)	5					55.3	56.3	55.7	58.4	56.7		56.5	103.4	56.6
PI574642	McNEAL	10	57.7	60.1	54.0	57.0	57.3	52.7	54.5	56.0	58.5	57.4	56.5	103.3	56.5
CI10003	THATCHER	10	55.5	58.3	50.3	53.8	55.8	51.1	52.5	55.1	58.9	55.5	54.7	100.0	54.7
MEANS (For Entries Listed)			57.9	60.4	56.5	58.9	58.1	54.4	56.3	57.3	59.3	57.3			58.0
April-July Precip. (in.)			4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40		
Total Annual Precip. (in.)			8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20		
Soil NO ₃ (lbs.) to SD at Planting			Pndg	98	44	86	142	119	220	252	139	141	138		
SD (Sampling Depth in Inches)				48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied				(# N)	70	70	70	70	70	70	70	70	70		
				(# P ₂ O ₅)	40	40	40	40	40	40	40	40	40		
				(# K ₂ O)	25	25	25	25	25	25	25	25	25		

Long-term check variety is Thatcher.

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

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

3/ Percent of Thatcher 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 test weight of a given entry for years tested, y = average test weight for Thatcher for the same years, and z = 10-Yr average test weight for the check variety Thatcher.

TABLE 8. Eight-Year Sawfly Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2003-2010. (Exp# 3102-SW)

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ SAWFLY RATING (% cut and lodged)									AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	8-YR COMP. AVE. SAWFLY 4/
		2003	2004	2005	2006	2007	2008	2009	2010				
BZ992588	CONAN (P+)(saw fly tol)	8	0.0	15.0	1.7	3.7	1.0	15.0	1.0	11.7	6.1	39.1	6.1
BZ999592	ONEAL (P+)	7		8.3	3.3	5.0	2.3	11.7	8.3	10.0	7.0	39.6	6.2
PI642366	VIDA (++)	8	0.0	26.7	0.0	5.0	3.7	6.7	8.7	7.0	7.2	46.0	7.2
BZ996472	AGAWAM (P+)(saw fly res)	4	0.0	11.7	3.3	1.0					4.0	50.0	7.8
BZ996434	CORBIN (P+)(saw fly res)	7	0.0	20.0		1.0	1.0	33.3	5.3	12.0	10.4	61.2	9.6
BZ9M1044	JEDD (P+)	6			0.0	6.7	6.7	30.0	5.0	23.3	11.9	69.1	10.8
AGRIPRO1	NORPRO (P+)	6	0.0	21.7	8.3	13.3	5.0	26.7			12.5	83.0	13.0
PI592761	ERNEST (+)(saw fly res)	5	0.0	20.0	5.0	2.3	3.7				6.2	83.8	13.1
PI633974	CHOTEAU (++) (saw fly res)	8	0.0	18.3	3.3	2.3	1.0	51.7	10.0	31.7	14.8	94.4	14.8
CI 13596	FORTUNA (saw fly res)	8	1.7	20.0	6.7	3.7	5.0	53.3	15.0	20.0	15.7	100.0	15.7
AGRIPRO8	AP604 CL	4					20.0	36.7	13.3	26.7	24.2	103.6	16.2
PI632252	OUTLOOK (++)	8	0.0	30.0	3.3	16.7	8.3	36.7	10.0	26.7	16.5	105.0	16.5
CI 10003	THATCHER	8	3.3	30.0	11.7	10.0	15.0	31.7	10.0	30.0	17.7	113.0	17.7
ND 695	REEDER (+)	8	1.7	23.3	5.0	8.3	13.3	55.0	6.7	33.3	18.3	117.0	18.3
AGRIPRO6	KELBY (P+)	6		30.0		8.3	15.0	55.0	7.0	25.0	23.4	119.9	18.8
BZ992322	HANK (P+)	8	0.0	18.3	6.7	6.7	10.0	65.0	10.0	35.0	19.0	121.0	19.0
PI574642	MCNEAL	8	1.7	25.0	6.7	15.0	15.0	51.7	18.3	25.0	19.8	126.3	19.8
AGRIPRO2	KNUDSON (P+)	4	0.0	30.0	6.7	8.3					11.3	140.6	22.0
MT 0414	MT9408/MT9406//REEDER	5			11.7	13.3	25.0	73.3	10.0		26.7	159.4	25.0
AGRIPRO7	KUNTZ (P+)	5				13.3	16.7	70.0	10.0	56.7	33.3	171.8	26.9
AGRIPRO3	FREYR (P+)	7		28.3	16.7	20.0	15.0	70.0	13.3	51.7	30.7	173.9	27.2
ACS52610	VOLT (P+)	6			16.7	16.7	13.3	86.7	15.0	60.0	34.7	201.0	31.5
MEANS (For Entries Listed)			0.6	22.2	6.5	8.6	9.8	45.3	9.8	28.6			16.5
April-July Precip. (in.)			7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.54		
Total Annual Precip. (in.)			11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.48		
Soil NO ₃ (lbs.) to SD at Planting			44	86	142	119	220	252	139	141	143		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48		
Fertilizer Applied													
		(# N)	70	70	70	70	70	70	70	70	70		
		(# P ₂ O ₅)	40	40	40	40	40	40	40	40	40		
		(# K ₂ O)	25	25	25	25	25	25	25	25	25		

Long-term 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 characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

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

3/ Percent of Fortuna saw fly rating for the same data years as those in which a given entry was tested.

4/ 8-Yr Comparable Average = (x/y) * z where x = average saw fly rating of a given entry for years tested, y = average saw fly rating for Fortuna for the same years, and z = 8-Yr average saw fly for the check variety Fortuna.

Table 9. Montana Spring Durum Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2010. (Exp# 10-9802-SW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	KRNLWT g/1000	3/ PROTEIN %	4/ HVAC SCORE	5/ SAWFLY %
STRONGFIELD	STRONGFIELD	80.6	182.3	37.5	68.0	12.6	58.7	37.0	11.7	53.6	6.7
Cimmy#11	Cimmy#11	94.8	179.3	31.7	67.1	12.5	57.5	37.0	10.1	41.7	3.7
MT05162	MT05162	81.9	185.0	30.1	66.6	12.7	59.3	40.0	11.3	72.4	5.0
NORMANNO	NORMANNO	89.6	181.3	28.6	66.6	12.7	57.9	49.0	11.6	54.2	1.0
MT01649	MT01649	89.6	180.0	26.6	65.2	12.0	56.3	42.0	12.2	55.8	12.0
Cimmy#5	Cimmy#5	91.3	181.3	28.8	64.5	12.1	55.5	33.0	11.0	49.7	1.0
TIOGA	TIOGA	82.3	182.0	39.3	64.1	12.4	58.0	43.0	12.8	61.5	13.3
Cimmy#8	Cimmy#8	89.9	181.7	29.4	63.7	12.5	59.3	35.0	10.9	55.7	1.0
MOUNTRAIL	MOUNTRAIL	76.4	182.3	36.2	63.2	12.6	58.4	41.0	11.8	50.2	18.3
ALKABO	ALKABO	90.3	181.7	35.9	62.7	12.5	58.7	43.0	12.3	52.7	26.7
SARAGOLLA	SARAGOLLA	81.3	180.0	28.9	61.6	12.3	56.3	37.0	11.2	72.0	2.3
CA808-803	CA808-803	84.1	180.0	31.2	61.0	12.5	59.2	43.0	11.3	60.8	6.7
DIVIDE	DIVIDE	78.5	182.3	36.8	60.1	12.6	58.2	43.0	11.8	59.1	10.0
MT04340	MT04340	88.5	181.7	27.7	58.4	12.2	58.3	39.0	12.5	61.7	2.3
ALZADA	ALZADA	85.4	180.0	30.5	58.4	12.3	58.2	43.0	11.0	64.9	8.3
GRENORA	GRENORA	94.1	181.7	34.1	57.7	12.4	58.0	40.0	11.4	46.0	16.7
LEVANTE	LEVANTE	95.1	180.3	27.4	57.7	12.2	58.1	41.0	11.4	46.5	8.7
MT03012	MT03012	89.3	179.7	30.0	55.3	12.2	56.6	39.0	12.4	55.8	23.3
MT04174	MT04174	93.8	180.0	29.7	52.1	12.4	57.6	34.0	11.4	67.2	20.0
PIERCE	PIERCE	87.5	181.7	37.6	50.3	12.4	58.3	42.0	12.8	58.6	38.3
EXPERIMENTAL MEANS		87.2	181.2	31.9	61.2	12.4	57.9	40.1	11.6	57.0	11.3
LSD (0.05)		7.2	0.3	2.3	4.8	0.6	0.6	-	-	-	36.4
C.V.2: (S of MEAN / MEAN)*100		17.9	1.5	2.1	8.4	0.2	1.0	-	-	-	11.7

1/ No. of Days from January 1 (181 = June 30).

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.

4/ Hard Vitreous Amber Color.

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

Site Resource & Management Data: (Exp# 10-9802-SW)						
Field	A-7-2	SaltHaz(MMHOS/cm) 6-24	0.25	Dry Surf Soil (in.) @ Plnt'g	0.25	
Quarter	NW	S (ppm) 0-24	13	2" Soil Temp (°F) @ Plnt'g	66	
Section	33	Zn (ppm) 0-6	0.56	4" Soil Temp (°F) @ Plnt'g	64	
Township	32N	Fe (ppm) 0-6	9	Fertilizer Formulation	Gran Blend	
Range	15E	Mn (ppm) 0-6	4.76	Fertilizer Placement	Bnd at Plntg	
Latitude	N48 29.631'	Cu (ppm) 0-6	1.11	Fert. Rate (lbs/ac) N	70	
Longitude	W109 47.986'	CEC 0-6	16.3	Fert. Rate (lbs/ac) P2O5	40	
Soil Series	Telstad Loam	Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25	
pH 0-6	7.6	Soil Texture 6-24	n/a	Herbicide App. Date	6/4	
Org.Matter (%) 0-6	1.2	Soil Texture 24-36	n/a	Herbicide Product	Brox- M	
N (lbs/ac) 0-6	30	Soil Texture 36-48	n/a	Herbicide Rate (/ac)	24 oz	
N (lbs/ac) 6-24	45	Init PAW (in.) 0-6"	0.92	Precip (in.) Plnt'g-Harvest	10.08	
N (lbs/ac) 24-36	34	Init PAW (in.) 6-24"	3.49	Precip (>.1) Plnt'g-Harvest	8.69	
N (lbs/ac) 36-48	32	Init PAW (in.) 24-36"	2.27	Harvest Date	9/3	
N (lbs/ac) 0-48	141	Init PAW (in.) 36-48"	1.94	Rooting Depth (in.)	39"	
P (ppm) Olsen 0-6	29	Init PAW (in.) 0-48"	8.62	Post PAW (in.) 0-6"	0.82	
K (ppm) 0-6	344	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.88	
Ca (ppm)	2235	Previous Crop	Oilseed	Post PAW (in.) 24-36"	1.47	
Mg (ppm) 0-6	497	Planting Date	4/21	Post PAW (in.) 36-48"	2.13	
Na (ppm) 0-6	20	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	6.29	
SaltHaz (MMHOS/cm) 0-6	0.29	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	1.04	

TABLE 10. Ten-Year Yield Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (Exp# 9802-SW)

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/	
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010				
STRONGFIELD STRONGFIELD (+)	5						31.2	37.8	46.6	45.8	68.0	45.9	111.1	40.8	
NORMANNO NORMANNO	4							41.2	44.0	46.4	66.6	49.6	109.7	40.3	
LEVANTE LEVANTE	4							39.8	49.2	45.0	57.7	47.9	106.1	39.0	
YU894-75 ALZADA (P+)	10	18.9	39.2	9.1	47.7	46.2	30.6	44.7	45.2	39.5	58.4	37.9	103.3	37.9	
P1574642 McNEAL (HRSW check)	5	18.9	39.1	15.6	41.1	49.0						32.7	101.7	37.3	
GRENORA GRENORA (+)	5							29.7	37.0	41.4	42.8	57.7	41.7	101.1	37.1
DIVIDE DIVIDE	5							27.1	37.6	39.1	44.7	60.1	41.7	101.0	37.1
D901313 MOUNTRAIL (+)	10	18.9	39.5	11.6	44.3	46.7		25.8	36.5	39.8	41.1	63.2	36.7	100.0	36.7
MT03012 MT03012	5							29.9	36.5	44.5	40.1	55.3	41.2	99.9	36.7
ALKABO ALKABO (+)	5							27.1	34.0	40.5	41.4	62.7	41.1	99.7	36.6
D901442 LEBSOCK (+)	6	16.3	35.2	10.5	46.7	46.6				40.9		32.7	97.7	35.9	
MT04174 MT04174	4							36.8	47.7	38.4	52.1	43.7	96.8	35.6	
NDMUNICH MUNICH (+)	5	17.0	38.7	10.6	40.4	44.9						30.3	94.1	34.6	
P1478289 MONROE	5	16.9	33.7	7.1	43.4	47.8						29.8	92.4	34.0	
CANKYLE KYLE	6	20.5	36.7	12.5	49.9	46.0	30.2					32.6	91.4	33.6	
ACAVONLE AC AVONLEA (+)	6	21.4	40.3	8.1	44.7	49.9	31.2					32.6	91.3	33.5	
C117789 VIC	5	19.1	35.3	10.9	35.7	44.6						29.1	90.4	33.2	
PIERCE PIERCE (+)	8			11.6	40.6	41.9	25.3	32.8	38.8	36.7	50.3	34.8	90.0	33.1	
DILSE DILSE (+)	6			11.1	41.4	48.6	25.2		40.8	42.0		34.8	89.5	32.9	
D91080 PLAZA (+)	6	19.1	38.0	12.4	41.8	50.3	29.6					31.9	89.3	32.8	
D87130 BEN (+)	5	15.8	35.9	8.4	41.3	41.2						28.5	88.6	32.5	
D89135 MAIER (+)	6	15.7	39.0	10.0	43.5	48.5	29.9					31.1	87.1	32.0	
MEANS (For Entries Listed)		18.2	37.5	10.7	43.0	46.6	28.7	37.7	43.0	42.0	59.3			35.6	
April-July Precip. (in.)		4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40			
Total Annual Precip. (in.)		8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20			
Soil NO ₃ (lbs.) to SD at Planting		Pndg	98	46	86	142	160	220	252	139	141	143			
SD (Sampling Depth in Inches)		48	48	48	48	48	48	48	48	48	48	48			
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)	25	25	25	25	25	25	25	25	25	25	25			

Long-term check variety is Mountrail.

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

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

3/ Percent of Mountrail yield 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 of a given entry for years tested, y = average yield for Mountrail for the same years, and z = 10-Yr average yield for the check variety Mountrail.

TABLE 11. Ten-Year Test Weight Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (Exp# 9802-SW)

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/	
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010				
D901442	LEBSOCK (+)	6	61.2	62.3	58.2	61.4	58.2				59.6		60.1	103.4	59.9
C117789	VIC	5	60.2	62.2	58.1	61.5	58.9						60.2	102.6	59.4
CANKYLE	KYLE	6	61.7	62.9	57.7	59.7	58.8	55.2					59.3	102.2	59.2
D87130	BEN (+)	5	60.6	62.3	57.5	60.8	57.9						59.8	102.0	59.0
PIERCE	PIERCE (+)	8			57.4	60.8	57.5	54.6	59.2	58.6	58.9	58.3	58.2	101.8	58.9
DILSE	DILSE (+)	6			56.9	59.7	57.6	55.4		58.2	58.5		57.7	101.7	58.9
ACAVONLE	ACAVONLEA (+)	6	61.2	62.8	56.8	60.2	56.5	56.2					58.9	101.5	58.8
LEVANTE	LEVANTE	4							58.4	58.4	59.1	58.1	58.5	101.5	58.8
STRONGFIELD	STRONGFIELD (+)	5						57.3	57.6	57.2	58.8	58.7	57.9	101.4	58.7
D89135	MAIER (+)	6	60.8	62.1	56.6	60.0	57.7	55.8					58.8	101.4	58.7
ALKABO	ALKABO (+)	5						54.6	58.9	58.3	58.6	58.7	57.8	101.2	58.6
D91080	PLAZA (+)	6	61.5	62.0	57.1	59.7	56.3	56.1					58.8	101.2	58.6
DIVIDE	DIVIDE	5						55.5	58.7	57.8	58.4	58.2	57.7	101.1	58.5
MT04174	MT04174	4							58.5	57.0	58.7	57.6	58.0	100.6	58.2
GRENORA	GRENORA (+)	5						55.7	57.9	57.4	57.5	58.0	57.3	100.3	58.1
D901313	MOUNTRAIL (+)	10	60.1	61.7	56.7	59.2	55.6	55.0	58.1	55.7	58.4	58.4	57.9	100.0	57.9
P1478289	MONROE	5	59.2	61.0	56.7	59.8	56.6						58.7	100.0	57.9
YU894-75	ALZADA (P+)	10	60.9	61.4	58.1	58.8	55.3	53.8	57.5	55.7	58.9	58.2	57.9	100.0	57.9
NDMUNICH	MUNICH (+)	5	59.6	60.4	55.4	59.4	56.8						58.3	99.4	57.6
MT03012	MT03012	5						55.4	57.9	55.6	58.2	56.6	56.8	99.4	57.5
NORMANNO	NORMANNO	4							57.1	55.7	58.2	57.9	57.2	99.3	57.5
P1574642	McNEAL (HRSW check)	5	58.8	60.2	55.2	60.3	56.7						58.2	99.3	57.5
MEANS (For Entries Listed)			60.5	61.8	57.0	60.1	57.2	55.4	58.2	57.3	58.5	58.1			58.4
April-July Precip. (in.)			4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40		
Total Annual Precip. (in.)			8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20		
Soil NO ₃ (lbs.) to SD at Planting			Pndg	98	46	86	142	160	220	252	139	141	143		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied			(# 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)	25	25	25	25	25	25	25	25	25	25		

Long-term check variety is Mountrail.

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

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

3/ Percent of Mountrail 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 test weight of a given entry for years tested, y = average test weight for Mountrail for the same years, and z = 10-Yr test weight for the check variety Mountrail.

TABLE 12. Eight-Year Sawfly Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2003-2010. (Exp# 9802-SW)

VARIETY or SELECTION	No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged)									AVE. for YEARS TESTED	% of CHECK SAWFLY 2/	8-Yr COMP. AVE. SAWFLY 3/
		2003	2004	2005	2006	2007	2008	2009	2010				
NORMANNO	NORMANNO	4				0.0	2.3	3.7	1.0		1.8	10.1	1.0
SARAGOLL	SARAGOLLA	3					5.0	6.7	2.3		4.7	21.0	2.1
STRONGFIELD	STRONGFIELD (+)	5			0.7	1.7	10.0	5.3	6.7		4.9	34.1	3.5
D91080	PLAZA (+)	4	0.0	3.3	0.0	1.0					1.1	35.1	3.6
LEVANTE	LEVANTE	4				0.7	8.3	8.3	8.7		6.5	37.7	3.8
YU894-75	ALZADA (P+)	8	6.7	6.7	0.0	1.0	1.0	6.7	15.0	8.3	5.7	55.8	5.7
MT03012	MT03012	5				1.0	1.0	6.7	11.7	23.3	8.7	61.2	6.2
ACAVONLE	ACAVONLEA (+)	4	3.3	3.3	0.0	1.0					1.9	62.1	6.3
DIVIDE	DIVIDE	5				0.7	2.3	21.7	15.0	10.0	9.9	69.6	7.1
D901313	MOUNTRAIL (+)	8	3.3	6.7	0.0	2.3	2.3	30.0	18.3	18.3	10.2	100.0	10.2
GRENORA	GRENORA (+)	5				2.3	2.3	38.3	20.0	16.7	15.9	111.7	11.4
ALKABO	ALKABO (+)	5				2.3	3.7	30.0	21.7	26.7	16.9	118.3	12.0
D901442	LEBSOCK (+)	4	0.0	16.7	3.3			28.3			12.1	120.8	12.3
DILSE	DILSE (+)	6	1.7	13.3	1.7	2.3		40.0	21.7		13.4	133.0	13.5
CI 17789	VIC	3	6.7	8.3	1.7						5.6	166.7	16.9
D87130	BEN (+)	3	5.0	11.7	0.0						5.6	166.7	16.9
NDMUNICH	MUNICH (+)	3	3.3	11.7	1.7						5.6	166.7	16.9
D89135	MAIER (+)	4	3.3	11.7	3.3	2.3					5.2	167.5	17.0
PIERCE	PIERCE (+)	8	1.7	10.0	1.7	1.0	3.7	45.0	35.0	38.3	17.0	167.7	17.0
CANKYLE	KYLE	4	5.0	15.0	1.7	5.3					6.8	218.9	22.3
PI478289	MONROE	3	8.3	15.0	5.0						9.4	283.3	28.8
PI574642	MCNEAL	3	1.7	28.3	5.0						11.7	350.0	35.6
MEANS (For Entries Listed)			3.6	11.5	1.8	1.8	1.9	20.9	15.2	14.6			12.3
April-July Precip. (in.)			7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.09	6.29	7.47
Total Annual Precip. (in.)			11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.21	12.46	12.45
Soil NO ₃ (lbs.) to SD at Planting			46	86	142	160	220	252	139	141	252	139	158
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48	48	48
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)	25	25	25	25	25	25	25	25	25	25	25

Long-term check variety is Mountrail.

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

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

3/ Percent of Mountrail saw fly rating for the same data years as those in which a given entry was tested.

4/ 8-Yr Comparable Average = (x/y) * z where x = average saw fly rating of a given entry for years tested, y = average saw fly rating for Mountrail for the same years, and z = 8-Yr saw fly rating for the check variety Mountrail.

TABLE 13. Intrastate Spring Barley Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, MT. 2010. (Exp# 10-2102-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						
Geraldine	Geraldine	80.9	188.7	27.5	93.2	11.8	49.2	92.3	2.9	12.7	
MT080283	MT080283	83.0	183.7	28.8	93.0	12.0	50.5	96.2	1.1	12.5	
MT070158	MT070158	87.2	182.7	30.2	92.8	11.4	50.6	97.8	0.7	12.6	
MT061035	MT061035	97.9	185.7	28.8	89.8	10.9	48.5	91.3	2.8	12.1	
Baronesse	Baronesse	89.6	187.3	27.8	89.5	11.3	49.4	94.9	1.6	11.7	
MT061032	MT061032	95.8	188.0	27.9	88.2	10.4	48.7	91.7	2.7	12.8	
MT080274	MT080274	88.5	181.0	29.5	87.5	11.9	50.2	97.4	0.9	12.3	
MT020204	MT020204	83.3	179.7	30.4	87.3	11.7	50.8	95.4	1.6	13.2	
MT080285	MT080285	88.9	186.3	27.7	86.9	10.8	50.3	96.5	1.0	12.7	
MT080084	MT080084	93.4	186.3	25.1	85.9	11.1	48.0	91.8	2.9	12.8	
EM090117	EM090117	93.8	190.7	24.3	85.8	10.7	47.6	95.5	1.6	12.6	
MT070161	MT070161	89.2	183.7	29.4	84.3	11.2	50.7	98.2	0.5	12.6	
EM090130	EM090130	91.0	193.0	25.0	83.8	11.4	49.3	95.6	1.4	12.2	
MT080279	MT080279	89.9	185.0	29.0	83.5	11.9	50.1	95.0	1.6	12.5	
MT070157	MT070157	90.3	183.0	30.0	83.5	11.0	50.5	97.5	0.9	12.5	
MT080085	MT080085	88.5	186.7	28.6	83.4	10.3	49.9	92.6	2.6	12.6	
Scarlett	Scarlett	90.6	184.0	26.5	83.2	9.5	48.9	95.5	1.3	12.5	
MT080083	MT080083	93.8	184.7	26.1	83.0	10.6	48.3	93.1	2.4	12.1	
MT080284	MT080284	89.2	183.7	26.9	82.9	10.2	49.8	94.7	1.6	12.2	
Harrington	Harrington	88.9	183.7	32.3	82.4	11.8	49.2	95.7	1.3	12.1	
Conrad	Conrad	86.1	187.7	29.4	82.4	11.2	49.1	96.6	1.1	12.6	
MT080243	MT080243	90.6	184.7	31.1	82.0	10.4	48.9	92.8	2.2	12.7	
MT061169	MT061169	89.9	187.0	26.9	81.6	12.1	50.5	94.7	2.1	12.5	
MT070175	MT070175	85.1	181.7	32.6	81.0	9.6	49.2	96.7	1.2	12.1	
MT080017	MT080017	88.9	186.3	29.8	80.6	12.1	49.7	95.6	1.3	12.6	
MT080281	MT080281	86.8	184.0	28.5	80.4	10.5	49.2	91.9	2.7	12.7	
MT070156	MT070156	92.0	182.3	27.2	79.9	11.5	49.8	95.8	1.5	11.7	
EM090128	EM090128	93.1	185.7	23.1	78.7	11.4	49.4	96.0	1.1	11.3	
MT070111	MT070111	92.7	186.0	31.5	78.4	10.5	50.1	95.0	1.6	12.1	
MT080081	MT080081	95.8	185.0	27.0	78.3	11.3	48.4	92.3	2.6	12.1	
Amsterdam	Amsterdam	84.7	182.3	29.3	78.3	10.7	50.0	97.0	0.9	13.1	
EM090134	EM090134	93.8	186.3	28.9	78.0	11.6	48.6	96.3	1.3	13.2	
Metcalfe	Metcalfe	87.5	182.7	30.1	77.9	11.4	48.4	92.0	2.6	13.0	
Hockett	Hockett	86.1	180.3	28.9	77.8	12.1	51.2	97.2	1.0	12.3	
MT080261	MT080261	85.8	179.0	29.4	77.5	10.8	50.2	92.7	2.4	12.3	
Copeland	Copeland	88.2	185.7	32.9	77.0	10.3	48.4	94.8	1.7	12.8	
MT070159	MT070159	90.6	184.3	27.8	76.8	9.8	49.9	97.1	1.0	12.3	
MT040209	MT040209	89.2	186.0	30.7	76.4	12.1	50.4	97.5	0.8	12.8	
Pinnacle	Pinnacle	90.6	180.0	31.5	76.1	11.0	49.4	96.9	1.3	12.3	
MT020155	MT020155	87.9	179.0	31.4	75.6	10.3	49.5	96.8	0.9	13.2	
MT080172	MT080172	84.4	185.3	31.0	75.4	9.9	47.8	93.6	1.5	13.2	
MT070086	MT070086	84.0	187.3	23.5	74.9	11.1	50.1	96.1	1.4	12.9	
MT080077	MT080077	89.6	185.0	27.0	74.5	11.7	48.6	93.2	2.2	12.0	

**TABLE 13. Intrastate Spring Barley Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland
Continued Fallow Conditions at Northern Agricultural Research Center. Havre, MT. 2010.
(Exp# 10-2102-SB)**

ID	CULTIVAR or SELECTION	STAND %	1/	PLNT HT Inches	2/	MOIST %	TEST WT Lbs/Bu	PLUMP %	THIN %	3/
			HEAD DATE		YIELD Bu/Ac					PROTEIN %
MT030042	MT030042	91.0	181.3	29.0	74.5	11.6	51.3	94.3	2.0	11.2
MT020205	MT020205	94.8	179.7	29.8	73.8	10.5	50.8	98.2	0.7	12.2
MT080001	MT080001	84.0	188.7	24.9	73.5	10.9	50.3	97.8	0.6	13.5
MT080277	MT080277	87.9	182.7	28.4	73.2	9.8	48.8	93.6	2.0	12.7
MT020162	MT020162	95.1	185.7	32.3	72.8	11.0	49.5	93.6	2.1	12.8
MT040073	MT040073	89.2	182.3	30.9	72.3	11.7	51.0	95.9	1.0	12.8
MT070148	MT070148	91.3	180.3	28.8	71.3	10.9	49.5	97.2	1.1	12.7
MT080179	MT080179	92.4	181.3	34.1	70.9	11.9	49.8	97.4	0.9	13.0
MT050030	MT050030	88.2	184.7	30.8	70.5	11.7	49.4	98.8	0.3	11.1
MT010160	MT010160	82.6	183.7	28.5	70.2	11.5	50.3	96.8	0.9	12.2
MT061104	MT061104	86.1	179.7	32.3	65.2	11.7	50.2	98.2	0.5	12.6
MT020167	MT020167	89.2	183.3	31.1	64.5	11.9	51.3	98.3	0.5	11.9
MT070125	MT070125	83.3	184.0	32.4	63.1	11.3	50.2	97.6	0.7	12.3
Haxby	Haxby	88.2	179.7	31.0	51.5	11.6	50.6	93.9	2.0	12.3
MT030079	MT030079	92.4	181.7	30.0	50.9	11.6	51.0	96.1	1.0	12.0
MT050062	MT050062	93.1	183.7	30.4	50.1	11.0	50.7	98.0	0.4	11.1
MT080100	MT080100-Karma	92.7	180.3	32.6	42.4	11.6	59.6	92.2	2.7	13.8
MT070063	MT070063	85.4	179.3	33.4	42.1	10.5	50.5	97.8	0.8	12.3
Craft	Craft	88.9	179.3	34.2	37.3	11.2	50.6	97.3	0.8	12.6
MT030063	MT030063	88.9	182.7	30.2	28.3	12.0	51.2	97.7	0.6	12.7
Tradition	Tradition	95.1	179.0	34.4	7.3	11.1	48.0	90.4	2.3	11.9
EXPERIMENTAL MEANS		89.3	183.8	29.4	74.3	11.1	49.9	95.4	1.5	12.4
LSD (0.05)		9.0	2.3	3.1	17.7	2.0	1.0	-	-	1.3
C.V.2: (S of MEAN / MEAN)*100		3.6	0.5	3.7	8.5	6.4	0.7	-	-	3.6

1/ No. of Days from January 1 (184= July 3).

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.

Low yields of Tradition, MT030063, Craft, MT070063, MT080100-Karma, Haxby and MT061104 are attributed to severe (85%) to slight (5%) wildlife depredation which included head removal from specific entries and plots prior to harvest maturity.

Site Resource & Management Data: (Exp# 10-2102-SB)						
Field	A-7-1	SaltHaz(MMHOS/cm) 6-24	n/a	Dry Surf Soil (in.) @ Plnt'g	0.25	
Quarter	NW	S (ppm) 0-24	n/a	2" Soil Temp (°F) @ Plnt'g	70	
Section	33	Zn (ppm) 0-6	n/a	4" Soil Temp (°F) @ Plnt'g	68	
Township	32N	Fe (ppm) 0-6	n/a	Fertilizer Formulation	Gran.Blend	
Range	15E	Mn (ppm) 0-6	n/a	Fertilizer Placement	Bnd at Plntg	
Latitude	N48 29.706'	Cu (ppm) 0-6	n/a	Fert. Rate (lbs/ac) N	70	
Longitude	W109 47.989'	CEC 0-6	n/a	Fert. Rate (lbs/ac) P2O5	40	
Soil Series	Joplin Cl	Soil Texture 0-6	n/a	Fert. Rate (lbs/ac) K2O	25	
pH 0-6	n/a	Soil Texture 6-24	n/a	Herbicide App. Date	6/4	
Org.Matter (%) 0-6	n/a	Soil Texture 24-36	n/a	Herbicide Product	Box- M	
N (lbs/ac) 0-6	n/a	Soil Texture 36-48	n/a	Herbicide Rate (/ac)	24 oz	
N (lbs/ac) 6-24	n/a	Init PAW (in.) 0-6"	n/a	Precip (in.) Plnt'g-Harvest	10.08	
N (lbs/ac) 24-36	n/a	Init PAW (in.) 6-24"	n/a	Precip (>.1) Plnt'g-Harvest	8.39	
N (lbs/ac) 36-48	n/a	Init PAW (in.) 24-36"	n/a	Harvest Date	8/20	
N (lbs/ac) 0-48	n/a	Init PAW (in.) 36-48"	n/a	Rooting Depth (in.)	29"	
P (ppm) Olsen 0-6	n/a	Init PAW (in.) 0-48"	n/a	Post PAW (in.) 0-6"	0.9	
K (ppm) 0-6	n/a	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	1.8	
Ca (ppm) 0-6	n/a	Previous Crop	Mustard	Post PAW (in.) 24-36"	1.6	
Mg (ppm) 0-6	n/a	Planting Date	4/22	Post PAW (in.) 36-48"	2.1	
Na (ppm) 0-6	n/a	Planting Depth (in.)	1.5	Post PAW (in.) 0-48"	6.4	
SaltHaz (MMHOS/cm) 0-6	n/a	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	0.82	

TABLE 14. Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (EXP# 2102-SB)

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ YIELD (Bushels Per Acre)										AVE. for YEARS TESTED	% of CHECK YIELD 4/	9-YR COMP. AVE. YIELD 5/
		2001	2002	2003	2004 3/	2005	2006	2007	2008	2009	2010			
BZ596117 BOULDER (P+)	6	32.9	59.3			91.0	61.8	70.6	76.1			65.3	119.3	72.3
YU501385 CHAMPION	5					94.4	60.7	64.4	85.5	80.5		77.1	109.5	66.3
BZ594-19 WPB XENA (P+)	4	29.0		10.7		73.6	65.4					44.7	100.1	60.6
P568246 BARONESSE (P+)	9	32.2	57.2	14.2		82.4	49.7	66.8	80.5	72.8	89.5	60.6	100.0	60.6
MT020155 MT960225/H1851195	6					87.2	62.3	72.0	66.6	76.8	75.6	73.4	99.8	60.4
MT960228 ESLICK	7	28.1	59.7	11.2		77.2	65.5	68.8	69.2			54.2	99.1	60.1
MT020204 MTLB 32/H1851195	6					87.2	54.7	55.0	79.9	73.4	87.3	72.9	99.1	60.0
MT030042 MT910189/MT960099	6					83.1	53.4	72.7	75.4	72.8	74.4	72.0	97.8	59.2
SK76333 HARRINGTON	8	31.2	54.5	12.8		71.8	63.6	64.6		71.0	82.4	56.5	97.2	58.9
MT020162 MT960225/H1851195	6					82.2	65.7	59.8	75.3	69.2	72.8	70.8	96.3	58.3
MT010160 MT920041/Harrington	7			15.1		80.0	60.8	67.0	70.2	71.8	70.2	62.1	95.4	57.8
MT960101 GERALDINE	9	26.8	57.6	13.7		76.5	53.9	58.9	68.4	70.8	93.2	57.7	95.3	57.7
MT010158 MT920041/Harrington	6			19.3		80.7	63.2	62.7	75.0	67.2		61.4	94.2	57.1
2B965057 CONRAD (+)	6					78.9	54.7	57.6	67.4	70.3	82.4	68.6	93.1	56.4
MT910189 HOCKETT (++)	9	29.5	51.9	11.0		78.5	51.7	61.7	73.8	70.4	77.7	56.2	92.9	56.2
P610264 VALIER (++)	4	30.2	54.3	11.6		75.3						42.9	92.2	55.8
TR232 METCALFE	4						51.4	53.5		68.7	77.9	62.9	90.2	54.7
ND13299 CONLON (+)	4	30.1	54.6	10.8				55.8				37.8	88.8	53.8
MT950186 HAXBY	9	28.9	54.0	12.0				69.9	75.8	48.2	51.5	53.5	88.3	53.5
MT030079 MT950186/MT960225	6					86.1	61.2	74.5	68.8	47.1	50.9	64.8	88.0	53.3
MT030063 MT950155/Harrington	6					100.7	50.6	72.1	69.0	54.1	28.3	62.5	84.9	51.4
MT970116 CRAFT	9	29.4	53.1	12.1		81.4	61.2	64.3	67.0	37.2	37.3	49.2	81.3	49.2
6B952482 TRADITION (P+)	8		54.5	8.8		81.3	66.7	71.5	73.0	50.5	7.3	51.7	80.6	48.9
MEANS (For Entries Listed)		29.8	55.5	12.6		82.5	58.8	65.0	73.2	65.2	66.2			57.5
April-July Precip. (in.)		4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40		
Total Annual Precip. (in.)		8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20		
Soil NO ₃ (lbs.) to SD at Planting		Pndg	Pndg	102	120	184	352	271	157	88	204	185		
SD (Sampling Depth in Inches)		Pndg	48	48	48	48	48	48	48	48	48	48		
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)	25	25	25	25	25	25	25	25	25	25	25		

Long-term check variety is Baronesse.

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

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

3/ Nursery not harvested due to field cleanup combining error.

4/ Percent of Baronesse yield 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 of a given entry for years tested, y = average yield for Baronesse for the same years, and z = 9-Yr average yield for the check variety Baronesse.

TABLE 15. Nine-Year Test Weight Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2001-2010. (EXP# 2102-SB)

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel)										AVE. for YEARS TESTED	% of CHECK TEST WT 4/	9-YR COMP. AVE. TEST WT 5/
		2001	2002	2003	2004 3/	2005	2006	2007	2008	2009	2010			
PI568246	BARONESSE (P+)	9	48.1	48.9	46.0	45.8	44.5	48.7	49.9	50.1	49.4	47.9	100.0	47.9
MT910189	HOCKETT (++)	9	48.2	49.7	49.3	48.0	47.5	49.9	52.0	51.2	51.2	49.7	103.6	49.7
MT950186	HAXBY	9	49.4	50.4	49.1	50.9	48.7	50.7	52.9	52.0	50.6	50.5	105.4	50.5
MT960101	GERALDINE	9	48.6	49.1	47.1	46.1	45.0	47.3	49.9	50.4	49.2	48.1	100.3	48.1
MT970116	CRAFT	9	49.7	50.5	48.8	50.7	48.8	50.0	51.5	51.5	50.6	50.2	104.8	50.2
SK76333	HARRINGTON	8	46.2	48.4	45.5	44.9	44.6	47.2		49.8	49.2	47.0	98.5	47.2
6B952482	TRADITION (P+)	8		46.8	45.1	46.7	46.4	47.0	49.2	48.6	48.0	47.2	98.6	47.3
MT960228	ESLICK	7	47.7	49.6	46.3	47.1	46.1	48.9	50.1			48.0	101.2	48.5
MT010160	MT920041/Harrington	7			47.3	49.1	45.5	47.9	50.6	50.9	50.3	48.8	102.2	49.0
BZ596117	BOULDER (P+)	6	47.7	49.2		50.8	48.7	49.3	51.9			49.6	103.0	49.4
MT010158	MT920041/Harrington	6			48.9	50.9	46.9	49.6	50.7	50.6		49.6	103.8	49.8
2B965057	CONRAD (+)	6				47.1	45.7	47.4	49.4	49.4	49.1	48.0	99.9	47.9
MT020155	MT960225/H1851195	6				48.6	45.6	47.5	50.8	49.4	49.5	48.6	101.1	48.4
MT020162	MT960225/H1851195	6				49.3	45.4	48.9	50.3	50.4	49.5	49.0	101.8	48.8
MT020204	MTLB 32/H1851195	6				50.5	46.1	49.0	51.4	50.7	50.8	49.7	103.5	49.6
MT030042	MT910189/MT960099	6				47.5	47.2	50.8	51.6	51.9	51.3	50.1	104.2	49.9
MT030063	MT950155/Harrington	6				51.0	47.9	49.2	52.2	51.9	51.2	50.6	105.2	50.4
MT030079	MT950186/MT960225	6				49.7	48.0	50.9	52.7	51.3	51.0	50.6	105.3	50.5
YU501385	Champion	5				50.9	48.4	50.3	52.7	51.7		50.8	106.3	50.9
PI610264	VALIER (++)	4	48.5	49.8	46.8	46.9						48.0	101.7	48.7
BZ594-19	WPB XENA (P+)	4	48.4		45.8	45.6	45.1					46.2	100.3	48.1
ND13299	CONLON (+)	4	48.1	48.5	49.7				48.2			48.6	101.5	48.6
TR232	METCALFE	4						45.3	48.2		50.7	48.4	99.9	47.9
MEANS (For Entries Listed)			48.2	49.2	47.4		48.5	46.5	48.9	51.1	50.7	50.0		49.0
April-July Precip. (in.)			4.81	8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.40	
Total Annual Precip. (in.)			8.83	13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	12.20	
Soil NO ₃ (lbs.) to SD at Planting			Pndg	Pndg	102	120	184	352	271	157	88	204	185	
SD (Sampling Depth in Inches)			Pndg	48	48	48	48	48	48	48	48	48	48	
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)	25	25	25	25	25	25	25	25	25	25	25	

Long-term check variety is Baronesse.

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

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

3/ Nursery not harvested due to field cleanup combining error.

4/ Percent of Baronesse 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 test weight of a given entry for years tested, y = average test weight for Baronesse for the same years, and z = 9-Yr average test weight for the check variety Baronesse.

TABLE 16. Montana Safflower Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, Montana. 2010. (Exp# 10-7702-SA)

ENTRY	CULTIVAR or SELECTION	STAND %	1/ FLWR PLNT HT		YIELD Lbs/Ac	MOIST %	TEST WT Lbs/Bu	OIL %		
			DATE	Inches				0%Mois.	8%Mois.	8%Mois.
14	07B 6567	97.2	216.3	25.7	2276.8	5.5	36.8	44.0	47.8	1088.8
27	HYBRID 9049	98.4	214.7	27.9	2228.9	6.4	42.8	32.3	35.1	781.8
28	HYBRID 1601	97.2	214.7	29.3	2116.9	6.2	39.6	36.8	40.0	850.8
12	07B 1161	99.3	219.7	29.0	2071.1	6.3	38.5	40.1	43.6	902.9
29	MONDAK	99.3	217.3	26.2	2070.4	6.3	41.1	37.2	40.4	836.8
36	CARDINAL	98.8	219.3	29.8	2013.8	6.6	43.6	35.6	38.7	779.5
8	06B 3119	99.1	217.7	25.0	2004.1	6.3	38.8	36.2	39.3	787.8
10	06B 3254	98.1	216.7	27.9	1975.6	6.6	40.4	36.8	40.0	789.8
37	CW 3268-OL	98.4	219.7	27.0	1974.5	6.7	38.5	38.2	41.5	820.9
11	07B 1010	98.4	217.7	30.4	1964.7	6.0	37.5	41.2	44.8	878.9
24	08B 1293	97.0	218.7	29.3	1945.0	6.2	39.1	38.7	42.1	817.8
34	MORLIN	98.1	219.3	24.9	1924.2	6.4	39.5	38.5	41.9	804.6
26	06B 1036	97.2	216.3	25.4	1916.8	5.1	37.7	44.7	48.6	933.0
1	03B 8069	99.1	216.7	27.7	1907.7	6.4	42.2	39.5	42.9	820.2
13	07B 6526	99.1	218.7	26.5	1903.8	5.7	37.9	46.6	50.7	964.4
16	08B 1055	94.0	217.7	28.9	1879.9	5.9	37.9	42.3	46.0	864.5
7	06B 1044	99.1	217.7	28.5	1854.7	6.4	37.3	37.5	40.7	754.2
9	06B 3159	98.8	215.0	26.2	1846.9	5.3	36.3	45.9	49.9	924.7
32	MT 2004	99.8	214.0	23.6	1832.8	6.3	39.1	37.0	40.3	739.3
5	05B 6523	99.1	217.0	26.0	1826.5	6.3	41.0	39.2	42.6	781.6
38	CW 99-OL	97.7	215.3	30.3	1809.1	6.1	35.7	40.6	44.1	804.1
18	08B 6050	98.8	217.0	27.5	1800.7	5.4	36.3	46.6	50.6	911.8
3	05B 3401	97.5	215.3	25.5	1755.3	5.8	36.8	41.0	44.5	781.3
2	05B 3381	95.8	217.7	28.0	1744.5	6.1	38.2	39.4	42.8	745.9
31	MT 2003	98.4	218.3	24.1	1741.0	6.4	39.3	37.9	41.2	719.2
23	08B 1031	98.6	219.3	28.9	1734.7	5.6	37.2	42.6	46.3	802.7
22	07B 6741	98.6	218.0	25.4	1733.9	6.1	41.3	39.2	42.6	738.9
4	05B 6162	98.6	215.3	26.0	1713.3	5.6	36.9	44.5	48.3	828.6
6	05B 6570	96.5	217.0	27.7	1697.0	5.6	36.3	45.3	49.3	838.1
25	08B 1295	98.8	219.3	28.9	1696.8	6.0	37.6	41.8	45.4	771.1
19	08B 6228	98.6	217.7	28.4	1686.9	6.6	38.0	39.0	42.4	716.4
30	MT 2000	98.6	216.0	23.0	1676.4	6.0	38.8	40.2	43.7	732.5
20	08B 6658	97.0	218.0	25.9	1620.0	6.2	40.6	39.5	43.0	697.2
15	07B 6962	97.5	217.0	28.7	1598.5	5.7	37.6	47.4	51.5	826.7
21	08B 6693	97.9	217.7	25.7	1588.6	5.5	36.5	44.1	47.9	762.5
35	FINCH	97.5	217.3	27.0	1579.7	6.8	43.6	36.1	39.3	622.5
33	NUTRASAFF	92.1	217.0	28.8	1541.5	5.4	36.9	47.7	51.9	799.2
17	08B 4042	97.0	219.3	30.0	1492.9	6.4	40.0	35.0	38.0	568.3
EXPERIMENTAL MEANS		97.9	217.3	27.2	1835.4	6.1	38.8	40.4	43.9	805.0
LSD (0.05)		3.7	2.6	2.8	331.0	0.5	1.2	1.4	1.5	155.5
C.V.2: (S of MEAN / MEAN)*100		1.4	0.4	3.6	6.4	0.6	1.1	1.2	1.2	6.9

1/ No. Days from January 1 (217 = August 5)

Site Resource & Management Data: (Exp# 10-7702-SA)							
Field	An-3-5		SaltHaz(MMHOS/cm) 6-24	0.43		Dry Surf Soil (in.) @ Plnt'g	0.50
Quarter	NW		S (ppm) 0-24	12		2" Soil Temp (°F) @ Plnt'g	68
Section	33		Zn (ppm) 0-6	0.32		4" Soil Temp (°F) @ Plnt'g	64
Township	32N		Fe (ppm) 0-6	8.4		Fertilizer Formulation	Gran Brod
Range	15E		Mn (ppm) 0-6	2.3		Fertilizer Placement	Bnd at Plntg
Latitude	N49 29.437'		Cu (ppm) 0-6	1.3		Fert. Rate (lbs/ac) N	0
Longitude	W109 47.834'		CEC 0-6	30.2		Fert. Rate (lbs/ac) P2O5	45
Soil Series	Scobey CL		Soil Texture 0-6	n/a		Fert. Rate (lbs/ac) K2O	0
pH 0-6	8.1		Soil Texture 6-24	n/a		Herbicide App. Date	n/a
Org.Matter (%) 0-6	1.8		Soil Texture 24-36	n/a		Herbicide Product	n/a
N (lbs/ac) 0-6	23		Soil Texture 36-48	n/a		Herbicide Rate (/ac)	n/a
N (lbs/ac) 6-24	54		Init PAW (in.) 0-6"	1.1		Precip (in.) Plnt'g-Harvest	12.39
N (lbs/ac) 24-36	92		Init PAW (in.) 6-24"	3.4		Precip (>.1) Plnt'g-Harvest	10.61
N (lbs/ac) 36-48	n/a		Init PAW (in.) 24-36"	2.2		Harvest Date	10/4
N (lbs/ac) 0-48	169		Init PAW (in.) 36-48"	n/a		Rooting Depth (in.)	42"
P (ppm) Olsen 0-6	18		Init PAW (in.) 0-48"	6.7		Post PAW (in.) 0-6"	0.66
K (ppm) 0-6	273		Cropping System	CT-MechFlw		Post PAW (in.) 6-24"	2.20
Ca (ppm)	5045		Previous Crop	SB		Post PAW (in.) 24-36"	1.20
Mg (ppm) 0-6	494		Planting Date	4/21		Post PAW (in.) 36-48"	0.20
Na (ppm) 0-6	34		Planting Depth (in.)	1		Post PAW (in.) 0-48"	4.26
SaltHaz (MMHOS/cm) 0-6	0.43		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0

TABLE 17. Nine-Year Yield Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2010. (Exp# 7702-SA)

1/ VARIETY or SELECTION	No. of YEARS TESTED	YIELD (Lbs Per Acre)										AVE. for YEARS TESTED	% of CHECK YIELD 3/	9-Yr COMP. AVE. YIELD 4/
		2001 2/	2002	2003	2004	2005	2006	2007	2008	2009	2010			
HYBRID 9049	HYBRID 9049	6				1509.9	1433.7	1988.3	2263.5	2606.5	2228.9	2005.1	163.5	1853.8
HYBRID 1601	HYBRID 1601	4						1694.8	2178.2	2839.0	2116.9	2207.2	160.6	1820.8
CARDINAL	CARDINAL	4						1384.3	1774.1	2461.7	2013.8	1908.5	138.9	1574.4
MON-DAK	MON-DAK	4						1583.5	1765.9	2078.4	2070.4	1874.6	136.4	1546.4
05B 3401	05B 3401	3							1805.8	2152.8	1755.3	1904.6	133.3	1511.1
WILL	MONTOLA 2004 (++)	9	1617.1	448.8	1257.3	1392.6	1158.3	1669.3	1967.1	2239.1	1832.8	1509.2	133.1	1509.2
WILL	CENTENNIAL (++)	8	1744.7	493.5	1130.6	1181.1	1257.3	1521.9	1682.2	2014.4		1378.2	127.3	1443.1
011-2180	MORLIN (++)	9	1839.9	495.0	1359.6	1194.4	1013.9	1311.1	1723.4	2077.2	1924.2	1437.6	126.8	1437.6
WILL	MONTOLA 2000 (++)	9	1787.3	479.2	1113.7	1160.5	1018.2	1540.0	2080.1	2002.7	1676.4	1428.7	126.0	1428.7
06B 3159	06B 3159	3							1654.6	1856.6	1846.9	1786.0	125.0	1417.0
WILL 95FI	FINCH	9	1383.7	564.1	1276.5	1214.2	1082.4	1583.2	1977.3	2086.4	1579.7	1416.4	124.9	1416.4
05B 6162	05B 6162	3							1669.2	1932.8	1713.3	1771.8	124.0	1405.7
Will WOMA2003	MONTOLA 2003 (++)	9	1715.2	468.2	1110.2	1226.1	882.8	1301.2	1724.4	2042.1	1741.0	1356.8	119.7	1356.8
WILL	S-541	5	1848.6	413.9	1202.1	1061.7	1068.3					1118.9	118.9	1347.7
05B 6570	05B 6570	3							1294.8	2025.0	1697.0	1672.3	117.0	1326.8
991-122-6503	MONTOLA 2001	3	1605.3	516.6	1074.0							1065.3	112.3	1273.1
91B3842	NUTRASAF (++)	9	1585.8	211.2	1048.9	1036.2	823.9	1210.3	1156.5	1588.8	1541.5	1133.7	100.0	1133.7
99MTDSVT 224/	ERLIN	5	1262.5	360.4	1376.7	828.3	817.4					929.1	98.7	1119.0
MEANS (For Entries Listed)			1639.0	445.1	1195.0	1180.5	1055.6	1526.2	1781.1	2133.6	1838.4			1440.1
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.68		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.90	10.29	12.42	12.21	12.46	14.61	12.57		
Soil NO ₃ (lbs.) to SD at Planting			n/a	78	214	708	157	154	665	219	115	289		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied														
(# N)			70	70	70	50	0	0	0	0	0	29		
(# P ₂ O ₅)			40	40	40	20	40	45	40	45	45	39		
(# K ₂ O)			25	25	25	10	0	0	0	0	0	9		

Long-term check variety is Nutrasaf.

1/ ++ = PVP Title 5 or Title 5 Pending.

2/ The 2001 nursery was destroyed in October due to extreme stand variability caused by severe drought conditions prior to planting and throughout the growing season.

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

4/ 9-Yr Comparable Average = (x/y) * z where x = average yield of a given entry for years tested, y = average yield for Nutrasaf for the same years, and z = 9-Yr average yield for the check variety Nutrasaf.

TABLE 18. Nine-Year Percent Oil Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2010. (Exp# 7702-SA)

1/ VARIETY or SELECTION		No. of YEARS TESTED	Oil (%) @ 8% Seed Moisture									AVE. for YEARS TESTED	% of CHECK Oil 3/	9-Yr COMP. AVE. Oil 4/	
			2001 2/	2002	2003	2004	2005	2006	2007	2008	2009				2010
91B3842	NUTRASAF (++)	9		39.4	46.2	44.9	43.8	43.2	48.5	44.6	45.8	36.9	43.7	100.0	43.7
05B 6570	05B 6570	3								43.9	42.8	36.3	41.0	96.6	42.2
05B 6162	05B 6162	3								42.0	41.0	36.9	40.0	94.2	41.2
06B 3159	06B 3159	3								41.6	41.7	36.3	39.8	93.9	41.0
WILL	S-541	5		37.0	41.2	40.5	39.5	39.7					39.6	91.0	39.8
WILL	CENTENNIAL (++)	8		37.2	40.1	40.1	39.5	39.9	43.9	41.7	39.9		40.3	90.4	39.5
05B 3401	05B 3401	3								37.6	38.1	36.8	37.5	88.4	38.6
WILL	MONTOLA 2000 (++)	9		32.7	38.7	37.3	37.9	35.7	38.6	38.2	37.3	38.8	37.2	85.2	37.2
011-2180	MORLIN (++)	9		33.8	37.3	37.1	36.4	36.9	39.3	37.2	35.3	39.5	37.0	84.6	37.0
CARDINAL	CARDINAL	4							36.1	33.7	34.8	43.6	37.1	84.3	36.8
99MTDSVT 224/	ERLIN	5		34.7	36.4	37.7	37.3	36.2					36.5	83.8	36.6
MON-DAK	MON-DAK	4							36.7	34.6	34.4	41.1	36.7	83.5	36.5
991-122-6503	MONTOLA 2001	3		33.1	39.1	35.5							35.9	82.5	36.1
Will WOMA2003	MONTOLA 2003 (++)	9		32.4	37.8	34.9	36.2	34.8	36.8	36.5	34.5	39.3	35.9	82.2	35.9
WILL 95FI	FINCH	9		32.4	34.5	34.5	35.0	35.5	36.5	34.5	34.9	43.6	35.7	81.7	35.7
WILL	MONTOLA 2004 (++)	9		32.0	37.2	35.5	35.5	33.9	35.8	35.3	35.2	39.1	35.5	81.2	35.5
HYBRID 1601	HYBRID 1601	4							36.1	30.4	34.7	39.6	35.2	80.1	35.0
HYBRID 9049	HYBRID 9049	6					31.9	31.0	32.1	34.3	29.1	42.8	33.5	76.6	33.5
MEANS (For Entries Listed)				34.5	38.9	37.8	37.3	36.7	38.2	37.7	37.3	39.3			37.9
April-July Precip. (in.)				8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	7.68		
Total Annual Precip. (in.)				13.29	11.54	14.43	11.90	10.29	12.42	12.21	12.46	14.61	12.57		
Soil NO ₃ (lbs.) to SD at Planting				n/a	78	214	708	157	154	665	219	115	289		
SD (Sampling Depth in Inches)				48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied															
		(# N)		70	70	70	50	0	0	0	0	0	29		
		(# P ₂ O ₅)		40	40	40	20	40	45	40	45	45	39		
		(# K ₂ O)		25	25	25	10	0	0	0	0	0	9		

Long-term check variety is Nutrasaf.

1/ ++ = PVP Title 5 or Title 5 Pending.

2/ The 2001 nursery was destroyed in October due to extreme stand variability caused by severe drought conditions prior to planting and throughout the growing season.

3/ Percent of Nutrasaf oil% for the same data years as those in which a given entry was tested.

4/ 9-Yr Comparable Average = (x/y) * z where x = average oil% of a given entry for years tested, y = average yield for Nutrasaf for the same years, and z = 9-Yr average oil% for the check variety Nutrasaf.