TITLE: Winter Wheat, Spring Wheat, Spring Barley and Safflower Variety Performance Evaluations Under Chemical Fallow Conditions On-Station at Northern Agricultural Research Center, Havre, Montana. 2002-2011.

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Content:

This report is intended to serve as a popularized 2011 summary of "primary" on-going cereal and oilseed crop variety investigations traditionally conducted on-station by Agronomy at Northern Agricultural Research Center. These data represent approximately 16 percent of NARC-Agronomy's total research project effort on-station at Havre. The remaining 84 percent of the research not reported here includes cultivar and product evaluation associated with larger nurseries featuring early generation or other unnamed experimental materials not of general interest to the public; and/or experimental seed treatment, fungicide and insecticide evaluations. 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 96 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 2011. 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.

2011 Data:

It should be noted that 2011 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 2011 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

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Summary of climatic data by months for the 2010-2011 crop year (September to August) and averages for the period 1916-2011 at the Northern Agricultural Research Center. Havre, Montana.

Month Year	Sep 2010	Oct 2010	Nov 2010	Dec 2010	Jan 2011	Feb 2011	Mar 2011	Apr 2011	May 2011	Jun 2011	Jul 2011	Aug 2011	Crop Year
Precipitation (inches)													**Total**
Current Year	2.19	0.27	1.45	0.72	0.88	0.12	0.60	0.68	3.57	2.79	1.71	0.47	15.45
96-Year Average (1916 to 2010-11)	1.15	0.65	0.44	0.45	0.44	0.32	0.54	0.99	1.80	2.56	1.43	1.19	11.96
Mean Temperature (^{o}F)													**Average**
Current Year	55.6	49.0	26.6	11.3	14.1	12.6	23.7	41.6	51.1	59.3	68.9	70.2	40.3
96-Year Average (1916 to 2010-11)	56.2	45.7	30.1	19.4	15.4	19.8	29.9	43.6	54.0	61.8	69.2	67.3	42.7

Last killing frost in spring*

2011 _____ **May 14th (31˚)**
Ave. 1916-2011 _____ **May 14th**

First killing frost in fall*

2011 _____ **September 20th (32˚)**
Ave. 1916-2011 _____ **September 20th**

Frost free period

2011 _____ **129 days**
Ave. 1916-2011 _____ **129 days**

Growing degree days (base 50)

May 1-Oct 31, 2011 _____ **2338.5**
Ave. 1951-2011 _____ **2374.5**

Maximum summer temperature _____ **101˚ July 19th**
Minimum winter temperature _____ **-37˚ February 1st and February 2nd**

*In this summary 32^{o} 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. 2011. (Exp# 11-3502-WW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	PROTEIN %	2/ SAWFLY %
Accipiter	Saskatchewan, 2008	90.7	175.3	36.6	NO HARVEST DUE TO SPOTTY,				1.0
AP 503 CL2	Agripro, 2007	72.8	174.7	33.1	POOR STANDS				8.3
Art	AgriPro, 2007	75.3	165.7	34.2					3.7
Bearpaw (MT	Montana, 2011	72.2	175.7	31.1					1.0
Boomer	WestBred, 2009 (CDC Falcon/Jerry)	93.5	174.0	37.8					2.3
Broadview	Alberta, 2009	87.7	173.7	34.1					3.7
Bynum (CL)	Montana/WestBred, 2005	58.3	174.7	34.3					5.7
BZ9W05-204	Rampart/Kestrel	91.7	174.7	33.9					2.3
BZ9WM07-15	CDC Teal-11A//Pryor*2/imi Fidel	68.5	172.0	30.2					3.7
Carter	WestBred, 2006	82.1	174.0	30.0					3.7
CDC Falcon	Sask/WestBred, 1999	86.4	173.7	37.4					1.0
Curlew	Utah, 2009	83.6	175.7	35.5					25.0
Decade	Montana/North Dakota, 2010	82.1	172.0	35.4					6.7
Genou	Montana, 2004	73.1	175.3	35.4					1.0
Hyalite (CL, H	Montana/WestBred, 2005	82.1	172.0	34.9					13.3
Jagalene	AgriPro, 2002	79.3	172.0	33.3					10.0
Jerry	North Dakota, 2001	92.0	175.3	41.0					5.3
Judee (MTS0	Montana, 2011	88.9	174.0	33.8					4.0
Ledger	WestBred, 2004	65.1	175.0	31.2					1.0
McGill	Nebraska, 2010	87.3	172.7	35.9					8.3
MT08146	MT9982*2/MT9904	84.6	174.3	37.1					5.3
MT08172	MT9982*2/BZ9W96-895	87.0	176.3	35.5					6.7
MT08189	Yellowstone (L) plant seln	81.2	175.0	34.5					5.3
MT0866	MT9994//TX95V6409/MTR98148	80.2	174.7	36.1					6.7
MT0871	MT9982//MTW0072/NW97S151	88.9	175.3	36.7					1.0
MT0954	MT9982//Paul/94X151E40	87.7	175.0	35.6					5.0
MT0978	MT9982//MTW0072/NW97S151	90.4	176.0	34.6					2.3
MT0990	Yellowstone (Loppo) plant selection	85.5	175.0	38.5					1.0
MTCL1003	Jerry/CDC Teal 11A//MTCL0325	54.6	176.3	34.2					1.0
MTCL1067	Yellowstone*4/3/MTCL01158/CDC Te	64.8	176.0	34.9					10.0
MTCL1068	Yellowstone*4/3/MTCL01158/CDC Te	67.9	176.3	36.2					13.3
MTS0808	MT9908//Nuplains/MTS9862	86.7	175.3	33.5					1.0
MTS0819	93X312E14/NuHorizon	82.7	174.7	34.5					1.0
MTS0826	MT9524/G15048//Rampart	84.0	176.7	35.6					1.0
MTS0832	92X73E70/MTW9911	86.1	177.0	33.7					1.0
MTW08168	MTW0047/2*MT9982	83.0	177.7	37.2					5.3
Norris (CL)	Montana/WestBred, 2005	86.1	171.7	36.2					13.3
Overland	Nebraska, 2007	70.7	173.0	32.0					11.7
Peregrine	Saskatchewan, 2008	73.8	175.7	39.6					2.3
Promontory	Utah, 1990	70.1	175.3	34.3					25.0
Pryor	WestBred, 2002	80.6	179.3	29.4					2.3
Radiant	Alberta, 2002 (Meridian Seeds)	88.9	175.7	38.2					8.3
Rampart	Montana, 1996	64.2	175.7	36.0					1.0

TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2011. (Exp# 11-3502-WW)

Continued

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	PROTEIN %	2/ SAWFLY %
Robidoux	Nebraska, 2010	57.7	174.3	33.1	NO HARVEST DUE TO SPOTTY, POOR STANDS				10.0
Settler CL	Nebraska (SD, WY), 2008	87.0	169.7	33.5					13.3
SY Wolf (BC0	Syngenta (AgriPro), 2010	74.7	173.7	33.0					6.7
Wahoo	Nebraska, 2001	71.6	174.7	32.0					7.0
WB-Matlock	(CA9W07-817) WestBred, 2010	97.5	173.0	38.7					5.3
Yellowstone	Montana 2005	88.3	176.0	35.0					5.3
EXPERIMENTAL MEANS		80.0	174.5	34.9					5.9
LSD (0.05)		18.9	3.1	4.6					6.6
C.V.%		14.6	1.1	8.1					68.5
P-VALUE (Entries)		0.0	<0.0001	0.0005					<0.0001

1/ No. of Days from January 1 (174 = June 23).

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

Site Resource & Management Data: (Exp# 11-3502-WW)							
Field	B-1-4	SaltHaz(MMHOS/cm) 6-24	0.35	Dry Surf Soil (in.) @ Plnt'g	0.50
Quarter	NE	S (ppm) 0-24	7	2" Soil Temp (°F) @ Plnt'g	71
Section	32	Zn (ppm) 0-6	0.70	4" Soil Temp (°F) @ Plnt'g	68
Township	32N	Fe (ppm) 0-6	7.70	Fertilizer Formulation	Gran.Blend
Range	15E	Mn (ppm) 0-6	5.81	Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.450'	Cu (ppm) 0-6	1.11	Fert. Rate (lbs/ac) N	70
Longitude	W109 48.025'	CEC 0-6	18.80	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	8.10	Soil Texture 6-24	n/a	Herbicide App. Date	5/17
Org.Matter (%) 0-6	1.30	Soil Texture 24-36	n/a	Herbicide Product	Brox- M
N (lbs/ac) 0-6	7.5	Soil Texture 36-48	n/a	Herbicide Rate (/ac)	24 oz
N (lbs/ac) 6-24	6.5	Init PAW (in.) 0-6"	1.05	Precip (in.) Plnt'g-Harvest	n/a
N (lbs/ac) 24-36	13	Init PAW (in.) 6-24"	4.23	Precip (>.1) Plnt'g-Harvest	n/a
N (lbs/ac) 36-48	5	Init PAW (in.) 24-36"	2.72	Harvest Date	no harvest
N (lbs/ac) 0-48	32	Init PAW (in.) 36-48"	1.66	Rooting Depth (in.)	n/a
P (ppm) Olsen 0-6	24	Init PAW (in.) 0-48"	9.66	Post PAW (in.) 0-6"	n/a
K (ppm) 0-6	284	Cropping System	NT-ChmFlw	Post PAW (in.) 6-24"	n/a
Ca (ppm)	2909	Previous Crop	Fdn SB	Post PAW (in.) 24-36"	n/a
Mg (ppm) 0-6	420	Planting Date	9/28	Post PAW (in.) 36-48"	n/a
Na (ppm) 0-6	17	Planting Depth (in.)	1.25	Post PAW (in.) 0-48"	n/a
SaltHaz(MMHOS/cm)0-6	0.45	Moist Soil Depth @ Plnt'g	48+	Precip (>.1) Hvst-Post	n/a

TABLE 2. **Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2011. (Exp# 3502-WW)**

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 3/	AVE. for YEARS TESTED	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**
CO0016	RIPPER (++)	3						73.7	67.0	32.2			57.7	103.3	**57.7**
MT0552	DECADE (++)	4						64.9	73.5	37.3	69.3		61.3	102.9	**57.4**
PI619098	WAHOO (++)	9	39.8	28.5	72.8	54.7	69.0	54.4	73.5	38.5	74.3		56.2	100.6	**56.2**
MTS0713	JUDEE (++)	3							66.4	42.4	72.2		60.3	100.5	**56.1**
S94-4	CDC FALCON (P+)	9	38.9	30.4	69.3	62.3	58.9	61.4	68.2	42.1	72.5		56.0	100.3	**56.0**
DH001819	ACCIPITER	3							65.4	41.8	73.1		60.1	100.1	**55.9**
MT00159	YELLOWSTONE (++)	9	39.6	30.2	70.3	58.7	65.6	58.0	69.8	39.7	70.7		55.8	100.0	**55.8**
BZ9W96-919	PRYOR (P+)	9	39.0	37.7	73.1	63.6	57.5	47.8	68.0	41.1	71.4		55.5	99.3	**55.5**
BZ96-788	LEDGER (P+)	8		32.3	65.2	69.6	52.5	61.1	57.9	39.3	73.1		56.4	97.4	**54.4**
BZ022060	CARTER (P++)	6				63.1	48.3	57.2	65.8	38.0	75.9		58.0	96.1	**53.6**
CI 17879	ROCKY (P)	9	35.6	27.6	74.7	59.9	61.4	49.9	64.4	39.5	66.8		53.3	95.4	**53.3**
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	94.8	**52.9**
JAGALENE	JAGALENE (P+)	8		22.5	68.0	58.4	50.6	54.4	68.2	35.1	78.7		54.5	94.2	**52.6**
MTCL0306	HYALITE (HW, P, CL++)	6				53.5	53.2	56.4	67.3	37.2	72.2		56.7	93.8	**52.4**
MTCL0316	NORRIS (P, CL++)	6				62.8	54.0	56.0	64.6	36.2	65.9		56.6	93.6	**52.3**
PI555458	PROMONTORY	9	31.6	30.1	66.2	45.9	53.9	50.7	66.5	37.2	81.1		51.5	92.2	**51.5**
MTW9441	NUSKY (HW)	8	42.5	28.1	63.4	49.4	56.8	54.0	58.3	43.1			49.4	91.6	**51.1**
ND9257	JERRY	9	42.9	25.5	60.6	48.6	55.9	52.9	59.9	38.3	67.6		50.2	90.0	**50.2**
PI593891	VANGUARD (saw fly res)	7	30.8	30.8	61.7	65.3	51.2	57.5	53.8				50.2	89.5	**50.0**
PI593889	RAMPART (saw fly res)	9	36.8	32.4	63.2	60.6	49.0	55.3	53.7	37.8	59.9		49.8	89.3	**49.8**
DH993710	PEREGRINE	3							53.3	37.2	69.8		53.5	89.0	**49.7**
AP503CL2	AP503 CL2	3							62.5	34.2	74.5		57.0	95.0	**53.0**
CI 17860	NEELEY	9	34.4	30.3	65.6	44.6	53.6	49.8	60.8	38.2	67.2		49.4	88.5	**49.4**
PI517194	TIBER	8	32.1	26.8	65.5	49.1	55.9	52.3	59.1	36.8			47.2	87.4	**48.8**
MTCL0318	BYNUM (P, CL++)(sf res)	6				49.9	47.7	53.5	61.1	42.2	60.3		52.5	86.8	**48.5**
MEANS (For Entries Listed)			36.7	29.5	67.2	57.0	55.2	56.1	63.6	38.8	70.5				**53.0**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			110	150	418	138	390	416	275	172	204	32	231		
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_2O_5)	40	40	40	40	40	40	40	40	40	40	40		
		(# K_2O)	25	25	25	25	25	25	25	25	25	25	25		

Long-term check variety is Yellowstone.

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 selecton decisions.

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

3/ No harvest due to spotty, poor stands unrelated to variety differences.

4/ Percent of Yellowstone 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 Yellowstone for the same years, and z = 9-Yr average yield for the check variety Yellowstone.

TABLE 3. **Nine-Year Test Weight Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2011. (Exp# 3502-WW)**

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 3/	AVE. for YEARS TESTED	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
JAGALENE	JAGALENE (P+)	8		60.7	62.4	62.1	64.2	61.7	62.7	63.0	64.4		62.7	104.8	**62.6**
CI 17879	ROCKY (P)	9	59.7	62.1	62.4	61.6	65.4	61.3	59.9	62.8	62.8		62.0	103.8	**62.0**
PI555458	PROMONTORY	9	59.9	61.4	60.9	61.3	64.1	61.2	61.5	62.6	63.6		61.8	103.5	**61.8**
AP503CL2	AP503 CL2	3							60.7	63.0	62.2		62.0	103.0	**61.5**
MTCL0316	NORRIS (P, CL++)	6				63.2	63.5	61.3	60.3	62.6	60.4		61.9	103.0	**61.5**
MTCL0318	BYNUM (P, CL++)(sf res)	6				61.5	62.9	60.2	61.4	61.4	62.5		61.6	102.6	**61.3**
MTCL0306	HYALITE (HW, P, CL++)	6				61.0	63.2	60.5	60.4	61.9	63.0		61.6	102.6	**61.3**
BZ96-788	LEDGER (P+)	8		61.4	60.8	62.2	63.2	60.6	60.1	60.4	61.9		61.3	102.6	**61.3**
PI517194	TIBER	8	60.7	61.7	59.7	61.0	62.6	60.0	60.2	62.1			61.0	102.5	**61.2**
MT0552	DECADE (++)	4						60.3	60.5	61.5	62.3		61.2	102.5	**61.2**
CO0016	RIPPER (++)	3						60.1	60.4	61.1			60.5	102.3	**61.1**
DH001819	ACCIPITER	3							59.8	62.0	61.5		61.1	101.6	**60.7**
BZ022060	CARTER (P++)	6				62.0	62.0	59.1	59.4	60.4	62.9		61.0	101.5	**60.6**
MTW9441	NUSKY (HW)	8	60.0	60.7	59.3	60.3	62.6	59.5	58.3	62.0			60.3	101.4	**60.5**
PI593891	VANGUARD (saw fly res)	7	58.1	61.0	60.0	61.2	62.0	59.3	58.4				60.0	101.3	**60.5**
S94-4	CDC FALCON (P+)	9	57.7	59.8	60.7	60.3	63.1	59.0	60.2	61.8	61.5		60.5	101.2	**60.5**
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	101.2	**60.4**
PI593889	RAMPART (saw fly res)	9	58.8	61.1	59.1	60.5	62.5	58.6	59.1	61.3	60.4		60.1	100.7	**60.1**
BZ9W96-919	PRYOR (P+)	9	58.8	61.9	58.4	59.3	62.1	57.4	59.4	61.7	61.2		60.0	100.5	**60.0**
PI619098	WAHOO (++)	9	57.5	60.6	59.5	59.0	62.3	58.6	58.4	61.4	61.7		59.9	100.3	**59.9**
CI 17860	NEELEY	9	57.0	61.2	59.2	60.2	62.3	59.2	57.1	61.2	61.5		59.9	100.3	**59.9**
MTS0713	JUDEE (++)	3							57.5	62.2	61.0		60.3	100.2	**59.8**
MT00159	YELLOWSTONE (++)	9	59.2	60.0	57.9	59.4	62.2	58.3	57.5	61.7	61.2		59.7	100.0	**59.7**
ND9257	JERRY	9	57.7	60.5	58.8	59.3	62.1	58.0	56.7	60.5	61.1		59.4	99.5	**59.4**
DH993710	PEREGRINE	3							56.4	61.7	60.4		59.5	98.9	**59.1**
MEANS (For Entries Listed)			58.7	61.0	59.9	60.9	62.9	59.7	59.4	61.8	61.8				**60.7**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			110	150	418	138	390	416	275	172	204	32	231		
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_2O_5)		40	40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		25	25	25	25	25	25	25	25	25	25	25		

Long-term check variety is Yellowstone.

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 selecton decisions.

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

3/ No harvest due to spotty, poor stands unrelated to variety differences.

4/ Percent of Yellowstone 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 Yellowstone for the same years, and z = 9-Yr average test weight for the check variety Yellowstone.

TABLE 4. **Nine-Year Sawfly Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2003-2011. (Exp# 3502-WW)**

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged) 2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	**9-YR COMP. AVE. SAWFLY 4/**
PI593889	RAMPART (sawfly res)	9	0.3	3.3	8.3	2.3	2.3	13.3	1.0	3.7	1.0	4.0	100.0	**4.0**
MTS0713	JUDEE (++)	4						8.3	4.0	4.0	4.0	5.1	107.0	**4.2**
MTS0721	BEARPAW (++)	3							4.0	2.3	1.0	2.4	129.3	**5.1**
MTS0031	GENOU (++)(sawfly res)	9	0.5	3.3	10.0	6.7	5.0	11.7	1.0	15.0	1.0	6.0	152.0	**6.0**
BZ022060	CARTER (P++)	7			13.3	15.0	10.0	10.0	11.7	5.3	3.7	9.9	215.8	**8.5**
MTCL0318	BYNUM (P, CL++)(sf res)	7			15.0	8.3	6.7	13.3	10.0	10.0	5.7	9.9	215.8	**8.5**
DH001819	ACCIPITER	4						28.3	10.0	11.7	1.0	12.8	268.4	**10.6**
BZ96-919	PRYOR (P+)	9	0.7	3.3	8.3	20.0	35.0	13.3	13.3	3.7	2.3	11.1	280.4	**11.1**
AP503CL2	AP503 CL2	4						23.3	23.3	8.7	8.3	15.9	334.9	**13.3**
MT0552	DECADE (++)	5					18.3	35.0	16.7	3.7	6.7	16.1	376.8	**14.9**
MTCL0316	NORRIS (P, CL++)	7			21.7	8.3	23.3	23.3	18.3	18.3	13.3	18.1	395.8	**15.7**
S94-4	CDC FALCON (P+)	9	1.0	8.3	33.3	25.0	26.7	36.7	13.3	7.0	1.0	16.9	427.3	**16.9**
BZ96-788	LEDGER (P+)	9	0.2	10.0	21.7	36.7	13.3	46.7	11.7	15.0	1.0	17.4	438.3	**17.4**
DH993710	PEREGRINE	4						23.3	38.3	23.3	2.3	21.8	459.4	**18.2**
MT00159	YELLOWSTONE (++)	9	0.5	13.3	40.0	18.3	40.0	18.3	23.3	11.7	5.3	19.0	479.1	**19.0**
PI619098	WAHOO (++)	9	0.7	5	26.67	23.3	36.7	35.0	23.3	13.3	7.0	19.0	479.7	**19.0**
MTCL0306	HYALITE (HW, P, CL++)	7			40.0	28.3	25.0	30.0	18.3	20.0	13.3	25.0	546.9	**21.7**
JAGALENE	JAGALENE (P+)	9	0.5	10.0	55.0	23.3	23.3	38.3	23.3	12.0	10.0	21.8	549.3	**21.8**
ND9257	JERRY	9	0.7	8.3	45.0	18.3	45.0	21.7	40.0	28.3	5.3	23.6	596.5	**23.6**
PI555458	PROMONTORY	9	1.5	15.0	41.7	28.3	56.7	28.3	48.3	23.3	25.0	29.8	752.2	**29.8**
OVERLAND	OVERLAND	3							20.0	11.7	11.7	14.5	764.9	**30.3**
RADIANT	RADIANT	3							31.7	6.7	8.3	15.5	822.6	**32.6**
SETTLER	SETTLER CL	3							16.7	21.7	13.3	17.2	910.8	**36.1**
UT932555	CURLEW	3							63.3	35.0	25.0	41.1	2175.1	**86.2**
MEANS (For Entries Listed)			0.7	8.0	27.1	18.7	24.5	24.1	20.2	13.1	7.4			**19.8**
April-July Precip. (in.)			7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.67		
Total Annual Precip. (in.)			11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.81		
Soil NO_3 (lbs.) to SD at Planting			150	418	138	390	416	275	172	204	32	244		
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	70		
	(# P_2O_5)		40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		25	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 selecton 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/ 9-Yr Comparable Average = (x/y) * z where x = average sawfly rating of a given entry for years tested, y = average sawfly rating for Rampart for the same years, and z = 9-Yr average sawfly 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. 2011. (Exp# 11-3102-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 %
ACS52610	VOLT	96.9	185.7		51.3	9.9	63.2	13.4	13.3
LIMAGR1	BUCKPRONTO	94.4	181.7		48.2	9.4	60.7	14.7	13.3
MT 0928	CHOTEAU/3/MT9929//BZ99263	94.8	185.0		47.6	9.3	59.3	14.2	11.7
VIDAWHT1	VIDA/CLEARWHITE	96.6	185.0		47.2	9.8	61.1	13.4	8.7
MT 1073	CHOTEAU/REEDER F5/REEDER	96.9	183.7		47.2	9.5	62.3	13.8	18.3
BZ999592	ONEAL	96.3	184.0		46.6	9.7	61.1	13.6	10.0
MTHW1057	MTHW0202/MTHW0471	94.4	185.3		45.8	9.6	60.2	13.4	21.7
BZ996434	CORBIN	95.1	183.3		45.5	9.7	61.2	13.8	5.0
MTHW1064	AGAWAM/IFAFS275	95.7	184.3		44.7	9.6	60.8	13.2	18.3
PI642366	VIDA	95.7	184.0		44.6	9.5	60.8	13.4	10.0
BZ92413R	WB GUNNISON	92.0	184.7		44.1	9.6	60.2	13.4	5.3
MT 1016	CHOTEAU/MT0564	95.4	184.3		43.8	9.4	60.0	14.2	21.7
MT 1003	CHOTEAU/MT0515	97.2	183.7		43.7	9.4	60.3	14.6	28.3
MT 1007	CHOTEAU/MT0515	96.3	183.7		43.7	9.8	61.8	14.0	21.7
MT 1072	CHOTEAU/REEDER F5/REEDER	96.3	184.7		43.1	9.5	60.8	14.0	16.7
AGRIPRO7	KUNTZ	95.4	184.7		43.0	9.7	60.1	13.1	13.3
MT 0972	CHOTEAU/2*MT0245	97.2	184.3		42.7	9.6	61.4	13.8	16.7
AGRIPR14	SY SOREN	95.4	184.0		42.6	9.4	61.3	14.3	2.3
WB11 1	BREAKER	97.8	184.0		42.5	10.0	63.0	14.0	18.3
MT 1015	CHOTEAU/MT0542	96.9	185.3		42.5	9.2	59.9	14.2	20.0
MT 1053	VIDA/MTHW0202	92.0	184.7		42.4	10.0	60.5	13.2	21.7
MT 1005	CHOTEAU/MT0515	95.7	183.3		42.3	9.7	60.5	13.5	31.7
MTHW1069	ID594/CHOTEAU	95.4	183.3		42.1	9.3	59.2	14.0	20.0
BZ992322	HANK	93.8	183.3		42.1	9.3	59.5	14.1	13.3
BZ992588	CONAN	94.4	183.7		41.9	9.5	61.2	14.1	7.0
MT 1004	CHOTEAU/MT0515	96.3	184.3		41.9	9.5	60.6	14.9	18.3
ND 695	REEDER	94.1	184.7		41.8	9.5	61.3	14.2	16.7
MTHW1065	AGAWAM/IFAFS275	93.8	182.7		41.7	9.8	61.7	14.1	20.0
AGRIPRO6	KELBY	96.3	182.0		41.4	9.5	62.3	15.0	15.0
MT 1008	CHOTEAU/MT0515	96.3	184.7		41.3	9.7	60.6	13.4	23.3
PI660981	DUCLAIR	94.8	182.0		41.0	9.3	59.1	14.3	28.3
BZ9M1044	JEDD	95.4	184.7		41.0	9.7	61.5	13.7	6.7
HANKWHT1	HANK/CLEARWHITE	94.8	182.7		40.7	9.3	58.6	14.1	11.7
CI 13596	FORTUNA	95.7	183.7		40.5	9.6	60.7	14.1	18.3
NDSW0449	MOTT	95.4	184.7		40.4	9.5	60.7	14.1	13.3
AGRIPRO8	AP604 CL	98.5	182.0		40.4	9.5	60.8	13.9	13.3
IMICHT79	CHOTEAU*3/CHOTEAU/IMI8134	95.7	184.0		40.0	9.4	60.2	14.5	28.3
MT 1010	CHOTEAU/MT0515	97.2	183.7		39.8	9.8	61.2	13.6	20.0
LIMAGR2	10FX INC	96.3	183.3		39.8	9.6	61.0	13.5	13.3
AGRIPR12	SY TYRA	95.7	185.7		39.7	9.7	59.9	13.3	10.0
MT 1020	CHOTEAU/NDSW0348	94.1	183.7		39.7	9.3	60.2	13.9	23.3
MTHW1060	MTHW0202/BW315A	96.6	181.0		39.6	9.5	60.8	13.7	40.0
MT 0967	CHOTEAU/3*MT0266	98.1	182.0		39.4	9.0	61.3	14.6	28.3

TABLE 5. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, Montana. 2011. (Exp# 11-3102-SW)
Continued

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	3/ PROTEIN %	4/ SAWFLY %
AGRIPR11	CHOTEAU/3*NORPRO	94.8	185.0		39.3	9.4	59.8	13.7	16.7
MT 1049	CHOTEAU/MTHW0471	94.4	184.3		39.3	9.6	61.2	14.4	18.3
CHOTWHT1	CHOTEAU/CLEARWHITE	92.6	182.3		39.1	9.2	60.4	14.1	25.0
MT 0852	MT0249/CHOTEAU	95.4	184.7		39.1	9.6	60.8	14.1	13.3
WB11 2	VANTAGE	94.8	186.0		38.9	9.6	63.0	15.5	15.0
PI633974	CHOTEAU	96.0	184.3		38.8	9.4	59.6	14.5	28.3
MT 1035	CHOTEAU/BZ9M1044	93.8	184.7		38.0	9.4	60.4	14.0	25.0
MT 0802	MCNEAL/MT0266	94.8	186.0		37.9	9.3	59.7	13.9	28.3
AGRIPR13	AGRIPRO SY605 CL	96.6	182.0		37.3	9.5	60.9	14.8	8.3
CI 10003	THATCHER	96.9	185.3		37.0	9.4	59.8	13.8	15.0
MT 1011	CHOTEAU/MT0515	94.8	182.7		36.7	9.3	59.6	14.6	25.0
MT 1028	CHOTEAU/BZ9M1044	93.8	184.0		36.5	9.5	60.3	14.4	23.3
PI574642	MCNEAL	96.3	184.0		36.4	9.1	59.1	13.8	36.7
MT 1002	CHOTEAU/MT0515	94.4	185.0		35.9	9.4	58.8	14.2	20.0
AGRIPR10	BRENNAN	94.1	183.0		35.8	9.4	62.4	14.6	11.7
MT 1013	CHOTEAU/MT0515	93.8	184.3		34.9	9.4	60.1	13.9	31.7
MT 1038	CHOTEAU/BZ9M1044	93.8	184.0		34.9	9.3	60.3	14.0	31.7
MT 1030	CHOTEAU/BZ9M1044	96.3	185.0		34.7	9.4	59.7	14.4	33.3
MT 1027	CHOTEAU/BZ9M1044	93.2	184.0		33.9	9.5	60.3	13.9	28.3
WB11 3	WB ROCKLAND	91.4	185.0		32.8	9.1	60.1	15.6	25.0
MT 1036	CHOTEAU/BZ9M1044	92.3	185.0		31.8	9.4	60.2	14.1	28.3
EXPERIMENTAL MEANS		95.3	184.0		40.8	9.5	60.6	14.0	19.1
LSD (0.05)		ns	1.2		5.2	0.3	0.9	-	10.5
C.V.: (S / MEAN)*100		2.7	0.4		7.8	1.7	1.0	-	33.9
P-VALUE (Entries)		0.4	<0.0001		<0.0001	<0.0001	<0.0001	-	<0.0001

Bold Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.

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 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# 11-3102-SW)							
Field	B-1-1		SaltHaz(MMHOS/cm) 6-24	0.55		Dry Surf Soil (in.) @ Plnt'g	0.50
Quarter	NE		S (ppm) 0-24	98+		2" Soil Temp (°F) @ Plnt'g	60
Section	32		Zn (ppm) 0-6	0.9		4" Soil Temp (°F) @ Plnt'g	59
Tow nship	32N		Fe (ppm) 0-6	24.1		Fertilizer Formulation	Gran.Blend
Range	15E		Mn (ppm) 0-6	10.1		Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.740'		Cu (ppm) 0-6	1.2		Fert. Rate (lbs/ac) N	70
Longitude	W109 48.026'		CEC 0-6	17.1		Fert. Rate (lbs/ac) P2O5	40
Soil Series	Telstad CL		Soil Texture 0-6			Fert. Rate (lbs/ac) K2O	25
pH 0-6	7.1		Soil Texture 6-24			Herbicide App. Date	6/13
Org.Matter (%) 0-6	1.6		Soil Texture 24-36			Herbicide Product	Brox- M
N (lbs/ac) 0-6	81		Soil Texture 36-48			Herbicide Rate (/ac)	24 oz
N (lbs/ac) 6-24	93		Init PAW (in.) 0-6"	1.13		Precip (in.) Plnt'g-Harvest	8.37
N (lbs/ac) 24-36	200		Init PAW (in.) 6-24"	4.07		Precip (>.1) Plnt'g-Harvest	7.83
N (lbs/ac) 36-48			Init PAW (in.) 24-36"	2.24		Harvest Date	8/14
N (lbs/ac) 0-48	374		Init PAW (in.) 36-48"			Rooting Depth (in.)	unk
P (ppm) Olsen 0-6	65		Init PAW (in.) 0-48"	7.45		Post PAW (in.) 0-6"	0.98
K (ppm) 0-6	342		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	3.96
Ca (ppm)	2225		Previous Crop	SB		Post PAW (in.) 24-36"	
Mg (ppm) 0-6	598		Planting Date	4/26		Post PAW (in.) 36-48"	
Na (ppm) 0-6	32		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	4.94
SaltHaz (MMHOS/cm) 0-6	1.26		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0.00

TABLE 6. Ten-Year Yield Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana 2002-2011. (Exp# 3102-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK YIELD 3/	**10-YR COMP. AVE. YIELD 4/**
PI642366	VIDA (++)	9		15.2	51.8	59.3	35.8	42.4	55.3	55.6	58.3	44.6	46.5	143.0	**44.1**
BZ999592	ONEAL (P+)	8			54.9	57.2	31.2	33.6	52.2	48.7	58.0	46.6	47.8	133.9	**41.3**
PI632252	OUTLOOK (++)	9	43.4	15.7	49.4	58.9	31.23	35.7	45.23	43.1	56.43		42.1	130.9	**40.3**
BZ902413R	WB GUNNISON (P+)	4						38.4		46.6	62.4	44.1	47.9	125.1	**38.5**
BZ9M1044	JEDD (P+)	7				59.9	33.7	34.4	48.2	42.9	52.6	41.0	44.7	124.9	**38.5**
BZ996434	CORBIN (P+)(saw fly res)	9	35.4	10.3	48.6		28.9	42.0	47.8	45.2	53.3	45.5	39.7	124.1	**38.2**
ND695	REEDER (+)	10	34.9	13.0	40.3	51.9	30.0	36.2	51.0	49.9	54.6	41.8	40.4	123.5	**38.1**
BZ992588	CONAN (P+)(saw fly tol)	10	33.7	13.9	42.7	57.1	32.9	36.1	46.6	44.1	50.0	41.9	39.9	122.1	**37.6**
BZ992322	HANK (P+)	10	36.4	11.0	44.7	54.3	31.7	34.0	45.1	45.3	54.3	42.1	39.9	122.1	**37.6**
PI633974	CHOTEAU (++)(saw fly res)	10	35.7	12.7	43.2	58.0	32.1	36.0	45.1	42.3	53.3	38.8	39.7	121.6	**37.5**
ACS52610	VOLT (P+)	7				53.0	28.4	35.1	42.4	43.4	49.7	51.3	43.3	121.1	**37.3**
AGRIPRO8	AP604 CL (P+)	5						36.9	46.0	42.0	52.2	40.4	43.5	116.8	**36.0**
AGRIPR10	BRENNAN	3								54.2	53.9	35.8	48.0	116.8	**36.0**
AGRIPRO3	FREYR (P+)	7			40.6	48.8	31.9	33.8	45.2	43.2	46.6		41.4	116.7	**36.0**
AGRIPRO6	KELBY (P+)	7			38.7		30.8	37.7	48.9	42.4	47.2	41.4	41.0	116.5	**35.9**
CI13596	FORTUNA (saw fly res)	10	29.9	9.5	42.0	49.7	33.8	31.5	46.1	45.6	50.1	40.5	37.9	115.9	**35.7**
PI574642	McNEAL	10	36.5	13.2	40.4	51.8	27.2	35.4	45.9	41.9	49.9	36.4	37.8	115.8	**35.7**
PI660981	DUCLAIR (++)	3								42.3	55.5	41.0	46.3	112.7	**34.7**
PI592761	ERNEST (+)(saw fly res)	6	36.1	12.7	39.5	45.0	24.9	32.5					31.8	111.9	**34.5**
NDSW0449	MOTT (++)	3								45.3	51.1	40.4	45.6	111.1	**34.2**
AGRIPRO7	KUNTZ (P+)	6					26.1	31.3	39.0	45.2	44.9	43.0	38.3	108.7	**33.5**
CI10003	THATCHER	10	34.2	6.9	35.2	39.3	24.9	29.9	33.2	45.5	40.6	37.0	32.7	100.0	**30.8**
MEANS (For Entries Listed)			35.6	12.2	43.7	53.2	30.3	35.4	46.1	45.5	52.1	41.8			**36.9**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			98	44	86	142	119	220	252	139	141	124	137		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48	36	47		
Fertilizer Applied	(# N)		70	70	70	70	70	70	70	70	70	70	70		
	(# P_2O_5)		40	40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		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 selecton 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. 2002-2011. (Exp# 3102-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK TEST WT 3/	**10-YR COMP. AVE. TEST WT 4/**
AGRIPRO6	KELBY (P+)	7			60.0		57.2	59.2	59.6	59.5	58.2	62.3	59.4	107.6	**59.3**
PI592761	ERNEST (+)(saw fly res)	6	60.0	56.8	59.4	56.9	54.5	57.3					57.5	107.2	**59.1**
BZ992588	CONAN (P+) (saw fly tol)	10	61.1	56.6	59.9	59.4	54.6	57.5	58.6	59.8	58.5	61.2	58.7	106.6	**58.7**
ACS52610	VOLT (P+)	7				60.1	56.4	57.5	59.1	59.8	58.0	63.2	59.2	106.5	**58.7**
BZ996434	CORBIN (P+)(saw fly res)	9	60.9	57.7	60.1		54.7	57.6	57.0	59.9	57.2	61.2	58.5	106.3	**58.6**
AGRIPRO3	FREYR (P+)	7			61.0	58.8	55.1	57.1	56.9	59.4	57.8		58.0	106.1	**58.5**
CI13596	FORTUNA (saw fly res)	10	59.2	56.8	59.2	59.2	56.0	56.8	58.8	59.4	57.7	60.7	58.4	105.9	**58.4**
ND695	REEDER (+)	10	60.6	57.4	58.9	58.6	53.6	56.8	58.2	60.0	57.8	61.3	58.3	105.8	**58.3**
BZ999592	ONEAL (P+)	8			60.5	58.8	54.1	56.0	57.8	60.6	58.9	61.1	58.5	105.7	**58.3**
BZ9M1044	JEDD (P+)	7				59.9	55.5	58.1	57.9	59.7	57.4	61.5	58.6	105.5	**58.1**
BZ902413(R)	WB GUNNISON (P+)	6					54.3	57.4	59.0	60.2	59.5	60.2	58.4	105.3	**58.0**
PI642366	VIDA (++)	9		55.9	58.6	57.8	52.0	55.8	58.6	58.8	57.7	60.8	57.3	104.7	**57.7**
AGRIPRO8	AP604 CL (P+)	5						57.9	58.6	59.9	57.6	60.8	59.0	104.6	**57.6**
PI633974	CHOTEAU (+)(saw fly res)	10	60.2	57.8	59.5	58.7	52.8	55.7	56.3	57.9	56.5	59.6	57.5	104.3	**57.5**
PI632252	OUTLOOK (++)	9	59.9	54.3	57.6	58.0	51.3	55.3	57.0	59.2	56.4		56.6	103.6	**57.1**
AGRIPR10	BRENNAN	3								59.3	58.4	62.4	60.0	103.4	**57.0**
BZ992322	HANK (P+)	10	59.6	56.5	58.3	55.2	53.7	54.9	56.2	58.8	55.4	59.5	56.8	103.1	**56.8**
AGRIPRO7	KUNTZ (P+)	6					55.3	56.3	55.7	58.4	56.7	60.1	57.1	102.9	**56.7**
PI574642	McNEAL	10	60.1	54.0	57.0	57.3	52.7	54.5	56.0	58.5	57.4	59.1	56.7	102.8	**56.7**
NDSW0449	MOTT (++)	3								58.0	56.4	60.7	58.3	100.5	**55.4**
PI660981	DUCLAIR (++)	3								57.8	57.3	59.1	58.1	100.0	**55.1**
CI10003	THATCHER	10	58.3	50.3	53.8	55.8	51.1	52.5	55.1	58.9	55.5	59.8	55.1	100.0	**55.1**
MEANS (For Entries Listed)			60.0	55.8	58.8	58.2	54.2	56.5	57.6	59.2	57.4	60.8			**57.6**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			98	44	86	142	119	220	252	139	141	124	137		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48	36	47		
Fertilizer Applied	(# N)		70	70	70	70	70	70	70	70	70	70	70		
	(# P_2O_5)		40	40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		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 selecton 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. Nine-Year Sawfly Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2003-2011. (Exp# 3102-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% cut and lodged) 2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	**9-YR COMP. AVE. SAWFLY 4/**
BZ902413R	WB GUNNISON (P+)	6				1.0	1.0	10.0	2.3	1.0	5.3	3.4	17.9	**2.9**
BZ992588	CONAN (P+)(saw fly tol)	9	0.0	15.0	1.7	3.7	1.0	15.0	1.0	11.7	7.0	6.2	39.0	**6.2**
BZ999592	ONEAL (P+)	8		8.3	3.3	5.0	2.3	11.7	8.3	10.0	10.0	7.4	41.5	**6.6**
PI642366	VIDA (++)	9	0.0	26.7	0.0	5.0	3.7	6.7	8.7	7.0	10.0	7.5	47.1	**7.5**
NDSW0449	MOTT (++)	3							1.0	11.7	13.3	8.7	48.8	**7.8**
BZ996434	CORBIN (P+)(saw fly res)	8	0.0	20.0		1.0	1.0	33.3	5.3	12.0	5.0	9.7	56.7	**9.0**
BZ9M1044	JEDD (P+)	7			0.0	6.7	6.7	30.0	5.0	23.3	6.7	11.2	64.2	**10.3**
AGRIPR10	BRENNAN	3							5.3	18.3	11.7	11.8	66.2	**10.6**
PI592761	ERNEST (+)(saw fly res)	5	0.0	20.0	5.0	2.3	3.7					6.2	83.8	**13.4**
PI660981	DUCLAIR (++)	3							10.0	13.3	28.3	17.2	96.9	**15.5**
AGRIPRO8	AP604 CL (P+)	5					20.0	36.7	13.3	26.7	13.3	22.0	98.5	**15.7**
CI 13596	FORTUNA (saw fly res)	9	1.7	20.0	6.7	3.7	5.0	53.3	15.0	20.0	18.3	16.0	100.0	**16.0**
PI633974	CHOTEAU (++)(saw fly res)	9	0.0	18.3	3.3	2.3	1.0	51.7	10.0	31.7	28.3	16.3	102.1	**16.3**
PI632252	OUTLOOK (++)	8	0.0	30.0	3.3	16.7	8.3	36.7	10.0	26.7		16.5	105.0	**16.8**
CI 10003	THATCHER	9	3.3	30.0	11.7	10.0	15.0	31.7	10.0	30.0	15.0	17.4	109.0	**17.4**
ND 695	REEDER (+)	9	1.7	23.3	5.0	8.3	13.3	55.0	6.7	33.3	16.7	18.1	113.7	**18.1**
AGRIPRO6	KELBY (P+)	7		30.0		8.3	15.0	55.0	7.0	25.0	15.0	22.2	114.8	**18.3**
BZ992322	HANK (P+)	9	0.0	18.3	6.7	6.7	10.0	65.0	10.0	35.0	13.3	18.3	114.8	**18.3**
PI574642	McNEAL	9	1.7	25.0	6.7	15.0	15.0	51.7	18.3	25.0	36.7	21.7	135.7	**21.7**
AGRIPRO7	KUNTZ (P+)	6				13.3	16.7	70.0	10.0	56.7	13.3	30.0	156.1	**24.9**
AGRIPRO3	FREYR (P+)	7		28.3	16.7	20.0	15.0	70.0	13.3	51.7		30.7	173.9	**27.8**
ACS52610	VOLT (P+)	7			16.7	16.7	13.3	86.7	15.0	60.0	13.3	31.7	181.7	**29.0**
MEANS (For Entries Listed)			0.8	22.4	6.2	8.1	8.8	42.8	8.8	25.2	14.8			**15.0**
April-July Precip. (in.)			7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.67		
Total Annual Precip. (in.)			11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.81		
Soil NO_3 (lbs.) to SD at Planting			44	86	142	119	220	252	139	141	124	141		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	36	47		
Fertilizer Applied	(# N)		70	70	70	70	70	70	70	70	70	70		
	(# P_2O_5)		40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		25	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 selecton decisions.

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

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

4/ 9-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 = 9-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# 11-9802-SW)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	KRNL WT g/1000	3/ PROTEIN %	4/ NIR Hardness	5/ SAWFLY %
14	APB D1-35*	93.8	186.3		44.3	8.4	55.8	35.3	14.0	69.0	10.0
7	Alzada	93.5	184.3		43.9	8.7	59.9	39.2	13.8	87.6	18.3
9	Belfield*	91.7	185.0		42.7	8.9	60.9	34.2	14.0	86.4	20.0
6	Tioga	94.8	186.0		41.9	8.8	60.7	37.5	14.2	90.1	18.3
12	Saragolla*	91.4	185.3		41.3	9.0	59.0	31.7	13.5	64.6	10.3
8	Strongfield*	92.6	187.0		40.7	8.7	59.9	34.1	15.0	85.8	13.3
15	APB D6-419*	92.9	185.0		40.6	8.7	59.4	31.6	14.1	84.3	11.7
16	MT03012	95.7	183.7		40.4	8.9	60.4	35.1	14.1	86.4	30.0
20	MT05183	92.3	185.3		40.2	8.9	60.8	36.9	13.6	89.9	11.7
3	Pierce	92.9	186.3		40.0	8.8	60.7	34.4	14.2	87.0	41.7
4	Alkabo	94.4	185.7		39.5	8.9	60.9	36.0	13.5	89.6	30.0
1	Mountrail	95.7	186.3		39.4	8.8	59.9	31.6	14.0	82.1	30.0
18	MT04340	93.5	185.7		38.4	8.6	59.6	35.7	14.4	82.7	10.0
17	MT04174	92.9	183.3		38.4	8.9	60.3	32.4	14.1	88.5	28.3
19	MT05166	91.0	185.7		38.1	8.9	61.1	34.6	13.1	91.1	15.0
10	Westhope*	94.1	186.3		37.1	8.9	61.0	36.9	14.3	92.0	25.0
5	Grenora	94.4	187.3		36.5	8.9	60.6	33.8	13.6	82.8	25.0
2	Divide	91.0	186.0		36.4	8.9	60.0	35.2	14.1	82.8	23.3
11	Levante*	61.4	188.0		18.7	8.8	60.3	39.9	13.9	80.5	2.3
13	Normanno*	49.1	189.0		11.9	8.9	58.9	35.2	13.5	75.0	2.3
EXPERIMENTAL MEANS		89.5	185.9		37.5	8.8	60.0	35.1	14.0	83.9	18.8
LSD (0.05)		5.4	1.9		5.8	0.2	2.0	-	-	-	9.5
C.V.: (S / MEAN)*100		3.7	0.6		9.3	1.0	0.7	-	-	-	30.4
P-VALUE (Entries)		<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	-	-	-	<0.0001

1/ No. of Days from January 1 (186 = July 5).

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.

* Paid entries.

Site Resource & Management Data: (Exp# 11-9802-SW)							
Field	B-1-2		SaltHaz(MMHOS/cm) 6-24	0.45		Dry Surf Soil (in.) @ Plnt'g	0.5
Quarter	NE		S (ppm) 0-24	16		2" Soil Temp (°F) @ Plnt'g	56
Section	32		Zn (ppm) 0-6	0.78		4" Soil Temp (°F) @ Plnt'g	52
Tow nship	32N		Fe (ppm) 0-6	16.9		Fertilizer Formulation	Gran.Blend
Range	15E		Mn (ppm) 0-6	10.83		Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.630'		Cu (ppm) 0-6	1.26		Fert. Rate (lbs/ac) N	70
Longitude	W109 48.025'		CEC 0-6	16.7		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		Soil Texture 6-24	n/a		Herbicide App. Date	6/13
Org.Matter (%) 0-6	1.4		Soil Texture 24-36	n/a		Herbicide Product	Brox- M
N (lbs/ac) 0-6	50		Soil Texture 36-48	n/a		Herbicide Rate (/ac)	24 oz
N (lbs/ac) 6-24	30		Init PAW (in.) 0-6"	1.05		Precip (in.) Plnt'g-Harvest	8.37
N (lbs/ac) 24-36	44		Init PAW (in.) 6-24"	3.61		Precip (>.1) Plnt'g-Harvest	7.83
N (lbs/ac) 36-48			Init PAW (in.) 24-36"	2.30		Harvest Date	8/17
N (lbs/ac) 0-48	124		Init PAW (in.) 36-48"			Rooting Depth (in.)	36"
P (ppm) Olsen 0-6	31		Init PAW (in.) 0-48"	6.95		Post PAW (in.) 0-6"	0.62
K (ppm) 0-6	292		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	3.68
Ca (ppm)	2145		Previous Crop	Oilseed		Post PAW (in.) 24-36"	2.35
Mg (ppm) 0-6	620		Planting Date	4/27		Post PAW (in.) 36-48"	
Na (ppm) 0-6	23		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	6.66
SaltHaz (MMHOS/cm) 0-6	0.47		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0.08

TABLE 10. Ten-Year Yield Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2011. (Exp# 9802-SW)

2/VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK YIELD 3/	**10-Yr COMP. AVE. YIELD 4/**
STRONGFIELD	STRONGFIELD (+)	6					31.2	37.8	46.6	45.8	68.0	40.7	45.0	109.8	**42.6**
CANKYLE	KYLE	5	36.7	12.5	49.9	46.0	30.2						35.1	104.4	**40.5**
YU894-75	ALZADA (P+)	10	39.2	9.1	47.7	46.2	30.6	44.7	45.2	39.5	58.4	43.9	40.4	104.3	**40.4**
ACAVONLE	AC AVONLEA (+)	5	40.3	8.1	44.7	49.9	31.2						34.8	103.8	**40.3**
SARAGOLL	SARAGOLLA	4							42.8	43.7	61.6	41.3	47.3	103.1	**40.0**
D91080	PLAZA (+)	5	38.0	12.4	41.8	50.3	29.6						34.4	102.5	**39.8**
D89135	MAIER (+)	5	39.0	10.0	43.5	48.5	29.9						34.2	101.8	**39.5**
MT03012	MT03012	6					29.9	36.5	44.5	40.1	55.3	40.4	41.1	100.3	**38.9**
D901313	MOUNTRAIL (+)	10	39.5	11.6	44.3	46.7	25.8	36.5	39.8	41.1	63.2	39.4	38.8	100.0	**38.8**
DILSE	DILSE (+)	6		11.1	41.4	48.6	25.2		40.8	42.0			34.8	99.9	**38.8**
ALKABO	ALKABO (+)	6					27.1	34.0	40.5	41.4	62.7	39.5	40.9	99.7	**38.7**
GRENORA	GRENORA (+)	6					29.7	37.0	41.4	42.8	57.7	36.5	40.9	99.7	**38.7**
DIVIDE	DIVIDE	6					27.1	37.6	39.1	44.7	60.1	36.4	40.8	99.6	**38.6**
D901442	LEBSOCK (+)	5	35.2	10.5	46.7	46.6			40.9				36.0	98.9	**38.4**
MT04174	MT04174	5						36.8	47.7	38.4	52.1	38.4	42.6	96.9	**37.6**
LEVANTE	LEVANTE	5						39.8	49.2	45.0	57.7	18.7	42.1	95.6	**37.1**
NORMANNO	NORMANNO	5						41.2	44.0	46.4	66.6	11.9	42.0	95.5	**37.0**
NDMUNICH	MUNICH (+)	4	38.7	10.6	40.4	44.9							33.6	94.7	**36.7**
PI478289	MONROE	4	33.7	7.1	43.4	47.8							33.0	92.8	**36.0**
PIERCE	PIERCE (+)	9		11.6	40.6	41.9	25.3	32.8	38.8	36.7	50.3	40.0	35.3	91.3	**35.4**
D87130	BEN (+)	4	35.9	8.4	41.3	41.2							31.7	89.3	**34.6**
CI17789	VIC	4	35.3	10.9	35.7	44.6							31.6	89.0	**34.5**
MEANS (For Entries Listed)			37.4	10.3	43.2	46.4	28.7	37.7	42.9	42.1	59.5	35.6			**38.3**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			98	46	86	142	160	220	252	139	141	124	141		
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_2O_5)	40	40	40	40	40	40	40	40	40	40	40		
		(# K_2O)	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 selecton 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. 2002-2011. (Exp# 9802-SW)

VARIETY or SELECTION		No. of YEARS TESTED	1/TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK TEST WT 2/	**10-Yr COMP. AVE. TEST WT 3/**
D901442	LEBSOCK (+)	5	62.3	58.2	61.4	58.2			59.6				59.9	103.7	**60.0**
CI17789	VIC	4	62.2	58.1	61.5	58.9							60.2	103.2	**59.7**
ALKABO	ALKABO (+)	6					54.6	58.9	58.3	58.6	58.7	60.9	58.3	102.8	**59.5**
D87130	BEN (+)	4	62.3	57.5	60.8	57.9							59.6	102.3	**59.2**
CANKYLE	KYLE	5	62.9	57.7	59.7	58.8	55.2						58.9	102.1	**59.1**
PIERCE	PIERCE (+)	9		57.4	60.8	57.5	54.6	59.2	58.6	58.9	58.3	60.7	58.4	101.7	**58.9**
DILSE	DILSE (+)	6		56.9	59.7	57.6	55.4		58.2	58.5			57.7	101.7	**58.8**
ACAVONLE	AC AVONLEA (+)	5	62.8	56.8	60.2	56.5	56.2						58.5	101.5	**58.7**
D89135	MAIER (+)	5	62.1	56.6	60.0	57.7	55.8						58.5	101.4	**58.7**
LEVANTE	LEVANTE	5						58.4	58.4	59.1	58.1	60.3	58.9	101.4	**58.7**
STRONGFIELD	STRONGFIELD (+)	6					57.3	57.6	57.2	58.8	58.7	59.9	58.2	101.2	**58.5**
D91080	PLAZA (+)	5	62.0	57.1	59.7	56.3	56.1						58.2	101.0	**58.4**
DIVIDE	DIVIDE	6					55.5	58.7	57.8	58.4	58.2	60.0	58.1	100.9	**58.4**
MT04174	MT04174	5						58.5	57.0	58.7	57.6	60.3	58.4	100.6	**58.2**
GRENORA	GRENORA (+)	6					55.7	57.9	57.4	57.5	58.0	60.6	57.8	100.5	**58.1**
PI478289	MONROE	4	61.0	56.7	59.8	56.6							58.5	100.4	**58.1**
D901313	MOUNTRAIL (+)	10	61.7	56.7	59.2	55.6	55.0	58.1	55.7	58.4	58.4	59.9	57.9	100.0	**57.9**
YU894-75	ALZADA (P+)	10	61.4	58.1	58.8	55.3	53.8	57.5	55.7	58.9	58.2	59.9	57.8	99.8	**57.8**
MT03012	MT03012	6					55.4	57.9	55.6	58.2	56.6	60.4	57.4	99.6	**57.7**
NDMUNICH	MUNICH (+)	4	60.4	55.4	59.4	56.8							58.0	99.5	**57.6**
NORMANNO	NORMANNO	5						57.1	55.7	58.2	57.9	58.9	57.6	99.1	**57.4**
SARAGOLL	SARAGOLLA	4							55.3	58.1	56.3	59.0	57.2	98.4	**56.9**
MEANS (For Entries Listed)			61.9	57.2	60.1	57.2	55.4	58.2	57.2	58.5	57.9	60.1			**58.5**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			98	46	86	142	160	220	252	139	141	124	141		
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_2O_5)	40	40	40	40	40	40	40	40	40	40	40		
		(# K_2O)	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 selecton 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. Nine-Year Sawfly Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2003-2011. (Exp# 9802-SW)

VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged) 2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK SAWFLY 2/	**9-Yr COMP. AVE. SAWFLY 3/**
NORMANNO	NORMANNO	5					0.0	2.3	3.7	1.0	2.3	1.9	9.4	**1.2**
SARAGOLL	SARAGOLLA	4						5.0	6.7	2.3	10.3	6.1	25.2	**3.1**
LEVANTE	LEVANTE	5					0.7	8.3	8.3	8.7	2.3	5.7	28.6	**3.5**
D91080	PLAZA (+)	4	0.0	3.3	0.0	1.0						1.1	35.1	**4.3**
STRONGFIELD	STRONGFIELD (+)	6				0.7	1.7	10.0	5.3	6.7	13.3	6.3	37.2	**4.6**
YU894-75	ALZADA (P+)	9	6.7	6.7	0.0	1.0	1.0	6.7	15.0	8.3	18.3	7.1	57.2	**7.1**
ACAVONLE	AC AVONLEA (+)	4	3.3	3.3	0.0	1.0						1.9	62.1	**7.7**
DIVIDE	DIVIDE	6				0.7	2.3	21.7	15.0	10.0	23.3	12.2	72.1	**8.9**
MT03012	MT03012	6				1.0	1.0	6.7	11.7	23.3	30.0	12.3	72.7	**9.0**
MT04174	MT04174	5					1.0	21.7	11.7	20.0	28.3	16.5	83.5	**10.3**
D901313	MOUNTRAIL (+)	9	3.3	6.7	0.0	2.3	2.3	30.0	18.3	18.3	30.0	12.4	100.0	**12.4**
GRENORA	GRENORA (+)	6				2.3	2.3	38.3	20.0	16.7	25.0	17.4	103.3	**12.8**
ALKABO	ALKABO (+)	6				2.3	3.7	30.0	21.7	26.7	30.0	19.1	112.8	**14.0**
D901442	LEBSOCK (+)	4	0.0	16.7	3.3			28.3				12.1	120.8	**14.9**
DILSE	DILSE (+)	6	1.7	13.3	1.7	2.3		40.0	21.7			13.4	133.0	**16.4**
PIERCE	PIERCE (+)	9	1.7	10.0	1.7	1.0	3.7	45.0	35.0	38.3	41.7	19.8	159.9	**19.8**
NDMUNICH	MUNICH (+)	3	3.3	11.7	1.7							5.6	166.7	**20.6**
CI 17789	VIC	3	6.7	8.3	1.7							5.6	166.7	**20.6**
D87130	BEN (+)	3	5.0	11.7	0.0							5.6	166.7	**20.6**
D89135	MAIER (+)	4	3.3	11.7	3.3	2.3						5.2	167.5	**20.7**
CANKYLE	KYLE	4	5.0	15.0	1.7	5.3						6.8	218.9	**27.1**
PI478289	MONROE	3	8.3	15.0	5.0							9.4	283.3	**35.0**
MEANS (For Entries Listed)			3.7	10.3	1.5	1.8	1.8	21.0	14.9	15.0	21.2			**13.4**
April-July Precip. (in.)			7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.67		
Total Annual Precip. (in.)			11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.81		
Soil NO_3 (lbs.) to SD at Planting			46	86	142	160	220	252	139	141	124	146		
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	70		
		(# P_2O_5)	40	40	40	40	40	40	40	40	40	40		
		(# K_2O)	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 selecton decisions.

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

3/ Percent of Mountrail sawfly rating 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 sawfly rating of a given entry for years tested, y = average sawfly rating for Mountrail for the same years, and z = 9-Yr sawfly 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. 2011. (Exp# 11-2102-SB)

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	PLUMP %	THIN %	3/ PROTEIN %
YU501385	Champion	94.4	190.3		95.9	9.9	52.9	95.5	1.4	13.3
MT070158	MT970148/Klages	88.9	193.0		86.8	9.9	52.0	97.0	0.9	14.5
MT070148	MT990172/Metcalfe	92.6	193.0		86.7	9.6	51.3	94.5	1.3	14.0
MT080081	Coors/Metcalfe	91.4	193.3		86.2	9.5	50.7	92.2	2.4	13.2
PI568246	Baronesse	91.0	195.7		85.0	9.8	51.3	93.7	1.8	14.6
MT090193	MT910189*/LK644/EslickBC3F33-G	90.7	190.0		84.2	10.0	52.5	97.4	0.8	12.4
SCARLETT	Scarlett	95.4	196.3		83.9	9.9	51.6	92.6	2.1	13.7
MT080261	MT970026/MT981091	92.3	188.7		83.7	9.4	52.0	88.5	3.6	13.8
MT090192	MT910189*/LK644/EslickBC3F33-G	93.5	194.3		83.6	10.0	53.1	94.7	1.5	11.7
MT080083	Coors/Metcalfe	92.3	192.3		83.2	9.2	51.1	90.1	3.4	13.7
MT070125	MT981210/MT970116	92.0	191.0		82.9	9.7	52.7	92.4	2.5	13.2
MT080285	MT970148/MT970116	93.8	194.3		82.9	9.7	51.8	90.4	2.8	14.1
MT070086	MT970148/Coors37	86.4	194.0		82.7	9.5	51.6	95.3	1.5	13.6
MT950186	Haxby	92.0	191.3		82.6	9.8	53.8	95.0	1.1	13.3
MT080279	MT970148/MT970116	92.0	195.3		82.6	9.8	51.3	90.2	3.2	13.6
MT090194	MT910189*/LK644/EslickBC3F33-G	92.0	194.0		82.4	9.7	52.6	93.6	2.1	12.2
MT090181	MT910189*/LK644/EslickBC3F33-G	91.0	194.3		82.2	10.1	53.3	95.4	1.3	12.2
MT090176	MT910189*/LK644/EslickBC3F33-G	94.8	193.3		82.1	9.9	52.9	94.1	2.0	11.7
MT080281	MT970148/MT970116	92.0	194.3		81.5	9.5	51.4	95.1	1.5	13.6
EM090081	05037-079	94.4	194.0		81.1	9.9	52.0	87.9	3.3	14.1
MT960101	Geraldine	92.9	196.0		81.1	9.9	51.7	82.4	6.9	13.9
MT970116	Craft	92.9	186.3		80.8	9.7	53.0	92.3	2.1	13.9
MT080243	MT960101/MT981210	95.4	193.0		80.7	9.7	50.7	83.5	5.1	13.3
MT090180	MT910189*/LK644/EslickBC3F33-G	94.4	192.7		80.4	9.9	52.2	93.7	2.1	11.9
MT090191	MT910189*/LK644/EslickBC3F33-G	93.8	193.0		79.9	9.7	53.0	93.3	1.6	12.5
MT061104	Harrington/MT970229	93.8	191.0		79.8	9.4	52.0	96.5	1.2	13.8
EM090105	05032-068	92.6	191.7		79.7	9.9	51.0	89.4	4.1	13.3
MT090178	MT910189*/LK644/EslickBC3F33-G	92.0	193.0		79.5	9.9	53.0	97.2	0.7	11.9
MT090188	MT910189*/LK644/EslickBC3F33-G	88.0	193.3		79.2	10.0	52.3	95.8	1.5	12.4
MT070136	MT010178/MT970148	88.6	193.0		79.2	9.6	52.3	94.0	1.8	14.5
MT070159	MT970148/Klages	92.9	192.3		79.0	9.6	51.1	88.5	3.4	14.8
MT090186	MT910189*/LK644/EslickBC3F33-G	93.2	193.7		78.8	10.2	53.6	91.7	2.4	12.1
MT090227	MT910189*/LK644/EslickBC3F37-L	93.2	190.0		78.5	9.8	51.7	93.0	2.6	13.2
MT020155	MT960225/H1851195	90.1	188.0		78.2	9.5	51.3	94.5	1.3	14.6
MT010160	MT920041/Harrington	87.3	189.3		78.2	9.7	52.4	94.3	1.5	14.3
MT090183	MT910189*/LK644/EslickBC3F33-G	90.7	192.7		78.1	9.7	51.9	96.2	1.3	12.2
2B965057	Conrad	90.4	197.3		76.9	9.8	51.4	92.1	2.4	14.7
EM090128	03021-03	89.8	196.7		76.8	9.8	52.4	83.1	4.2	13.8
MT061035	Baronesse/MT981210	94.1	196.7		76.8	9.6	50.2	74.5	8.5	14.1
SK 76333	Harrington	92.0	195.0		76.5	9.7	51.0	93.8	1.8	14.1
MT070111	MT010178/Harrington	92.6	193.3		76.3	9.7	52.3	94.4	1.4	14.1
MT910189	Hockett	94.8	190.0		76.3	9.7	52.2	90.4	2.8	13.8
MT090190	MT910189*/LK644/EslickBC3F33-G	90.1	195.0		76.2	9.9	52.0	95.7	1.2	12.1

TABLE 13. Intrastate Spring Barley Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, MT. 2011. (Exp# 11-2102-SB)

Continued

ID	CULTIVAR or SELECTION	STAND %	1/ HEAD DATE	PLNT HT Inches	2/ YIELD Bu/Ac	MOIST %	TEST WT Lbs/Bu	PLUMP %	THIN %	3/ PROTEIN %
MT030042	MT910189/MT960099	92.3	194.0		76.1	10.0	53.0	79.8	7.0	13.1
MT061201	MT970110/LK232	92.6	188.0		76.0	9.4	51.3	92.9	2.3	14.3
MT070175	LK644///Hockett F5	93.2	191.7		75.9	9.7	51.7	89.4	2.9	13.3
MT090202	MT910189*/LK644/EslickBC3F37-I	92.6	191.3		75.9	9.8	53.1	95.6	1.3	12.3
MT070161	MT970148/Klages	91.7	192.0		75.6	9.8	52.1	85.5	4.6	13.9
PI643354	Pinnacle	87.3	186.3		75.4	9.8	53.4	98.2	0.6	12.1
MT061134	Kendal/Conlon	95.4	193.3		75.3	9.5	51.3	88.5	3.2	14.5
MT090184	MT910189*/LK644/EslickBC3F33-G	93.2	194.0		75.1	10.1	52.7	95.7	1.2	12.5
EM090117	03013-25	86.1	199.7		75.0	9.5	51.0	85.1	3.8	15.0
MT070174	LK644///Hockett F5	88.0	189.0		74.9	9.8	53.4	97.9	0.7	12.4
MT090229	MT910189*/LK644/EslickBC3F37-L	92.6	189.7		74.9	9.7	52.2	97.3	1.0	12.5
MT090182	MT910189*/LK644/EslickBC3F33-G	94.4	195.3		74.2	9.8	52.0	91.0	2.9	12.2
COPELAND	Copeland	96.0	193.0		72.9	9.4	48.7	89.0	3.2	13.9
MT061169	MT960101/Coors 37	91.0	193.0		72.7	9.5	51.2	92.0	2.5	14.9
MT020162	MT960225/H1851195	93.8	192.0		72.6	9.5	50.6	88.3	3.7	15.0
MT080085	Coors/Metcalfe	90.4	195.7		71.6	9.7	52.2	91.0	3.0	14.0
TR232	Metcalfe	90.1	191.7		70.9	9.9	51.6	95.9	1.3	14.9
MT090169	MT910189*/LK644/EslickBC3F43G3	91.0	192.0		68.6	9.7	52.8	94.7	1.5	12.6
6B952482	Tradition	94.1	184.0		68.5	9.3	49.5	58.2	12.5	14.2
MT010158	Amsterdam	83.0	193.0		64.4	9.4	52.6	94.5	1.8	14.9
MT080100	Karma	92.9	189.0		37.4	9.2	62.8	91.6	2.1	16.4
EXPERIMENTAL MEANS		91.9	192.6		78.0	9.7	52.1	91.5	2.6	13.5
LSD (0.05)		ns	2.8		10.1	0.3	1.0	-	-	0.8
C.V.		4.5	0.9		8.0	2.1	1.2	-	-	3.5
P-Value (Entries)		0.3	<0.0001		<0.0001	<0.0001	<0.0001	-	-	<0.0001

Bold Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.

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: (Exp# 11-2102-SB)							
Field	B-1-1		SaltHaz(MMHOS/cm) 6-24	0.55		Dry Surf Soil (in.) @ Plnt'g	0.5
Quarter	NE		S (ppm) 0-24	98+		2" Soil Temp (°F) @ Plnt'g	54
Section	32		Zn (ppm) 0-6	0.88		4" Soil Temp (°F) @ Plnt'g	53
Tow nship	32N		Fe (ppm) 0-6	24.1		Fertilizer Formulation	Gran.Blend
Range	15E		Mn (ppm) 0-6	10.14		Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.722'		Cu (ppm) 0-6	1.16		Fert. Rate (lbs/ac) N	70
Longitude	W109 48.025'		CEC 0-6	17.1		Fert. Rate (lbs/ac) P2O5	40
Soil Series	Telstad CL		Soil Texture 0-6	n/a		Fert. Rate (lbs/ac) K2O	25
pH 0-6	7.1		Soil Texture 6-24	n/a		Herbicide App. Date	6/13
Org.Matter (%) 0-6	1.6		Soil Texture 24-36	n/a		Herbicide Product	Brox- M
N (lbs/ac) 0-6	81		Soil Texture 36-48	n/a		Herbicide Rate (/ac)	24 oz
N (lbs/ac) 6-24	93		Init PAW (in.) 0-6"	1.13		Precip (in.) Plnt'g-Harvest	8.37
N (lbs/ac) 24-36	200		Init PAW (in.) 6-24"	4.07		Precip (>.1) Plnt'g-Harvest	7.83
N (lbs/ac) 36-48			Init PAW (in.) 24-36"	2.24		Harvest Date	8/14
N (lbs/ac) 0-48	374		Init PAW (in.) 36-48"			Rooting Depth (in.)	30"
P (ppm) Olsen 0-6	65		Init PAW (in.) 0-48"	7.45		Post PAW (in.) 0-6"	0.8
K (ppm) 0-6	342		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	3.3
Ca (ppm) 0-6	2225		Previous Crop	SB		Post PAW (in.) 24-36"	2.1
Mg (ppm) 0-6	598		Planting Date	4/26		Post PAW (in.) 36-48"	
Na (ppm) 0-6	32		Planting Depth (in.)	1.5		Post PAW (in.) 0-48"	6.3
SaltHaz (MMHOS/cm) 0-6	1.26		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0

TABLE 14. Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2011. (EXP# 2102-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2002	2003	2004 3/	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**
YU501385	CHAMPION (P+)	6				94.4	60.7	64.4	85.5	80.5		95.9	80.2	110.1	**73.2**
BZ596117	BOULDER (P+)	5	59.3			91.0	61.8	70.6	76.1				71.8	106.6	**70.8**
BZ594-19	WPB XENA (P+)	3		10.7		73.6	65.4						49.9	102.3	**68.0**
MT960228	ESLICK	6	59.7	11.2		77.2	65.5	68.8	69.2				58.6	100.2	**66.6**
PI568246	BARONESSE (P+)	9	57.2	14.2		82.4	49.7	66.8	80.5	72.8	89.5	85.0	66.4	100.0	**66.4**
SK76333	HARRINGTON	8	54.5	12.8		71.8	63.6	64.6		71.0	82.4	76.5	62.2	96.1	**63.8**
MT960101	GERALDINE	9	57.6	13.7		76.5	53.9	58.9	68.4	70.8	93.2	81.1	63.8	96.0	**63.8**
MT981060	HAYS	3	55.1	12.1		79.9							49.1	95.7	**63.6**
PI491534	GALLATIN	3	52.9	11.3		82.0							48.8	95.1	**63.2**
MT010158	AMSTERDAM	8		19.3		80.7	63.2	62.7	75.0	67.2	78.3	64.4	63.9	94.5	**62.8**
2B965057	CONRAD (+)	7				78.9	54.7	57.6	67.4	70.3	82.4	76.9	69.7	92.7	**61.6**
MT910189	HOCKETT (++)	9	51.9	11.0		78.5	51.7	61.7	73.8	70.4	77.7	76.3	61.5	92.5	**61.5**
PI610264	VALIER (++)	3	54.3	11.6		75.3							47.1	91.8	**61.0**
MT950186	HAXBY	9	54.0	12.0		83.7	57.3	69.9	75.8	48.2	51.5	82.6	59.4	89.5	**59.4**
TR232	METCALFE	5					51.4	53.5		68.7	77.9	70.9	64.5	88.7	**58.9**
MT970116	CRAFT	9	53.1	12.1		81.4	61.2	64.3	67.0	37.2	37.3	80.8	54.9	82.7	**54.9**
6B952482	TRADITION (P+)	9	54.5	8.8		81.3	66.7	71.5	73.0	50.5	7.3	68.5	53.6	80.6	**53.6**
2B914947	MERIT (P+)	3	49.0	12.1		61.6							40.9	79.8	**53.0**
6B932978	LEGACY (P+)	3	51.8	7.9		61.9							40.5	79.1	**52.5**
ND13299	CONLON (+)	3	54.6	10.8				55.8					40.4	74.2	**49.3**
MEANS (For Entries Listed)			54.6	12.0		78.5	59.0	63.7	73.8	64.3	67.7	78.1			**61.4**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			Pndg	102	120	184	352	271	157	88	204	374	206		
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_2O_5)		40	40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		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 selecton 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. 2002-2011. (EXP# 2102-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2002	2003	2004 3/	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
YU501385	CHAMPION (P+)	6				50.9	48.4	50.3	52.7	51.7		52.9	51.1	105.7	**51.0**
MT950186	HAXBY	9	50.4	49.1		50.9	48.7	50.7	52.9	52.0	50.6	53.8	51.0	105.6	**51.0**
BZ596117	BOULDER (P+)	5	49.2			50.8	48.7	49.3	51.9				50.0	105.1	**50.8**
MT970116	CRAFT	9	50.5	48.8		50.7	48.8	50.0	51.5	51.5	50.6	53.0	50.6	104.8	**50.6**
ND13299	CONLON (+)	3	48.5	49.7				48.2					48.8	104.2	**50.3**
MT910189	HOCKETT (++)	9	49.7	49.3		48.0	47.5	49.9	52.0	51.2	51.2	52.2	50.1	103.8	**50.1**
MT010158	AMSTERDAM	8		48.9		50.9	46.9	49.6	50.7	50.6	50.0	52.6	50.0	103.8	**50.1**
PI491534	GALLATIN	3	48.5	47.7		48.6							48.3	103.0	**49.7**
PI610264	VALIER (++)	3	49.8	46.8		46.9							47.8	102.0	**49.2**
MT960228	ESLICK	6	49.6	46.3		47.1	46.1	48.9	50.1				48.0	101.5	**49.0**
MT960101	GERALDINE	9	49.1	47.1		46.1	45.0	47.3	49.9	50.4	49.2	51.7	48.4	100.3	**48.4**
BZ594-19	WPB XENA (P+)	3		45.8		45.6	45.1						45.5	100.2	**48.4**
TR232	METCALFE	5					45.3	48.2		50.7	48.4	51.6	48.8	100.1	**48.3**
PI568246	BARONESSE (P+)	9	48.9	46.0		45.8	44.5	48.7	49.9	50.1	49.4	51.3	48.3	100.0	**48.3**
2B965057	CONRAD (+)	7				47.1	45.7	47.4	49.4	49.4	49.1	51.4	48.5	100.0	**48.3**
SK76333	HARRINGTON	8	48.4	45.5		44.9	44.6	47.2		49.8	49.2	51.0	47.6	99.0	**47.8**
6B952482	TRADITION (P+)	9	46.8	45.1		46.7	46.4	47.0	49.2	48.6	48.0	49.5	47.5	98.3	**47.5**
6B932978	LEGACY (P+)	3	45.2	45.9		43.3							44.8	95.5	**46.1**
2B914947	MERIT (P+)	3	47.3	44.4		41.4							44.4	94.6	**45.7**
MT981060	HAYS	3	45.3	43.0		44.1							44.1	94.1	**45.5**
MEANS (For Entries Listed)			48.5	46.8		47.2	46.5	48.8	50.9	50.5	49.6	51.9			48.8
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.40		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	12.20		
Soil NO_3 (lbs.) to SD at Planting			Pndg	102	120	184	352	271	157	88	204	374	185		
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_2O_5)		40	40	40	40	40	40	40	40	40	40	40		
	(# K_2O)		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 selecton 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. 2011. (Exp# 11-7702-SA)

ENTRY	CULTIVAR or SELECTION	STAND %	1/ FLWR DATE	PLNT HT Inches	2/ YIELD Lbs/Ac	MOIST %	TEST WT Lbs/Bu	OIL % 0%Mois.	OIL % 8%Mois.	OIL Lbs/Ac 8%Mois.
27	HYBRID 1601	80.1	210.7	26.2	**2559.3**	7.1	41.4	37.1	40.3	**1031.1**
26	HYBRID 9049	86.3	210.7	25.2	2200.9	6.8	43.9	31.8	34.6	761.3
9	06B 3015	88.9	210.3	20.7	2094.6	6.5	39.2	45.4	49.3	**1033.4**
36	CARDINAL	90.7	212.7	27.1	2077.2	6.9	43.0	36.1	39.2	815.4
11	06B 3254	91.9	210.7	23.4	2069.2	6.8	40.7	40.6	44.2	**913.7**
35	FINCH	93.5	211.3	25.5	2064.2	7.0	44.8	37.6	40.9	845.7
1	00B 1597	89.1	214.3	22.5	2055.1	6.8	42.3	39.3	42.7	877.9
10	06B 3172	89.8	210.7	23.4	2034.6	6.8	40.5	40.4	44.0	894.8
4	04B 7563	90.7	211.3	23.9	1986.4	6.8	41.6	36.9	40.1	797.0
28	MONDAK	90.0	211.0	24.8	1966.6	6.6	43.2	37.3	40.5	796.5
23	08B 6414	86.8	211.3	24.8	1953.1	6.5	38.2	43.4	47.2	**922.9**
32	MT 2004	88.0	209.3	23.2	1939.5	6.8	42.6	40.0	43.5	842.2
15	08B 1031	87.5	212.3	26.7	1937.7	6.2	38.7	42.0	45.7	885.1
8	06B 1044	90.0	212.3	27.2	1927.3	6.9	41.0	38.6	42.0	809.2
34	MORLIN	92.6	212.7	22.5	1926.6	6.5	41.5	38.4	41.8	804.7
6	05B 3401	92.8	211.0	25.0	1873.4	6.9	39.1	40.4	43.9	822.8
22	08B 6370	81.0	210.3	24.3	1863.9	6.2	37.4	46.6	**50.6**	**943.7**
3	04B 6819	78.2	209.7	21.5	1842.4	6.4	41.7	41.9	45.6	839.4
31	MT 2003	93.8	212.3	20.3	1838.9	6.5	42.0	38.5	41.8	769.4
29	MT 2000	92.6	209.7	21.7	1836.4	6.8	40.7	39.9	43.3	796.7
19	08B 4142	88.1	211.0	26.7	1825.2	6.6	42.5	37.4	40.7	743.0
25	09B 1383	91.4	210.7	25.6	1774.9	6.6	45.0	36.5	39.7	704.7
17	08B 1295	68.8	213.3	25.8	1747.6	6.9	39.4	39.9	43.3	757.4
24	09B 4065	82.9	211.0	25.9	1742.2	6.8	44.6	36.3	39.4	686.7
20	08B 6050	89.4	212.0	25.4	1733.3	6.4	39.0	44.9	48.8	845.8
2	03B 8069	82.4	212.3	23.1	1708.0	6.9	42.5	37.7	41.0	700.7
7	05B 6570	91.4	211.7	25.9	1703.8	6.3	39.4	44.9	48.8	831.2
5	05B 3381	88.2	212.0	27.8	1698.6	6.6	40.6	39.1	42.5	722.3
14	07B 6970	91.0	211.3	25.5	1625.5	6.4	39.5	43.4	47.2	767.6
30	MT 2001	80.1	212.0	22.2	1617.6	6.8	41.6	38.5	41.9	677.6
12	07B 1026	89.8	212.0	25.1	1610.7	6.7	39.9	40.8	44.3	714.3
13	07B 6962	72.2	209.0	20.7	1574.7	6.0	35.1	47.0	**51.1**	805.3
18	08B 1356	85.6	212.0	26.6	1445.6	6.1	39.5	46.1	50.2	724.8
21	08B 6366	81.9	211.0	23.4	1401.9	5.9	37.7	45.5	49.5	693.7
16	08B 1059	92.1	210.7	26.2	1344.1	5.9	39.3	43.5	47.3	643.7
33	NUTRASAFF	89.8	211.7	25.0	1179.0	5.9	38.4	48.2	**52.4**	618.5
EXPERIMENTAL MEANS		87.2	211.3	24.5	1827.2	6.6	40.8	40.6	44.2	801.1
LSD (0.05)		5.8	1.5	2.5	266.1	0.4	0.8	2.1	2.2	129.2
C.V.: (S / MEAN)*100		4.2	0.4	6.3	8.9	3.9	1.2	3.1	3.1	9.9
P-VALUE (Entries)		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Bold Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.

1/ No. Days from January 1 (211 = July 30)

2/ Volumetric yields are based on plot weights adjusted to uniform 8 percent grain moisture.

Site Resource & Management Data: (Exp# 11-7702-SA)							
Field	An-4-5		SaltHaz(MMHOS/cm) 6-24	0.38		Dry Surf Soil (in.) @ Plnt'g	0.50
Quarter	NW		S (ppm) 0-24	19		2" Soil Temp (°F) @ Plnt'g	68
Section	33		Zn (ppm) 0-6	0.4		4" Soil Temp (°F) @ Plnt'g	56
Tow nship	32N		Fe (ppm) 0-6	7.6		Fertilizer Formulation	Gran Prod
Range	15E		Mn (ppm) 0-6	3.2		Fertilizer Placement	Bnd at Plntg
Latitude	N48 29.385'		Cu (ppm) 0-6	1.1		Fert. Rate (lbs/ac) N	0
Longitude	W109 47.873'		CEC 0-6	33.3		Fert. Rate (lbs/ac) P2O5	45
Soil Series	Hillon Clay Lm		Soil Texture 0-6			Fert. Rate (lbs/ac) K2O	0
pH 0-6	8.2		Soil Texture 6-24			Fungicide App. Date	7/25
Org.Matter (%) 0-6	1.7		Soil Texture 24-36			Fungicide Product	Headline
N (lbs/ac) 0-6	23		Soil Texture 36-48			Fungicide Rate (/ac)	9 oz
N (lbs/ac) 6-24	42		Init PAW (in.) 0-6"	0.7		Precip (in.) Plnt'g-Harvest	9.24
N (lbs/ac) 24-36	34		Init PAW (in.) 6-24"	1.9		Precip (>.1) Plnt'g-Harvest	7.99
N (lbs/ac) 36-48			Init PAW (in.) 24-36"	1.2		Harvest Date	10/14
N (lbs/ac) 0-48	99		Init PAW (in.) 36-48"	1.6		Rooting Depth (in.)	33"
P (ppm) Olsen 0-6	12		Init PAW (in.) 0-48"	5.4		Post PAW (in.) 0-6"	0.70
K (ppm) 0-6	239		Cropping System	NT-ChmFlw		Post PAW (in.) 6-24"	1.86
Ca (ppm)	5720		Previous Crop	SB		Post PAW (in.) 24-36"	1.18
Mg (ppm) 0-6	474		Planting Date	4/23		Post PAW (in.) 36-48"	1.64
Na (ppm) 0-6	30		Planting Depth (in.)	1		Post PAW (in.) 0-48"	5.38
SaltHaz (MMHOS/cm) 0-6	0.60		Moist Soil Depth @ Plnt'g	48+		Precip (>.1) Hvst-Post	0.00

TABLE 17. Ten-Year Yield Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2011. (Exp# 7702-SA)

1/ VARIETY or SELECTION		No. of YEARS TESTED	YIELD (Lbs Per Acre) 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK YIELD 2/	**10-Yr COMP. AVE. YIELD 3/**
HYBRID 1601	HYBRID 1601	5						1695	2178	2839	2117	2559	2278	170.6	**1942**
HYBRID 9049	HYBRID 9049	7				1510	1434	1988	2264	2606	2229	2201	2033	166.7	**1898**
CARDINAL	CARDINAL	5						1384	1774	2462	2014	2077	1942	145.5	**1656**
MON-DAK	MON-DAK	5						1584	1766	2078	2070	1967	1893	141.8	**1614**
05B 3401	05B 3401	4							1806	2153	1755	1873	1897	138.8	**1580**
WILL	MONTOLA 2004 (++)	10	1617	449	1257	1393	1158	1669	1967	2239	1833	1940	1552	136.4	**1552**
02B 6081	02B 6081	5			1175	1345	968	1403	2201				1419	134.4	**1530**
01B 7113	01B 7113	5				1228	982	1355	2094	2036			1539	132.3	**1506**
011-2180	MORLIN (++)	10	1840	495	1360	1194	1014	1311	1723	2077	1924	1927	1487	130.6	**1487**
WILL 95FI	FINCH	10	1384	564	1277	1214	1082	1583	1977	2086	1580	2064	1481	130.1	**1481**
WILL	MONTOLA 2000 (++)	10	1787	479	1114	1161	1018	1540	2080	2003	1676	1836	1469	129.1	**1469**
02B 6655	02B 6655	5				1155	827	1530	2019	1907			1487	127.9	**1455**
WILL	CENTENNIAL (++)	8	1745	494	1131	1181	1257	1522	1682	2014			1378	127.3	**1449**
Will WOMA2003	MONTOLA 2003 (++)	10	1715	468	1110	1226	883	1301	1724	2042	1741	1839	1405	123.4	**1405**
05B 6570	05B 6570	4							1295	2025	1697	1704	1680	123.0	**1400**
WILL	S-541	5	1849	414	1202	1062	1068						1119	118.9	**1353**
91B3842	NUTRASAF (++)	10	1586	211	1049	1036	824	1210	1157	1589	1541	1179	1138	100.0	**1138**
MEANS (For Entries Listed)			1690	447	1186	1225	1043	1505	1857	2144	1848	1930			**1524**
April-July Precip. (in.)			8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.79		
Total Annual Precip. (in.)			13.29	11.54	14.43	11.90	10.29	12.42	12.21	12.46	14.61	15.45	12.86		
Soil NO_3 (lbs.) to SD at Planting			n/a	78	214	708	157	154	665	219	115	99	268		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	48	48	36	47		
Fertilizer Applied		(# N)	70	70	70	50	0	0	0	0	0	0	26		
		(# P_2O_5)	40	40	40	20	40	45	40	45	45	45	40		
		(# K_2O)	25	25	25	10	0	0	0	0	0	0	9		

Long-term check variety is Nutrasaf.

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

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

TABLE 18. Ten-Year Percent Oil Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2002-2011. (Exp# 7702-SA)

1/ VARIETY or SELECTION		No. of YEARS TESTED	Oil (%) @ 8% Seed Moisture 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	AVE. for YEARS TESTED	% of CHECK Oil 2/	**10-Yr COMP. AVE. Oil 3/**
91B3842	NUTRASAF (++)	10	39.4	46.2	44.9	43.8	43.2	48.5	44.6	45.8	36.9	52.4	44.6	100.0	**43.7**
05B 6570	05B 6570	4							43.9	42.8	36.3	48.8	42.9	95.6	**41.8**
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**
02B 6655	02B 6655	5				39.9	37.8	42.1	39.7	39.7			39.8	88.2	**38.5**
05B 3401	05B 3401	4							37.6	38.1	36.8	43.9	39.1	87.0	**38.0**
01B 7113	01B 7113	5				40.6	38.4	41.1	37.7	37.3			39.0	86.4	**37.7**
WILL	MONTOLA 2000 (++)	10	32.7	38.7	37.3	37.9	35.7	38.6	38.2	37.3	38.8	43.3	37.9	84.9	**37.1**
011-2180	MORLIN (++)	10	33.8	37.3	37.1	36.4	36.9	39.3	37.2	35.3	39.5	41.8	37.5	84.0	**36.7**
CARDINAL	CARDINAL	5						36.1	33.7	34.8	43.6	39.2	37.5	82.1	**35.9**
MON-DAK	MON-DAK	5						36.7	34.6	34.4	41.1	40.5	37.4	82.0	**35.8**
Will WOMA2003	MONTOLA 2003 (++)	10	32.4	37.8	34.9	36.2	34.8	36.8	36.5	34.5	39.3	41.8	36.5	81.9	**35.8**
WILL	MONTOLA 2004 (++)	10	32.0	37.2	35.5	35.5	33.9	35.8	35.3	35.2	39.1	43.5	36.3	81.4	**35.6**
WILL 95FI	FINCH	10	32.4	34.5	34.5	35.0	35.5	36.5	34.5	34.9	43.6	40.9	36.2	81.3	**35.5**
02B 6081	02B 6081	5			35.7	36.6	35.0	37.7	36.5				36.3	80.7	**35.2**
HYBRID 1601	HYBRID 1601	5						36.1	30.4	34.7	39.6	40.3	36.2	79.3	**34.7**
HYBRID 9049	HYBRID 9049	7				31.9	31.0	32.1	34.3	29.1	42.8	34.6	33.7	74.8	**32.7**
MEANS (For Entries Listed)				39.1	37.8	37.7	36.8	38.7	37.3	36.9	39.8	42.6			**37.3**
April-July Precip. (in.)				8.87	7.07	8.64	7.37	5.71	7.43	8.09	6.29	8.75	7.68		
Total Annual Precip. (in.)				13.29	11.54	14.43	11.90	10.29	12.42	12.21	12.46	15.45	12.57		
Soil NO_3 (lbs.) to SD at Planting				n/a	78	214	708	157	154	665	219	99	289		
SD (Sampling Depth in Inches)				48	48	48	48	48	48	48	48	36	48		
Fertilizer Applied	(# N)			70	70	70	50	0	0	0	0	0	29		
	(# P_2O_5)			40	40	40	20	40	45	40	45	45	39		
	(# K_2O)			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/ Percent of Nutrasaf oil% 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 oil% of a given entry for years tested, y = average yield for Nutrasaf for the same years, and z = 10-Yr average oil% for the check variety Nutrasaf.