

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. 2004-2013.

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Content:

This report is intended to serve as a popularized 2013 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, fertility, fungicide and insecticide evaluations. Long-term data summaries reported here are limited to the most recent ten years. This is 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. Variety performance data has been continuously collected and maintained at the Havre station for 98 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 2013. 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.

2013 Data:

It should be noted that 2013 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, 2013 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 of interest 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 the 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>

LIST OF TABLES

	Table	Page
GENERAL CLIMATIC SUMMARY		3
COMPLETE LIST OF 2013 AGRONOMY AND LIVESTOCK CROP RESEARCH		4
WINTER WHEAT:		
Dryland Intrastate Winter Wheat Variety Evaluation Nursery		
2013 Detailed Performance & Management Report	1	10
2004-2013 Abridged 9-Yr Yield Summary.....	2	12
2004-2013 Abridged 9-Yr Test Weight Summary	3	13
2004-2013 Abridged 10-Yr Sawfly Summary	4	14
SPRING WHEAT:		
Dryland Advanced Spring Wheat Variety Evaluation Nursery		
2013 Detailed Performance & Management Report	5	15
2004-2013 Abridged 10-Yr Yield Summary.....	6	17
2004-2013 Abridged 10-Yr Test Weight Summary	7	18
2004-2013 Abridged 10-Yr Sawfly Summary	8	19
SPRING DURUM:		
Dryland Montana Spring Durum Variety Evaluation Nursery		
2013 Detailed Performance & Management Report	9	20
2004-2013 Abridged 10-Yr Yield Summary.....	10	21
2004-2013 Abridged 10-Yr Test Weight Summary	11	22
2004-2013 Abridged 10-Yr Sawfly Summary	12	23
SPRING BARLEY:		
Dryland Intrastate Spring Barley Variety Evaluation Nursery		
2013 Detailed Performance & Management Report	13	24
2004-2013 Abridged 9-Yr Yield Summary.....	14	26
2004-2013 Abridged 9-Yr Test Weight Summary	15	27
SAFFLOWER:		
Dryland Montana Safflower Variety Evaluation Nursery		
2013 Detailed Performance & Management Report	16	28
2004-2013 Abridged 10-Yr Yield Summary.....	17	29
2004-2013 Abridged 10-Yr Oil Percent Summary.....	18	30

Summary of climatic data by months for the 2012-2013 crop year (September to August) and averages for the period 1916-2013 at the Northern Agricultural Research Center. Havre, Montana.

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Crop Year
Year	2012	2012	2012	2012	2013	2013	2013	2013	2013	2013	2013	2013	
Precipitation (inches)													Total
Current Year	0.17	1.27	0.61	0.18	0.57	0.45	0.56	0.61	4.91	5.10	2.66	1.37	18.46
98-Year Average (1916 to 2012-13)	1.14	0.65	0.44	0.44	0.44	0.32	0.54	1.00	1.85	2.57	1.44	1.18	12.00
Mean Temperature (°F)													Average
Current Year	59.8	41.0	30.3	19.6	20.0	26.5	29.7	39.8	55.0	61.0	68.8	69.6	43.4
98-Year Average (1916 to 2012-13)	56.3	45.7	30.1	19.5	15.5	20.0	30.0	43.6	54.0	61.8	69.2	67.3	42.8

Last killing frost in spring*

2013 _____ May 5th (30°)
Ave. 1916-2013 _____ May 14th

First killing frost in fall*

2013 _____ October 2nd (32°)
Ave. 1916-2013 _____ September 20th

Frost free period

2013 _____ 150 days
Ave. 1916-2013 _____ 130 days

Growing degree days (base 50)

May 1-Oct 31, 2013 _____ 2319.5
Ave. 1951-2013 _____ 2374.3

Maximum summer temperature _____ 94° August 20th
Minimum winter temperature _____ -25° December 25th

*In this summary 32° is considered a killing frost.

2013
INDIVIDUAL CROP EXPERIMENT IDENTIFICATION & DESCRIPTION RECORD
Agronomy and Livestock
Northern Agricultural Research Center
Havre, Montana

Experiment No. *	Description	Crop	Ents	Reps	Plots	Loc-Field	Legal Desc	Leader	Sponsor	Cooperator
WINTER WHEAT (WW) INVESTIGATIONS										
ON-STATION										
13-3502-WW	Intrastate Cultivar Nursery	WW	49	3	147	A-4-2	33 32N 15E	Bruckner	MAES-MWBC	Lamb
13-1402-WW	Advanced Cultivar Nursery	WW	36	3	108	A-4-2	33 32N 15E	Bruckner	MAES-MWBC	Lamb
13-SR02-WW	v Single-Row Line Eval Nursery	WW	1000	1	1000	A-4-3	33 32N 15E	Bruckner	MAES-MWBC	Lamb
13-5802-WW	Sawfly Line Evaluation Nursery	WW	49	2	98	A-4-2	33 32N 15E	Bruckner	MAES-MWBC	Lamb
13-3RSP-WW	3-Row Segregating Populations	WW	105	1	105	A-4-2	33 32N 15E	Bruckner	MAES-MWBC	Lamb
13-WQDS-WW	Winter Wheat Quality Drill Strips	WW	6	1	6	A-4-2	33 32N 15E	Bruckner	MAES-MWBC	Lamb
Sub-Totals:			6	1245	1464	28.62%	of Total Plot Inventory			
OFF-STATION										
13-3851-WW	Off-Station Cultivar Eval Nursery	WW	24	3	72	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
13-3853-WW	Off-Station Cultivar Eval Nursery	WW	24	3	72	Loma	29 27N 10E	Lamb	MWBC-MAES	McKeever Farm
13-5853-WW	Sawfly Line Evaluation Nursery	WW	49	2	98	Loma	29 27N 10E	Lamb	MWBC-MAES	McKeever Farm
Sub-Totals:			3	97	242	4.73%	of Total Plot Inventory			
SPRING WHEAT & DURUM (SW & DUR) INVESTIGATIONS										
ON-STATION										
13-3102-SW	Advanced Yield Nursery	SW	64	3	192	A-4-4	33 32N 15E	Talbert	MAES-MWBC	Lamb
13-9802-SW	Montana Durum Cultivar Nursery	DUR	20	3	60	A-4-4	33 32N 15E	Eckhoff	MAES-MWBC	Lamb
13-3302-SW	Preliminary Yield Nursery	SW	81	3	243	A-4-4	33 32N 15E	Talbert	MAES-MWBC	Lamb
Sub-Totals:			3	165	495	9.68%	of Total Plot Inventory			
OFF-STATION										
13-9951-SW	Off-Station Cultivar Eval Nursery	SW	20	3	60	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
13-9955-SW	Off-Station Cultivar Eval Nursery	SW	20	3	60	Loring	24 35N 29E	Lamb	MWBC-MAES	Flansaas/Lumsden
13-9957-SW	Off-Station Cultivar Eval Nursery	SW	20	3	60	Loma	29 27N 10E	Lamb	MWBC-MAES	McKeever Farm
13-9851-SW	Off-Station Cultivar Eval Nursery	DUR	14	3	42	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
13-9855-SW	Off-Station Cultivar Eval Nursery	DUR	14	3	42	Loring	24 35N 29E	Lamb	MWBC-MAES	Flansaas/Lumsden
Sub-Totals:			5	88	264	5.16%	of Total Plot Inventory			

Experiment No. *	Description	Crop	Ents	Reps	Plots	Loc-Field	Legal Desc	Leader	Sponsor	Cooperator
SPRING BARLEY (SB) INVESTIGATIONS										
ON-STATION										
13-2102-SB	Intrastate Cultivar Eval Nursery	SB	64	3	192	A-4-1	33 32N 15E	Blake	MAES-MWBC	Lamb
13-3102-SB	Early Yield Evaluation Nursery	SB	64	3	192	A-4-1	33 32N 15E	Blake	MAES-MWBC	Lamb
Sub-Totals:		2	128		384	7.51%	of Total Plot Inventory			

SAFFLOWER INVESTIGATIONS										
ON-STATION										
13-7702-SA	Cultivar Evaluation Nursery	SA	36	3	108	B-5-2	32 32N 15E	Bergman	NDSU-WREC	Lamb
Sub-Totals:		1	36		108	2.11%	of Total Plot Inventory			

BRASSICA (B_) INVESTIGATIONS										
ON-STATION										
13-CN02-CN	Statewide Canola Trial	CN	19	4	76	B-5-1	32 32N 15E	Bohannon	Var. Industry	Lamb
13-OC06-BC	B. carinata Advanced Yield Trial	BC	5	4	20	B-5-2	32 32N 15E	Males	Agrisoma	Lamb
13-SP30-BC	B. carinata Seeding Rate	BC	5	4	20	B-5-2	32 32N 15E	Males	Agrisoma	Lamb
13-SP31-BC	B. carinata Fertility on Fallow	BC	5	4	20	B-5-2	32 32N 15E	Males	Agrisoma	Lamb
13-C101-BN	B. napus Yield Trial 13101	BN	30	2	60	B-5-1	32 32N 15E	Radke	Cibus	Lamb
13-C102-BN	B. napus Yield Trial 13102	BN	30	2	60	B-5-1	32 32N 15E	Radke	Cibus	Lamb
13-C103-BN	B. napus Yield Trial 13103	BN	20	2	40	B-5-1	32 32N 15E	Radke	Cibus	Lamb
13-C201-BN	B. napus Yield Trial 13201	BN	25	2	50	B-5-1	32 32N 15E	Radke	Cibus	Lamb
13-C202-BN	B. napus Yield Trial 13202	BN	15	2	30	B-5-1	32 32N 15E	Radke	Cibus	Lamb
13-C401-BN	B. napus Yield Trial 13401	BN	15	2	30	B-5-1	32 32N 15E	Radke	Cibus	Lamb
13-OC10-BJ	B. juncea Variety Trial	BJ	20	4	80	B-5-2	32 32N 15E	Ferguson	Viterra (CPS)	Lamb
Sub-Totals:		11	189		486	9.50%	of Total Plot Inventory			

PULSE CROP (PC) INVESTIGATIONS										
ON-STATION										
13-PC01-PC	Statewide Pea Trial	PC	37	4	148	A-2-4	33 32N 15E	Chen	MAES-CARC	Lamb
13-PC02-PC	Statewide Lentil Trial	PC	12	4	48	A-2-4	33 32N 15E	Chen	MAES-CARC	Lamb
Sub-Totals:		2	49		196	3.83%	of Total Plot Inventory			

Experiment No. *	Description	Crop	Ents	Reps	Plots	Loc-Field	Legal Desc	Leader	Sponsor	Cooperator
OTHER CROP (OC) INVESTIGATIONS										
ON-STATION										
13-CM02-CM	Camelina Variety Trial	CM	4	6	24	B-5-2	32 32N 15E	Chen	BRDI	Lamb
13-OC11-FG	Fenugreek Demo	FG	12	1	12	B-3-1	32 32N 15E	Wichman	MAES-CARC	Lamb
13-OC12-OC	Plot Seeder Test with Cover Crops	OC	24	1	24	B-3-1	32 32N 15E	Lamb	MAES-NARC	Boss
13-OC13-SO	Sorghum Adaptation Trial	SR	48	1	48	B-3-1	32 32N 15E	Wichman	MAES-CARC	Lamb
13-CCVT	Cover Crop Variety Trial	OC	42	3	126	B-3-4	32 32N 15E	Hensleigh	NRCS-MAES	Boss/Dafoe
13-CCGR	Cover Crop Termination Trial	OC	16	3	48	B-3-4	32 32N 15E	Hensleigh	NRCS-MAES	Boss/Dafoe
Sub-Totals:			6	146	282	5.51%	of Total Plot Inventory			

FORAGE RESEARCH (FR) INVESTIGATIONS

ON-STATION										
13-FR02-FR	Winter Cereal Forage Trial	FR	16	3	48	A-4-3	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
13-FR03-FR	Spring Cereal Forage Trial	FR	16	3	48	A-4-1	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
13-FR05-FR	Pea Forage Trial	FR	6	4	24	A-2-4	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
Sub-Totals:			3	38	120	2.35%	of Total Plot Inventory			

NUTRIENT RESEARCH (NR) INVESTIGATIONS

ON-STATION										
13-NM01-SW	SW Sensor-Based Algorithm	SW	36	4	144	An-4-5	33 32N 15E	Walsh	MAES-WTARC	Lamb
13-NM02-GC	Dryland Grain Corn Fertility Trial	GC	24	4	96	B-3-1	32 32N 15E	Lamb	FertAdvisory	Boss
13-NM03-SW	Mosaic SW MicroNutrients	SW	9	4	36	An-4-5	33 32N 15E	Woolfork/Mann	Mosiac	Lamb
Sub-Totals:			3	69	276	5.39%	of Total Plot Inventory			

SPECIAL PROJECT (SP) INVESTIGATIONS

ON-STATION										
13-SP18-OP	Continuous Crop Rotation	MC	6	4	24	B-9-4	32 32N 15E	Lamb	MAES-NARC	Sebelius
13-SP19-CAP	Crop-Crop-Fallow CAP Rotation	MC	10	3	30	B-9-3	32 32N 15E	Chen	BRDI	Lamb/Seblius
13-SP19-OP	Crop-Crop-Fallow Rotation	MC	20	3	60	B-9-3	32 32N 15E	Lamb	MAES-NARC	Sebelius
13-SP20-OP	Crop-Fallow Rotation	MC	24	3	72	B-9-1	32 32N 15E	Lamb	MAES-NARC	Sebelius
13-SP28-OP	Quinn Single Row Turkish WW	WW	80	1	80	A-4-3	33 32N 15E	Lamb	Quinn	Sebelius
13-SP29-OP	Quinn Winter Wheat Populations	WW	37	1	37	A-4-3	33 32N 15E	Lamb	Quinn	Sebelius
13-SP32-DU	Durum Variety Trial (CPS)	DU	25	3	75	A-4-3	33 32N 15E	Ferguson	Viterra (CPS)	Lamb
13-SP29-FL	Flax Variety Trial (CPS)	FL	11	3	33	A-4-3	33 32N 15E	Ferguson	Viterra (CPS)	Lamb
Sub-Totals:			8	213	411	8.03%	of Total Plot Inventory			

Experiment No. *	Description	Crop	Ents	Reps	Plots	Loc-Field	Legal Desc	Leader	Sponsor	Cooperator
PEST MANAGEMENT (PM) INVESTIGATIONS										
ON-STATION										
13-PM29-PM	Spring Wheat Fertility on Sawfly	SW	8	6	48	An-4-5	32 32N 15E	Weaver	MAES-MWBC	Lamb
13-PM32-PM	Spring Foliar Fungicides on WW	WW	16	4	64	A-4-3	32 32N 15E	Burrows	Industry-MAES	Lamb
13-PM40-WW	Thimet Insectide on Genou WW	WW	5	4	20	A-4-3	33 32N 15E	Weaver	AmVac	Lamb
13-PM41-SW	Thimet Insectide on Reeder SW	SW	5	4	20	An-4-5	33 32N 15E	Weaver	AmVac	Lamb
Sub-Totals:		4	34		152	2.97%	of Total Plot Inventory			
OFF-STATION										
13-PM27-PM	Solid-Stemmed SW Variations	SW	10	4	40	Loma	29 27N 10E	Weaver	AgCanada	McKeever Farm
13-PM34-LN	Lentil Ascochyta Fung 2013003	SW	13	4	52	Have	13 31N 14E	Burrows	Var. Industry	Brown Farm
13-PM35-LN	Lentil Ascochyta Fung 2013011	SW	6	4	24	Have	13 31N 14E	Burrows	Var. Industry	Brown Farm
13-PM36-LN	Lentil Ascochyta Fung 2013015	SW	9	4	36	Have	13 31N 14E	Burrows	Var. Industry	Brown Farm
13-PM42-SW	Thimet Insectide on Reeder SW	SW	5	4	20	Liberty Co.	11 31N 5E	Weaver	AmVac	Kammerzell Farm
13-PM33-WW	Cho. Co. Spr Foliar Fung 2013010	WW	16	4	64	Loma	30 27N 10E	Burrows	Var. Industry	McKeever Farm
13-PM30-WW	Hill Plots	WW				Loma	29 27N 10E	Talbert/Weaver	Var. Industry	McKeever Farm
Sub-Totals:		7	59		236	4.61%	of Total Plot Inventory			

2011-2013
CROP EXPERIMENT INFORMATION RECORD
Agronomy and Livestock
Northern Agricultural Research Center
Havre, Montana

Location	Description	Number of Trials			Number of Entries			Number of Plots			% of Total Plot Inventory		
		2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
On-Station	Winter Wheat*	6	6	6	1255	1250	1245	1474	1469	1464	23.4%	29.8%	28.6%
Off-Station	Winter Wheat*	3	3	3	97	97	97	242	242	242	3.8%	4.9%	4.7%
On-Station	Spring Wheat and Durum	3	3	3	165	165	165	495	495	495	7.9%	10.1%	9.7%
Off-Station	Spring Wheat and Durum*	4	4	5	74	74	88	222	222	264	3.5%	4.5%	5.2%
On-Station	Spring Barley	2	2	2	128	128	128	384	384	384	6.1%	7.8%	7.5%
Off-Station	Spring Barley	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Safflower	1	1	1	36	36	36	108	108	108	1.7%	2.2%	2.1%
On-Station	Brassica sp.	1	15	11	18	316	189	72	851	486	1.1%	17.3%	9.5%
On-Station	Covered Wheat	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Pulse Crops	5	2	2	102	46	49	366	184	196	5.8%	3.7%	3.8%
Off-Station	Pulse Crops	1	0	0	12	0	0	36	0	0	0.6%	0.0%	0.0%
On-Station	Other Crops	3	2	6	109	58	146	372	174	282	5.9%	3.5%	5.5%
On-Station	Forage	5	5	3	89	89	38	318	318	120	5.1%	6.5%	2.3%
On-Station	Nutrient Research	0	0	3	0	0	69	0	0	276	0.0%	0.0%	5.4%
On-Station	Special Projects	4	5	8	150	158	213	256	264	411	4.1%	5.4%	8.0%
Off-Station	Special Projects	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Pest Management	10	3	4	98	27	34	512	108	152	8.1%	2.2%	3.0%
Off-Station	Pest Management*	16	2	7	403	26	59	1434	104	236	22.8%	2.1%	4.6%
Grand Total		64	53	64	2736	2470	2556	6291	4923	5116	100.0%	100.0%	100.0%
Harvested								3579	3384	3975	56.9%	68.7%	77.7%
On-Station Plots								4357	4355	4374	69.3%	88.5%	85.5%
Off-Station Plots								1934	568	742	30.7%	11.5%	14.5%

* Winter Wheat, Spring Wheat & Pest Management:

2011: 1000 single row plots & 1138 hill plots

2012: 1000 single row plots - Individual hill plots no longer included in count

2013: 1000 single row plots - Individual hill plots no longer included in count

TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2013. (Exp# 13-3502-WW)

Cultivar/Line	Release/Pedigree	Stand %	1/		2/		Test Wt Lbs/Bu	Protein %	4/ Sawfly %
			Head Date	Plant HT Inches	Yield Bu/Ac	Moist %			
Accipiter	Saskatchewan, 2008	98.5	166.3	30.0	62.1	11.9	58.3	12.2	3.7
Art	AgriPro, 2007	98.4	158.7	29.4	65.1	11.7	58.0	12.8	8.3
Bearpaw	Montana, 2011	98.1	163.3	26.8	64.0	11.4	57.6	12.8	5.3
Broadview	Alberta, 2009	98.1	162.7	30.4	67.2	11.6	57.7	12.1	10.0
Bynum (CL)	Montana/WestBred, 2005	98.1	160.3	33.2	68.3	11.5	58.6	13.3	10.0
Carter	WestBred, 2006	96.9	162.3	26.7	59.1	11.7	58.1	12.5	10.0
CDC Falcon	Sask/WestBred, 1999	99.4	162.7	28.0	55.9	12.0	58.7	11.9	5.0
Colter	Montana, 2013	95.3	166.0	29.9	56.9	12.1	59.4	12.6	13.3
Cowboy	Wyoming/Colorado, 2012 (CO050322)	98.5	162.3	31.8	85.0	12.0	59.4	10.8	11.7
Curlew	Utah, 2009	98.8	163.0	31.8	73.3	11.5	58.0	12.4	20.0
Decade	Montana/North Dakota, 2010	98.8	160.7	31.4	66.9	11.7	58.6	13.5	8.3
Genou	Montana, 2004	97.6	163.0	32.1	70.0	11.7	59.2	11.9	6.7
Jagalene	AgriPro, 2002	98.4	160.7	28.7	60.5	11.8	60.0	12.3	13.3
Jerry	North Dakota, 2001	98.4	163.7	33.9	66.2	11.7	57.5	12.3	10.0
Judee	Montana, 2011	99.4	163.3	29.4	70.6	12.0	60.2	12.1	5.3
Ledger	WestBred, 2004	98.5	163.0	29.5	64.0	11.8	58.7	11.6	8.3
McGill	Nebraska, 2010	98.1	159.7	30.5	63.1	11.4	58.1	11.2	5.0
MT0978	MT9982//MTW0072//NW97S151	99.1	164.7	29.9	73.1	12.0	59.6	12.3	6.7
MT10116	Yellowstone*3//KS96WGRC40	99.7	165.0	31.0	72.4	12.1	59.3	12.3	8.3
MT1078	MT02113*4//MTS0359	98.8	164.3	29.0	72.6	11.9	58.2	11.6	11.7
MT1090	Reeder/6*Yellowstone	98.2	164.7	29.1	61.7	12.1	59.2	12.3	18.3
MT1091	Reeder/6*Yellowstone	98.2	165.3	29.4	62.8	12.0	58.8	12.0	11.7
MT1092	MT9982*2//Outlook	99.4	165.7	31.7	62.0	12.4	59.7	12.2	18.3
MT1102	MT9982*4//MTS0222	98.2	164.3	28.7	65.0	12.0	59.6	12.1	13.3
MT1105	Yellowstone*4//MT9982//MTS0222	97.8	163.3	31.1	68.0	12.0	58.8	12.1	15.0
MT1108	Yellowstone*3//MT9982//MTS0222	96.6	164.7	30.2	68.3	12.0	59.1	11.3	10.0
MT1113	Yellowstone*4//KS96WGRC40 (Lr41)	97.2	164.0	33.1	70.8	12.2	59.3	12.2	10.0
MT1117	Yellowstone*3//KS96WGRC40	97.2	165.7	31.1	68.2	12.2	59.8	11.7	8.3
MT1137	Endurance//MT02136//Yellowstone	98.5	164.0	29.3	63.4	12.1	59.8	12.1	13.3
MT1138	W99-194/2*Yellowstone	98.8	165.0	31.5	66.8	12.0	59.1	12.2	13.3
MT1143	MT9982//PI572290//MT0557	98.5	161.7	30.2	76.4	11.9	58.7	11.5	10.0
MT1156	MTR00118//MT0241//CDC Falcon	97.8	166.0	28.6	69.5	12.3	59.2	12.3	13.3
MTCL1131	Yellowstone*4/3//MTCL01158//CDC Teal 11	96.9	165.7	32.5	67.1	12.1	58.4	11.7	16.7
MTS0826-63	MT9524//G15048//Rampart	98.1	166.3	30.6	65.6	11.4	58.6	12.4	6.7
MTS0832	92X73E70//MTW9911	99.4	164.0	33.2	75.8	11.9	58.2	11.7	3.7
MTS1024	MT02113*4//MTS0359	98.4	164.3	29.2	73.2	11.4	57.8	11.0	10.0
MTW08168	MTW0047/2*MT9982	99.1	167.0	33.8	68.3	12.5	60.2	12.1	15.0
Norris (CL)	Montana/WestBred, 2005	97.5	160.3	30.4	61.4	11.5	59.5	12.6	11.7
Overland	Nebraska, 2007	96.9	159.7	28.3	63.5	11.9	58.3	12.1	10.0
Promontory	Utah, 1990	98.5	163.0	30.3	65.0	12.0	60.0	11.3	21.7
Radiant	Alberta, 2002 (Meridian Seeds)	98.2	166.3	31.8	65.5	11.4	59.2	11.9	11.7
Rampart	Montana, 1996	97.9	164.0	31.8	62.3	11.5	57.9	13.0	3.7
Robidoux	Nebraska, 2010	98.8	160.3	28.6	56.1	11.6	58.7	11.4	13.3

TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2013. (Exp# 13-3502-WW)

Cultivar/Line	Release/Pedigree	Stand %	1/	Plant HT Inches	2/	Moist %	Test Wt Lbs/Bu	3/	4/
			Head Date		Yield Bu/Ac			Protein %	Sawfly %
SY Clearstone 2CL	Montana/Syngenta, 2012	98.5	165.3	33.9	75.4	11.7	58.2	12.1	13.3
SY Wolf	Syngenta (AgriPro), 2010	98.1	160.7	27.9	70.4	12.0	58.4	12.7	8.3
Warhorse	Montana, 2013	97.2	164.7	30.1	65.1	12.0	59.0	12.3	2.3
WB-Matlock	WestBred, 2010 (previously tested in 2010)	97.8	162.3	32.9	69.4	11.7	58.7	13.3	13.3
WB-Quake	WestBred, 2011	99.1	166.0	30.6	70.0	11.2	58.0	11.5	3.7
Yellowstone	Montana 2005	97.5	165.3	31.6	68.2	12.2	59.3	11.9	10.0
EXPERIMENTAL MEANS		98.2	163.6	30.5	67.0	11.9	58.8	12.1	10.4
LSD (0.05)		2.4	1.8	3.4	10.5	0.4	0.9	-	7.3
C.V.%		1.5	0.7	6.8	9.7	2.1	0.9	-	43.3
P-VALUE (Entries)		0.5325	<.0001	0.0005	0.0005	<.0001	<.0001	-	<.0001

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

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 (165 = June 12).

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.

Management Information (13-3502-WW)

Seeding Date: September 19, 2012
 Harvest Date: August 10, 2013
 Fertility: 100-20-10 side banded
 System: no till
 Herbicide: none
 Insecticide: none
 Previous Crop: Chemical Fallow - Spring Barley
 Precipitation: 18.09"

TABLE 2. Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (Exp# 3502-WW)

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/	
			2004	2005	2006	2007	2008	2009	2010	2011 3/	2012				2013
ART	ART	3							79.6		56.4	65.1	67.0	105.3	60.2
OVERLAND	OVERLAND	4						42.3	82.7		49.0	63.5	59.4	103.0	58.9
MT0552	DECADE (++)	6				64.9	73.5	37.3	69.3		55.8	66.9	61.3	102.6	58.7
BRODVIEW	BRODVIEW	3							73.8		52.8	67.2	64.6	101.5	58.1
MTS0713	JUDEE (++)	5					66.4	42.4	72.2		48.9	70.6	60.1	100.0	57.2
MT00159	YELLOWSTONE (++)	9	70.3	58.7	65.6	58.0	69.8	39.7	70.7		52.1	68.2	61.4	100.0	57.2
BZ9W96-919	PRYOR (P+)	8	73.1	63.6	57.5	47.8	68.0	41.1	71.4		57.6		60.0	99.0	56.6
S94-4	CDC FALCON (P+)	9	69.3	62.3	58.9	61.4	68.2	42.1	72.5		53.3	55.9	60.4	98.4	56.3
MTS0721	BEARPAW (++)	4						38.4	67.1		55.4	64.0	56.2	97.5	55.8
AP503CL2	AP503 CL2	4					62.5	34.2	74.5		54.0		56.3	96.9	55.4
DH001819	ACCIPTER	5					65.4	41.8	73.1		47.5	62.1	58.0	96.5	55.2
BZ96-788	LEDGER (P+)	9	65.2	69.6	52.5	61.1	57.9	39.3	73.1		48.1	64.0	59.0	96.0	54.9
MTS0031	GENOU (++) (saw fly res)	9	68.7	63.8	54.7	57.0	61.0	46.4	63.4		43.5	70.0	58.7	95.6	54.7
JAGALENE	JAGALENE (P+)	9	68.0	58.4	50.6	54.4	68.2	35.1	78.7		53.8	60.5	58.6	95.4	54.6
BZ022060	CARTER (P++)	8		63.1	48.3	57.2	65.8	38.0	75.9		52.1	59.1	57.4	95.2	54.4
MTCL0316	NORRIS (P, CL++)	8		62.8	54.0	56.0	64.6	36.2	65.9		55.0	61.4	57.0	94.4	54.0
RADIANT	RADIANT	4						36.6	67.6		47.2	65.5	54.2	94.0	53.8
UT932555	CURLEW	4						36.0	60.7		44.6	73.3	53.6	93.0	53.2
PI55458	PROMONTORY	9	66.2	45.9	53.9	50.7	66.5	37.2	81.1		45.4	65.0	56.9	92.6	53.0
ND9257	JERRY	9	60.6	48.6	55.9	52.9	59.9	38.3	67.6		44.2	66.2	54.9	89.4	51.1
MTCL0318	BYNUM (P, CL++) (sf res)	8		49.9	47.7	53.5	61.1	42.2	60.3		43.4	68.3	53.3	88.3	50.5
PI593889	RAMPART (saw fly res)	9	63.2	60.6	49.0	55.3	53.7	37.8	59.9		46.6	62.3	54.3	88.3	50.5
DH993710	PEREGRINE	4					53.3	37.2	69.8		43.9		51.1	87.9	50.3
MEANS (For Entries Listed)			67.2	58.9	54.0	56.2	63.9	39.0	70.9		50.0	65.0			55.0
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			418	138	390	416	275	172	204	32	60	59	216		
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	100	100	76		
(# P ₂ O ₅)			40	40	40	40	40	40	40	40	20	20	36		
(# K ₂ O)			25	25	25	25	25	25	25	25	10	10	22		

Long-term check variety is Yellow stone.

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

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

TABLE 3. Nine-Year Test Weight Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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 4/	9-YR COMP. AVE TEST WT 5/
		2004	2005	2006	2007	2008	2009	2010	2011 3/	2012	2013			
JAGALENE JAGALENE (P+)	9	62.4	62.1	64.2	61.7	62.7	63.0	64.4		61.6	60.0	62.5	104.9	62.5
PI555458 PROMONTORY	9	60.9	61.3	64.1	61.2	61.5	62.6	63.6		61.2	60.0	61.8	103.9	61.9
AP503CL2 AP503 CL2	4					60.7	63.0	62.2		60.1		61.5	103.2	61.5
MTCL0316 NORRIS (P, CL++)	8		63.2	63.5	61.3	60.3	62.6	60.4		59.4	59.5	61.3	102.6	61.1
BZ96-788 LEDGER (P+)	9	60.8	62.2	63.2	60.6	60.1	60.4	61.9		60.0	58.7	60.9	102.3	61.0
MTCL0318 BYNUM (P, CL++)(sf res)	8		61.5	62.9	60.2	61.4	61.4	62.5		59.3	58.6	61.0	102.1	60.9
MT0552 DECADE (++)	6				60.3	60.5	61.5	62.3		59.7	58.6	60.5	101.9	60.7
S94-4 CDC FALCON (P+)	9	60.7	60.3	63.1	59.0	60.2	61.8	61.5		59.3	58.7	60.5	101.7	60.6
MTS0031 GENOU (++) (saw fly res)	9	59.7	60.9	62.5	59.7	58.7	62.0	60.7		58.1	59.2	60.2	101.1	60.2
ART ART	3							61.8		60.7	58.0	60.2	101.0	60.2
BZ022060 CARTER (P++)	8		62.0	62.0	59.1	59.4	60.4	62.9		58.8	58.1	60.3	101.0	60.2
DH001819 ACCIPITER	5					59.8	62.0	61.5		57.8	58.3	59.9	100.5	59.9
OVERLAND OVERLAND	4						61.4	62.9		59.0	58.3	60.4	100.5	59.9
PI593889 RAMPART (saw fly res)	9	59.1	60.5	62.5	58.6	59.1	61.3	60.4		58.7	57.9	59.8	100.4	59.9
BZ9W96-919 PRYOR (P+)	8	58.4	59.3	62.1	57.4	59.4	61.7	61.2		58.0		59.7	100.2	59.7
MT00159 YELLOWSTONE (++)	9	57.9	59.4	62.2	58.3	57.5	61.7	61.2		58.1	59.3	59.5	100.0	59.6
MTS0713 JUDEE (++)	5					57.5	62.2	61.0		56.9	60.2	59.6	100.0	59.6
RADIANT RADIANT	4						61.1	61.8		57.5	59.2	59.9	99.7	59.4
MTS0721 BEARPAW (++)	4						61.1	61.4		58.8	57.6	59.7	99.4	59.2
ND9257 JERRY	9	58.8	59.3	62.1	58.0	56.7	60.5	61.1		57.7	57.5	59.1	99.3	59.2
BRODVIEW BROADVIEW	3							61.0		58.2	57.7	59.0	99.0	59.0
UT932555 CURLEW	4						61.7	61.1		56.8	58.0	59.4	98.8	58.9
DH993710 PEREGRINE	4					56.4	61.7	60.4		56.9		58.8	98.7	58.8
MEANS (For Entries Listed)		59.9	61.0	62.9	59.6	59.5	61.7	61.7		58.8	58.7			60.2
April-July Precip. (in.)		8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)		14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting		418	138	390	416	275	172	204	32	60	59	216		
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	100	100	76		
	(# P ₂ O ₅)	40	40	40	40	40	40	40	40	20	20	36		
	(# K ₂ O)	25	25	25	25	25	25	25	25	10	10	22		

Long-term check variety is Yellow stone.

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

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

TABLE 4. Ten-Year Sawfly Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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/	10-YR COMP. AVE. SAWFLY 4/
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
PI593889	RAMPART (saw fly res)	10	3.3	8.3	2.3	2.3	13.3	1.0	3.7	1.0	0.0	3.7	3.9	100.0	3.9
MTS0713	JUDEE (++)	6				8.3	4.0	4.0	4.0	2.1	5.3	4.6	122.5	4.8	
MTS0721	BEARPAW (++)	5					4.0	2.3	1.0	2.5	5.3	3.0	162.0	6.3	
MTS0031	GENOU (++) (saw fly res)	10	3.3	10.0	6.7	5.0	11.7	1.0	15.0	1.0	6.3	6.7	170.8	6.7	
BZ022060	CARTER (P++)	9		13.3	15.0	10.0	10.0	11.7	5.3	3.7	1.0	10.0	8.9	224.3	8.7
MTCL0318	BYNUM (P, CL++) (sf res)	9		15.0	8.3	6.7	13.3	10.0	10.0	5.7	2.9	10.0	9.1	229.6	9.0
DH001819	ACCIPITER	6				28.3	10.0	11.7	1.0	10.1	3.7	10.8	285.7	11.1	
BZ96-919	PRYOR (P+)	9	3.3	8.3	20.0	35.0	13.3	13.3	3.7	2.3	2.6	11.3	288.5	11.2	
ART	ART	4					8.3	3.7	7.2	8.3	6.9	331.1	12.9		
BRODVIEW	BRODVIEW	4					8.7	3.7	9.1	10.0	7.9	377.4	14.7		
AP503CL2	AP503 CL2	5				23.3	23.3	8.7	8.3	10.8	14.9	391.9	15.3		
MT0552	DECADE (++)	7			18.3	35.0	16.7	3.7	6.7	9.5	8.3	14.0	392.8	15.3	
MTCL0316	NORRIS (P, CL++)	9		21.7	8.3	23.3	23.3	18.3	18.3	13.3	10.4	11.7	16.5	416.8	16.3
S94-4	CDC FALCON (P+)	10	8.3	33.3	25.0	26.7	36.7	13.3	7.0	1.0	6.9	5.0	16.3	418.6	16.3
BZ96-788	LEDGER (P+)	10	10.0	21.7	36.7	13.3	46.7	11.7	15.0	1.0	4.9	8.3	16.9	433.9	16.9
MT00159	YELLOWSTONE (++)	10	13.3	40.0	18.3	40.0	18.3	23.3	11.7	5.3	8.9	10.0	18.9	485.2	18.9
DH993710	PEREGRINE	5				23.3	38.3	23.3	2.3	15.9	20.6	543.3	21.2		
JAGALENE	JAGALENE (P+)	10	10.0	55.0	23.3	23.3	38.3	23.3	12.0	10.0	9.0	13.3	21.8	558.3	21.8
OVERLAND	OVERLAND	5					20.0	11.7	11.7	2.8	10.0	11.2	601.4	23.4	
ND9257	JERRY	10	8.3	45.0	18.3	45.0	21.7	40.0	28.3	5.3	14.2	10.0	23.6	605.7	23.6
PI555458	PROMONTORY	10	15.0	41.7	28.3	56.7	28.3	48.3	23.3	25.0	15.7	21.7	30.4	779.8	30.4
RADIANT	RADIANT	5					31.7	6.7	8.3	15.2	11.7	14.7	787.2	30.7	
UT932555	CURLEW	5					63.3	35.0	25.0	14.3	20.0	31.5	1688.3	65.8	
MEANS (For Entries Listed)			8.3	26.1	17.6	23.5	23.1	20.3	12.1	6.5	7.9	9.7		17.6	
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			418	138	390	416	275	172	204	32	60	59	216		
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	100	100	76		
(# P ₂ O ₅)			40	40	40	40	40	40	40	40	20	20	36		
(# K ₂ O)			25	25	25	25	25	25	25	25	10	10	22		

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/ 10-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 = 10-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, MT. 2013. (Exp# 13-3102-SW)

ID	Cultivar or Selection	Stand %	1/	Plant HT Inches	2/	Test Wt Lbs/Bu	Moist %	3/	4/
			Head Date		Yield Bu/Ac			Protein %	Sawfly %
MT 1142	06SR49/06SR175	96.8	179.7	27.0	68.0	62.0	9.7	14.9	1.0
AGRIPR10	BRENNAN	96.5	176.0	25.2	56.3	63.3	9.4	15.2	0.7
LIMAGR1	BUCKPRONTO	98.1	177.7	26.3	55.5	62.3	9.6	13.7	2.3
PI633974	CHOTEAU	93.6	179.0	26.3	53.9	61.5	9.5	15.1	1.0
WB9879CL	CHOTEAU*3//CHOTEAU/IMI8134	96.2	180.0	24.8	58.9	61.7	9.5	14.8	0.7
CAP 34-1	CHOTEAU*3/CAP19	97.1	178.7	26.3	58.6	62.8	9.7	14.2	2.3
MT 1118	CHOTEAU/06SR140	96.4	178.0	26.0	61.2	61.0	9.5	13.9	0.7
MT 1264	CHOTEAU/CLEARWHITE	96.8	176.7	27.9	61.2	61.9	9.6	14.5	4.0
MT 1002	CHOTEAU/MT0515	97.4	180.3	25.1	64.9	61.2	9.5	14.2	1.0
MT 1007	CHOTEAU/MT0515	97.1	179.3	26.5	62.9	63.5	9.8	14.2	0.7
MT 1103	CHOTEAU/MT0515	95.5	180.7	25.6	67.9	62.5	9.6	14.3	0.7
MT 1203	CHOTEAU/MT0744	97.8	176.3	27.1	53.7	61.3	9.4	15.7	1.0
MT 1205	CHOTEAU/MTHW0771	90.4	176.0	26.2	56.6	62.2	9.8	14.9	0.7
MT 1206	CHOTEAU/MTHW0771	96.5	179.7	26.9	65.1	62.2	9.5	15.0	0.7
MT 1230	CHOTEAU/REEDER(07SR241)//CHOTE	95.5	180.3	25.8	56.6	60.9	9.3	15.1	2.3
MT 1236	CHOTEAU/REEDER(07SR241)//CHOTE	98.4	179.0	26.2	62.1	60.5	9.5	15.3	0.7
MT 1231	CHOTEAU/REEDER(07SR241)//MT064	96.8	177.3	26.7	56.2	60.9	9.4	15.1	2.3
MT 1233	CHOTEAU/REEDER(07SR241)//MT064	97.1	177.7	25.6	52.8	61.9	9.5	15.5	2.3
MT 1234	CHOTEAU/REEDER(07SR241)//MT064	99.1	179.7	28.4	60.0	62.3	9.5	15.2	2.3
MT 1235	CHOTEAU/REEDER(07SR241)//MT064	98.1	180.0	26.5	57.0	62.6	9.7	14.6	2.3
MT 1252	CHOTEAU/WxS481-8-1(CHOTEAU/6*M	95.5	180.3	26.3	61.5	62.8	9.7	13.3	3.3
BZ992588	CONAN	95.5	178.7	26.8	55.5	62.1	9.5	15.0	0.3
BZ996434	CORBIN	96.8	176.7	27.8	59.3	62.7	9.8	13.8	0.7
PI660981	DUCLAIR	96.8	178.7	27.2	61.7	61.2	9.6	14.1	1.0
CI 13596	FORTUNA	95.4	178.0	32.7	49.3	61.9	9.6	15.5	2.3
MT 1255	HANK/CLEARWHITE	96.4	177.0	24.9	60.7	61.6	9.4	13.7	1.0
MTHW1150	IDO647/MTHW0471	97.1	180.0	28.4	67.9	63.7	9.7	14.3	2.0
BZ9M1044	JEDD	97.4	177.0	22.4	52.4	63.0	9.7	13.4	2.3
LIMAGR3	LCS BREAKAWAY (11FX MN)	96.5	176.3	25.8	47.3	63.4	9.4	15.2	3.7
LIMAGR4	LCS POWERPLAY	98.1	178.3	26.9	60.9	63.2	9.6	14.5	3.7
LIMAGR5	LNRO551	92.3	179.3	24.6	45.6	62.8	9.8	14.8	2.0
PI574642	MCNEAL	97.1	179.7	27.3	53.0	61.8	9.4	14.8	7.0
CAP400-1	MCNEAL/GLUPRO*2//CAP19/CHOTEAU	98.4	179.7	26.4	55.5	60.8	9.3	15.7	2.3
MT 1224	MCNEAL/MT0245(07SR2)//CHOTEAU/	98.1	179.3	27.3	61.8	61.1	9.6	14.3	1.0
MT 1225	MCNEAL/MT0245(07SR2)//CHOTEAU/	98.4	179.3	26.8	64.3	61.6	9.4	14.9	1.0
MT 1227	MCNEAL/MT0245(07SR2)//CHOTEAU/	96.5	181.0	27.5	66.8	60.0	9.6	14.6	1.0
MT 1228	MCNEAL/MT0245(07SR2)//CHOTEAU/	97.5	179.7	27.4	66.7	61.8	9.4	14.4	1.0
NDSW0449	MOTT	95.4	180.0	29.3	62.6	62.8	9.4	14.8	1.0
MT 1172	MT0245/IMI8209-1//MT0245	97.8	179.3	25.7	62.5	61.5	9.5	14.3	1.0
MT 1173	MT0245/IMI8209-1//MT0245	97.5	180.7	28.7	69.4	61.7	9.5	14.4	1.0
CAP197-3	MT0515*2//CAP19/MT0515	96.1	179.0	29.3	61.1	61.7	9.6	13.7	1.0
CAP219-3	MT0515*2//CAP19/MT0515	96.8	176.3	26.9	64.0	63.1	9.6	14.0	2.3
MT 1213	MT0614//CHOTEAU/REEDER(07SR241	96.8	178.3	29.4	59.4	61.9	9.4	14.4	1.0

TABLE 5. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2013. (Exp# 13-3102-SW)

ID	Cultivar or Selection	Stand %	1/	2/	Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	3/	4/
			Head Date	Plant HT Inches				Protein %	Sawfly %
MT 1211	MT0614/MT0735	96.5	176.7	28.1	61.3	61.9	9.4	14.6	4.0
MT 1133	MT0628/MT0626	97.1	179.3	26.3	62.7	62.5	9.6	14.7	1.0
MT 1216	MT0643//CHOTEAU/REEDER(07SR241	98.1	179.7	27.3	55.9	61.1	9.5	15.0	1.0
MT 1219	MT0643/MTHW0771	95.4	179.0	25.1	63.4	62.4	9.6	14.2	1.0
MT 1222	MT0744//CHOTEAU/GLUPRO(06IFAFS	98.1	177.0	25.6	54.3	60.3	9.7	15.2	1.0
BZ999592	ONEAL	96.5	179.7	28.0	64.2	62.8	9.5	14.5	2.3
ND 695	REEDER	96.4	179.0	27.6	62.7	62.8	9.3	15.3	2.3
AGRIPR15	SY ROWYN	96.1	177.3	26.5	59.6	62.2	9.7	14.2	1.0
AGRIPR14	SY SOREN	99.4	177.3	24.4	56.6	63.0	9.4	14.8	2.0
AGRIPR12	SY TYRA	95.4	178.3	25.0	64.2	63.9	9.8	13.4	0.7
AGRIPR13	SY605 CL	96.4	175.0	27.7	51.0	62.9	9.5	15.4	1.0
CI 10003	THATCHER	99.1	180.3	35.3	44.9	61.5	9.1	14.7	2.3
WB11 2	VANTAGE	95.1	178.0	25.1	58.7	62.6	9.5	14.3	1.0
PI642366	VIDA	97.8	179.3	28.0	67.2	62.4	9.7	14.0	1.0
MT 1273	VIDA/CLEARWHITE	97.1	179.7	27.7	70.2	63.0	9.8	13.6	4.0
MT 1276	VIDA/CLEARWHITE	98.4	178.0	27.3	64.9	62.6	9.7	14.3	2.3
MT 1053	VIDA/MTHW0202	95.5	180.0	26.1	63.0	62.4	9.8	13.5	1.0
ACS52610	VOLT	96.1	179.0	25.8	53.8	63.8	9.7	14.0	8.3
BZ92413R	WB GUNNISON	95.7	176.3	27.5	56.5	62.6	9.6	14.0	0.7
WB12 1	WB MAYVILLE	98.1	180.3	26.5	55.4	63.9	9.5	15.3	2.3
WB11 3	WB ROCKLAND	97.4	180.0	22.8	46.3	61.6	9.2	16.8	0.7
EXPERIMENTAL MEANS		96.7	178.7	26.8	59.3	62.2	9.6	14.6	1.8
LSD (0.05)		3.9	1.5	2.1	7.4	0.7	0.2	0.6	3.1
C.V.: (S / MEAN)*100		2.5	0.5	4.9	7.7	0.7	1.4	2.7	106.4
P-VALUE (Entries)		0.2492	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0042

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

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 (178 = June 25).

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

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

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

Management Information (13-3102-SW)

Seeding Date: April 28, 2013
 Harvest Date: August 8, 2013
 Fertility: 100-20-10 side banded
 System: no till
 Herbicide: Brox-M, 24 oz/ac
 Insecticide: none
 Previous Crop: Chemical Fallow - Spring Barley
 Precipitation: 14.45"

TABLE 6. Ten-Year Yield Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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/
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
AGRIPR13	VIDA (++)	10	51.8	59.3	35.8	42.4	55.3	55.6	58.3	44.6	35.1	67.2	50.6	158.7	56.6
AGRIPRO8	ONEAL (P+)	10	54.9	57.2	31.2	33.6	52.2	48.7	58.0	46.6	34.7	64.2	48.1	151.2	53.9
AGRIPR10	REEDER (+)	10	40.3	51.9	30.0	36.2	51.0	49.9	54.6	41.8	31.4	62.7	45.0	141.2	50.4
PI633974	CONAN (P+)(saw fly tol)	10	42.7	57.1	32.9	36.1	46.6	44.1	50.0	41.9	32.6	55.5	44.0	138.0	49.2
BZ992588	CHOTEAU (++) (saw fly res)	10	43.2	58.0	32.1	36.0	45.1	42.3	53.3	38.8	31.1	53.9	43.4	136.2	48.6
BZ996434	FORTUNA (saw fly res)	10	42.0	49.7	33.8	31.5	46.1	45.6	50.1	40.5	33.6	49.3	42.2	132.6	47.3
PI660981	WB GUNNISON (P+)	8			33.9	38.4	55.3	46.6	62.4	44.1	32.3	56.5	46.2	131.0	46.7
CI13596	McNEAL	10	40.4	51.8	27.2	35.4	45.9	41.9	49.9	36.4	34.1	53.0	41.6	130.6	46.6
BZ992322	OUTLOOK (++)	7	49.4	58.9	31.2	35.7	45.2	43.1	56.4			45.7	128.7	45.9	
BZ9M1044	JEDD (P+)	9		59.9	33.7	34.4	48.2	42.9	52.6	41.0	34.2	52.4	44.4	127.9	45.6
AGRIPRO6	BUCK PRONTO	4		50.7						48.2	32.9	55.5	46.8	127.3	45.4
AGRIPRO7	CORBIN (P+) (saw fly res)	9	48.6		28.9	42.0	47.8	45.2	53.3	45.5	31.3	59.3	44.6	126.7	45.2
PI574642	VOLT (P+)	9		53.0	28.4	35.1	42.4	43.4	49.7	51.3	28.0	53.8	42.8	123.3	44.0
NDSW0449	HANK (P+)	8	44.7	54.3	31.7	34.0	45.1	45.3	54.3	42.1		43.9	123.1	43.9	
BZ999592	BRENNAN	5					54.2	53.9	35.8	38.4	56.3	47.7	122.9	43.8	
PI632252	DUCLAIR (++)	5					42.3	55.5	41.0	34.9	61.7	47.1	121.3	43.3	
ND695	SY SOREN	3							42.6	29.7	56.6	43.0	119.6	42.6	
AGRIPR14	KELBY (P+)	8	38.7		30.8	37.7	48.9	42.4	47.2	41.4	36.2		40.4	118.7	42.3
AGRIPR12	MOTT (++)	5					45.3	51.1	40.4	30.1	62.6	45.9	118.3	42.2	
CI10003	SY TYRA	5					44.8	51.0	39.7	26.6	64.2	45.3	116.7	41.6	
WB11 2	VANTAGE	3							38.9	28.2	58.7	41.9	116.6	41.6	
PI642366	AP604 CL (P+)	6				36.9	46.0	42.0	52.2	40.4	28.2		41.0	115.8	41.3
ACS52610	AGRIPRO SY605 CL	4							46.4	37.3	30.0	51.0	41.2	110.9	39.5
BZ902413(R)	KUNTZ (P+)	6			26.1	31.3	39.0	45.2	44.9	43.0			38.3	108.7	38.7
WB11 3	WB ROCKLAND	3							32.8	30.3	46.3	36.4	101.4	36.1	
LIMAGR1	THATCHER	10	35.2	39.3	24.9	29.9	33.2	45.5	40.6	37.0	25.9	44.9	35.7	100.0	35.7
MEANS (For Entries Listed)			44.3	53.9	30.8	35.7	46.7	45.5	52.1	41.3	31.7	56.5			44.5
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			86	142	119	220	252	139	141	124	35	56	131		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	36	48	48	47		
Fertilizer Applied															
(# N)			70	70	70	70	70	70	70	70	100	100	76		
(# P ₂ O ₅)			40	40	40	40	40	40	40	40	20	20	36		
(# K ₂ O)			25	25	25	25	25	25	25	25	10	10	22		

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. 2004-2013. (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/
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
AGRIPRO6	KELBY (P+)	8	60.0		57.2	59.2	59.6	59.5	58.2	62.3	56.3		59.0	108.1	59.9
ACS52610	VOLT (P+)	9		60.1	56.4	57.5	59.1	59.8	58.0	63.2	53.7	63.8	59.1	106.2	58.9
BZ992588	CONAN (P+) (saw fly tol)	10	59.9	59.4	54.6	57.5	58.6	59.8	58.5	61.2	56.1	62.1	58.8	106.1	58.8
WB11 2	VANTAGE	3								63.0	56.1	62.6	60.5	106.0	58.7
BZ9M1044	JEDD (P+)	9		59.9	55.5	58.1	57.9	59.7	57.4	61.5	55.3	63.0	58.7	105.6	58.5
CI13596	FORTUNA (saw fly res)	10	59.2	59.2	56.0	56.8	58.8	59.4	57.7	60.7	54.6	61.9	58.4	105.4	58.4
BZ999592	ONEAL (P+)	10	60.5	58.8	54.1	56.0	57.8	60.6	58.9	61.1	53.4	62.8	58.4	105.4	58.4
LIMAGR1	BUCK PRONTO	4		57.5						60.7	53.6	62.3	58.5	105.2	58.3
AGRIPR10	BRENNAN	5						59.3	58.4	62.4	56.5	63.3	60.0	104.9	58.1
BZ902413(R)	WB GUNNISON (P+)	8			54.3	57.4	59.0	60.2	59.5	60.2	52.9	62.6	58.3	104.8	58.1
ND695	REEDER (+)	10	58.9	58.6	53.6	56.8	58.2	60.0	57.8	61.3	52.9	62.8	58.1	104.8	58.1
AGRIPR13	AGRIPRO SY605 CL	4							59.5	60.9	54.5	62.9	59.4	104.8	58.1
BZ996434	CORBIN (P+)(saw fly res)	9	60.1		54.7	57.6	57.0	59.9	57.2	61.2	51.3	62.7	58.0	104.7	58.0
AGRIPRO8	AP604 CL (P+)	6				57.9	58.6	59.9	57.6	60.8	52.6		57.9	104.6	58.0
PI642366	VIDA (++)	10	58.6	57.8	52.0	55.8	58.6	58.8	57.7	60.8	50.8	62.4	57.3	103.4	57.3
PI632252	OUTLOOK (++)	7	57.6	58.0	51.3	55.3	57.0	59.2	56.4				56.4	103.2	57.2
PI633974	CHOTEAU (+)(saw fly res)	10	59.5	58.7	52.8	55.7	56.3	57.9	56.5	59.6	52.0	61.5	57.1	103.0	57.1
AGRIPRO7	KUNTZ (P+)	6			55.3	56.3	55.7	58.4	56.7	60.1			57.1	102.9	57.0
AGRIPR14	SY SOREN	3								61.3	51.5	63.0	58.6	102.6	56.8
AGRIPR12	SY TYRA	5						59.4	56.7	59.9	52.8	63.9	58.5	102.4	56.7
PI574642	McNEAL	10	57.0	57.3	52.7	54.5	56.0	58.5	57.4	59.1	52.3	61.8	56.7	102.2	56.7
BZ992322	HANK (P+)	8	58.3	55.2	53.7	54.9	56.2	58.8	55.4	59.5			56.5	102.2	56.6
WB11 3	WB ROCKLAND	3								60.1	52.7	61.6	58.2	101.8	56.4
NDSW0449	MOTT (++)	5						58.0	56.4	60.7	51.4	62.8	57.8	101.2	56.1
PI660981	DUCLAIR (++)	5						57.8	57.3	59.1	51.6	61.2	57.4	100.4	55.6
CI10003	THATCHER	10	53.8	55.8	51.1	52.5	55.1	58.9	55.5	59.8	50.2	61.5	55.4	100.0	55.4
MEANS (For Entries Listed)			58.6	58.2	54.1	56.5	57.6	59.2	57.5	60.8	53.2	62.5			57.6
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			86	142	119	220	252	139	141	124	35	56	131		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	36	48	48	47		
Fertilizer Applied				(# N)	70	70	70	70	70	70	70	100	100	76	
				(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	36	
				(# K ₂ O)	25	25	25	25	25	25	25	10	10	22	

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. Ten-Year Sawfly Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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/	10-YR COMP. AVE SAWFLY 4/
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
BZ902413R	WB GUNNISON (P+)	8			1.0	1.0	10.0	2.3	1.0	5.3	1.0	0.7	2.8	17.5	2.7
BZ992588	CONAN (P+)(saw fly tol)	10	15.0	1.7	3.7	1.0	15.0	1.0	11.7	7.0	5.0	0.3	6.1	39.7	6.1
BZ999592	ONEAL (P+)	10	8.3	3.3	5.0	2.3	11.7	8.3	10.0	10.0	7.5	2.3	6.9	44.6	6.9
NDSW0449	MOTT (++)	5						1.0	11.7	13.3	3.0	1.0	6.0	45.7	7.1
AGRIPR14	SY SOREN	3								2.3	10.0	2.0	4.8	46.7	7.2
PI642366	VIDA (++)	10	26.7	0.0	5.0	3.7	6.7	8.7	7.0	10.0	5.0	1.0	7.4	47.7	7.4
BZ996434	CORBIN (P+)(saw fly res)	9	20.0		1.0	1.0	33.3	5.3	12.0	5.0	7.5	0.7	9.5	58.1	9.0
BZ9M1044	JEDD (P+)	9		0.0	6.7	6.7	30.0	5.0	23.3	6.7	8.0	2.3	9.9	66.0	10.2
AGRIPR10	BRENNAN	5						5.3	18.3	11.7	12.5	0.7	9.7	73.8	11.4
PI660981	DUCLAIR (++)	5						10.0	13.3	28.3	7.5	1.0	12.0	91.6	14.1
CI 13596	FORTUNA (saw fly res)	10	20.0	6.7	3.7	5.0	53.3	15.0	20.0	18.3	10.0	2.3	15.4	100.0	15.4
PI633974	CHOTEAU (++) (saw fly res)	10	18.3	3.3	2.3	1.0	51.7	10.0	31.7	28.3	8.0	1.0	15.6	100.9	15.6
AGRIPR13	AGRIPRO SY605 CL	4							21.7	8.3	22.5	1.0	13.4	105.6	16.3
PI632252	OUTLOOK (++)	7	30.0	3.3	16.7	8.3	36.7	10.0	26.7				18.8	106.5	16.4
AGRIPRO8	AP604 CL (P+)	6				20.0	36.7	13.3	26.7	13.3	20.0		21.7	106.9	16.5
CI 10003	THATCHER	10	30.0	11.7	10.0	15.0	31.7	10.0	30.0	15.0	17.5	2.3	17.3	112.2	17.3
AGRIPRO6	KELBY (P+)	8	30.0		8.3	15.0	55.0	7.0	25.0	15.0	10.0		20.7	113.8	17.6
BZ992322	HANK (P+)	8	18.3	6.7	6.7	10.0	65.0	10.0	35.0	13.3			20.6	116.2	17.9
WB11 2	VANTAGE	3							15.0	20.0	1.0	12.0	117.4	18.1	
ND 695	REEDER (+)	10	23.3	5.0	8.3	13.3	55.0	6.7	33.3	16.7	20.0	2.3	18.4	119.2	18.4
TRIGEN2	BUCK PRONTO	4		6.7						13.3	22.5	2.3	11.2	120.1	18.5
AGRIPR12	SY TYRA	5						20.0	10.0	6.7	8.0	0.7	9.1	147.1	22.7
PI574642	McNEAL	10	25.0	6.7	15.0	15.0	51.7	18.3	25.0	36.7	30.0	7.0	23.0	149.2	23.0
AGRIPRO7	KUNTZ (P+)	6			13.3	16.7	70.0	10.0	56.7	13.3			30.0	156.1	24.1
WB11 3	WB ROCKLAND	3								25.0	27.5	0.7	17.7	173.4	26.8
ACS52610	VOLT (P+)	9		16.7	16.7	13.3	86.7	15.0	60.0	13.3	52.5	8.3	31.4	210.3	32.5
MEANS (For Entries Listed)			22.1	5.5	7.7	8.7	41.2	9.2	23.2	14.1	14.6	2.0			15.4
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			86	142	119	220	252	139	141	124	35	56	131		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	36	48	48	47		
Fertilizer Applied				(# N)	70	70	70	70	70	70	70	100	100	76	
				(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	36	
				(# K ₂ O)	25	25	25	25	25	25	25	10	10	22	

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/ 10-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 = 10-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. 2013. (Exp# 13-9802-SW)

Entry	Cultivar or Selection	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	Krnl Wt g/1000	3/ Protein %	4/ NIR Hardness	5/ Sawfly %
1	Mountrail	96.8	180.0	29.5	57.0	63.4	8.9	42.3	16.0	93.1	2.3
2	Divide	96.9	179.7	33.2	55.7	63.6	9.0	41.7	16.2	92.6	1.0
3	Alkabo	98.1	178.3	30.8	61.3	63.6	8.9	43.4	15.5	89.5	2.3
4	Grenora	96.5	179.0	31.2	62.3	63.3	9.0	43.8	15.3	94.8	2.3
5	Tioga	94.9	179.0	33.7	54.1	64.0	9.0	43.6	16.0	90.5	2.3
6	Carpio	96.5	180.3	31.9	59.8	63.4	9.0	44.4	15.5	87.0	3.7
7	Silver	95.7	176.0	26.7	54.9	62.9	8.9	37.4	16.3	93.8	2.3
8	Alzada	96.2	177.0	27.2	58.7	62.8	8.9	41.6	16.0	90.1	2.3
9	DG Max*	92.9	178.0	33.2	57.5	63.4	8.9	40.6	16.5	91.9	2.3
10	VT Peak*	97.9	178.7	32.3	58.5	64.5	9.0	43.1	16.3	91.5	1.0
11	Normanno*	96.6	177.7	24.7	55.0	62.9	8.9	39.7	15.7	93.1	0.3
12	Kronos*	93.8	175.0	25.4	58.3	62.5	8.9	44.0	15.8	90.1	1.0
13	APB D7-12*	89.6	181.7	26.3	51.3	61.9	8.9	36.8	14.6	94.3	1.0
14	APB D6-419*	95.6	177.3	28.3	52.6	63.1	8.9	42.3	16.5	92.1	0.7
15	MT06584	96.9	178.7	25.2	64.8	64.2	9.0	40.4	15.0	90.8	0.3
16	MT05157	94.1	180.0	25.9	58.6	64.8	8.9	39.5	15.3	98.4	0.3
17	MT06578	96.3	179.7	23.3	55.0	63.8	9.0	39.1	15.2	92.4	0.7
18	MT07707	95.6	180.0	24.4	57.9	61.8	8.9	39.9	15.8	91.5	0.3
EXPERIMENTAL MEANS		95.6	178.7	28.5	57.4	63.3	8.9	41.3	15.7	92.1	1.5
LSD (0.05)		3.2	1.2	2.0	5.5	0.8	0.1	-	0.5	-	2.1
C.V.: (S / MEAN)*100		2.0	0.4	4.2	5.8	0.8	0.6	-	2.0	-	86.9
P-VALUE (Entries)		0.0014	<.0001	<.0001	0.0023	<.0001	0.0024	-	<.0001	-	0.0624

1/ No. of Days from January 1 (179 = June 26).

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.

Bold indicates highest value within a column.

Bold indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05).

Management Information (13-9802-DUR)

Seeding Date: April 28, 2013
 Harvest Date: August 22, 2013
 Fertility: 100-20-10 side banded
 System: no till
 Herbicide: Brox-M, 24 oz/ac
 Insecticide: none
 Previous Crop: Barley
 Precipitation: 13.84"

TABLE 10. Ten-Year Yield Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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/
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
STRONGFIELD STRONGFIELD (+)	7			31.2	37.8	46.6	45.8	68.0	40.7	27.8		42.5	108.8	45.9
CANKYLE KYLE	3	49.9	46.0	30.2								42.0	108.0	45.5
ACAVONLE AC A VONLEA (+)	3	44.7	49.9	31.2								41.9	107.7	45.4
YU894-75 ALZADA (P+)	10	47.7	46.2	30.6	44.7	45.2	39.5	58.4	43.9	34.4	58.7	44.9	106.5	44.9
D89135 MAIER (+)	3	43.5	48.5	29.9								40.6	104.4	44.0
D91080 PLAZA (+)	3	41.8	50.3	29.6								40.6	104.2	44.0
SARAGOLL SARAGOLLA	4					42.8	43.7	61.6	41.3			47.3	103.1	43.5
D901442 LEBSOCK (+)	3	46.7	46.6			40.9						44.7	102.6	43.3
ALKABO ALKABO (+)	8			27.1	34.0	40.5	41.4	62.7	39.5	29.7	61.3	42.0	101.7	42.9
TIOGA TIOGA	4							64.1	41.9	30.1	54.1	47.6	101.5	42.8
GRENORA GRENORA (+)	8			29.7	37.0	41.4	42.8	57.7	36.5	26.0	62.3	41.7	100.8	42.5
DILSE DILSE (+)	5	41.4	48.6	25.2		40.8	42.0					39.6	100.2	42.2
D901313 MOUNTRAIL (+)	10	44.3	46.7	25.8	36.5	39.8	41.1	63.2	39.4	27.9	57.0	42.2	100.0	42.2
MT03012 SILVER (+)	8			29.9	36.5	44.5	40.1	55.3	40.4	28.3	54.9	41.2	99.7	42.1
DIVIDE DIVIDE	8			27.1	37.6	39.1	44.7	60.1	36.4	28.0	55.7	41.1	99.4	41.9
NORMANNO NORMANNO	7				41.2	44.0	46.4	66.6	11.9	32.4	55.0	42.5	97.6	41.1
LEVANTE LEVANTE	5				39.8	49.2	45.0	57.7	18.7			42.1	95.6	40.3
PIERCE PIERCE (+)	8	40.6	41.9	25.3	32.8	38.8	36.7	50.3	40.0			38.3	94.5	39.9
MEANS (For Entries Listed)		44.5	47.2	28.7	37.8	42.6	42.4	60.5	35.9	29.4	57.4			43.0
April-July Precip. (in.)		8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)		14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting		86	142	160	220	252	139	141	124	35	22	132		
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	100	100	76		
	(# P ₂ O ₅)	40	40	40	40	40	40	40	40	20	20	36		
	(# K ₂ O)	25	25	25	25	25	25	25	25	10	10	22		

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. 2004-2013. (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/	
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
D901442	LEBSOCK (+)	3	61.4	58.2			59.6						59.7	105.1	60.7
CANKYLE	KYLE	3	59.7	58.8	55.2								57.9	102.3	59.1
D89135	MAIER (+)	3	60.0	57.7	55.8								57.9	102.2	59.1
PIERCE	PIERCE (+)	8	60.8	57.5	54.6	59.2	58.6	58.9	58.3	60.7			58.6	101.8	58.8
ALKABO	ALKABO (+)	8			54.6	58.9	58.3	58.6	58.7	60.9	57.7	63.6	58.9	101.8	58.8
ACAVONLE	ACAVONLEA (+)	3	60.2	56.5	56.2								57.6	101.8	58.8
LEVANTE	LEVANTE	5				58.4	58.4	59.1	58.1	60.3			58.9	101.4	58.6
DIVIDE	DIVIDE	8			55.5	58.7	57.8	58.4	58.2	60.0	56.6	63.6	58.6	101.3	58.5
D91080	PLAZA (+)	3	59.7	56.3	56.1								57.3	101.3	58.5
TIOGA	TIOGA	4							58.0	60.7	55.7	64.0	59.6	101.1	58.4
STRONGFIELD	STRONGFIELD (+)	7			57.3	57.6	57.2	58.8	58.7	59.9	54.3		57.7	101.0	58.4
GRENORA	GRENORA (+)	8			55.7	57.9	57.4	57.5	58.0	60.6	55.2	63.3	58.2	100.5	58.1
MT03012	SILVER (+)	8			55.4	57.9	55.6	58.2	56.6	60.4	57.2	62.9	58.0	100.3	57.9
DILSE	DILSE (+)	5	59.7	57.6	55.4		58.2	58.5					57.9	100.0	57.8
D901313	MOUNTRAIL (+)	10	59.2	55.6	55.0	58.1	55.7	58.4	58.4	59.9	54.2	63.4	57.8	100.0	57.8
YU894-75	ALZADA (P+)	10	58.8	55.3	53.8	57.5	55.7	58.9	58.2	59.9	55.8	62.8	57.7	99.8	57.7
NORMANNO	NORMANNO	7				57.1	55.7	58.2	57.9	58.9	56.5	62.9	58.2	99.8	57.7
SARAGOLL	SARAGOLLA	4					55.3	58.1	56.3	59.0			57.2	98.4	56.9
MEANS (For Entries Listed)			59.9	57.1	55.4	58.1	57.2	58.5	57.9	60.1	55.9	63.3			58.4
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			86	142	160	220	252	139	141	124	35	22	132		
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	100	100	76		
			(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	36		
			(# K ₂ O)	25	25	25	25	25	25	25	10	10	22		

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 average test weight for the check variety Mountrail.

TABLE 12. Ten-Year Sawfly Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (Exp# 9802-SW)

VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged)										AVE. for YEARS TESTED	% of CHECK SAWFLY 2/	10-Yr COMP. AVE SAWFLY 3/
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
NORMANNO	NORMANNO	7				0.0	2.3	3.7	1.0	2.3	1.0	0.3	1.5	9.3	1.1
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
STRONGFIELD	STRONGFIELD (+)	7			0.7	1.7	10.0	5.3	6.7	13.3	2.3		5.7	34.9	4.3
ACAVONLE	AC AVONLEA (+)	3	3.3	0.0	1.0								1.4	48.1	5.9
D91080	PLAZA (+)	3	3.3	0.0	1.0								1.4	48.1	5.9
YU894-75	ALZADA (P+)	10	6.7	0.0	1.0	1.0	6.7	15.0	8.3	18.3	2.3	2.3	6.2	49.9	6.2
TIOGA	TIOGA	4							13.3	18.3	6.7	2.3	10.2	63.5	7.9
MT03012	SILVER (+)	8			1.0	1.0	6.7	11.7	23.3	30.0	4.0	2.3	10.0	68.4	8.5
DIVIDE	DIVIDE	8			0.7	2.3	21.7	15.0	10.0	23.3	6.7	1.0	10.1	69.0	8.5
GRENORA	GRENORA (+)	8			2.3	2.3	38.3	20.0	16.7	25.0	8.3	2.3	14.4	98.6	12.2
D901313	MOUNTRAIL (+)	10	6.7	0.0	2.3	2.3	30.0	18.3	18.3	30.0	13.3	2.3	12.4	100.0	12.4
ALKABO	ALKABO (+)	8			2.3	3.7	30.0	21.7	26.7	30.0	16.7	2.3	16.7	114.0	14.1
D901442	LEBSOCK (+)	3	16.7	3.3			28.3						16.1	131.8	16.3
DILSE	DILSE (+)	5	13.3	1.7	2.3		40.0	21.7					15.8	162.1	20.0
PIERCE	PIERCE (+)	8	10.0	1.7	1.0	3.7	45.0	35.0	38.3	41.7			22.0	163.3	20.2
D89135	MAIER (+)	3	11.7	3.3	2.3								5.8	192.6	23.8
CANKYLE	KYLE	3	15.0	1.7	5.3								7.3	244.4	30.2
MEANS (For Entries Listed)			9.6	1.3	1.8	1.9	20.9	15.2	14.5	20.4	6.8	1.9			11.3
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			86	142	160	220	252	139	141	124	35	22	132		
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	100	100	76		
(# P ₂ O ₅)			40	40	40	40	40	40	40	40	20	20	36		
(# K ₂ O)			25	25	25	25	25	25	25	25	10	10	22		

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/ 10-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 = 10-Yr average 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. 2013. (Exp# 13-2102-SB)

ID	Cultivar or Selection	Stand %	1/		2/			3/		
			Head Date	Plant Ht Inches	Yield Bu/Ac	Test Wt Lbs/Bu	Moisture %	Plump %	Thin %	Protein %
18-20	18-20	79.3	181.3	21.8	72.9	52.3	10.0	94.6	1.9	15.0
Champion	Baronesse/Camas	95.2	177.0	24.2	69.7	53.1	10.1	94.3	2.2	14.0
Conrad	Conrad	96.4	179.3	27.1	78.5	51.8	10.3	95.8	1.4	14.9
Craft	Craft	90.0	176.0	26.9	60.2	53.2	10.1	90.1	3.5	15.1
Eslick	Eslick	94.9	178.0	24.0	89.5	52.7	9.9	95.4	1.4	14.1
Genie	Genie	95.7	179.7	23.6	67.2	52.1	10.2	91.3	2.8	14.2
Harrington	Harrington	95.5	178.3	27.0	71.3	52.3	9.9	94.8	2.1	14.8
Haxby	Haxby	95.4	176.0	25.4	67.3	53.9	10.0	89.1	3.6	15.1
Hockett	Hockett	95.8	176.0	27.2	70.7	53.2	9.9	94.9	1.8	14.8
ME 05050-045	ME 05050-045	89.1	177.0	25.4	58.7	52.8	10.0	92.2	2.6	15.1
ME 05064-005	ME 09064-005	94.8	176.0	25.1	63.8	53.7	10.0	95.2	1.5	14.7
ME 05065-147	ME 05065-147	93.1	177.3	28.8	66.9	54.1	10.1	93.9	2.2	15.8
ME 07005-007	ME 07005-007	94.6	177.3	26.8	69.2	52.3	10.1	93.4	2.2	15.0
ME 07005-026	ME 07005-026	93.9	181.0	25.2	70.2	53.3	9.9	94.4	1.8	16.1
MT010160	MT920041/Harrington	95.8	177.0	28.1	75.8	53.0	10.0	95.0	1.7	15.1
MT020155	MT960225/H1851195	95.5	175.3	28.3	75.4	51.9	10.2	73.0	10.7	14.6
MT070125	MT981210/MT970116	88.0	178.0	27.2	68.0	53.0	10.2	95.9	1.2	14.3
MT070158	MT970148/Klages	91.1	176.7	23.7	69.3	52.3	9.8	94.0	1.9	14.7
MT070161	MT970148/Klages	96.4	176.7	25.1	79.6	53.5	9.9	91.4	2.9	14.0
MT070175	LK644/Hockett F5	95.4	177.7	27.4	70.0	53.5	10.2	94.9	1.7	13.1
MT080243	MT960101/MT981210	95.4	178.0	26.4	79.0	52.6	9.9	64.7	14.1	14.2
MT080281	MT970148/MT970116	93.2	177.3	23.9	75.5	52.6	10.0	92.0	2.9	14.2
MT090180	MT910189*/LK644/EslickBC3F33-G	93.2	178.3	29.4	78.2	52.9	10.1	91.5	2.8	12.7
MT090181	MT910189*/LK644/EslickBC3F33-G	94.2	179.3	27.9	77.2	53.6	10.3	62.4	14.4	13.0
MT090182	MT910189*/LK644/EslickBC3F33-G	93.4	178.0	27.1	72.9	53.3	10.2	95.2	1.7	12.5
MT090184	MT910189*/LK644/EslickBC3F33-G	90.7	177.7	29.3	74.4	54.0	10.1	90.4	3.2	12.9
MT090186	MT910189*/LK644/EslickBC3F33-G	94.9	178.3	28.4	71.9	53.7	10.3	72.6	9.8	12.6
MT090190	MT910189*/LK644/EslickBC3F33-G	93.7	178.3	28.5	76.9	53.5	10.1	64.1	12.3	13.1
MT090193	MT910189*/LK644/EslickBC3F33-G	93.3	177.3	26.5	75.7	52.5	9.9	94.3	1.9	13.3
MT100051	GPCBC3F4 rows 155&158/Haxby	95.1	176.0	24.3	63.7	53.8	10.1	97.2	1.1	13.9
MT100060	GPCBC3F4 rows 155&158/Haxby	94.9	176.0	27.2	72.1	53.9	10.2	79.5	5.8	13.4
MT100120	Hockett/X/LK644/EslickBC3F3 3-	94.6	178.0	28.7	76.0	53.7	10.1	95.3	1.6	12.5
MT100124	Hockett/X/LK644/EslickBC3F3 3-	92.9	179.0	26.0	70.4	53.0	10.3	43.3	39.6	13.3
MT100125	Hockett/X/LK644/EslickBC3F3 3-	94.2	178.0	27.7	79.9	53.7	10.0	17.7	32.6	12.5
MT100126	Hockett/X/LK644/EslickBC3F3 3-	92.8	179.7	27.5	72.3	54.0	10.2	20.6	33.2	12.8
MT100128	Hockett/X/LK644/EslickBC3F3 3-	90.0	178.0	26.6	72.5	53.0	10.0	89.8	3.3	13.3
MT100130	Hockett/X/LK644/EslickBC3F3 3-	94.5	176.7	27.5	74.1	52.6	10.1	96.4	1.0	13.4
MT100132	Hockett/X/LK644/EslickBC3F3 3-	94.9	177.3	28.1	87.2	53.6	10.2	94.6	1.6	13.1
MT100136	Hockett/X/LK644/EslickBC3F3 3-	90.0	177.0	27.5	77.1	52.6	10.1	93.3	2.0	13.1
MT103005	Haxby/WCC100	76.6	183.3	22.9	35.6	60.8	10.5	76.3	8.1	18.2
MT103022	Haxby/WCC100	93.5	179.0	26.3	76.4	52.6	10.2	92.8	2.1	14.9
MT110008	Craft/Prowashonupana 5 Line 8	78.3	178.3	28.8	45.0	59.4	10.4	90.6	2.8	16.8
MT110009	Craft/Prowashonupana 5.1 Line 1	92.1	179.3	29.8	60.0	58.4	10.4	96.0	1.4	17.6

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. 2013. (Exp# 13-2102-SB)

ID	Cultivar or Selection	Stand %	1/	Plant Ht Inches	2/	Test Wt Lbs/Bu	Moisture %	Plump %	Thin %	3/
			Head Date		Yield Bu/Ac					Protein %
MT110016	Craft/Prowashonupana 5.1 Line 8	82.9	179.7	27.3	37.9	56.9	10.4	95.0	1.5	16.5
MT110031	Eslick/Prowashonupana 5.1 Line 1	83.5	177.3	22.9	39.5	56.4	10.1	93.7	2.4	17.4
MT110043	Eslick/Prowashonupana 5.3 Line 8	88.6	183.3	25.7	55.1	59.9	9.8	91.9	2.6	17.3
MT110061	Haxby/Prowashonupana 5.1 Line1	89.4	178.7	24.2	52.0	57.7	10.3	76.8	10.9	17.3
MT110065	Haxby/Prowashonupana 5.1A Line1	85.7	182.7	24.1	46.0	57.3	10.0	37.6	34.5	16.9
MT110066	Haxby/Prowashonupana 5.1A Line2	83.1	179.3	24.0	50.9	60.1	10.1	69.2	10.1	17.3
MT110092	Tibet/Haxby Line 1	92.4	175.0	25.8	45.4	59.3	9.9	95.2	1.8	15.8
MT110095	Tibet/Haxby Line 4	87.2	175.7	28.5	36.4	58.5	9.9	93.4	2.0	19.9
MT110097	Tibet/Haxby Line 6	79.8	175.7	22.4	35.9	58.8	10.3	87.0	4.0	16.1
MT110109	Hays/Tibet Line 4	85.9	176.0	24.9	42.9	60.8	10.2	91.4	3.2	17.9
MT110113	Hays/Tibet Line 8	89.1	175.3	27.3	35.3	57.3	9.8	67.6	10.0	18.7
MT110130	Hays/Tibet Line 25	89.5	175.7	25.4	48.4	54.1	10.2	92.6	2.4	18.9
MT110139	Hockett/Tibet Line 8	86.6	179.0	27.7	47.8	61.4	10.1	95.8	1.4	13.9
MT110141	Prowashonupana/Haxby Line 2	81.6	177.0	23.8	37.1	59.5	10.1	95.6	1.8	17.5
Odyssey	Odyssey	93.9	183.0	24.2	65.6	52.5	10.1	88.2	4.1	14.2
Overture	Overture	92.1	183.0	24.6	68.0	52.0	10.1	36.3	24.4	13.9
PI596299	Prowashonupana	89.4	176.7	24.7	37.4	47.6	9.6	93.2	2.4	18.5
Pinnacle	Pinnacle	90.4	176.7	25.9	61.8	53.2	10.4	85.7	6.0	12.6
Scarlett	Scarlett	94.9	181.0	24.7	72.3	53.3	10.2	25.5	19.8	14.3
Tradition	Tradition	94.6	176.0	28.3	78.2	51.5	10.1	81.1	8.0	14.3
Vespa	Vespa	93.7	180.0	24.0	78.7	52.5	10.1	52.6	15.6	14.1
EXPERIMENTAL MEANS		91.2	178.1	26.2	64.5	54.4	10.1	83.0	6.5	14.9
LSD (0.05)		7.2	1.9	3.1	8.0	1.3	0.3	-	-	0.7
C.V.		4.9	0.7	7.3	7.6	1.5	2.1	-	-	2.8
P-Value (Entries)		<.0001	<.0001	<.0001	<.0001	<.0001	0.0008	-	-	<.0001

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

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 (178 = June 25).

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.

Management Information (13-2102-SB)

Seeding Date: April 28, 2013
Harvest Date: August 17, 2013
Fertility: 100-20-10 side banded
System: no till
Herbicide: Brox-M, 24 oz/ac
Insecticide: none
Previous Crop: spring barley
Precipitation: 13.84"

TABLE 14. Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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/	
			2004 3/	2005	2006	2007	2008	2009	2010	2011	2012				2013
BZ596117	BOULDER (P+)	4		91.0	61.8	70.6	76.1						74.9	112.7	77.1
YU501385	CHAMPION (P+)	8		94.4	60.7	64.4	85.5	80.5					74.8	112.0	76.6
PI568246	BARONESSE (P+)	7		82.4	49.7	66.8	80.5	72.8	89.5	85.0			75.2	107.4	73.4
MT960228	ESLICK	6		77.2	65.5	68.8	69.2						66.8	102.6	70.1
Scarlett	SCARLET	4							83.2	83.9	41.2	72.3	70.2	100.5	68.7
MT910189	HOCKETT (++)	9		78.5	51.7	61.7	73.8	70.4	77.7	76.3	54.4	70.7	68.4	100.0	68.4
SK76333	HARRINGTON	8		71.8	63.6	64.6		71.0	82.4	76.5	37.7	71.3	67.4	99.5	68.0
2B965057	CONRAD (+)	9		78.9	54.7	57.6	67.4	70.3	82.4	76.9	43.8	78.5	67.8	99.2	67.8
MT960101	GERALDINE	8		76.5	53.9	58.9	68.4	70.8	93.2	81.1	33.8		67.1	98.5	67.4
MT010158	AMSTERDAM	8		80.7	63.2	62.7	75.0	67.2	78.3	64.4	16.1		63.5	93.2	63.7
TR232	METCALFE	6			51.4	53.5		68.7	77.9	70.9	39.5		60.3	92.3	63.1
MT950186	HAXBY	9		83.7	57.3	69.9	75.8	48.2	51.5	82.6	25.1	67.3	62.4	91.2	62.4
6B952482	TRADITION (P+)	9		81.3	66.7	71.5	73.0	50.5	7.3	68.5	47.3	78.2	60.5	88.5	60.5
PI643354	PINNACLE	4							76.1	75.4	24.6	61.8	59.5	85.2	58.3
MT970116	CRAFT	9		81.4	61.2	64.3	67.0	37.2	37.3	80.8	31.4	60.2	57.9	84.6	57.9
MEANS (For Entries Listed)				81.5	58.6	64.3	73.8	64.3	69.7	78.3	36.4	72.0			66.9
April-July Precip. (in.)				8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.3	8.26	
Total Annual Precip. (in.)				14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.5	13.17	
Soil NO ₃ (lbs.) to SD at Planting				120	184	352	271	157	88	204	374	60	415	223	
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	100	100	76	
			(# P ₂ O ₅)	40	40	40	40	40	40	40	40	20	20	36	
			(# K ₂ O)	25	25	25	25	25	25	25	25	10	10	22	

Long-term check variety is Hockett.

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 Hockett 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 Hockett for the same years, and z = 9-Yr average yield for the check variety Hockett.

TABLE 15. Nine-Year Test Weight Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (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/
			2004 3/	2005	2006	2007	2008	2009	2010	2011	2012	2013			
YU501385	CHAMPION (P+)	8	50.9	48.4	50.3	52.7	51.7		52.9	47.5	53.1	50.9	101.8	51.1	
BZ596117	BOULDER (P+)	4	50.8	48.7	49.3	51.9						50.2	101.6	51.0	
MT950186	HAXBY	9	50.9	48.7	50.7	52.9	52.0	50.6	53.8	43.2	53.9	50.7	101.2	50.7	
MT970116	CRAFT	9	50.7	48.8	50.0	51.5	51.5	50.6	53.0	43.9	53.2	50.3	100.4	50.3	
MT910189	HOCKETT (++)	9	48.0	47.5	49.9	52.0	51.2	51.2	52.2	46.2	53.2	50.2	100.0	50.2	
MT010158	AMSTERDAM	8	50.9	46.9	49.6	50.7	50.6	50.0	52.6	44.9		49.5	99.6	50.0	
Scarlett	SCARLETT	4						48.9	51.6	46.0	53.3	49.9	98.5	49.4	
PI643354	PINNACLE	4						49.4	53.4	41.7	53.2	49.4	97.5	48.9	
MT960228	ESLICK	6	47.1	46.1	48.9	50.1				44.2	52.7	48.2	97.4	48.9	
2B965057	CONRAD (+)	9	47.1	45.7	47.4	49.4	49.4	49.1	51.4	44.7	51.8	48.4	96.6	48.4	
TR232	METCALFE	6		45.3	48.2		50.7	48.4	51.6	43.8		48.0	96.6	48.4	
PI568246	BARONESSE (P+)	7	45.8	44.5	48.7	49.9	50.1	49.4	51.3			48.5	96.5	48.4	
SK76333	HARRINGTON	8	44.9	44.6	47.2		49.8	49.2	51.0	42.1	52.3	47.7	96.4	48.4	
MT960101	GERALDINE	8	46.1	45.0	47.3	49.9	50.4	49.2	51.7	41.1		47.6	95.7	48.0	
6B952482	TRADITION (P+)	9	46.7	46.4	47.0	49.2	48.6	48.0	49.5	45.0	51.5	48.0	95.7	48.0	
MEANS (For Entries Listed)				48.3	46.7	48.8	50.9	50.5	49.5	52.0	44.1	52.8		49.3	
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.3	8.26		
Total Annual Precip. (in.)			14.43	11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.5	13.17		
Soil NO ₃ (lbs.) to SD at Planting			120	184	352	271	157	88	204	374	60	415	223		
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	100	100	76		
			(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	36		
			(# K ₂ O)	25	25	25	25	25	25	25	10	10	22		

Long-term check variety is Hockett.

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 Hockett 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 Hockett for the same years, and z = 9-Yr average test weight for the check variety Hockett.

TABLE 16. Montana Safflower Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, Montana. 2013. (Exp# 13-7702-SA)

ENTRY	OIL TYPE	1/				2/					
		STAND %	FLWR DATE	PLNT HT Inches	SHATTER %	YIELD Lbs/Ac	TEST WT Lbs/Bu	MOIST %	OIL % 0%Mois.	OIL % 8%Mois.	OIL Lbs/Ac 8%Mois.
00B1597-3	Linoleic	93.6	206.3	28.0	15.0	1693.8	44.3	6.9	41.1	44.7	757.4
03B8069	Linoleic	92.3	204.7	21.0	18.3	1935.5	44.5	6.9	40.8	44.3	855.9
05B3401	Linoleic	89.7	205.7	22.9	5.3	1374.3	38.5	6.5	44.9	48.8	671.2
06B1044	Linoleic	90.6	207.7	26.0	15.0	1663.7	40.9	6.9	40.6	44.1	735.7
08B1008	Linoleic	92.5	206.7	26.6	5.0	1685.7	38.9	6.5	45.5	49.5	833.8
10B1186	Linoleic	85.9	206.0	26.1	5.0	1905.8	39.0	6.3	45.7	49.7	947.0
10B1233	Linoleic	88.7	205.3	25.4	8.3	1853.3	38.7	6.2	46.9	51.0	944.9
10B1334	Linoleic	91.8	204.7	25.6	11.7	1725.6	41.0	6.8	44.5	48.3	834.1
10B1357	Linoleic	94.1	205.7	27.8	12.3	1683.9	41.7	6.9	43.2	46.9	791.1
10B6803	Linoleic	93.7	203.3	27.6	16.7	1831.9	45.5	6.9	39.7	43.2	791.4
World Bulk	Linoleic	92.5	208.0	33.0	21.7	1622.0	47.4	7.3	31.4	34.1	553.0
Cardinal	Linoleic	95.7	205.7	29.7	20.0	1721.0	45.4	7.0	39.3	42.7	734.5
Finch	Linoleic	89.1	203.7	25.2	5.3	1565.7	46.3	7.0	39.1	42.5	666.0
NutraSaff	Linoleic	91.8	205.3	25.4	1.0	1288.9	38.1	5.9	52.5	57.1	736.8
Morlin	Linoleic	92.3	207.3	20.9	3.7	1828.3	40.1	6.5	43.6	47.3	865.1
Baldy	Linoleic	94.4	202.7	26.9	11.7	1500.2	48.2	7.1	27.6	30.0	450.5
Crescent	Linoleic	90.9	206.7	31.2	25.0	981.9	44.1	7.1	35.1	38.2	375.9
Saff4-401	Linoleic	96.0	203.7	23.0	10.3	1427.0	47.9	7.2	27.1	29.4	421.7
11 Saff 21	Linoleic	97.6	201.3	27.0	13.3	1668.9	47.4	7.2	30.7	33.3	556.1
CW 1221	Linoleic	89.3	201.7	24.8	4.0	2039.1	40.2	6.6	46.0	50.0	1015.0
04B7563	Oleic	88.2	207.7	23.0	15.0	1806.9	43.1	6.8	39.0	42.3	765.5
06B3172	Oleic	86.7	204.0	23.6	5.3	1721.7	41.5	6.7	42.1	45.8	789.4
08B6146	Oleic	89.5	202.3	21.0	2.3	1646.2	39.2	6.3	46.4	50.4	830.6
10B6005	Oleic	86.2	204.0	25.1	15.0	1672.9	42.8	6.9	39.5	43.0	719.3
10B6015	Oleic	91.3	206.7	22.4	7.0	1767.0	43.8	6.8	39.3	42.8	756.0
10B7451	Oleic	96.7	201.7	20.5	3.7	1682.9	38.7	6.1	46.5	50.5	849.4
Hybrid 200	Oleic	79.4	204.7	24.1	8.3	1866.4	44.6	7.0	35.4	38.5	719.5
Hybrid 528	Oleic	74.9	202.7	23.2	2.3	1721.4	34.8	6.4	48.4	52.6	904.8
Hybrid 621	Oleic	83.0	207.3	24.4	3.7	1620.2	38.1	6.6	45.2	49.1	798.3
STI 1201	Oleic	95.2	204.3	21.1	1.0	1882.2	37.6	6.3	48.8	53.1	999.2
MonDak	Oleic	85.3	206.0	23.7	8.7	1814.0	44.3	7.0	39.8	43.3	786.0
Montola 2003	Oleic	94.7	205.3	21.8	11.7	1931.6	43.9	6.8	41.5	45.1	871.7
Hybrid 1601	Oleic	90.1	204.7	23.8	8.7	1588.1	37.8	6.5	43.4	47.2	753.9
Hybrid 9049	Oleic	87.4	201.0	23.8	8.3	1815.9	44.3	7.0	34.1	37.1	673.1
Hybrid 446	Oleic	75.9	203.3	26.2	10.0	1947.0	44.2	6.9	36.4	39.5	769.9
CW 3268	Oleic	96.2	204.3	24.7	6.7	1768.2	44.4	6.7	42.2	45.9	813.4
EXPERIMENTAL MEANS		90.1	204.8	24.9	9.6	1701.4	42.3	6.7	40.9	44.5	759.4
LSD (0.05)		7.7	3.4	3.5	8.2	314.0	1.1	0.3	2.0	2.2	153.3
C.V.: (S / MEAN)*100		5.3	1.0	8.7	52.2	11.3	1.5	2.5	3.0	3.0	12.4
P-VALUE (Entries)		<.0001	0.0006	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.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 (205 = July 22)

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

Management Information (13-7702-SAF)

Seeding Date:	May 3, 2013	Herbicide:	none
Harvest Date:	October 19, 2013	Fungicide:	none
Fertility:	0-45-0 broadcast	Previous Crop:	Chemical Fallow - Winter Wheat
System:	no till	Precipitation:	11.88"

TABLE 17. Ten-Year Yield Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2004-2013. (Exp# 7702-SA)

1/ VARIETY or SELECTION	No. of YEARS TESTED	YIELD (Lbs Per Acre)										AVE. for YEARS TESTED	% of CHECK YIELD 2/	10-Yr COMP. AVE YIELD 3/	
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
HYBRID 1601	HYBRID 1601	7			1695	2178	2839	2117	2559	1858	1588	2119	179.1	1813	
HYBRID 9049	HYBRID 9049	8		1510	1434	1988	2264	2606	2229	2201	1816	2006	163.3	1653	
CARDINAL	CARDINAL	7			1384	1774	2462	2014	2077	1651	1721	1869	158.0	1598	
MON-DAK	MON-DAK	7			1584	1766	2078	2070	1967	1559	1814	1834	155.0	1569	
WILL 95FI	FINCH	10	1277	1214	1082	1583	1977	2086	1580	2064	1565	1566	1599	142.9	1446
WILL	MONTOLA 2004 (++)	8	1257	1393	1158	1669	1967	2239	1833	1940		1682	140.4	1421	
011-2180	MORLIN (++)	10	1360	1194	1014	1311	1723	2077	1924	1927	1253	1828	1561	139.4	1411
WILL	MONTOLA 2000 (++)	8	1114	1161	1018	1540	2080	2003	1676	1836		1554	129.7	1312	
WILL	CENTENNIAL (++)	6	1131	1181	1257	1522	1682	2014				1465	128.0	1295	
Will WOMA.2003	MONTOLA 2003 (++)	9	1110	1226	883	1301	1724	2042	1741	1839		1932	1533	126.9	1284
WILL	S-541	3	1202	1062	1068							1111	114.5	1159	
99MTDSVT 224/	ERLIN	3	1377	828	817							1007	103.9	1051	
91B3842	NUTRASAF (++)	10	1049	1036	824	1210	1157	1589	1541	1179	323	1289	1120	100.0	1012
MEANS (For Entries Listed)			1208	1181	1056	1526	1845	2185	1873	1959	1368	1694		1386	
April-July Precip. (in.)			8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	11.88	8.12		
Total Annual Precip. (in.)			14.43	11.90	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting			214	708	157	154	665	219	115	99	35	78	244		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	48	36	48	48	47		
Fertilizer Applied															
(# N)			70	50	0	0	0	0	0	0	0	0	12		
(# P ₂ O ₅)			40	20	40	45	40	45	45	45	45	45	41		
(# K ₂ O)			25	10	0	0	0	0	0	0	0	0	4		

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. 2004-2013. (Exp# 7702-SA)

1/ VARIETY or SELECTION	No. of YEARS TESTED	Oil (%) @ 8% Seed Moisture										AVE. for YEARS TESTED	% of CHECK Oil 2/	10-Yr COMP. AVE. Oil 3/
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
91B3842 NUTRASAF (++)	10	44.9	43.8	43.2	48.5	44.6	45.8	36.9	52.4	54.1	52.5	46.7	100.0	46.7
WILL S-541	3	40.5	39.5	39.7								39.9	90.7	42.4
WILL CENTENNIAL (++)	6	40.1	39.5	39.9	43.9	41.7	39.9					40.8	90.5	42.2
WILL MONTOLA 2000 (++)	8	37.3	37.9	35.7	38.6	38.2	37.3	38.8	43.3			38.4	85.3	39.8
99MTDSVT 224/ ERLIN	3	37.7	37.3	36.2								37.1	84.3	39.3
011-2180 MORLIN (++)	10	37.1	36.4	36.9	39.3	37.2	35.3	39.5	41.8	43.7	43.6	39.1	83.7	39.1
WILL MONTOLA 2004 (++)	8	35.5	35.5	33.9	35.8	35.3	35.2	39.1	43.5			36.7	81.6	38.1
Will WOMA2003 MONTOLA 2003 (++)	9	34.9	36.2	34.8	36.8	36.5	34.5	39.3	41.8		41.5	37.4	81.5	38.0
MON-DAK MON-DAK	7				36.7	34.6	34.4	41.1	40.5	44.0	39.8	38.7	81.0	37.8
WILL 95FI FINCH	10	34.5	35.0	35.5	36.5	34.5	34.9	43.6	40.9	42.6	39.1	37.7	80.8	37.7
CARDINAL CARDINAL	7				36.1	33.7	34.8	43.6	39.2	42.2	39.3	38.4	80.3	37.5
HYBRID 1601 HYBRID 1601	7				36.1	30.4	34.7	39.6	40.3	44.0	43.4	38.3	80.2	37.4
HYBRID 9049 HYBRID 9049	8		31.9	31.0	32.1	34.3	29.1	42.8	34.6		34.1	33.7	73.4	34.3
MEANS (For Entries Listed)		38.1	37.3	36.7	38.2	36.5	36.0	40.4	41.8	45.1	41.7			39.2
April-July Precip. (in.)		8.64	7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	11.88	8.12		
Total Annual Precip. (in.)		14.43	11.90	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.17		
Soil NO ₃ (lbs.) to SD at Planting		214	708	157	154	665	219	115	99	35	78	244		
SD (Sampling Depth in Inches)		48	48	48	48	48	48	48	36	48	48	47		
Fertilizer Applied (# N)		70	50	0	0	0	0	0	0	0	0	12		
(# P ₂ O ₅)		40	20	40	45	40	45	45	45	45	45	41		
(# K ₂ O)		25	10	0	0	0	0	0	0	0	0	4		

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.