

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. 2005-2014.

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Content:

This report is intended to serve as a popularized 2014 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 20 percent of NARC-Agronomy’s total research project effort on-station at Havre. The remaining 80 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 99 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 2014. 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.

2014 Data:

It should be noted that 2014 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, 2014 data shall not constitute in any form a recommendation for or against any entry or practice included.

Please note that cereal research trial yield results recorded under wheat stem sawfly pressure are much higher than a producer should expect. Small plot variety trials are managed to assess maximum yield potential and are harvested in such a way that all stems and heads are picked up by the combine, regardless of lodging or cutting due to sawfly. Pickup guards coupled with an extremely slow ground speed and exceptionally low cutting height help researchers collect all heads in order to assess seed yield potential. If you are a producer in a wheat stem sawfly environment, although hollow stemmed varieties may be high yielding in research trials in your area, we recommend against growing those hollow stemmed varieties. Please be aware that if you seed hollow stemmed varieties with sawfly present, you are only creating a breeding ground for future generations of sawfly in your area and not helping combat the pest population.

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 1093 (Revised February-March annually)
- Spring Wheat Varieties, Extension Service 2B 1098 (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/cqlab/crops/index.html>

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Summary of climatic data by months for the 2013-2014 crop year (September to August) and averages for the period 1916-2014 at the Northern Agricultural Research Center, Havre, Montana.

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Crop Year
Year	2013	2013	2013	2013	2014	2014	2014	2014	2014	2014	2014	2014	
Precipitation (inches)													Total
Current Year	1.62	0.36	0.30	0.79	0.31	0.26	0.89	0.92	0.79	2.96	0.20	3.94	13.34
Average (1916-2014)	1.14	0.65	0.44	0.45	0.44	0.32	0.54	1.00	1.84	2.58	1.42	1.21	12.03
Difference	0.48	-0.29	-0.14	0.34	-0.13	-0.06	0.35	-0.08	-1.05	0.38	-1.22	2.73	1.31
Mean Temperature (°F)													Average
Current Year	61.6	42.6	27.4	12.0	23.5	11.5	24.9	44.1	52.9	58.7	70.0	68.0	41.4
Average (1916-2014)	56.3	45.7	30.1	19.4	15.6	19.9	30.0	43.6	54.0	61.8	69.2	67.3	42.7
Difference	5.3	-3.0	-2.7	-7.4	7.9	-8.4	-5.1	0.5	-1.1	-3.1	0.8	0.7	-1.3

Last killing frost in spring*

2014 _____ May 13th (27°)

Ave. 1916-2014 _____ May 13th

First killing frost in fall*

2014 _____ September 12th (28°)

Ave. 1916-2014 _____ September 20th

Frost free period

2014 _____ 122 days

Ave. 1916-2014 _____ 130 days

Growing degree days (base 50)

May 1-Oct 31, 2014 _____ 2390.5

Ave. 1951-2014 _____ 2371.5

Maximum summer temperature _____ 96° F on July 31st

Minimum winter temperature _____ -33° F on December 7, 8 & 9th

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

2014
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										
14-3502-WW	Intrastate Cultivar Nursery	WW	49	3	147	A-5-3	33 32N 15E	Bruckner	MAES-MWBC	Lamb
14-1402-WW	Advanced Cultivar Nursery	WW	36	3	108	A-5-3	33 32N 15E	Bruckner	MAES-MWBC	Lamb
14-5802-WW	Sawfly Line Evaluation Nursery	WW	49	2	98	A-5-3	33 32N 15E	Bruckner	MAES-MWBC	Lamb
14-WQDS-WW	Winter Wheat Quality Drill Strips	WW	6	1	6	A-5-3	33 32N 15E	Bruckner	MAES-MWBC	Lamb
Sub-Totals:			4	140	359	5.72%	of Total Plot Inventory			
OFF-STATION										
14-3851-WW	h Off-Station Cultivar Eval Nursery	WW	24	3	72	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
14-3853-WW	Off-Station Cultivar Eval Nursery	WW	24	3	72	Loma	21 27N 10E	Lamb	MWBC-MAES	McKeever Farm
14-5853-WW	Sawfly Line Evaluation Nursery	WW	49	2	98	Loma	21 27N 10E	Lamb	MWBC-MAES	McKeever Farm
14-SR01-WW	v Single-Row Yield Eval Nursery	WW	198	1	198	Loma	21 27N 10E	Bruckner	MAES-MWBC	McKeever Farm
14-SR02-WW	v Single-Row Line Eval Nursery	WW	1000	1	1000	Loma	21 27N 10E	Bruckner	MAES-MWBC	McKeever Farm
14-SR03-WW	v Single-Row Line Eval Nursery	WW	316	1	316	Loma	21 27N 10E	Bruckner	MAES-MWBC	McKeever Farm
14-3RSP-WW	3-Row Segregating Populations	WW	105	1	105	Loma	21 27N 10E	Bruckner	MAES-MWBC	McKeever Farm
Sub-Totals:			7	1716	1861	29.68%	of Total Plot Inventory			
SPRING WHEAT & DURUM (SW & DUR) INVESTIGATIONS										
ON-STATION										
14-3102-SW	Advanced Yield Nursery	SW	64	3	192	A-5-4	33 32N 15E	Talbert	MAES-MWBC	Lamb
14-9802-DUR	Montana Durum Cultivar Nursery	DUR	14	3	42	A-5-4	33 32N 15E	Eckhoff	MAES-MWBC	Lamb
14-3302-SW	Preliminary Yield Nursery	SW	81	3	243	A-5-4	33 32N 15E	Talbert	MAES-MWBC	Lamb
Sub-Totals:			3	159	477	7.61%	of Total Plot Inventory			
OFF-STATION										
14-9951-SW	h Off-Station Cultivar Eval Nursery	SW	20	3	60	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
14-9953-SW	Off-Station Cultivar Eval Nursery	SW	20	3	60	Chester	07 31N 06E	Lamb	MWBC-MAES	Kammerzell Farm
14-9955-SW	Off-Station Cultivar Eval Nursery	SW	20	3	60	Loring	24 35N 29E	Lamb	MWBC-MAES	Flansaas/Lumsden
14-9957-SW	Off-Station Cultivar Eval Nursery	SW	20	3	60	Loma	21 27N 10E	Lamb	MWBC-MAES	McKeever Farm
14-SR04-SW	v Single-Row Sawfly Eval Nursery	SW	864	1	864	Loma	21 27N 10E	Talbert/Weaver	MAES-MWBC	McKeever Farm
14-9851-DUR	h Off-Station Cultivar Eval Nursery	DUR	14	3	42	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
14-9853-DUR	Off-Station Cultivar Eval Nursery	DUR	14	3	42	Chester	07 31N 06E	Lamb	MWBC-MAES	Kammerzell Farm
14-9855-DUR	Off-Station Cultivar Eval Nursery	DUR	14	3	442	Loring	24 35N 29E	Lamb	MWBC-MAES	Flansaas/Lumsden
Sub-Totals:			8	986	1230	19.61%	of Total Plot Inventory			

Experiment No. *	Description	Crop	Ents	Reps	Plots	Loc-Field	Legal Desc	Leader	Sponsor	Cooperator
SPRING BARLEY (SB) INVESTIGATIONS										
ON-STATION										
14-2102-SB	Intrastate Cultivar Eval Nursery	SB	64	3	192	A-5-1	33 32N 15E	Blake	MAES-MWBC	Lamb
14-3102-SB	Early Yield Evaluation Nursery	SB	64	3	192	A-5-1	33 32N 15E	Blake	MAES-MWBC	Lamb
Sub-Totals:		2	128		384	6.12% of Total Plot Inventory				
SAFFLOWER INVESTIGATIONS										
ON-STATION										
14-7702-SA	Cultivar Evaluation Nursery	SA	22	3	66	B-2-1	32 32N 15E	Bergman	NDSU-WREC	Lamb
Sub-Totals:		1	22		66	1.05% of Total Plot Inventory				
BRASSICA (B_) INVESTIGATIONS										
ON-STATION										
14-CN02-CN	Statewide Canola Trial	CN	20	4	80	B-4-1	32 32N 15E	Bohannon	Var. Industry	Lamb
14-OC06-BC	B. carinata Advanced Yield Trial	BC	14	4	56	B-4-1	32 32N 15E	Males	Agrisoma	Lamb
14-SP31-BC	B. carinata Fertility on Fallow	BC	6	4	24	B-4-1	32 32N 15E	Males	Agrisoma	Lamb
14-C102-BN	Cibus B. napus Yield Trial 14102	BN	30	2	60	B-4-1	32 32N 15E	Radke	Cibus	Lamb
14-C104-BN	Cibus B. napus Yield Trial 14104	BN	30	2	60	B-4-1	32 32N 15E	Radke	Cibus	Lamb
14-C105-BN	Cibus B. napus Yield Trial 14105	BN	20	2	40	B-4-1	32 32N 15E	Radke	Cibus	Lamb
14-C201-BN	Cibus B. napus Yield Trial 14201	BN	20	2	40	B-4-1	32 32N 15E	Radke	Cibus	Lamb
14-C401-BN	Cibus B. napus Yield Trial 14401	BN	10	2	20	B-4-1	32 32N 15E	Radke	Cibus	Lamb
14-OC10-BJ	B. juncea Variety Trial	BJ	14	4	56	B-2-1	32 32N 15E	Ferguson	Viterra (CPS)	Lamb
14-OC11-BJ	Ag Canada Brassica juncea	BJ	13	4	52	B-2-1	32 32N 15E	Kubik	Ag Canada	Lamb
Sub-Totals:		10	177		488	7.78% of Total Plot Inventory				
PULSE CROP (PC) INVESTIGATIONS										
ON-STATION										
14-PC01-PC	Statewide Pea Trial	PC	38	4	152	B-4-2	33 32N 15E	Chen	MAES-CARC	Lamb
14-PC02-PC	Statewide Lentil Trial	PC	16	4	64	B-4-2	33 32N 15E	Chen	MAES-CARC	Lamb
Sub-Totals:		2	54		216	3.44% of Total Plot Inventory				
OTHER CROP (OC) INVESTIGATIONS										
ON-STATION										
14-CM02-CM	Spring Camelina Variety Trial	CM	6	4	24	B-2-1	32 32N 15E	Chen	BRDI	Lamb
14-CM03-CM	Winter Camelina Variety Trial	CM	3	6	18	B-2-1	32 32N 15E	Chen	BRDI	Lamb
14-OC14-SO	e Advanced Sorghum Adaptation	SR	12	3	36	B-2-1	32 32N 15E	Wichman	MAES-CARC	Lamb
14-OC15-SO	e Preliminary Sorghum Adaptation	SR	12	3	36	B-2-1	32 32N 15E	Wichman	MAES-CARC	Lamb
14-CCGR	Cover Crop Termination Trial	OC	16	3	48	B-2-4	32 32N 15E	Hensleigh	NRCS-MAES	Boss/Dafoe
Sub-Totals:		5	49		162	2.58% of Total Plot Inventory				

Experiment No. *	Description	Crop	Ents	Reps	Plots	Loc-Field	Legal Desc	Leader	Sponsor	Cooperator
FORAGE RESEARCH (FR) INVESTIGATIONS										
ON-STATION										
14-FR02-FR	Winter Cereal Forage Trial	FR	16	3	48	A-5-3	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
14-FR03-FR	Spring Cereal Forage Trial	FR	10	3	30	A-5-1	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
14-FR05-FR	Pea Forage Trial	FR	6	4	24	B-4-2	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
Sub-Totals:			3	32	102	1.63%	of Total Plot Inventory			
NUTRIENT RESEARCH (NR) INVESTIGATIONS										
ON-STATION										
14-NM02-GC	Dryland Grain Corn Fertility Trial	GC	13	4	52	B-2-1	32 32N 15E	Lamb	FertAdvisory	Boss
14-NM04-WW	WW Sensor-Based Algorithm	WW	36	4	144	A-5-2	32 32N 15E	Walsh	MAES-WTARC	Lamb
Sub-Totals:			2	49	196	3.13%	of Total Plot Inventory			
SPECIAL PROJECT (SP) INVESTIGATIONS										
ON-STATION										
14-SP19-CAP	Crop-Crop-Fallow CAP Rotation	MC	10	3	30	B-9-3	32 32N 15E	Chen	BRDI	Lamb/Seblius
14-SP19-OP	Crop-Crop-Fallow Rotation	MC	20	3	60	B-9-3	32 32N 15E	Lamb	MAES-NARC	Sebelius
14-SP20-OP	Crop-Fallow Rotation	MC	24	3	72	B-9-1	32 32N 15E	Lamb	MAES-NARC	Sebelius
14-SP28-OP	QFR World Collection WW	WW	80	1	80	A-5-2	33 32N 15E	Lamb	Quinn	Sebelius
14-SP29-OP	QFR Populations 3-Row	WW	37	2	74	A-5-2	33 32N 15E	Lamb	Quinn	Sebelius
14-SP32-DU	CPS Durum Variety Trial	DUR	25	3	75	A-5-4	33 32N 15E	Ferguson	CPS	Lamb
14-SP29-FL	CPS Flax Variety Trial	FL	13	3	39	B-2-1	33 32N 15E	Ferguson	CPS	Lamb
Sub-Totals:			7	209	430	6.86%	of Total Plot Inventory			
PEST MANAGEMENT (PM) INVESTIGATIONS										
ON-STATION										
14-PM29-PM	Spring Wheat Fertility on Sawfly	SW	8	6	48	A-5-4	32 32N 15E	Weaver	MAES-MWBC	Lamb
14-PM32-PM	Spring Foliar Fungicides on WW	WW	16	4	64	A-5-2	33 32N 15E	Burrows	Industry-MAES	Lamb
14-PM33-SW	Arysta 1 SW Fungicide 2014008	SW	12	6	72	An-3-5	33 32N 15E	Burrows	Industry-MAES	Lamb
14-PM34-SW	Arysta 2 SW Fungicide 2014009	SW	8	6	48	An-3-5	33 32N 15E	Burrows	Industry-MAES	Lamb
14-PM35-SW	Bayer SW Fungicide 2014014	SW	5	4	20	An-3-5	33 32N 15E	Burrows	Industry-MAES	Lamb
14-PM40-WW	Thimet on Yellowstone WW	WW	3	4	12	A-5-3	33 32N 15E	Weaver	AmVac	Lamb
Sub-Totals:			6	52	264	4.21%	of Total Plot Inventory			
OFF-STATION										
14-PM42-SW	Thimet Insectide on Reeder SW	SW	6	4	24	Chester	07 31N 06E	Weaver	AmVac	Kammerzell Farm
14-PM43-SW	Thimet on Yellowstone WW	WW	3	4	12	Gilford	04 30N 11E	Weaver	AmVac	Wolery Farm
14-PM60-PM	Hill Plots	WW				Loma	21 27N 10E	Talbert/Weaver	Var. Industry	McKeever Farm
Sub-Totals:			3	9	636	0.57%	of Total Plot Inventory			

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2014 SUMMARY: Project Inventory - (Plots Established)

TOTALS - AGRONOMY & LIVESTOCK PROJECTS	63 Experiments or Trials
	3782 Entries in 6271 Plots
	3542 Plots for Harvest

GEOGRAPHIC DISTRIBUTION OF PLOT WORK: (by plot count only, not by resources expended. Demos not included.)

ON-STATION	=	50.14%
OFF-STATION	=	50.25%

(Percent of TOTAL OFF-STATION by County): (by plot count only, not by resources expended. Demos not included.)

* Blaine County	=	5.56%	1-Loc:	WW, SW, DUR, Vars
* Chouteau County	=	86.76%	1-Loc:	WW Vars, SW Sawfly, Multi-specie Hill Plots, Multi-specie Single Rows
* Hill County	=	0.38%	1-Loc:	WW Sawfly Insecticide
* Liberty County	=	4.03%	1-Loc:	SW Sawfly Insecticide, SW, DUR Vars
* Phillips County	=	3.26%	1-Loc:	SW, DUR Vars + 3 Spring Crop Demos by M.Manoukian

* Denotes counties traditionally served by NARC-Agronomy (Current off-station plot inventory for Chouteau County is abnormally high due to extensive cooperative wheat stem sawfly work at the McKeever farm near Loma. This site alone had 43.6% of NARC-Agronomy's total inventory of plots managed for 2014, but such is somewhat misleading due to all the breeder and entomology observation plots there.

Note: A code letter after an experiment number signifies that the trial listed was not carried through to final report status due to one or more conditions outline below. Where more than one condition was involved, the code used denote the factor most responsible.

- c = experiment planned, but CANCELLED 'prior' to actual plot establishment (proposal rejection or other reasons)
- d = severe DROUGHT stress not associated with treatment differences
- e = stand ESTABLISHMENT problems not associated with treatment differences
- f = FROST or winter injury not associated with treatment differences
- g = GRANT proposal submitted / preliminary establishment only - subject to cancellation if funding not received
- h = HAIL injury
- l = INSECT injury
- n = NATURAL calamity to include weather effects other than drought, freezing or hail
- o = OTHER (human error - staff or cooperator, equipment malfunction, animal damage, vandalism, etc.)
- p = PATHOGEN effects not associated with treatment differences
- r = Grant proposal REJECTED 'after' significant establishment effort put forth - ie, continued in reduced format
- s = SPRAY damage not associated with treatment differences
- t = proposed grant project TERMINATED (after preliminary establishment) due to proposal rejection
- u = undue, non-partitionable VARIABILITY
- w = WEED infestation effects not associated with treatment differences
- v = VIEW only - no formal data collection or analysis
- x = plots in place, from previous endeavor - inactive current year, but retained for future viewing/reference

14EXPER#Leg.xls

2012-2014
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		
		2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
On-Station	Winter Wheat*	6	6	4	1250	1245	140	1469	1464	359	29.8%	28.6%	5.7%
Off-Station	Winter Wheat*	3	3	7	97	97	1716	242	242	1861	4.9%	4.7%	29.7%
On-Station	Spring Wheat and Durum	3	3	3	165	165	159	495	495	477	10.1%	9.7%	7.6%
Off-Station	Spring Wheat and Durum*	4	5	8	74	88	986	222	264	1230	4.5%	5.2%	19.6%
On-Station	Spring Barley	2	2	2	128	128	128	384	384	384	7.8%	7.5%	6.1%
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	22	108	108	66	2.2%	2.1%	1.1%
On-Station	Brassica sp.	15	11	10	316	189	177	851	486	488	17.3%	9.5%	7.8%
On-Station	Covered Wheat	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Pulse Crops	2	2	2	46	49	56	184	196	216	3.7%	3.8%	3.4%
Off-Station	Pulse Crops	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Other Crops	2	6	5	58	146	49	174	282	162	3.5%	5.5%	2.6%
On-Station	Forage	5	3	3	89	38	32	318	120	102	6.5%	2.3%	1.6%
On-Station	Nutrient Research	0	3	2	0	69	49	0	276	196	0.0%	5.4%	3.1%
On-Station	Special Projects	5	8	7	158	213	209	264	411	430	5.4%	8.0%	6.9%
Off-Station	Special Projects	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Pest Management	3	4	6	27	34	52	108	152	264	2.2%	3.0%	4.2%
Off-Station	Pest Management*	2	7	3	26	59	9	104	236	36	2.1%	4.6%	0.6%
Grand Total		53	64	63	2470	2556	3784	4923	5116	6271	100.0%	100.0%	100.0%
Harvested								3384	3975	3542	68.7%	77.7%	56.5%
On-Station Plots								4355	4374	3144	88.5%	85.5%	50.1%
Off-Station Plots								568	742	3127	11.5%	14.5%	49.9%

* Winter Wheat, Spring Wheat & Pest Management:

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

2014: 2285 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. 2014. (Exp# 14-3502-WW)

Cultivar/Line	Release/Pedigree	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Moist %	Test Wt Lbs/Bu	3/ Protein %	4/ Sawfly %
Bearpaw	Montana, 2011	99.4	161.3	24.8	51.8	8.6	60.6	13.2	1.0
Broadview	Alberta, 2009 (Meridian Seeds)	96.5	160.0	23.5	58.3	8.8	60.3	12.5	2.3
Carter	WestBred, 2006	97.5	160.3	23.7	57.5	9.0	61.1	12.9	1.0
CDC Falcon	Sask/WestBred, 1999	97.8	159.0	22.5	58.7	9.4	60.8	12.6	1.0
Colter	Montana, 2013	98.7	162.7	26.3	60.9	9.2	61.3	13.1	1.0
Cowboy	Wyoming/Colorado, 2012	96.8	160.0	22.7	67.2	9.4	61.6	11.6	2.0
Decade	Montana/North Dakota, 2010	96.8	159.3	25.1	56.7	9.6	61.0	12.5	1.0
Emerson	Alberta, 2012 (Meridian Seeds)	96.2	159.3	27.9	57.2	8.9	61.2	13.5	0.7
Freeman	Nebraska, 2013	96.5	156.0	23.7	53.8	9.0	60.3	11.5	1.0
Genou	Montana, 2004	95.6	159.7	26.8	56.4	9.6	61.6	12.2	1.0
Jagalene	AgriPro, 2002	97.8	159.3	25.4	53.4	9.2	63.0	12.5	1.0
Jerry	North Dakota, 2001	94.3	161.3	25.5	51.3	9.1	60.1	13.1	2.3
Judee	Montana, 2011	97.8	159.7	26.6	61.5	9.1	61.8	12.8	1.0
Keldin	WestBred, 2011	94.0	159.7	25.4	61.5	9.4	61.1	12.4	2.3
LCS Colonia	Germany/Limagrain Cereals, 2013	95.5	165.0	24.4	36.6	9.0	58.2	12.8	3.7
LCS Mint	Limagrain Cereals, 2012	96.5	156.0	25.6	59.3	9.8	63.7	11.4	1.0
LCS Wizard	Limagrain Cereals, 2013	97.2	158.0	22.2	58.4	9.3	62.4	12.4	2.3
Ledger	WestBred, 2004	95.2	161.3	24.6	58.6	9.4	61.8	12.0	5.0
McGill	Nebraska, 2010	99.1	158.3	27.2	64.3	9.1	60.7	12.3	2.3
MT0978	MT9982//MTW0072/NW97S151	97.4	162.0	25.0	60.5	9.0	61.0	13.1	2.3
MT1078	MT02113*4/MTS0359	96.8	160.7	27.9	58.1	9.1	60.5	12.0	3.7
MT1090	Reeder/6*Yellowstone	97.5	161.3	28.1	61.5	9.0	61.2	12.5	2.3
MT1113	Yellowstone*4/KS96WGRC40 (Lr41)	98.1	161.3	26.3	60.7	8.9	61.2	12.8	3.7
MT1117	Yellowstone*3/KS96WGRC40	96.5	162.0	28.1	62.5	9.2	61.6	13.0	1.0
MT1138	W99-194/2*Yellowstone	93.0	161.0	28.6	61.0	8.8	60.5	12.7	3.7
MT1246	MTR00118/MT0241//CDC Falcon	98.4	162.3	25.7	54.6	9.2	60.9	13.8	1.0
MT1257	Yellowstone/Krichauff	98.1	160.3	27.5	58.4	9.3	60.7	12.7	3.3
MT1262	MT03177//MT0097/Curlew	97.5	161.3	26.3	55.9	9.4	61.3	13.5	3.7
MT1265	Yellowstone*4/KS96WGRC40 (Lr41, wcm)	97.8	161.3	28.9	62.0	9.4	61.0	12.7	1.0
MT1286	Yellowstone*2/NE99445	96.5	162.0	27.9	57.7	9.6	61.1	13.0	1.0
MTCL1131	Yellowstone*4/3/MTCL01158/CDC Teal 11	90.2	162.0	27.7	58.7	9.3	61.3	12.8	1.0
MTCS1204	MTCL0510/4/Paul/3/98X96C16cl/CDC Teal	98.4	161.3	25.8	55.2	9.3	61.0	13.2	2.3
MTF12xx	Yellowstone/MT0684	95.9	164.3	35.4	47.1	9.4	60.3	13.3	5.0
MTS0826-63	MT9524/G15048//Rampart	95.9	163.3	28.0	60.4	8.9	61.1	13.3	0.7
MTS1024	MT02113*4/MTS0359	97.2	161.3	24.2	52.7	8.7	60.3	12.4	2.3
MTS1224	Yellowstone//MTS0112/MTS0125	96.5	163.7	24.6	50.5	9.2	60.5	13.5	2.3
MTS1228	MT9982*4/MTS0222	96.5	162.0	26.5	64.6	9.3	60.4	12.7	2.3
Promontory	Utah, 1990	96.2	160.0	24.0	59.9	9.1	62.3	11.4	1.0
Radiant	Alberta, 2002 (Meridian Seeds)	94.0	162.0	27.1	59.8	8.7	61.3	12.7	3.7
Rampart	Montana, 1996	98.1	161.3	27.4	57.2	9.2	61.0	12.7	1.0
SY Clearstone 2CL	Montana/Syngenta, 2012	97.2	161.0	29.3	57.3	9.2	60.8	12.4	2.3
SY Wolf	Syngenta (AgriPro), 2010	97.8	159.0	24.9	69.4	9.1	62.2	12.6	2.3
T158	Trio Research/Limagrain Cereals, 2009	94.3	155.3	23.6	66.4	9.6	62.0	10.7	2.3

TABLE 1. Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2014. (Exp# 14-3502-WW)
Continued

Cultivar/Line	Release/Pedigree	Stand %	1/	2/	Moist %	Test Wt Lbs/Bu	Protein %	4/ Sawfly %	
			Head Date	Plant HT Inches					Yield Bu/Ac
Warhorse	Montana, 2013	99.0	161.3	25.1	47.9	8.8	61.1	13.5	1.0
WB3768	Montana/WestBred, 2013	98.4	163.7	31.9	53.7	9.0	61.5	13.2	3.7
WB4059CLP	WestBred, 2013	96.8	156.7	23.6	56.9	9.4	60.1	12.5	1.0
WB4535	WestBred, 2013	95.6	161.3	23.7	57.5	9.4	62.3	12.2	2.0
WB-Quake	WestBred, 2011	97.8	162.3	24.7	51.2	8.7	60.7	12.8	5.0
Yellowstone	Montana 2005	98.4	161.3	26.1	64.1	9.5	60.7	12.6	2.3
EXPERIMENTAL MEANS		96.8	160.7	26.1	57.7	9.2	61.1	12.6	2.1
LSD (0.05)		3.9	1.4	3.3	8.0	0.4	0.6	-	2.6
C.V.%		2.5	0.6	7.8	8.6	2.6	0.6	-	75.2
P-VALUE (Entries)		0.0523	<.0001	<.0001	<.0001	<.0001	<.0001	-	0.0082

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 (160 = June 9).

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 (14-3502-WW)

Seeding Date:	September 24, 2013
Harvest Date:	July 30, 2014
Fertility:	100-20-10 side banded
System:	No-till
Herbicide:	Goldsky, 16 oz/ac, 5/14/14
Insecticide:	none
Previous Crop:	Chemical Fallow - Spring Barley
Precipitation:	9.09"

TABLE 2. Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (Exp# 3502-WW)

2/ VARIETY or SELECTION			1/ YIELD (Bushels Per Acre)									AVE. for YEARS TESTED	% of CHECK YIELD 4/	9-YR COMP. AVE. YIELD 5/						
			2005	2006	2007	2008	2009	2010	2011 3/	2012	2013				2014					
BC01007-7	SY WOLF (P+)	3																		
ART	ART	3							79.6					56.2	70.4	69.4	65.3	106.3	64.6	
SY Clearstone 2	Montana/Syngenta, 2012	3												56.4	65.1	57.3	67.0	105.3	64.0	
OVERLAND	OVERLAND	4												59.6	75.4		64.1	104.3	63.4	
MT08172	COLTER	3												49.0	63.5		59.4	103.0	62.6	
MT0552	DECADE (++)	7						42.3	82.7					70.7	56.9	60.9	62.8	102.3	62.2	
MT00159	YELLOWSTONE (++)	9	58.7	65.6	64.9	73.5	37.3	69.3						55.8	66.9	56.7	60.6	100.5	61.0	
McGill	McGILL	3												52.1	68.2	64.1	60.8	100.0	60.8	
MTS0713	JUDEE (++)	6												56.9	63.1	64.3	61.4	100.0	60.7	
BRODVIEW	BROADVIEW	4												48.9	70.6	61.5	60.3	99.3	60.3	
S94-4	CDC FALCON (P+)	9												73.8			63.0	98.9	60.1	
DH001819	ACCIPITER	5	62.3	58.9	61.4	68.2	42.1	72.5						52.8	67.2	58.3	63.0	98.9	60.1	
BZ96-788	LEDGER (P+)	9	69.6	52.5	61.1	57.9	39.3	73.1						53.3	55.9	58.7	59.3	97.5	59.3	
BZ022060	CARTER (P++)	9	63.1	48.3	57.2	65.8	38.0	75.9						47.5	62.1		58.0	96.5	58.6	
MTCL0316	NORRIS (P, CL++)	8	62.8	54.0	56.0	64.6	36.2	65.9						53.3	55.9		57.0	94.4	57.4	
MTS0031	GENOU (++) (saw fly res)	9	63.8	54.7	57.0	61.0	46.4	63.4						55.0	61.4		57.0	94.4	57.3	
RADIANT	RADIANT	5												43.5	70.0	56.4	57.3	94.4	57.3	
MTS0721	BEARPAW (++)	5												47.2	65.5	59.8	55.3	93.9	57.1	
JAGALENE	JAGALENE (P+)	9	58.4	50.6	54.4	68.2	35.1	78.7						55.4	64.0	51.8	55.3	93.9	57.0	
UT932555	CURLEW	4												53.8	60.5	53.4	57.0	93.8	57.0	
PI555458	PROMONTORY	9	45.9	53.9	50.7	66.5	37.2	81.1						44.6	73.3		53.6	93.0	56.5	
WB-Quake	Rampart/Kestrel (WestBred, 2011)	3												45.4	65.0	59.9	56.2	92.5	56.2	
Warhorse	Montana, 2013 (MTS0808)	3												48.4	70.0	51.2	56.5	92.0	55.9	
ND9257	JERRY	9	48.6	55.9	52.9	59.9	38.3	67.6						51.7	65.1	47.9	54.9	89.4	54.3	
PI593889	RAMPART (saw fly res)	9	60.6	49.0	55.3	53.7	37.8	59.9						44.2	66.2	51.3	53.9	88.7	53.9	
MEANS (For Entries Listed)			59.4	54.3	57.2	64.7	39.1	71.3						51.8	65.3	57.8			58.8	
April-July Precip. (in.)			7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.88							
Total Annual Precip. (in.)			11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06							
Soil NO ₃ (lbs.) to SD at Planting			138	390	416	275	172	204	32	60	59	48	179							
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	100	79						
			(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34						
			(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21						

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. 2005-2014. (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/
			2005	2006	2007	2008	2009	2010	2011 3/	2012	2013	2014			
JAGALENE	JAGALENE (P+)	9	62.1	64.2	61.7	62.7	63.0	64.4		61.6	60.0	63.0	62.5	105.3	63.0
PI555458	PROMONTORY	9	61.3	64.1	61.2	61.5	62.6	63.6		61.2	60.0	62.3	62.0	103.7	62.0
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	61.4
BZ96-788	LEDGER (P+)	9	62.2	63.2	60.6	60.1	60.4	61.9		60.0	58.7	61.8	61.0	102.0	61.0
BC01007-7	SY WOLF (P+)	3								60.7	58.4	62.2	60.4	101.8	60.9
MT0552	DECADE (++)	7			60.3	60.5	61.5	62.3		59.7	58.6	61.0	60.5	101.7	60.8
BZ022060	CARTER (P++)	9	62.0	62.0	59.1	59.4	60.4	62.9		58.8	58.1	61.1	60.4	101.4	60.7
MTS0031	GENOU (++) (saw fly res)	9	60.9	62.5	59.7	58.7	62.0	60.7		58.1	59.2	61.6	60.4	101.4	60.6
S94-4	CDC FALCON (P+)	9	60.3	63.1	59.0	60.2	61.8	61.5		59.3	58.7	60.8	60.5	101.3	60.6
ART	ART	3						61.8		60.7	58.0		60.2	101.0	60.4
DH001819	ACCIPITER	5				59.8	62.0	61.5		57.8	58.3		59.9	100.9	60.4
Colter	Montana, 2013 (MT08172)	3								58.7	59.4	61.3	59.8	100.8	60.3
OVERLAND	OVERLAND	4					61.4	62.9		59.0	58.3		60.4	100.5	60.1
MTS0713	JUDEE (++)	6				57.5	62.2	61.0		56.9	60.2	61.8	59.9	100.3	60.0
McGill	McGILL	3								59.3	58.1	60.7	59.4	100.0	59.8
MT00159	YELLOWSTONE (++)	9	59.4	62.2	58.3	57.5	61.7	61.2		58.1	59.3	60.7	59.8	100.0	59.8
RADIANT	RADIANT	5						61.1	61.8	57.5	59.2	61.3	60.2	100.0	59.8
PI593889	RAMPART (saw fly res)	9	60.5	62.5	58.6	59.1	61.3	60.4		58.7	57.9	61.0	60.0	99.9	59.8
Warhorse	Montana, 2013 (MTS0808)	3								57.6	59.0	61.1	59.2	99.7	59.7
WB-Quake	Rampart/Kestrel (WestBred, 2011)	3								58.8	58.0	60.7	59.2	99.7	59.6
MTS0721	BEARPAW (++)	5						61.1	61.4	58.8	57.6	60.6	59.9	99.5	59.5
ND9257	JERRY	9	59.3	62.1	58.0	56.7	60.5	61.1		57.7	57.5	60.1	59.2	99.2	59.3
BRODVIEW	BROADVIEW	4						61.0		58.2	57.7	60.3	59.3	99.1	59.3
SY Clearstone 2	Montana/Syngenta, 2012	3								57.1	58.2	60.8	58.7	98.9	59.2
UT932555	CURLEW	4						61.7	61.1	56.8	58.0		59.4	98.8	59.1
MEANS (For Entries Listed)			61.1	63.0	59.8	59.5	61.6	61.7		58.8	58.6	61.2			60.3
April-July Precip. (in.)			7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.88		
Total Annual Precip. (in.)			11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06		
Soil NO ₃ (lbs.) to SD at Planting			138	390	416	275	172	204	32	60	59	48	179		
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	100	79	
			(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34	
			(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21	

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. 2005-2014. (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/
			2005	2006	2007	2008	2009	2010	2011	2012	2013	2014			
PI593889	RAMPART (saw fly res)	10	8.3	2.3	2.3	13.3	1.0	3.7	1.0	0.0	3.7	1.0	3.7	100.0	3.7
Warhorse	Montana, 2013 (MTS0808)	4							1.0	2.3	2.3	1.0	1.7	116.7	4.3
MTS0713	JUDEE (++)	7			8.3	4.0	4.0	4.0	2.1	5.3	1.0	4.1	121.6	4.5	
MTS0721	BEARPAW (++)	6				4.0	2.3	1.0	2.5	5.3	1.0	2.7	156.0	5.7	
MTS0031	GENOU (++) (saw fly res)	10	10.0	6.7	5.0	11.7	1.0	15.0	1.0	6.3	6.7	1.0	6.4	175.3	6.4
DH001819	ACCIPITER	6			28.3	10.0	11.7	1.0	10.1	3.7		10.8	285.7	10.5	
ART	ART	4						8.3	3.7	7.2	8.3		6.9	331.1	12.1
BRODVIEW	BRODVIEW	5						8.7	3.7	9.1	10.0	2.3	6.8	362.0	13.3
MT0552	DECADE (++)	8			18.3	35.0	16.7	3.7	6.7	9.5	8.3	1.0	12.4	381.5	14.0
BC01007-7	SY WOLF (P+)	4							6.7	4.7	8.3	2.3	5.5	389.1	14.3
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	15.3
S94-4	CDC FALCON (P+)	10	33.3	25.0	26.7	36.7	13.3	7.0	1.0	6.9	5.0	1.0	15.6	425.3	15.6
BZ96-788	LEDGER (P+)	10	21.7	36.7	13.3	46.7	11.7	15.0	1.0	4.9	8.3	5.0	16.4	447.9	16.4
MT00159	YELLOWSTONE (++)	10	40.0	18.3	40.0	18.3	23.3	11.7	5.3	8.9	10.0	2.3	17.8	486.0	17.8
McGill	McGILL	4							8.3	12.5	5.0	2.3	7.0	495.6	18.2
Colter	Montana, 2013 (MT08172)	4							6.7	10.7	13.3	1.0	7.9	560.6	20.6
JAGALENE	JAGALENE (P+)	10	55.0	23.3	23.3	38.3	23.3	12.0	10.0	9.0	13.3	1.0	20.9	569.2	20.9
SY Clearstone 2	Montana/Syngenta, 2012	3								11.0	13.3	2.3	8.9	570.4	20.9
WB-Quake	Rampart/Kestrel (WestBred, 2011)	3								4.3	3.7	5.0	9.2	590.3	21.6
OVERLAND	OVERLAND	5					20.0	11.7	11.7	2.8	10.0		11.2	601.4	22.0
ND9257	JERRY	10	45.0	18.3	45.0	21.7	40.0	28.3	5.3	14.2	10.0	2.3	23.0	627.8	23.0
CA907817	WB-MATLOCK (P+)	3						38.3	5.3		13.3		19.0	683.3	25.0
RADIANT	RADIANT	6					31.7	6.7	8.3	15.2	11.7	3.7	12.9	746.3	27.4
PI55458	PROMONTORY	10	41.7	28.3	56.7	28.3	48.3	23.3	25.0	15.7	21.7	1.0	29.0	791.1	29.0
UT932555	CURLEW	5					63.3	35.0	25.0	14.3	20.0		31.5	1688.3	61.9
MEANS (For Entries Listed)			30.7	18.6	25.4	25.8	20.6	13.9	6.8	8.1	9.3	2.0			17.8
April-July Precip. (in.)			7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.88		
Total Annual Precip. (in.)			11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06		
Soil NO ₃ (lbs.) to SD at Planting			138	390	416	275	172	204	32	60	59	48	179		
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	100	79		
(# P ₂ O ₅)			40	40	40	40	40	40	40	20	20	20	34		
(# K ₂ O)			25	25	25	25	25	25	25	10	10	10	21		

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. 2014. Exp# 14-3102-SW

ID	Cultivar or Selection	Stand %	1/		2/		Moist %	3/		4/
			Head Date	Plant HT Inches	Yield Bu/Ac	Test Wt Lbs/Bu		Protein %	Sawfly %	
CI 10003	THATCHER	96.4	178.7	32.3	33.0	54.7	9.0	16.5	3.7	
CI 13596	FORTUNA	97.8	175.0	29.8	37.2	58.7	8.9	15.5	1.0	
PI574642	MCNEAL	96.8	176.7	28.3	41.5	56.8	9.0	15.8	5.0	
ND 695	REEDER	97.0	174.7	27.5	45.7	58.5	9.2	15.9	2.3	
PI633974	CHOTEAU	93.6	175.7	25.9	40.2	58.3	9.0	16.3	0.7	
PI642366	VIDA	95.5	176.3	26.1	47.9	58.6	9.3	15.1	0.3	
PI660981	DUCLAIR	96.2	173.7	26.4	46.9	58.1	9.0	15.7	0.3	
BZ996434	CORBIN	94.1	173.7	24.7	38.8	59.5	9.1	16.4	0.3	
ACS52610	VOLT	97.7	176.3	24.5	43.8	60.1	9.1	14.9	10.0	
BZ999592	ONEAL	92.2	176.7	25.9	41.8	58.3	9.0	16.0	0.7	
BZ9M1044	JEDD	93.2	174.0	24.3	40.3	60.8	9.1	15.0	0.0	
BZ92413R	WB GUNNISON	97.4	175.3	24.6	43.4	58.2	9.1	15.1	0.0	
NDSW0449	MOTT	96.4	177.0	25.1	35.7	58.1	9.1	17.0	0.3	
WB9879CL	CHOTEAU*3/CHOTEAU/IMI8134	95.3	175.0	24.4	40.5	58.6	9.1	16.4	0.3	
AGRIPR10	BRENNAN	96.8	173.0	26.6	41.5	61.5	9.1	16.1	0.7	
AGRIPR12	SY TYRA	92.6	175.0	25.8	46.3	61.5	9.2	15.2	0.7	
AGRIPR13	SY605 CL	96.8	173.0	26.5	40.1	60.5	8.9	16.8	0.7	
AGRIPR14	SY SOREN	95.4	174.7	23.8	42.5	59.5	9.0	16.1	0.7	
AGRIPR15	SY ROWYN	95.5	173.7	24.3	40.7	58.8	9.1	15.7	1.7	
AGRIPR141	SY INGMAR	97.5	174.3	25.9	44.9	60.6	9.2	15.7	1.0	
LIMAGR1	BUCKPRONTO	92.3	173.0	26.1	37.0	59.3	8.9	16.6	2.3	
LIMAGR141	11SB0096	95.0	175.0	25.1	43.1	58.3	9.0	15.0	5.0	
LIMAGR142	LNRO311	90.1	173.0	26.6	35.9	59.2	9.0	15.2	3.7	
LIMAGR143	LNRO493	97.7	174.3	27.9	39.8	58.1	9.2	16.0	2.3	
WB141	WB 9507	97.4	174.7	25.6	36.3	56.4	9.2	16.2	3.7	
WB142	WB 9518	94.4	173.0	23.2	33.2	59.3	8.9	16.1	6.7	
WB143	WB 9668	95.4	173.3	23.5	39.6	59.4	9.1	17.2	2.3	
WB144	BZ 903-472	96.0	175.7	22.5	38.8	60.3	9.1	15.7	0.0	
MT 1007	CHOTEAU/MT0515	97.5	175.0	25.2	42.1	59.9	9.2	16.0	0.0	
MT 1118	CHOTEAU/06SR140	94.0	174.7	25.4	41.2	57.6	8.9	15.9	0.3	
MT 1203	CHOTEAU/MT0744	98.0	172.7	25.1	42.1	58.8	9.0	16.6	1.0	
MT 1205	CHOTEAU/MTHW0771	95.3	172.3	24.7	42.0	60.0	9.1	16.8	0.0	
MT 1206	CHOTEAU/MTHW0771	95.9	176.3	24.1	39.3	58.5	8.9	16.7	0.0	
MT 1219	MT0643/MTHW0771	95.8	175.7	25.6	44.3	58.2	8.6	15.8	0.0	
MT 1222	MT0744//CHOTEAU/GLUPRO(06IFAFS4	94.8	172.3	26.2	39.6	57.7	8.9	16.6	0.0	
MT 1224	MCNEAL/MT0245(07SR2)//CHOTEAU/GL	96.8	174.7	24.7	47.7	58.2	9.0	15.7	1.0	
MT 1225	MCNEAL/MT0245(07SR2)//CHOTEAU/GL	98.1	175.3	23.4	42.2	56.9	9.0	16.3	2.0	
MT 1227	MCNEAL/MT0245(07SR2)//CHOTEAU/GL	97.4	177.7	25.2	44.1	54.0	9.0	16.7	0.7	
MT 1228	MCNEAL/MT0245(07SR2)//CHOTEAU/GL	97.4	175.7	26.0	46.3	57.3	8.9	16.1	0.3	
MT 1230	CHOTEAU/REEDER(07SR241)//CHOTEA	96.8	177.7	25.3	42.3	56.8	8.7	16.3	0.3	
MT 1231	CHOTEAU/REEDER(07SR241)//MT0643	95.6	175.0	25.9	41.6	57.7	9.0	16.3	0.3	
MT 1234	CHOTEAU/REEDER(07SR241)//MT0643	96.1	175.3	25.0	40.1	58.5	9.0	17.0	0.7	
MT 1236	CHOTEAU/REEDER(07SR241)//CHOTEA	95.6	174.3	24.6	40.4	57.2	9.0	16.8	0.0	

TABLE 5. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2014. (Exp# 14-3102-SW)

ID	Cultivar or Selection	Stand %	1/	2/	Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	Protein %	4/ Sawfly %
			Head Date	Plant HT Inches					
MT 1264	CHOTEAU/REEDER(07SR241)//CHOTEA	96.1	173.0	26.1	39.7	58.7	8.8	16.5	2.3
MT 1273	VIDA/CLEARWHITE	98.0	175.7	25.1	45.4	59.0	8.9	15.0	2.0
MT 1276	VIDA/CLEARWHITE	96.7	175.0	25.1	45.7	58.7	8.9	15.5	0.7
CAP400-1	MCNEAL/GLUPRO*2//CAP19/CHOTEAU	99.0	176.3	27.1	37.8	56.9	8.8	17.3	2.3
MT 1304	CORBIN/MT0747	97.8	173.7	23.5	45.8	60.1	8.8	15.3	0.3
MT 1315	GLENN/MT0747	97.7	172.0	26.5	40.5	60.4	9.1	16.3	2.3
MT 1316	GLENN/MT0747	97.5	173.0	25.2	44.2	59.1	9.2	16.2	1.0
MT 1319	MT0415/MT0747	98.1	172.7	26.1	48.1	60.5	9.1	15.3	1.0
MT 1320	MT0415/MT0747	92.1	173.0	26.6	44.6	59.8	9.1	15.1	2.0
MT 1331	MT0747/MT0823	96.1	175.3	24.3	46.6	55.8	8.8	15.0	0.7
MT 1333	MT0747/MT0830	97.4	174.7	23.6	44.1	60.2	9.1	16.0	1.0
MT 1336	MT0747/MT0858	97.1	173.0	25.2	43.0	58.8	9.1	15.9	1.0
MT 1337	MT0830/MT0858	99.0	172.7	27.0	44.0	58.0	9.0	16.2	0.7
MT 1338	MT0830/MT0858	97.2	175.0	27.7	47.5	61.2	9.0	15.5	0.7
MT 1340	MT0830//CHOTEAU/2*MT0245	96.7	173.3	24.3	42.3	60.0	9.0	16.2	0.0
MT 1341	MT0830//CHOTEAU/2*MT0245	96.2	174.3	24.5	42.8	60.0	9.2	16.2	0.7
MT 1343	MT0831/MT0747	97.7	175.3	28.6	47.3	56.3	9.0	15.7	0.7
MT 1346	MT0831//CHOTEAU/2*MT0245	97.1	173.7	26.3	41.2	59.2	9.1	16.3	0.3
MT 1348	MT0852/MT0858	96.1	173.3	26.2	46.8	60.1	9.1	16.0	0.7
MT 1349	MT0852/MT0858	96.5	175.3	25.3	41.3	57.2	9.0	16.5	0.3
MT 1360	CHOTEAU/3/MT9929//BZ99263	95.5	173.0	25.6	41.5	58.4	9.0	16.5	0.7
EXPERIMENTAL MEANS		96.1	174.6	25.6	42.1	58.7	9.0	16.0	1.3
LSD (0.05)		4.2	1.5	2.6	5.1	1.0	0.2	0.5	2.2
C.V.: (S / MEAN)*100		2.7	0.5	6.2	7.5	1.1	1.5	1.8	102.2
P-VALUE (Entries)		0.0643	<.0001	<.0001	<.0001	<.0001	<.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 (175 = June 24).

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 (14-3102-SW)

Seeding Date: April 22, 2014
 Harvest Date: August 13, 2014
 Fertility: 100-20-10 side banded
 System: no till
 Herbicide: Bromac, 27 oz/ac
 Insecticide: none
 Previous Crop: Chemical Fallow - Spring Barley
 Precipitation: 4.25" (seeding to harvest maturity)

TABLE 6. Ten-Year Yield Summary on Selected Entries from Dryland Advanced Spring Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (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/
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014				
PI642366 VIDA (++)	10	59.3	35.8	42.4	55.3	55.6	58.3	44.6	35.1	67.2	47.9	50.2	141.6	50.2	
BZ999592 ONEAL (P+)	10	57.2	31.2	33.6	52.2	48.7	58.0	46.6	34.7	64.2	41.8	46.8	132.2	46.8	
BZ902413(R) WB GUNNISON (P+)	9		33.9	38.4	55.3	46.6	62.4	44.1	32.3	56.5	43.4	45.9	131.1	46.4	
ND695 REEDER (+)	10	51.9	30.0	36.2	51.0	49.9	54.6	41.8	31.4	62.7	45.7	45.5	128.5	45.5	
PI632252 OUTLOOK (++)	6	58.9	31.2	35.7	45.2	43.1	56.4					45.1	126.8	44.9	
LIMAGR1 BUCK PRONTO	5	50.7						48.2	32.9	55.5	37.0	44.9	124.6	44.1	
BZ996434 CORBIN (P+)(saw fly res)	9		28.9	42.0	47.8	45.2	53.3	45.5	31.3	59.3	38.8	43.6	124.4	44.1	
PI660981 DUCLAIR (++)	6					42.3	55.5	41.0	34.9	61.7	46.9	47.1	124.4	44.1	
BZ9M1044 JEDD (P+)	10	59.9	33.7	34.4	48.2	42.9	52.6	41.0	34.2	52.4	40.3	44.0	124.1	44.0	
BZ992588 CONAN (P+)(saw fly tol)	9	57.1	32.9	36.1	46.6	44.1	50.0	41.9	32.6	55.5		44.1	123.5	43.8	
AGRIPR10 BRENNAN	6					54.2	53.9	35.8	38.4	56.3	41.5	46.7	123.3	43.7	
BZ992322 HANK (P+)	7	54.3	31.7	34.0	45.1	45.3	54.3	42.1				43.8	122.5	43.4	
AGRIPR14 SY SOREN	4							42.6	29.7	56.6	42.5	42.9	121.7	43.1	
PI633974 CHOTEAU (++) (saw fly res)	10	58.0	32.1	36.0	45.1	42.3	53.3	38.8	31.1	53.9	40.2	43.1	121.6	43.1	
ACS52610 VOLT (P+)	10	53.0	28.4	35.1	42.4	43.4	49.7	51.3	28.0	53.8	43.8	42.9	121.1	42.9	
AGRIPR12 SY TYRA	6					44.8	51.0	39.7	26.6	64.2	46.3	45.4	120.1	42.6	
AGRIPRO6 KELBY (P+)	7		30.8	37.7	48.9	42.4	47.2	41.4	36.2			40.6	120.0	42.5	
C113596 FORTUNA (saw fly res)	10	49.7	33.8	31.5	46.1	45.6	50.1	40.5	33.6	49.3	37.2	41.8	117.9	41.8	
PI574642 McNEAL	10	51.8	27.2	35.4	45.9	41.9	49.9	36.4	34.1	53.0	41.5	41.7	117.7	41.7	
NDSW0449 MOTT (++)	6					45.3	51.1	40.4	30.1	62.6	35.7	44.2	116.9	41.4	
WB11 2 VANTAGE	3							38.9	28.2	58.7		41.9	116.6	41.3	
AGRIPRO8 AP604 CL (P+)	6			36.9	46.0	42.0	52.2	40.4	28.2			41.0	115.8	41.0	
AGRIPR13 AGRIPRO SY605 CL	5						46.4	37.3	30.0	51.0	40.1	41.0	112.9	40.0	
AGRIPRO7 KUNTZ (P+)	6		26.1	31.3	39.0	45.2	44.9	43.0				38.3	108.7	38.5	
WB11 3 WB ROCKLAND	3							32.8	30.3	46.3		36.4	101.4	35.9	
C110003 THATCHER	10	39.3	24.9	29.9	33.2	45.5	40.6	37.0	25.9	44.9	33.0	35.4	100.0	35.4	
MEANS (For Entries Listed)		53.9	30.8	35.7	46.7	45.5	52.1	41.3	31.7	56.5	41.3			42.8	
April-July Precip. (in.)		7.4	5.7	7.4	8.1	6.3	9.7	8.8	7.3	13.3	4.9	7.9			
Total Annual Precip. (in.)		11.9	10.3	12.4	12.2	12.5	14.6	15.5	9.5	18.5	13.3	13.1			
Soil NO ₃ (lbs.) to SD at Planting		142	119	220	252	139	141	124	35	56	86	131			
SD (Sampling Depth in Inches)		48	48	48	48	48	48	36	48	48	48	47			
Fertilizer Applied															
	(# N)	70	70	70	70	70	70	70	100	100	100	79			
	(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34			
	(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21			

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. 2005-2014. (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/	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014				
AGRIPRO6	KELBY (P+)	7		57.2	59.2	59.6	59.5	58.2	62.3	56.3			58.9	107.6	59.7
ACS52610	VOLT (P+)	10	60.1	56.4	57.5	59.1	59.8	58.0	63.2	53.7	63.8	60.1	59.2	106.6	59.2
AGRIPR10	BRENNAN	6					59.3	58.4	62.4	56.5	63.3	61.5	60.2	106.1	58.9
BZ9M1044	JEDD (P+)	10	59.9	55.5	58.1	57.9	59.7	57.4	61.5	55.3	63.0	60.8	58.9	106.1	58.9
WB11 2	VANTAGE	3							63.0	56.1	62.6		60.5	106.0	58.8
AGRIPR13	AGRIPRO SY605 CL	5						59.5	60.9	54.5	62.9	60.5	59.6	105.9	58.8
BZ992588	CONAN (P+) (saw fly tol)	9	59.4	54.6	57.5	58.6	59.8	58.5	61.2	56.1	62.1		58.6	105.5	58.6
CI13596	FORTUNA (saw fly res)	10	59.2	56.0	56.8	58.8	59.4	57.7	60.7	54.6	61.9	58.7	58.4	105.2	58.4
BZ902413(R)	WB GUNNISON (P+)	9		54.3	57.4	59.0	60.2	59.5	60.2	52.9	62.6	58.2	58.3	105.0	58.3
BZ999592	ONEAL (P+)	10	58.8	54.1	56.0	57.8	60.6	58.9	61.1	53.4	62.8	58.3	58.2	104.8	58.2
AGRIPRO8	AP604 CL (P+)	6			57.9	58.6	59.9	57.6	60.8	52.6			57.9	104.6	58.1
ND695	REEDER (+)	10	58.6	53.6	56.8	58.2	60.0	57.8	61.3	52.9	62.8	58.5	58.0	104.6	58.0
BZ996434	CORBIN (P+)(saw fly res)	9		54.7	57.6	57.0	59.9	57.2	61.2	51.3	62.7	59.5	57.9	104.4	57.9
AGRIPR14	SY SOREN	4							61.3	51.5	63.0	59.5	58.8	104.1	57.8
LIMAGR1	BUCK PRONTO	5	57.5						60.7	53.6	62.3	59.3	58.7	104.1	57.8
AGRIPR12	SY TYRA	6					59.4	56.7	59.9	52.8	63.9	61.5	59.0	104.0	57.7
PI642366	VIDA (++)	10	57.8	52.0	55.8	58.6	58.8	57.7	60.8	50.8	62.4	58.6	57.3	103.3	57.3
AGRIPRO7	KUNTZ (P+)	6		55.3	56.3	55.7	58.4	56.7	60.1				57.1	102.9	57.1
PI633974	CHOTEAU (+)(saw fly res)	10	58.7	52.8	55.7	56.3	57.9	56.5	59.6	52.0	61.5	58.3	56.9	102.6	56.9
PI632252	OUTLOOK (++)	6	58.0	51.3	55.3	57.0	59.2	56.4					56.2	102.5	56.9
PI574642	McNEAL	10	57.3	52.7	54.5	56.0	58.5	57.4	59.1	52.3	61.8	56.8	56.6	102.0	56.6
NDSW0449	MOTT (++)	6					58.0	56.4	60.7	51.4	62.8	58.1	57.9	102.0	56.6
WB11 3	WB ROCKLAND	3							60.1	52.7	61.6		58.2	101.8	56.5
PI660981	DUCLAIR (++)	6					57.8	57.3	59.1	51.6	61.2	58.1	57.5	101.3	56.3
BZ992322	HANK (P+)	7	55.2	53.7	54.9	56.2	58.8	55.4	59.5				56.3	101.3	56.2
CI10003	THATCHER	10	55.8	51.1	52.5	55.1	58.9	55.5	59.8	50.2	61.5	54.7	55.5	100.0	55.5
MEANS (For Entries Listed)			58.2	54.1	56.5	57.6	59.2	57.5	60.8	53.2	62.5	58.9			57.7
April-July Precip. (in.)			7.4	5.7	7.4	8.1	6.3	9.7	8.8	7.3	13.3	4.9	7.9		
Total Annual Precip. (in.)			11.9	10.3	12.4	12.2	12.5	14.6	15.5	9.5	18.5	13.3	13.1		
Soil NO ₃ (lbs.) to SD at Planting			142	119	220	252	139	141	124	35	56	86	131		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	36	48	48	48	47		
Fertilizer Applied															
	(# N)		70	70	70	70	70	70	70	100	100	100	79		
	(# P ₂ O ₅)		40	40	40	40	40	40	40	20	20	20	34		
	(# K ₂ O)		25	25	25	25	25	25	25	10	10	10	21		

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. 2005-2014. (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/
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014				
BZ902413R	WB GUNNISON (P+)	9		1.0	1.0	10.0	2.3	1.0	5.3	1.0	0.7	0.0	2.5	17.4	2.3
PI642366	VIDA (++)	10	0.0	5.0	3.7	6.7	8.7	7.0	10.0	5.0	1.0	0.3	4.7	35.0	4.7
BZ992588	CONAN (P+)(saw fly tol)	9	1.7	3.7	1.0	15.0	1.0	11.7	7.0	5.0	0.3		5.1	38.0	5.1
BZ999592	ONEAL (P+)	10	3.3	5.0	2.3	11.7	8.3	10.0	10.0	7.5	2.3	0.7	6.1	45.2	6.1
NDSW0449	MOTT (++)	6					1.0	11.7	13.3	3.0	1.0	0.3	5.1	45.5	6.2
AGRIPR14	SY SOREN	4							2.3	10.0	2.0	0.7	3.7	47.4	6.4
BZ996434	CORBIN (P+)(saw fly res)	9		1.0	1.0	33.3	5.3	12.0	5.0	7.5	0.7	0.3	7.4	51.4	7.0
BZ9M1044	JEDD (P+)	10	0.0	6.7	6.7	30.0	5.0	23.3	6.7	8.0	2.3	0.0	8.9	65.5	8.9
AGRIPR12	SY TYRA	6					20.0	10.0	6.7	8.0	0.7	0.7	7.7	69.1	9.3
AGRIPR10	BRENNAN	6					5.3	18.3	11.7	12.5	0.7	0.7	8.2	73.7	10.0
PI660981	DUCLAIR (++)	6					10.0	13.3	28.3	7.5	1.0	0.3	10.1	90.7	12.3
PI632252	OUTLOOK (++)	6	3.3	16.7	8.3	36.7	10.0	26.7					16.9	98.1	13.3
CI 13596	FORTUNA (saw fly res)	10	6.7	3.7	5.0	53.3	15.0	20.0	18.3	10.0	2.3	1.0	13.5	100.0	13.5
PI633974	CHOTEAU (++) (saw fly res)	10	3.3	2.3	1.0	51.7	10.0	31.7	28.3	8.0	1.0	0.7	13.8	102.0	13.8
AGRIPR13	AGRIPRO SY605 CL	5						21.7	8.3	22.5	1.0	0.7	10.8	104.8	14.2
AGRIPRO8	AP604 CL (P+)	6			20.0	36.7	13.3	26.7	13.3	20.0			21.7	106.9	14.5
AGRIPRO6	KELBY (P+)	7		8.3	15.0	55.0	7.0	25.0	15.0	10.0			19.3	108.0	14.6
CI 10003	THATCHER	10	11.7	10.0	15.0	31.7	10.0	30.0	15.0	17.5	2.3	3.7	14.7	108.5	14.7
WB11 2	VANTAGE	3							15.0	20.0	1.0		12.0	117.4	15.9
BZ992322	HANK (P+)	7	6.7	6.7	10.0	65.0	10.0	35.0	13.3				21.0	120.2	16.3
ND 695	REEDER (+)	10	5.0	8.3	13.3	55.0	6.7	33.3	16.7	20.0	2.3	2.3	16.3	120.4	16.3
TRIGEN2	BUCK PRONTO	5	6.7						13.3	22.5	2.3	2.3	9.4	123.0	16.7
PI574642	McNEAL	10	6.7	15.0	15.0	51.7	18.3	25.0	36.7	30.0	7.0	5.0	21.0	155.4	21.0
AGRIPRO7	KUNTZ (P+)	6		13.3	16.7	70.0	10.0	56.7	13.3				30.0	156.1	21.1
WB11 3	WB ROCKLAND	3							25.0	27.5	0.7		17.7	173.4	23.5
ACS52610	VOLT (P+)	10	16.7	16.7	13.3	86.7	15.0	60.0	13.3	52.5	8.3	10.0	29.3	216.1	29.3
MEANS (For Entries Listed)			5.5	7.7	8.7	41.2	9.2	23.2	14.1	14.6	2.0	1.6			13.0
April-July Precip. (in.)			7.4	5.7	7.4	8.1	6.3	9.7	8.8	7.3	13.3	4.9	7.9		
Total Annual Precip. (in.)			11.9	10.3	12.4	12.2	12.5	14.6	15.5	9.5	18.5	13.3	13.1		
Soil NO ₃ (lbs.) to SD at Planting			142	119	220	252	139	141	124	35	56	86	131		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	36	48	48	48	47		
Fertilizer Applied															
		(# N)	70	70	70	70	70	70	70	100	100	100	79		
		(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34		
		(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21		

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 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. 2014. (Exp# 14-9802-DUR)

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	77.2	181.0	26.0	32.4	56.3	8.5	38.2	16.5	84.8	0.3
2	Divide	91.4	178.3	31.9	38.6	57.6	8.6	37.3	17.0	81.7	1.0
3	Alkabo	96.1	178.0	29.8	42.2	57.8	8.6	35.3	16.4	84.9	1.0
4	Grenora	90.1	178.0	27.8	37.0	56.9	8.6	34.9	16.5	86.9	0.7
5	Tioga	92.1	178.3	32.5	36.3	56.9	8.7	35.6	17.6	80.7	1.0
6	Carpio	91.8	180.7	31.1	39.7	56.7	8.6	33.9	16.7	83.6	1.0
7	Joppa	94.4	176.3	31.3	41.3	58.1	8.6	35.4	16.7	85.8	2.3
8	Silver	93.3	174.3	24.6	41.2	58.8	8.6	35.4	16.5	89.6	1.0
9	Alzada	92.6	175.0	23.5	40.6	58.1	8.5	39.2	15.9	85.6	0.3
10	Strongfield	93.4	178.0	32.0	38.6	56.6	8.8	34.9	17.5	87.5	1.0
11	MT06584	92.2	178.3	24.7	43.6	56.1	8.5	32.3	17.0	82.6	0.7
12	MT101395	90.2	182.3	28.5	34.0	52.4	8.5	31.9	17.3	82.3	1.0
13	MT101427	91.3	178.7	24.8	36.7	54.9	8.4	32.0	17.0	85.2	0.7
14	MT101730	92.0	184.0	35.4	34.2	56.8	8.8	36.0	16.4	88.2	0.7
EXPERIMENTAL MEANS		91.3	178.7	28.8	38.3	56.7	8.6	35.1	16.8	85.0	0.9
LSD (0.05)		6.8	2.2	2.3	3.6	1.0	0.1	-	0.4	-	1.1
C.V.: (S / MEAN)*100		4.5	0.7	4.8	5.7	1.0	0.6	-	1.6	-	73.9
P-VALUE (Entries)		0.0034	<.0001	<.0001	<.0001	<.0001	<.0001	-	<.0001	-	0.1684

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 (14-9802-DUR)

Seeding Date: April 25, 2014
 Harvest Date: August 14, 2014
 Fertility: 100-20-10 side banded
 System: no till
 Herbicide: Bromac, 27 oz/ac
 Insecticide: none
 Previous Crop: Barley
 Precipitation: 4.32"

TABLE 10. Ten-Year Yield Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (Exp# 9802-DUR)

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/
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014			
STRONGFIELD STRONGFIELD (+)	8		31.2	37.8	46.6	45.8	68.0	40.7	27.8		38.6	42.1	109.9	45.0
YU894-75 ALZADA (P+)	10	46.2	30.6	44.7	45.2	39.5	58.4	43.9	34.4	58.7	40.6	44.2	107.9	44.2
ALKABO ALKABO (+)	9		27.1	34.0	40.5	41.4	62.7	39.5	29.7	61.3	42.2	42.0	104.2	42.7
SARAGOLLA SARAGOLLA	4				42.8	43.7	61.6	41.3				47.3	103.1	42.3
TIOGA TIOGA	5						64.1	41.9	30.1	54.1	36.3	45.3	103.0	42.2
MT03012 SILVER (++)	9		29.9	36.5	44.5	40.1	55.3	40.4	28.3	54.9	41.2	41.2	102.2	41.9
DILSE DILSE (+)	4	48.6	25.2		40.8	42.0						39.1	102.0	41.8
GRENORA GRENORA (+)	9		29.7	37.0	41.4	42.8	57.7	36.5	26.0	62.3	37.0	41.2	102.0	41.8
DIVIDE DIVIDE	9		27.1	37.6	39.1	44.7	60.1	36.4	28.0	55.7	38.6	40.8	101.1	41.4
D901313 MOUNTRAIL (+)	10	46.7	25.8	36.5	39.8	41.1	63.2	39.4	27.9	57.0	32.4	41.0	100.0	41.0
NORMANNO NORMANNO	7			41.2	44.0	46.4	66.6	11.9	32.4	55.0		42.5	97.6	40.0
LEVANTE LEVANTE	5			39.8	49.2	45.0	57.7	18.7				42.1	95.6	39.2
PIERCE PIERCE (+)	7	41.9	25.3	32.8	38.8	36.7	50.3	40.0				38.0	90.9	37.2
MEANS (For Entries Listed)		45.9	28.0	37.8	42.7	42.4	60.5	35.9	29.4	57.4	38.3			41.6
April-July Precip. (in.)		7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.88		
Total Annual Precip. (in.)		11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06		
Soil NO ₃ (lbs.) to SD at Planting		142	160	220	252	139	141	124	35	22	86	132		
SD (Sampling Depth in Inches)		48	48	48	48	48	48	48	48	48	48	48		
Fertilizer Applied		70	70	70	70	70	70	70	100	100	100	79		
	(# N)	40	40	40	40	40	40	40	20	20	20	34		
	(# P ₂ O ₅)	25	25	25	25	25	25	25	10	10	10	21		
	(# K ₂ O)													

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. 2005-2014. (Exp# 9802-DUR)

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/
			2005	2006	2007	2008	2009	2010	2011	2012	2013	2014			
DILSE	DILSE (+)	4	57.6	55.4		58.2	58.5						57.4	102.2	58.8
ALKABO	ALKABO (+)	9		54.6	58.9	58.3	58.6	58.7	60.9	57.7	63.6	57.8	58.8	101.9	58.6
PIERCE	PIERCE (+)	7	57.5	54.6	59.2	58.6	58.9	58.3	60.7				58.3	101.7	58.5
DIVIDE	DIVIDE	9		55.5	58.7	57.8	58.4	58.2	60.0	56.6	63.6	57.6	58.5	101.4	58.3
LEVANTE	LEVANTE	5			58.4	58.4	59.1	58.1	60.3				58.9	101.4	58.3
TIOGA	TIOGA	5						58.0	60.7	55.7	64.0	56.9	59.1	101.1	58.1
STRONGFIELD	STRONGFIELD (+)	8		57.3	57.6	57.2	58.8	58.7	59.9	54.3		56.6	57.6	101.0	58.1
MT03012	SILVER (++)	9		55.4	57.9	55.6	58.2	56.6	60.4	57.2	62.9	58.8	58.1	100.7	57.9
GRENORA	GRENORA (+)	9		55.7	57.9	57.4	57.5	58.0	60.6	55.2	63.3	56.9	58.0	100.6	57.8
YU894-75	ALZADA (P+)	10	55.3	53.8	57.5	55.7	58.9	58.2	59.9	55.8	62.8	58.1	57.6	100.2	57.6
D901313	MOUNTRAIL (+)	10	55.6	55.0	58.1	55.7	58.4	58.4	59.9	54.2	63.4	56.3	57.5	100.0	57.5
NORMANNO	NORMANNO	7			57.1	55.7	58.2	57.9	58.9	56.5	62.9		58.2	99.8	57.4
SARAGOLL	SARAGOLLA	4				55.3	58.1	56.3	59.0				57.2	98.4	56.6
MEANS (For Entries Listed)			56.5	55.3	58.1	57.0	58.5	57.9	60.1	55.9	63.3	57.4			58.0
April-July Precip. (in.)			7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.88		
Total Annual Precip. (in.)			11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06		
Soil NO ₃ (lbs.) to SD at Planting			142	160	220	252	139	141	124	35	22	86	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	100	79	
			(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34	
			(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21	

Long-term check variety is Mountrail.

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

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

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

4/ 10-Yr Comparable Average = $(x/y) * z$ where x = average test weight of a given entry for years tested, y = average test weight for Mountrail for the same years, and z = 10-Yr test weight for the check variety Mountrail.

TABLE 12. Ten-Year Sawfly Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (Exp# 9802-DUR)

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/
			2005	2006	2007	2008	2009	2010	2011	2012	2013	2014			
NORMANNO	NORMANNO	7			0.0	2.3	3.7	1.0	2.3	1.0	0.3		1.5	9.3	1.1
SARAGOLLA	SARAGOLLA	4				5.0	6.7	2.3	10.3				6.1	25.2	3.0
LEVANTE	LEVANTE	5			0.7	8.3	8.3	8.7	2.3				5.7	28.6	3.4
STRONGFIELD	STRONGFIELD (+)	8		0.7	1.7	10.0	5.3	6.7	13.3	2.3		1.0	5.1	35.7	4.2
YU894-75	ALZADA (P+)	10	0.0	1.0	1.0	6.7	15.0	8.3	18.3	2.3	2.3	0.3	5.5	47.1	5.5
TIOGA	TIOGA	5						13.3	18.3	6.7	2.3	1.0	8.3	65.7	7.7
MT03012	SILVER (++)	9		1.0	1.0	6.7	11.7	23.3	30.0	4.0	2.3	1.0	9.0	69.0	8.1
DIVIDE	DIVIDE	9		0.7	2.3	21.7	15.0	10.0	23.3	6.7	1.0	1.0	9.1	69.6	8.2
GRENORA	GRENORA (+)	9		2.3	2.3	38.3	20.0	16.7	25.0	8.3	2.3	0.7	12.9	98.9	11.6
D901313	MOUNTRAIL (+)	10	0.0	2.3	2.3	30.0	18.3	18.3	30.0	13.3	2.3	0.3	11.7	100.0	11.7
ALKABO	ALKABO (+)	9		2.3	3.7	30.0	21.7	26.7	30.0	16.7	2.3	1.0	14.9	114.5	13.4
DILSE	DILSE (+)	4	1.7	2.3		40.0	21.7						16.4	129.6	15.2
PIERCE	PIERCE (+)	7	1.7	1.0	3.7	45.0	35.0	38.3	41.7				23.8	164.2	19.3
MEANS (For Entries Listed)			0.8	1.5	1.9	20.3	15.2	14.5	20.4	6.8	1.9	0.8			8.6
April-July Precip. (in.)			7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.88		
Total Annual Precip. (in.)			11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06		
Soil NO ₃ (lbs.) to SD at Planting			142	160	220	252	139	141	124	35	22	86	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	100	79	
			(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34	
			(# K ₂ O)	25	25	25	25	25	25	10	10	10	21		

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 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. 2014. (Exp# 14-2102-SB)

ID	Cultivar or Selection	1/		2/			3/			
		Stand %	Head Date	Plant Ht Inches	Yield Bu/Ac	Test Wt Lbs/Bu	Moisture %	Plump %	Thin %	Protein %
MT110008	Craft/Prowashonupana 5 Line 8	88.0	176.7		72.8	55.5	9.0	49.1	21.8	15.9
MT110009	Craft/Prowashonupana 5.1 Line 1	91.2	180.0		69.3	52.9	9.2	38.6	30.4	16.3
MT110016	Craft/Prowashonupana 5.1 Line 8	85.8	177.0		63.8	56.2	9.5	53.7	19.1	16.6
MT110031	Eslick/Prowashonupana 5.1 Line 1	92.4	175.7		64.7	56.3	9.6	64.5	15.9	16.3
MT110043	Eslick/Prowashonupana 5.3 Line 8	91.1	181.0		68.1	53.3	9.9	41.6	22.2	16.1
MT110061	Haxby/Prowashonupana 5.1 Line1	81.4	181.0		59.5	57.7	10.5	16.5	37.4	16.2
MT110065	Haxby/Prowashonupana 5.1A Line1	92.1	182.0		65.5	56.5	9.4	17.0	37.6	15.4
MT110066	Haxby/Prowashonupana 5.1A Line2	86.4	181.3		66.1	57.6	9.9	17.8	36.4	16.2
MT110092	Tibet/Haxby Line 1	92.4	172.0		51.9	60.3	8.0	81.8	7.4	16.0
MT110095	Tibet/Haxby Line 4	90.8	171.7		42.7	59.6	8.1	78.1	10.5	18.8
MT110097	Tibet/Haxby Line 6	78.9	174.3		48.9	57.6	9.0	75.7	10.4	16.0
MT110109	Hays/Tibet Line 4	91.4	179.0		54.0	61.0	9.6	26.7	44.4	16.5
MT110113	Hays/Tibet Line 8	95.3	174.0		66.3	57.9	7.9	74.4	10.5	17.1
MT110130	Hays/Tibet Line 25	94.0	178.7		59.3	53.0	9.5	75.1	15.7	17.3
MT110139	Hockett/Tibet Line 8	94.4	174.7		59.6	60.9	8.5	70.2	11.2	13.8
MT110141	Prowashonupana/Haxby Line 2	94.6	175.0		61.9	60.1	8.0	68.1	11.7	16.5
PI596299	Prowashonupana	86.4	177.0		50.9	49.4	7.3	49.4	34.1	17.0
MT090180	MT910189*/LK644/EslickBC3F33-G	94.0	178.7		86.4	50.2	9.3	82.3	8.1	13.7
MT090181	MT910189*/LK644/EslickBC3F33-G	89.5	178.0		79.5	51.5	9.7	88.5	7.4	13.9
MT090182	MT910189*/LK644/EslickBC3F33-G	95.3	178.3		88.1	52.0	9.8	84.7	7.4	12.9
MT090184	MT910189*/LK644/EslickBC3F33-G	94.4	178.3		79.8	51.6	10.4	80.4	8.7	13.2
MT090186	MT910189*/LK644/EslickBC3F33-G	95.9	180.0		77.8	51.5	9.6	76.4	7.5	13.3
MT090190	MT910189*/LK644/EslickBC3F33-G	96.3	179.0		84.1	52.1	9.2	82.2	7.5	13.0
MT090193	MT910189*/LK644/EslickBC3F33-G	98.1	179.3		84.1	50.5	9.7	82.7	6.7	12.7
MT100051	GPCBC3F4 rows 155&158/Haxby	96.0	175.3		78.8	54.0	10.3	85.5	6.1	13.2
MT100060	GPCBC3F4 rows 155&158/Haxby	94.9	175.3		78.7	53.7	10.2	81.7	7.7	13.4
MT100120	Hockett/X/LK644/EslickBC3F3 3-	95.0	178.7		84.4	51.6	10.2	87.1	6.0	12.8
MT100124	Hockett/X/LK644/EslickBC3F3 3-	96.9	179.7		86.3	50.4	10.4	83.1	8.9	13.8
MT100125	Hockett/X/LK644/EslickBC3F3 3-	94.9	179.0		79.1	51.2	10.1	83.6	6.4	14.0
MT100126	Hockett/X/LK644/EslickBC3F3 3-	95.6	179.7		85.5	51.8	9.8	88.3	5.0	12.9
MT100128	Hockett/X/LK644/EslickBC3F3 3-	97.5	179.3		79.1	50.8	10.2	86.5	5.6	13.5
MT100130	Hockett/X/LK644/EslickBC3F3 3-	92.7	178.3		75.5	51.9	10.0	80.3	9.5	13.5
MT100132	Hockett/X/LK644/EslickBC3F3 3-	96.2	178.7		77.9	51.0	9.4	80.1	9.7	13.4
MT100136	Hockett/X/LK644/EslickBC3F3 3-	93.7	179.3		86.4	51.0	10.4	87.4	7.8	13.2
MT124688		92.7	177.7		72.7	52.5	10.4	85.6	6.7	13.1
MT124367		94.9	180.7		85.4	50.6	10.3	91.8	4.7	13.7
MT124582		95.9	176.0		84.6	53.7	9.6	87.1	7.9	13.8
MT124240		92.4	180.7		77.4	51.3	10.0	90.8	5.6	12.8
MT124025		92.7	177.7		74.6	51.3	10.2	91.3	3.6	14.2
MT124338		95.4	177.7		86.3	52.2	9.0	93.9	3.5	13.4
MT124945		94.7	176.7		83.5	52.0	10.1	82.9	6.7	13.5
MT124411		92.4	174.7		80.8	53.4	10.2	94.7	3.1	14.1
MT124026		97.2	176.7		84.2	52.3	10.3	91.2	3.7	13.2

**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. 2014.
(Exp# 14-2102-SB)**

ID	Cultivar or Selection	1/		2/			3/			
		Stand %	Head Date	Plant Ht Inches	Yield Bu/Ac	Test Wt Lbs/Bu	Moisture %	Plump %	Thin %	Protein %
MT124093		92.4	176.7		75.1	52.7	9.5	90.4	4.1	14.5
MT124933		95.6	175.7		79.4	52.1	9.7	90.2	6.6	13.9
MT124243		94.3	180.0		84.2	52.2	9.2	83.9	8.3	12.2
MT124027		90.3	176.7		70.3	51.6	9.2	79.0	7.8	14.1
MT124728		88.6	178.0		66.0	52.3	9.6	80.7	8.5	14.4
Champion	Baronesse/Camas	95.3	176.3		86.3	53.3	8.8	92.7	3.5	13.9
Conrad	Conrad	94.3	179.0		76.4	51.2	9.9	82.0	7.6	15.3
Craft	Craft	94.8	176.0		74.9	53.1	9.8	87.5	5.0	14.6
Eslick	Eslick	97.0	182.3		88.5	50.9	9.9	78.3	13.9	15.1
Harrington	Harrington	96.8	178.3		82.5	51.0	9.9	84.5	6.8	14.1
Haxby	Haxby	96.5	176.3		78.1	53.8	10.4	75.6	7.5	14.2
Hockett	Hockett	95.9	176.0		88.6	54.2	9.1	94.2	2.4	13.3
Pinnacle	Pinnacle	95.3	174.0		69.4	52.7	9.5	91.5	5.4	13.3
Hays	Hays	90.9	178.7		77.9	47.9	10.2	57.7	18.9	15.5
Tradition	Tradition	90.8	173.0		79.8	52.1	9.5	87.5	3.9	14.2
Metcalfe	Metcalfe	90.5	178.3		76.3	51.1	10.1	92.4	4.3	15.5
05032-068	re-entry	92.8	177.0		73.0	50.9	10.0	80.3	9.4	14.7
07005-007	2nd year	95.9	177.3		79.4	52.1	10.1	89.1	4.7	14.9
07034-005	new	95.7	176.3		63.0	50.0	9.2	91.5	3.3	15.1
07034-012	new	94.9	177.7		71.6	52.0	9.4	92.4	3.5	14.6
07030-034	new	95.5	179.7		77.8	51.0	10.0	91.8	3.7	14.7
EXPERIMENTAL MEANS		93.2	177.6		74.4	53.1	9.6	76.9	10.7	14.5
LSD (0.05)		5.2	0.6		7.8	1.8	8.9	-	-	4.0
C.V.		7.9	1.8		9.4	1.6	1.4	-	-	0.9
P-Value (Entries)		0.0	<.0001		<.0001	<.0001	0.0009	-	-	<.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 27).

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 (14-2102-SB)

Seeding Date: April 21, 2014
 Harvest Date: August 7, 2014
 Fertility: 100-20-10 side banded
 System: no till
 Herbicide: Bromac, 27 oz/ax
 Insecticide: none
 Previous Crop: spring barley
 Precipitation: 4.25"

TABLE 14. Ten-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (EXP# 2102-SB)

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/	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014				
BZ596117 BOULDER (P+)	4	91.0	61.8	70.6	76.1								74.9	112.7	79.4
YU501385 CHAMPION (P+)	9	94.4	60.7	64.4	85.5	80.5		95.9	47.0	69.7	86.3	76.0	109.3	76.9	
PI568246 BARONESSE (P+)	7	82.4	49.7	66.8	80.5	72.8	89.5	85.0				75.2	107.4	75.6	
MT960228 ESLICK	7	77.2	65.5	68.8	69.2				30.9	89.5	88.5	69.9	102.1	71.9	
Scarlett SCARLETT	4						83.2	83.9	41.2	72.3		70.2	100.5	70.8	
MT910189 HOCKETT (++)	10	78.5	51.7	61.7	73.8	70.4	77.7	76.3	54.4	70.7	88.6	70.4	100.0	70.4	
SK76333 HARRINGTON	9	71.8	63.6	64.6		71.0	82.4	76.5	37.7	71.3	82.5	69.1	98.6	69.4	
MT960101 GERALDINE	8	76.5	53.9	58.9	68.4	70.8	93.2	81.1	33.8			67.1	98.5	69.4	
2B965057 CONRAD (+)	10	78.9	54.7	57.6	67.4	70.3	82.4	76.9	43.8	78.5	76.4	68.7	97.6	68.7	
MT010158 AMSTERDAM	8	80.7	63.2	62.7	75.0	67.2	78.3	64.4	16.1			63.5	93.2	65.6	
TR232 METCALFE	7		51.4	53.5		68.7	77.9	70.9	39.5		76.3	62.6	91.1	64.1	
MT950186 HAXBY	10	83.7	57.3	69.9	75.8	48.2	51.5	82.6	25.1	67.3	78.1	63.9	90.8	63.9	
6B952482 TRADITION (P+)	10	81.3	66.7	71.5	73.0	50.5	7.3	68.5	47.3	78.2	79.8	62.4	88.7	62.4	
MT970116 CRAFT	10	81.4	61.2	64.3	67.0	37.2	37.3	80.8	31.4	60.2	74.9	59.6	84.6	59.6	
PI643354 PINNACLE	5						76.1	75.4	24.6	61.8	69.4	61.5	83.5	58.8	
MT981060 HAYS	3	79.9							17.1		77.9	58.3	78.9	55.6	
MEANS (For Entries Listed)		81.4	58.6	64.3	73.8	64.3	69.7	78.3	35.0	72.0	79.9			67.7	
April-July Precip. (in.)		7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.3	4.87	7.88			
Total Annual Precip. (in.)		11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.5	13.34	13.06			
Soil NO ₃ (lbs.) to SD at Planting		184	352	271	157	88	204	374	60	415	57	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	100	100	100	79			
	(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34			
	(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21			

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/ Percent of Hockett 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 Hockett for the same years, and z = 10-Yr average yield for the check variety Hockett.

TABLE 15. Ten-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (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 3/	10-YR COMP. AVE. TEST WT 4/	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014				
BZ596117 BOULDER (P+)	4	50.8	48.7	49.3	51.9								50.2	101.6	51.4
YU501385 CHAMPION (P+)	9	50.9	48.4	50.3	52.7	51.7		52.9	47.5	53.1	53.3	51.2	101.4	51.3	
MT950186 HAXBY	10	50.9	48.7	50.7	52.9	52.0	50.6	53.8	43.2	53.9	53.8	51.0	101.0	51.0	
MT970116 CRAFT	10	50.7	48.8	50.0	51.5	51.5	50.6	53.0	43.9	53.2	53.1	50.6	100.1	50.6	
MT910189 HOCKETT (++)	10	48.0	47.5	49.9	52.0	51.2	51.2	52.2	46.2	53.2	54.2	50.6	100.0	50.6	
MT010158 AMSTERDAM	8	50.9	46.9	49.6	50.7	50.6	50.0	52.6	44.9			49.5	99.5	50.3	
Scarlett SCARLETT	4						48.9	51.6	46.0	53.3		49.9	98.5	49.8	
PI643354 PINNACLE	5						49.4	53.4	41.7	53.2	52.7	50.1	97.4	49.3	
PI568246 BARONESSE (P+)	7	45.8	44.5	48.7	49.9	50.1	49.4	51.3				48.5	96.5	48.8	
2B965057 CONRAD (+)	10	47.1	45.7	47.4	49.4	49.4	49.1	51.4	44.7	51.8	51.2	48.7	96.4	48.7	
TR232 METCALFE	7		45.3	48.2		50.7	48.4	51.6	43.8		51.1	48.4	96.2	48.7	
MT960228 ESLICK	7	47.1	46.1	48.9	50.1				44.2	52.7	50.9	48.6	95.8	48.5	
6B952482 TRADITION (P+)	10	46.7	46.4	47.0	49.2	48.6	48.0	49.5	45.0	51.5	52.1	48.4	95.7	48.4	
MT960101 GERALDINE	8	46.1	45.0	47.3	49.9	50.4	49.2	51.7	41.1			47.6	95.6	48.3	
SK76333 HARRINGTON	9	44.9	44.6	47.2		49.8	49.2	51.0	42.1	52.3	51.0	48.0	95.3	48.2	
MT981060 HAYS	3	44.1							38.9		47.9	43.7	88.3	44.6	
MEANS (For Entries Listed)		48.0	46.7	48.8	50.9	50.5	49.5	52.0	43.8	52.8	51.9			49.3	
April-July Precip. (in.)		7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.3	4.87	7.88			
Total Annual Precip. (in.)		11.87	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.5	13.34	13.06			
Soil NO ₃ (lbs.) to SD at Planting		184	352	271	157	88	204	374	60	415	57	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	100	100	100	79			
	(# P ₂ O ₅)	40	40	40	40	40	40	40	20	20	20	34			
	(# K ₂ O)	25	25	25	25	25	25	25	10	10	10	21			

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/ Percent of Hockett 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 test weight of a given entry for years tested, y = average test weight for Hockett for the same years, and z = 10-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. 2014.
(Exp# 14-7702-SA)

ENTRY	OIL TYPE	STAND %	PLANTS SqFt	1/		2/					
				FLWR DATE	PLNT HT Inches	YIELD Lbs/Ac	TEST WT Lbs/Bu	MOIST %	OIL % 0%Mois.	OIL % 8%Mois.	OIL Lbs/Ac 8%Mois.
03B8069	Linoleic	73.5	3.4	202.7	25.1	1714.9	42.0	5.3	38.5	41.8	716.8
10B1233	Linoleic	82.0	4.0	203.3	25.4	939.5	37.9	4.6	43.7	47.4	445.9
10SC11	Linoleic	69.2	2.3	200.0	25.9	1732.3	47.2	5.5	26.8	29.2	505.7
11 Saff 21	Linoleic	69.1	2.9	203.0	26.9	1946.7	46.3	5.6	29.7	32.3	629.6
Baldy Safflower	Linoleic	62.2	2.7	200.0	27.0	1681.4	47.4	5.6	27.3	29.6	498.5
Cardinal	Linoleic	70.2	3.2	203.0	26.3	1802.3	44.2	5.5	37.2	40.5	729.6
Finch	Linoleic	67.7	3.0	201.7	25.4	1494.9	43.8	5.3	38.1	41.5	620.6
Morlin	Linoleic	63.2	3.4	204.0	23.7	1002.2	40.4	5.1	40.0	43.5	436.1
NutraSaff	Linoleic	74.0	3.4	201.0	25.1	434.6	36.8	4.3	48.6	52.8	229.3
Saff 4-401	Linoleic	66.1	2.8	200.7	26.9	1639.0	47.6	5.6	26.9	29.3	480.7
06B3172	Oleic	72.5	2.9	203.3	25.3	1647.9	39.8	5.1	40.8	44.3	730.1
10B6015	Oleic	68.5	3.0	205.0	25.2	1382.9	42.4	5.2	37.9	41.1	568.6
10B7451	Oleic	78.8	4.0	201.3	24.6	1083.0	37.8	4.6	44.0	47.9	518.1
Hybrid 1601	Oleic	75.7	2.9	201.7	27.5	1279.8	37.2	4.9	40.1	43.6	558.0
Hybrid 200	Oleic	65.7	2.9	202.7	25.4	2008.0	44.0	5.5	33.7	36.6	734.6
Hybrid 446	Oleic	61.2	2.2	202.7	25.6	1831.0	43.3	5.5	34.1	37.0	678.9
Hybrid 528	Oleic	58.3	2.3	203.7	23.9	1313.2	32.6	4.6	44.3	48.2	632.6
Hybrid 621	Oleic	64.8	2.5	202.3	25.6	1240.6	37.4	4.7	42.6	46.3	575.1
Hybrid 9049	Oleic	67.3	3.6	200.7	26.5	1988.1	44.1	5.4	32.5	35.3	701.3
MonDak	Oleic	64.4	2.8	204.0	24.8	1303.1	42.5	5.2	37.1	40.3	525.7
Montola 2003	Oleic	72.1	3.3	204.7	23.5	1219.5	41.8	5.1	39.3	42.7	521.0
STI 1201	Oleic	69.2	4.4	203.7	22.4	1318.1	37.3	4.6	44.5	48.4	637.5
EXPERIMENTAL MEANS		68.9	3.1	202.5	25.4	1454.7	41.5	5.1	37.6	40.9	576.1
LSD (0.05)		11.8	0.9	1.3	1.6	275.8	0.9	0.2	1.4	1.4	11.6
C.V.: (S / MEAN)*100		10.4	17.5	0.4	3.8	11.5	1.3	1.8	0.9	0.9	110.4
P-VALUE (Entries)		0.0	0.0005	<.0001	<.0001	<.0001	<.0001	<.0001	<.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. Days from January 1 (202 = July 21)

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

NutraSaff had a reduced yield due to bird feeding late in the season.

Management Information (14-7702-SAF)

Seeding Date:	May 1, 2014	Herbicide:	none
Harvest Date:	October 7, 2014	Fungicide:	none
Fertility:	40-45-10 side banded	Previous Crop:	Chemical Fallow - Barley
System:	no till	Precipitation:	10.53"

TABLE 17. Ten-Year Yield Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2005-2014. (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/	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014				
HYBRID 528	HYBRID 528	3								1685	1721	1313	1573	230.6	2441
HYBRID 621	HYBRID 621	3								1421	1620	1241	1427	209.3	2214
HYBRID 1601	HYBRID 1601	8			1695	2178	2839	2117	2559	1858	1588	1280	2014	184.8	1955
HYBRID 9049	HYBRID 9049	9	1510	1434	1988	2264	2606	2229	2201		1816	1988	2004	175.8	1860
CARDINAL	CARDINAL	8			1384	1774	2462	2014	2077	1651	1721	1802	1861	170.7	1806
MON-DAK	MON-DAK	8			1584	1766	2078	2070	1967	1559	1814	1303	1768	162.1	1716
WILL 95FI	FINCH	10	1214	1082	1583	1977	2086	1580	2064	1565	1566	1495	1621	144.8	1532
WILL	MONTOLA 2004 (++)	7	1393	1158	1669	1967	2239	1833	1940				1743	142.9	1512
011-2180	MORLIN (++)	10	1194	1014	1311	1723	2077	1924	1927	1253	1828	1002	1525	136.2	1442
Will WOMA2003	MONTOLA 2003 (++)	9	1226	883	1301	1724	2042	1741	1839		1932	1219	1545	135.6	1434
WILL	MONTOLA 2000 (++)	7	1161	1018	1540	2080	2003	1676	1836				1616	132.5	1403
WILL	CENTENNIAL (++)	5	1181	1257	1522	1682	2014						1531	131.7	1393
91B3842	NUTRASAF (++)	10	1036	824	1210	1157	1589	1541	1179	323	1289	435	1058	94.5	1000
MEANS (For Entries Listed)			1239	1084	1526	1845	2185	1873	1959	1414	1690	1308			1670
April-July Precip. (in.)			7.37	5.71	7.43	8.09	6.29	9.69	8.75	7.33	11.88	4.87	7.74		
Total Annual Precip. (in.)			11.90	10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	13.06		
Soil NO ₃ (lbs.) to SD at Planting			708	157	154	665	219	115	99	35	78	58	229		
SD (Sampling Depth in Inches)			48	48	48	48	48	48	36	48	48	48	47		
Fertilizer Applied															
			(# N)	50	0	0	0	0	0	0	0	0	5		
			(# P ₂ O ₅)	20	40	45	40	45	45	45	45	45	42		
			(# K ₂ O)	10	0	0	0	0	0	0	0	0	1		

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. 2005-2014. (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.