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. 2006-2015.

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Content:

This report is intended to serve as a popularized 2015 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 evaluations 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 100 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 2015. 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.

2015 Data:

It should be noted that 2015 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, 2015 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 likely 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, so no entries with less than three years of 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 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/cqlab/crops/index.html.

Recognition:

This research would not have been possible without the assistance of the following summertime hourly employees: Nathan Chapman, Kasee Clark, Rocky Kuhr, Derek Matosich, Kyla McNamara, Dakota Parsons & Kathy Wesley.

LIST OF TABLES

Summary of climatic data by months for the 2014-2015 crop year (September to August) and averages for the period 1916-2015 at the Northern Agricultural Research Center. Havre, Montana.

Month Year	Sep 2014	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Crop Year
Precipitation (inches)													**Total**
Current Year	0.83	1.08	0.38	0.30	0.66	0.41	0.34	0.34	2.53	0.79	3.86	0.53	12.05
Average (1916-2015)	1.14	0.65	0.44	0.45	0.44	0.32	0.54	0.99	1.84	2.56	1.45	1.20	12.02
Difference	-0.31	0.43	-0.06	-0.15	0.22	0.09	-0.20	-0.65	0.69	-1.77	2.41	-0.67	0.03
Mean Temperature (^{o}F)													**Average**
Current Year	56.7	49.6	24.8	23.6	20.8	23.3	39.4	45.3	51.4	65.5	68.8	67.9	44.7
Average (1916-2015)	56.3	45.7	30.1	19.5	15.6	19.9	30.1	43.6	54.0	61.8	69.2	67.4	42.8
Difference	0.3	3.9	-5.3	4.1	5.1	3.4	9.3	1.7	-2.5	3.7	-0.5	0.5	2.0

Last killing frost in spring*

2015 _____ **May 20th (32˚)**
Ave. 1916-2015 _____ **May 13th**

First killing frost in fall*

2015 _____ **September 27th (31˚)**
Ave. 1916-2015 _____ **September 20th**

Frost free period

2015 _____ **131 days**
Ave. 1916-2015 _____ **130 days**

Growing degree days (base 50)

May 1-Oct 31, 2015 _____ **2464.5**
Ave. 1951-2015 _____ **2370.5**

Maximum summer temperature _____ **98˚ F on June 29th and August 14, 2015**
Minimum winter temperature _____ **-19˚ F on November 14, 2014 and February 4 and 5th, 2015**

*In this summary 32^{o} is considered a killing frost.

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2015 Variety Testing
INDIVIDUAL CROP EXPERIMENT IDENTIFICATION & DESCRIPTION RECORD
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											
15-3502-WW		Intrastate Cultivar Nursery	WW	49	3	147	A-6-4	33 32N 15E	Bruckner	MAES-MWBC	Lamb
15-1402-WW		Advanced Cultivar Nursery	WW	36	3	108	A-6-4	33 32N 15E	Bruckner	MAES-MWBC	Lamb
15-5802-WW		Sawfly Line Evaluation Nursery	WW	49	2	98	A-6-4	33 32N 15E	Bruckner	MAES-MWBC	Lamb
15-WQDS-WW		Winter Wheat Quality Drill Strips	WW	6	1	6	A-6-4	33 32N 15E	Bruckner	MAES-MWBC	Lamb
15-WWMU-WW	v	Historical Winter Wheat Demo	WW	60	1	60	A-6-4	33 32N 15E	Lamb	MAES-MWBC	Sebelius
Sub-Totals:			5	200		419	8.30%	of Total Plot Inventory			
OFF-STATION											
15-3851-WW		Off-Station Cultivar Eval Nursery	WW	25	3	75	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
15-3853-WW		Off-Station Cultivar Eval Nursery	WW	25	3	75	Loma	29 27N 10E	Lamb	MWBC-MAES	McKeever Farm
15-5853-WW	h	Sawfly Line Evaluation Nursery	WW	49	2	98	Gilford	05 30N 11E	Lamb	MWBC-MAES	Wolery Farm
15-SR01-WW	v	Single-Row Yield Eval Nursery	WW	312	1	312	Gilford	05 30N 11E	Bruckner	MAES-MWBC	Wolery Farm
15-SR02-WW	v	Single-Row Line Eval Nursery	WW	1000	1	1000	Gilford	05 30N 11E	Bruckner	MAES-MWBC	Wolery Farm
15-3RSP-WW		3-Row Segregating Populations	WW	114	1	114	Gilford	05 30N 11E	Bruckner	MAES-MWBC	Wolery Farm
Sub-Totals:			6	1525		1674	33.15%	of Total Plot Inventory			
					SPRING WHEAT & DURUM (SW & DUR) INVESTIGATIONS						
ON-STATION											
15-3102-SW		Advanced Yield Nursery	SW	64	3	192	A-6-2	33 32N 15E	Talbert	MAES-MWBC	Lamb
15-9802-DUR		Montana Durum Cultivar Nursery	DUR	14	3	42	A-6-2	33 32N 15E	Eckhoff	MAES-MWBC	Lamb
15-3302-SW		Preliminary Yield Nursery	SW	81	3	243	A-6-2	33 32N 15E	Talbert	MAES-MWBC	Lamb
15-SWMU-SW	v	Historical Spring Wheat Demo	SW	60	1	60	A-6-2	33 32N 15E	Lamb	MAES-MWBC	Sebelius
15-DQDS-DUR		Durum Quality Drill Strips	DUR	3	1	3	A-6-2	33 32N 15E	Eckhoff	Nippon Mills	Lamb
Sub-Totals:			5	222		540	10.69%	of Total Plot Inventory			
OFF-STATION											
15-9951-SW		Off-Station Cultivar Eval Nursery	SW	20	3	60	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
15-9953-SW		Off-Station Cultivar Eval Nursery	SW	20	3	60	Chester	13 31N 05E	Lamb	MWBC-MAES	Kammerzell Farm
15-9955-SW		Off-Station Cultivar Eval Nursery	SW	20	3	60	Loring	24 35N 29E	Lamb	MWBC-MAES	Flansaas/Lumsden
15-9957-SW		Off-Station Cultivar Eval Nursery	SW	20	3	60	Loma	29 27N 10E	Lamb	MWBC-MAES	McKeever Farm
15-9851-DUR		Off-Station Cultivar Eval Nursery	DUR	14	3	42	Turner	13 36N 25E	Lamb	MWBC-MAES	Cederberg Farm
15-9853-DUR		Off-Station Cultivar Eval Nursery	DUR	14	3	42	Chester	13 31N 05E	Lamb	MWBC-MAES	Kammerzell Farm
15-9855-DUR		Off-Station Cultivar Eval Nursery	DUR	14	3	42	Loring	24 35N 29E	Lamb	MWBC-MAES	Flansaas/Lumsden
Sub-Totals:			7	122		366	7.25%	of Total Plot Inventory			

SPRING BARLEY (SB) INVESTIGATIONS

ON-STATION

15-2102-SB		Intrastate Cultivar Eval Nursery	SB	49	3	147	A-6-1	33 32N 15E	Sherman	MAES-MWBC	Lamb
15-3102-SB		Early Yield Evaluation Nursery	SB	64	3	192	A-6-1	33 32N 15E	Sherman	MAES-MWBC	Lamb
15-2502-SB		Hulless Intrastate Eval Nursery	SB	16	3	48	A-6-1	33 32N 15E	Sherman	MAES-MWBC	Lamb
15-SBMU-SB	v	Historical Spring Barley Demo	SB	60	1	60	A-6-1	33 32N 15E	Lamb	MAES-MWBC	Sebelius
Sub-Totals:			4	189		447	8.85%	of Total Plot Inventory			

SAFFLOWER INVESTIGATIONS

ON-STATION

15-7702-SA		Cultivar Evaluation Nursery	SA	20	3	60	An-2-5	33 32N 15E	Bergman	NDSU-WREC	Lamb
Sub-Totals:			1	20		60	1.19%	of Total Plot Inventory			

BRASSICA (B_) INVESTIGATIONS

ON-STATION

15-CN02-CN		Statewide Canola Trial	CN	19	4	76	An-2-5	33 32N 15E	Bohannon	Var. Industry	Lamb
15-CN03-CN		Canola Green n Grow Seed Trt	CN	4	4	16	An-2-5	33 32N 15E	Bohannon	Var. Industry	Lamb
15-OC06-BC	e	B. carinata Advanced Yield Trial	BC	15	4	60	An-2-5	33 32N 15E	Males	Agrisoma	Lamb
15-OC07-BC	e	B. carinata Prelim. A Yield Trial	BC	20	3	60	A-2-4	33 32N 15E	Males	Agrisoma	Lamb
15-OC08-BC	e	B. carinata Prelim. B Yield Trial	BC	24	3	72	A-2-4	33 32N 15E	Males	Agrisoma	Lamb
15-OC09-BC	e	B. carinata Prelim. C Yield Trial	BC	24	3	72	A-2-4	33 32N 15E	Males	Agrisoma	Lamb
15-OC10-BJ		CPS B. juncea Variety Trial	BJ	10	4	40	An-4-6	33 32N 15E	Ferguson	Viterra (CPS)	Lamb
15-OC11-BJ		Ag Canada Brassica juncea	BJ	11	4	44	A-2-4	33 32N 15E	Kubik	Ag Canada	Lamb
Sub-Totals:			8	127		440	8.71%	of Total Plot Inventory			

PULSE CROP (PC) INVESTIGATIONS

ON-STATION

15-PC01-PC		Statewide Pea Trial	PC	42	4	168	An-4-5	33 32N 15E	Chen	MAES-CARC	Lamb
15-PC02-PC		Statewide Lentil Trial	PC	10	4	40	An-4-5	33 32N 15E	Chen	MAES-CARC	Lamb
15-PC03-PC		Western Regional Pea Trial	PC	18	4	72	An-4-5	33 32N 15E	Chen	MAES-CARC	Lamb
15-PC04-PC		Western Regional Lentil Trial	PC	13	4	52	An-4-5	33 32N 15E	Chen	MAES-CARC	Lamb
Sub-Totals:			4	83		332	6.57%	of Total Plot Inventory			

OTHER CROP (OC) INVESTIGATIONS

ON-STATION

15-CM02-CM		Spring Camelina Variety Trial	CM	7	4	28	An-2-5	33 32N 15E	Chen	BRDI	Lamb
15-CM03-CM		Winter Camelina Variety Trial	CM	3	6	18	An-2-5	33 32N 15E	Chen	BRDI	Lamb
15-CM04-CM		Spring Camelina Variety Trial	CM	7	4	28	An-2-5	33 32N 15E	Chen	BRDI	Lamb
15-OC13-SO	e	Advanced Sorghum Adaptation	SR	12	4	48	An-2-5	33 32N 15E	Wichman	MAES-CARC	Lamb
15-OC15-SO	e	Sorghum Strip Trial	SR	14	1	14	An-2-5	33 32N 15E	Wichman	MAES-CARC	Lamb
Sub-Totals:			5	43		136	2.69%	of Total Plot Inventory			

FORAGE RESEARCH (FR) INVESTIGATIONS

ON-STATION

15-FR02-FR	Winter Cereal Forage Trial	FR	16	3	48	A-6-4	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
15-FR03-FR	Spring Cereal Forage Trial	FR	10	3	30	A-6-1	33 32N 15E	Wichman	MAES-CARC	Lamb/Boss
Sub-Totals:		2	26		78	1.54%	of Total Plot Inventory			

NUTRIENT RESEARCH (NR) INVESTIGATIONS

ON-STATION

15-NM02-GC	Dryland Grain Corn Fertility Trial	GC	16	4	64	A-2-4	33 32N 15E	Lamb	FertAdvisory	Boss
15-NM04-WW	WW Sensor-Based Algorithm	WW	36	4	144	A-6-3	33 32N 15E	Desta	MAES-WTARC	Lamb
Sub-Totals:		2	52		208	4.12%	of Total Plot Inventory			

SPECIAL PROJECT (SP) INVESTIGATIONS

ON-STATION

15-SP19-CAP	Crop-Crop-Fallow CAP Rotation	MC	10	3	30	B-9-3	32 32N 15E	Chen	BRDI	Lamb/Sebelius
15-SP19-OP	Crop-Crop-Fallow Rotation	MC	20	3	60	B-9-3	32 32N 15E	Lamb	MAES-NARC	Sebelius
15-SP20-OP	Crop-Fallow Rotation	MC	24	3	72	B-9-1	32 32N 15E	Lamb	MAES-NARC	Sebelius
15-SP28-OP	QFR World Collection WW	WW	33	2	66	An-2-6	33 32N 15E	Lamb	Quinn	Sebelius
15-SP29-OP	QFR Populations 3-Row	WW	14	3	42	An-2-6	33 32N 15E	Lamb	Quinn	Sebelius
Sub-Totals:		5	101		270	5.35%	of Total Plot Inventory			

PEST MANAGEMENT (PM) INVESTIGATIONS

OFF-STATION

15-PM42-SW	h	Thimet Insectide on Reeder SW	SW	12	4	48	Gilford	05 30N 11E	Weaver	AmVac	Wolery Farm
15-PM43-SW	h	Thimet on Yellowstone & Warhorse WW	WW	8	4	32	Gilford	05 30N 11E	Weaver	AmVac	Wolery Farm
15-PM60-PM	h	Hill Plots	WW				Gilford	21 27N 10E	Talbert/Weaver	Var. Industry	Wolery Farm
Sub-Totals:			3	20		80	1.58%	of Total Plot Inventory			

2015 SUMMARY: Project Inventory - (Plots Established)

TOTALS - AGRONOMY & LIVESTOCK PROJECTS
57 Experiments or Trials
2730 Entries in 5050 Plots
3624 Plots for Harvest

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

ON-STATION	=	58.02%
OFF-STATION	=	41.98%

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

* Blaine County	=	8.35%	1-Loc:	WW, SW, DUR, Vars
* Chouteau County	=	6.37%	1-Loc:	WW, SW Vars
* Hill County	=	75.66%	1-Loc:	WW Sawfly, Multi-specie Hill Plots, Multi-specie Single Rows, WW Sawfly Insecticide, SW Sawfly Insecticide
* Liberty County	=	4.81%	1-Loc:	SW, DUR Vars
* Phillips County	=	4.81%	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 Hill County is abnormally high due to extensive cooperative wheat stem sawfly work at the McKeever farm near Loma. This site alone had 31.4% of NARC-Agronomy's total inventory of plots managed for 2015, 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
I = 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

2013-2015
CROP EXPERIMENT INFORMATION RECORD
Agronomy
Northern Agricultural Research Center
Havre, Montana

Location	Description	Number of Trials			Number of Entries			Number of Plots			% of Total Plot Inventory		
		2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
On-Station	Winter Wheat*	6	4	5	1245	140	200	1464	359	419	28.6%	5.7%	8.3%
Off-Station	Winter Wheat*	3	7	6	97	1716	1525	242	1861	1674	4.7%	29.7%	33.1%
On-Station	Spring Wheat and Durum	3	3	5	165	159	222	495	477	540	9.7%	7.6%	10.7%
Off-Station	Spring Wheat and Durum*	5	8	7	88	986	122	264	1230	366	5.2%	19.6%	7.2%
On-Station	Spring Barley	2	2	4	128	128	189	384	384	447	7.5%	6.1%	8.9%
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	22	20	108	66	60	2.1%	1.1%	1.2%
On-Station	Brassica sp.	11	10	8	189	177	127	486	488	440	9.5%	7.8%	8.7%
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	4	49	56	83	196	216	332	3.8%	3.4%	6.6%
Off-Station	Pulse Crops	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Other Crops	6	5	5	146	49	43	282	162	136	5.5%	2.6%	2.7%
On-Station	Forage	3	3	2	38	32	26	120	102	78	2.3%	1.6%	1.5%
On-Station	Nutrient Research	3	2	2	69	49	52	276	196	208	5.4%	3.1%	4.1%
On-Station	Special Projects	8	7	5	213	209	101	411	430	270	8.0%	6.9%	5.3%
Off-Station	Special Projects	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
On-Station	Pest Management	4	6	0	34	52	0	152	264	0	3.0%	4.2%	0.0%
Off-Station	Pest Management*	7	3	3	59	9	20	236	36	80	4.6%	0.6%	1.6%
Grand Total		64	63	57	2556	3784	2730	5116	6271	5050	100.0%	100.0%	100.0%
Harvested								3975	3542	3624	68.7%	77.7%	71.8%
On-Station Plots								4374	3144	2930	88.5%	85.5%	58.0%
Off-Station Plots								742	3127	2120	11.5%	14.5%	42.0%

* Winter Wheat, Spring Wheat & Pest Management:
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
2015: 1312 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. 2015. (Exp# 15-3502-WW)

Cultivar/Line	Release/Pedigree	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	3/ Protein %	4/ Sawfly %
Bearpaw	Montana, 2011	98.4	151.0	27.9	60.4	60.6	9.5	12.8	2.3
Brawl CL Plus	Colorado, 2011 (CO Wheat Res. Fdn.)	93.8	145.7	31.5	47.2	62.1	9.5	13.9	1.0
Broadview	Alberta, 2009 (Meridian Seeds)	94.8	152.0	31.9	**66.9**	60.0	9.1	12.3	2.3
Byrd	Colorado, 2011 (CO Wheat Res. Fdn.)	96.1	147.7	29.7	**68.1**	62.2	9.5	11.6	2.3
CDC Chase	Saskatchewan, 2013	88.0	152.3	32.8	56.1	60.8	9.5	12.8	3.7
CDC Falcon	Sask/WestBred, 1999	95.1	151.0	29.1	**64.4**	60.2	9.1	12.1	6.7
Colter	Montana, 2013	94.8	153.0	32.3	**60.9**	60.9	9.7	12.8	8.3
Cowboy	Wyoming/Colorado, 2012	91.8	149.3	33.0	**67.5**	61.8	9.3	11.0	3.7
Decade	Montana/North Dakota, 2010	96.4	151.3	29.2	53.3	61.6	9.6	13.5	13.3
Denali	Colorado, 2011 (CO Wheat Res. Fdn.)	89.8	150.3	31.4	**65.6**	62.7	9.2	11.0	2.3
Freeman	Nebraska, 2013	87.6	145.7	29.0	52.0	60.1	9.2	12.5	5.3
Genou	Montana, 2004	95.8	150.3	33.1	56.4	60.8	9.3	13.0	1.0
Jerry	North Dakota, 2001	91.2	152.0	34.1	51.6	60.2	9.5	12.7	3.7
Judee	Montana, 2011	92.5	150.7	30.6	56.9	61.8	9.4	12.6	0.7
Keldin	WestBred, 2011	95.5	152.7	30.3	54.8	61.7	9.6	12.6	15.0
LCS Mint	Limagrain Cereals, 2012	98.1	146.3	30.7	55.2	63.0	9.3	11.9	11.7
Ledger	WestBred, 2004	98.4	152.0	30.2	**61.0**	61.7	9.4	12.3	7.0
Northern	Montana, 2015	89.6	152.3	31.7	56.9	60.2	9.6	12.7	2.3
Rampart	Montana, 1996	94.1	151.7	31.8	56.8	59.6	9.3	13.3	1.0
SY Clearstone 2CL	Montana/Syngenta, 2012	95.8	152.3	34.1	53.5	60.9	9.6	12.8	11.7
SY Monument	Syngenta (AgriPro), 2014	93.8	150.0	30.9	**61.0**	60.9	9.4	11.2	3.7
SY Sunrise	Syngenta (AgriPro), 2015	88.6	149.0	26.7	55.5	62.2	9.5	13.0	3.7
SY Wolf	Syngenta (AgriPro), 2010	96.1	149.7	29.3	56.5	62.2	9.6	12.2	8.3
T158	Trio Research/Limagrain Cereals, 2009	93.5	145.3	28.2	50.3	62.0	9.3	12.7	5.0
Warhorse	Montana, 2013	97.4	152.7	29.6	57.7	60.6	9.5	12.8	2.0
WB3768	Montana/WestBred, 2013	97.1	154.7	33.3	**61.1**	60.5	9.5	12.6	13.3
WB4059CLP	WestBred, 2013	94.5	146.3	26.5	47.4	61.6	9.5	13.2	1.0
WB4614	WestBred, 2013	93.2	152.3	30.1	55.9	61.4	9.4	12.5	3.7
WB4623CLP	WestBred, 2014	96.1	152.7	26.2	52.9	60.9	9.4	13.5	10.0
WB-Quake	WestBred, 2011	90.5	153.3	30.0	55.8	60.7	9.2	12.6	0.7
Yellowstone	Montana 2005	96.1	152.3	33.3	**62.4**	60.9	9.8	12.6	2.3
LCH 10-13	Limagrain Cereals experimental	97.1	145.3	30.6	52.0	62.0	9.4	13.8	2.3
MT1078	MT02113*4/MTS0359	98.1	152.7	31.6	**63.6**	60.1	9.4	11.6	5.3
MT1117	Yellowstone*3/KS96WGRC40	96.7	152.7	34.4	58.8	60.9	9.6	12.9	5.3
MT1138	W99-194/2*Yellowstone	95.8	151.3	32.7	**62.7**	61.0	9.8	12.1	6.7
MT1257	Yellowstone/Krichauff	96.1	151.7	32.2	**63.2**	60.4	9.8	11.9	7.0
MT1265	Yellowstone*4/KS96WGRC40 (Lr41, wcm)	94.1	152.7	33.7	54.3	60.8	9.6	12.8	6.7
MT1286	Yellowstone*2/NE99445	93.5	151.3	31.3	54.2	61.1	9.7	12.5	10.0
MT1332	Yellowstone/00X52E99//Yellowstone(340,2	90.9	152.0	33.4	**62.4**	61.0	9.6	12.5	5.0
MT1348	PI572290/BigSky	93.8	151.0	30.2	**63.7**	61.6	9.5	12.6	1.0
MT1354	MT08184//MT08188/MT08175	93.2	152.7	32.6	59.5	61.6	9.6	12.6	8.3
MT1361	MT08189//MT08188/MT0419-1 (Sr2+36)	88.6	154.0	30.1	57.4	60.7	9.4	13.1	2.3
MTCL1131	Yellowstone*4/3/MTCL01158/CDC Teal 11	94.5	153.0	31.3	52.9	61.7	9.8	12.5	10.0

TABLE 1. Continued **Intrastate Winter Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2015. (Exp# 15-3502-WW)**

Cultivar/Line	Release/Pedigree	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	3/ Protein %	4/ Sawfly %
MTCL1329	Yellowstone/4/Jagalene/3/98X78cC82cl/MT	97.1	149.3	30.6	**62.8**	61.8	9.7	11.7	6.7
MTCS1204	MTCL0510/4/Paul/3/98X96C16cl/CDC Tea	93.5	152.0	31.5	58.8	60.6	9.4	11.9	10.0
MTF1232	Yellowstone/MT0684	96.8	154.0	37.4	53.4	59.9	9.5	13.0	11.7
MTS0826-63	MT9524/G15048//Rampart	98.4	153.7	31.2	58.6	58.5	9.3	13.4	0.7
MTS1224	Yellowstone//MTS0112/MTS0125	97.1	154.0	27.3	52.9	61.0	9.7	13.5	2.3
MTS1305	MTS0525//97X253E54/MT03108	92.8	151.3	30.0	60.5	61.2	9.4	12.3	1.0
EXPERIMENTAL MEANS		94.3	151.1	31.0	57.8	61.1	9.5	12.6	5.3
LSD (0.05)		8.4	1.3	2.9	7.5	0.7	0.3	0.8	5.1
C.V.%		5.5	0.5	5.8	8.0	0.7	1.8	3.8	59.0
P-VALUE (Entries)		0.5981	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Bold Indicates highest yeilding 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 (151 = May 31).
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 (15-3502-WW)

Seeding Date:	September 25, 2014
Harvest Date:	July 21, 2015
Fertility:	100-20-10 side banded
System:	No-till
Herbicide:	Brox-M, 24 oz/ac, 4/20/15
Insecticide:	none
Previous Crop:	Chemical Fallow - Field Pea
Precipitation:	7.78"

TABLE 2. Nine-Year Yield Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 3502-WW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2006	2007	2008	2009	2010	2011 3/	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK YIELD 4/	**9-YR COMP. AVE. YIELD 5/**
CO050322	COWBOY (+)	3								85.0	67.2	67.5	73.2	112.9	**69.0**
BC01007-7	SY WOLF (P+)	4							56.2	70.4	69.4	56.5	63.1	102.3	**62.6**
MT08172	COLTER (++)	4							70.7	56.9	60.9	60.9	62.4	101.1	**61.8**
LE1911	BROADVIEW (P++)	5					73.8		52.8	67.2	58.3	66.9	63.8	100.5	**61.5**
MT00159	YELLOWSTONE (+)	9	65.6	58.0	69.8	39.7	70.7		52.1	68.2	64.1	62.4	61.2	100.0	**61.2**
MTCL1077	SY CLEARSTONE 2CL (P+)	4							59.6	75.4	57.3	53.5	61.5	99.6	**60.9**
MT0978	NORTHERN (++)	4							54.8	73.1	60.5	56.9	61.3	99.4	**60.8**
MT0552	DECADE (+)	8		64.9	73.5	37.3	69.3		55.8	66.9	56.7	53.3	59.7	98.5	**60.3**
MTS0713	JUDEE (+)	7			66.4	42.4	72.2		48.9	70.6	61.5	56.9	59.8	98.5	**60.2**
S94-4	CDC FALCON (P+)	9	58.9	61.4	68.2	42.1	72.5		53.3	55.9	58.7	64.4	59.5	97.3	**59.5**
MTW08168	WB3768 (P++,HW)	4							52.1	68.3	53.7	61.1	58.8	95.3	**58.3**
MTS0721	BEARPAW (+)	6				38.4	67.1		55.4	64.0	51.8	60.4	56.2	94.4	**57.8**
BZ9W96-788-d	LEDGER (P+)	9	52.5	61.1	57.9	39.3	73.1		48.1	64.0	58.6	61.0	57.3	93.7	**57.3**
W98-362	JAGALENE (P+)	8	50.6	54.4	68.2	35.1	78.7		53.8	60.5	53.4		56.8	93.1	**57.0**
BZ9W02-2060	CARTER (P+)	8	48.3	57.2	65.8	38.0	75.9		52.1	59.1	57.5		56.7	93.0	**56.9**
MTS0031	GENOU (+)(saw fly res)	9	54.7	57.0	61.0	46.4	63.4		43.5	70.0	56.4	56.4	56.5	92.4	**56.5**
BZ9W05-2043	WB-QUAKE (P+)	4							48.4	70.0	51.2	55.8	56.4	91.4	**55.9**
MTS0808	WARHORSE (+)	4							51.7	65.1	47.9	57.7	55.6	90.2	**55.1**
ND9257	JERRY	9	55.9	52.9	59.9	38.3	67.6		44.2	66.2	51.3	51.6	54.2	88.6	**54.2**
PI593889	RAMPART (saw fly res)	9	49.0	55.3	53.7	37.8	59.9		46.6	62.3	57.2	56.8	53.2	87.0	**53.2**
MEANS (For Entries Listed)			54.4	58.0	64.4	39.5	70.4		52.6	67.0	57.7	58.9			**59.0**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			390	416	275	172	204	32	60	59	48	37	169		
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	100	100	100	100	82		
	(# P_2O_5)		40	40	40	40	40	40	20	20	20	20	32		
	(# K_2O)		25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Yellowstone.

1/ See MCES Bulletin 1098 or the Plant Sciences & Plant Pathology website at http://plantsciences.montana.edu/ for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selecton decisions.

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

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

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

5/ 9-Yr Comparable Average = (x/y) * z where x = average yield of a given entry for years tested, y = average yield for Yellowstone for the same years, and z = 9-Yr average yield for the check variety Yellowstone.

TABLE 3. Nine-Year Test Weight Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 3502-WW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2006	2007	2008	2009	2010	2011 3/	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK TEST WT 4/	**9-YR COMP. AVE. TEST WT 5/**
W98-362	JAGALENE (P+)	8	64.2	61.7	62.7	63.0	64.4		61.6	60.0	63.0		62.6	104.5	**62.7**
BC01007-7	SY WOLF (P+)	4							60.7	58.4	62.2	62.2	60.9	101.9	**61.1**
MT0552	DECADE (+)	8		60.3	60.5	61.5	62.3		59.7	58.6	61.0	61.6	60.7	101.6	**61.0**
BZ96-788	LEDGER (P+)	9	63.2	60.6	60.1	60.4	61.9		60.0	58.7	61.8	61.7	60.9	101.6	**60.9**
CO050322	COWBOY (+)	3								59.4	61.6	61.8	60.9	101.0	**60.6**
MTW08168	WB3768 (P++,HW)	4							59.0	60.2	61.5	60.5	60.3	100.9	**60.5**
S94-4	CDC FALCON (P+)	9	63.1	59.0	60.2	61.8	61.5		59.3	58.7	60.8	60.2	60.5	100.9	**60.5**
MTS0031	GENOU (+)(saw fly res)	9	62.5	59.7	58.7	62.0	60.7		58.1	59.2	61.6	60.8	60.4	100.6	**60.4**
BZ022060	CARTER (P+)	8	62.0	59.1	59.4	60.4	62.9		58.8	58.1	61.1		60.2	100.6	**60.3**
MT08172	COLTER (++)	4							58.7	59.4	61.3	60.9	60.1	100.5	**60.3**
MTS0713	JUDEE (+)	7			57.5	62.2	61.0		56.9	60.2	61.8	61.8	60.2	100.5	**60.3**
MT0978	NORTHERN (++)	4							58.5	59.6	61.0	60.2	59.8	100.1	**60.1**
MT00159	YELLOWSTONE (+)	9	62.2	58.3	57.5	61.7	61.2		58.1	59.3	60.7	60.9	60.0	100.0	**60.0**
PI593889	RAMPART (saw fly res)	9	62.5	58.6	59.1	61.3	60.4		58.7	57.9	61.0	59.6	59.9	99.8	**59.9**
MTS0808	WARHORSE (+)	4							57.6	59.0	61.1	60.6	59.6	99.7	**59.8**
BZ9W05-2043	WB-QUAKE (P+)	4							58.8	58.0	60.7	60.7	59.5	99.7	**59.8**
LE1911	BROADVIEW (P++)	5					61.0		58.2	57.7	60.3	60.0	59.5	99.5	**59.7**
MTS0721	BEARPAW (+)	6				61.1	61.4		58.8	57.6	60.6	60.6	60.0	99.5	**59.7**
MTCL1077	SY CLEARSTONE 2CL (P+)	4							57.1	58.2	60.8	60.9	59.2	99.2	**59.5**
ND9257	JERRY	9	62.1	58.0	56.7	60.5	61.1		57.7	57.5	60.1	60.2	59.3	98.9	**59.3**
MEANS (For Entries Listed)			62.7	59.5	59.2	61.5	61.7		58.7	58.8	61.2	60.8			**60.3**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			390	416	275	172	204	32	60	59	48	37	169		
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	100	100	100	100	82		
	(# P_2O_5)		40	40	40	40	40	40	20	20	20	20	32		
	(# K_2O)		25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Yellowstone.

1/ See MCES Bulletin 1098 or the Plant Sciences & Plant Pathology website at http://plantsciences.montana.edu/ for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selecton decisions.

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

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

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

5/ 9-Yr Comparable Average = (x/y) * z where x = average test weight of a given entry for years tested, y = average test weight for Yellowstone for the same years, and z = 9-Yr average test weight for the check variety Yellowstone.

TABLE 4. Ten-Year Sawfly Summary on Selected Entries from Dryland Intrastate Winter Wheat Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 3502-WW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	**10-YR COMP. AVE. SAWFLY 4/**
PI593889	RAMPART (sawfly res)	10	2.3	2.3	13.3	1.0	3.7	1.0	0.0	3.7	1.0	1.0	2.9	100.0	**2.9**
MTS0713	JUDEE (+)	8			8.3	4.0	4.0	4.0	2.1	5.3	1.0	0.7	3.7	119.4	**3.5**
MTS0808	WARHORSE (+)	5						1.0	2.3	2.3	1.0	2.0	1.7	129.2	**3.8**
MTS0721	BEARPAW (+)	7				4.0	2.3	1.0	2.5	5.3	1.0	2.3	2.6	162.8	**4.8**
MTS0031	GENOU (+)(sawfly res)	10	6.7	5.0	11.7	1.0	15.0	1.0	6.3	6.7	1.0	1.0	5.5	188.4	**5.5**
BZ022060	CARTER (P+)	9	15.0	10.0	10.0	11.7	5.3	3.7	1.0	10.0	1.0		7.5	238.9	**7.0**
BZ9W05-2043	WB-QUAKE (P+)	5						2.3	4.3	3.7	5.0	0.7	3.2	238.5	**7.0**
CO050322	COWBOY (+)	3								11.7	2.0	3.7	5.8	305.9	**9.0**
MT0978	NORTHERN (++)	5						2.3	9.3	6.7	2.3	2.3	4.6	343.8	**10.1**
LE1911	BROADVIEW (P++)	6					8.7	3.7	9.1	10.0	2.3	2.3	6.0	349.5	**10.2**
MT0552	DECADE (+)	9		18.3	35.0	16.7	3.7	6.7	9.5	8.3	1.0	13.3	12.5	416.7	**12.2**
S94-4	CDC FALCON (P+)	10	25.0	26.7	36.7	13.3	7.0	1.0	6.9	5.0	1.0	6.7	12.9	440.6	**12.9**
BC01007-7	SY WOLF (P+)	5						6.7	4.7	8.3	2.3	8.3	6.1	456.0	**13.4**
MT00159	YELLOWSTONE (+)	10	18.3	40.0	18.3	23.3	11.7	5.3	8.9	10.0	2.3	2.3	14.1	479.1	**14.1**
BZ9W96-788-d	LEDGER (P+)	10	36.7	13.3	46.7	11.7	15.0	1.0	4.9	8.3	5.0	7.0	15.0	509.8	**15.0**
W98-362	JAGALENE (P+)	9	23.3	23.3	38.3	23.3	12.0	10.0	9.0	13.3	1.0		17.1	542.6	**15.9**
MT08172	COLTER (++)	5						6.7	10.7	13.3	1.0	8.3	8.0	601.8	**17.6**
ND9257	JERRY	10	18.3	45.0	21.7	40.0	28.3	5.3	14.2	10.0	2.3	3.7	18.9	643.8	**18.9**
MTCL1077	SY CLEARSTONE 2CL (P+)	4							11.0	13.3	2.3	11.7	9.6	675.6	**19.8**
MTW08168	WB3768 (P++,HW)	5						5.3	18.0	15.0	3.7	13.3	11.1	830.3	**24.4**
MEANS (For Entries Listed)			18.2	20.4	24.0	13.6	9.7	3.8	7.1	8.5	2.0	5.0			**11.4**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			390	416	275	172	204	32	60	59	48	37	169		
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	100	100	100	100	82		
	(# P_2O_5)		40	40	40	40	40	40	20	20	20	20	32		
	(# K_2O)		25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Rampart.

1/ See MCES Bulletin 1098 or the Plant Sciences & Plant Pathology website at http://plantsciences.montana.edu/ for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selecton decisions.

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

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

TABLE 5. Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2015. (Exp# 15-3102-SW)

ID	Cultiver or Selection	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	3/ Protein %	4/ FN seconds	5/ Sawfly %
0150042-10	BRENNAN	87.0	161.3	26.4	**46.3**	56.6	10.0	16.6	340.9	2.3
MT9929	CHOTEAU	94.1	163.7	27.2	39.5	52.8	10.1	16.7	317.9	0.7
BZ 996-434	CORBIN	94.8	161.7	29.8	42.3	53.3	10.1	17.3	329.0	0.7
MT0832	DUCLAIR	97.4	161.7	29.1	43.2	52.5	10.0	17.0	332.3	1.0
CAP400-1	EGAN	94.1	164.3	27.1	38.9	53.5	9.9	18.2	358.7	1.0
CI 13596	FORTUNA	95.1	163.7	32.9	34.2	54.6	10.1	16.2	340.0	1.0
MN02072-7	LCS BREAKAWAY	92.8	162.0	27.9	34.6	54.5	10.1	16.5	316.4	0.7
LNR10-0493	LCS PRO	97.1	162.7	33.8	43.4	51.7	10.1	16.7	317.8	5.0
PI574642	MCNEAL	98.0	164.0	30.5	43.4	54.5	10.0	17.0	359.6	5.0
ND 695	REEDER	94.4	163.7	29.4	42.3	54.4	10.1	17.2	335.5	2.3
04S0258-12	SY INGMAR	92.5	163.7	28.6	43.7	54.0	10.1	17.0	306.4	1.0
03S0253-7	SY ROWYN	85.6	162.3	28.6	36.3	53.7	10.1	16.3	315.4	0.3
01S0263-28	SY SOREN	90.3	163.0	26.4	44.3	53.1	10.0	17.3	350.2	0.7
04S0515-2-2	SY TYRA	94.4	163.7	26.9	41.7	53.5	10.1	16.4	322.1	0.0
06S0385-5	SY VALDA	90.9	164.0	26.7	42.5	54.9	9.9	17.5	348.0	0.3
CI 10003	THATCHER	97.1	166.7	34.5	29.2	50.1	10.1	18.2	342.8	2.3
MT0245	VIDA	96.0	164.3	29.6	**45.9**	53.8	10.1	16.6	327.5	3.7
BZ903-472	WB 9377	89.9	164.0	24.1	36.9	54.3	10.0	16.9	355.7	1.0
CA909-936	WB 9507	89.2	164.0	29.4	37.5	49.7	10.1	16.9	307.7	1.0
BZ908-552	WB 9668	92.8	161.7	24.6	42.1	55.1	10.0	17.7	329.7	0.7
IMICHT-79	WB 9879CLP	93.1	163.7	28.6	38.0	53.8	10.2	16.7	330.0	1.0
BZ902-413R	WB-GUNNISON	86.2	163.0	27.2	39.7	56.1	9.9	16.6	352.3	0.0
LNR0311	LIMAGR142	91.5	162.7	28.3	36.8	55.0	10.1	15.9	345.6	1.0
LNR-0757	LIMAGR152	92.5	165.0	30.3	39.5	53.5	10.1	17.8	311.9	1.0
MT 1219	MT0643/MTHW0771	90.2	162.7	25.2	38.5	53.0	10.0	16.6	340.6	1.0
MT 1316	GLENN/MT0747	91.1	162.7	27.6	44.3	53.0	10.2	16.6	321.7	2.3
MT 1319	MT0415/MT0747	94.5	161.0	28.6	42.9	54.6	10.1	16.3	309.8	5.3
MT 1320	MT0415/MT0747	96.7	162.0	30.9	**50.0**	56.7	10.1	16.6	346.4	1.0
MT 1331	MT0747/MT0823	92.8	162.3	27.0	**45.8**	50.1	9.9	16.4	321.2	2.3
MT 1337	MT0830/MT0858	93.1	161.0	28.4	**44.9**	54.4	10.0	17.0	318.7	1.0
MT 1338	MT0830/MT0858	96.3	161.7	29.9	43.2	57.4	10.1	16.8	332.6	0.7
MT 1348	MT0852/MT0858	96.0	161.7	29.4	**51.1**	55.6	10.1	16.9	326.6	2.3
MT 1349	MT0852/MT0858	96.4	162.3	28.1	39.7	51.2	9.8	17.2	343.6	2.0
MT 1401	VIDA/MT0827	96.7	161.3	29.9	**47.9**	56.9	10.1	16.2	326.2	3.7
MT 1404	VIDA/MT0827	94.4	165.3	31.7	**45.4**	55.1	10.2	16.8	314.8	2.3
MT 1406	VIDA/MT0827	93.7	162.0	28.9	41.7	53.5	10.1	17.2	302.9	2.0
MT 1408	VIDA/MT0832	82.7	163.3	28.7	41.2	55.5	10.1	16.2	321.1	1.0
MT 1412	VIDA/MT0832	95.7	163.0	28.1	**47.8**	55.7	10.1	16.2	334.2	1.0
MT 1413	VIDA/MT0832	93.2	162.0	31.3	44.6	53.4	10.1	16.7	316.5	2.3
MT 1414	VIDA/MT0861	96.0	164.0	29.6	40.6	50.3	10.1	16.0	326.5	1.0
MT 1415	VIDA/MT0909	93.5	164.7	30.4	**48.0**	58.5	10.1	16.9	346.5	0.7
MT 1417	VIDA/MT0921	97.4	163.0	30.2	39.9	53.5	10.1	16.8	318.0	2.3
MT 1418	VIDA/MT0921	90.8	163.7	26.8	38.2	50.7	10.1	16.3	326.6	1.0

TABLE 5. Continued **Advanced Yield Spring Wheat Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions. Northern Agricultural Research Center. Havre, MT. 2015. (Exp# 15-3102-SW)**

ID	Cultiver or Selection	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moist %	3/ Protein %	4/ FN seconds	5/ Sawfly %
MT 1421	VIDA/MOTT	91.1	164.0	30.4	42.8	54.8	10.2	16.3	292.8	0.7
MT 1422	MOTT/VIDA	87.3	165.7	29.9	39.4	55.0	10.2	16.7	269.2	1.0
MT 1424	MT0801/MT0827	94.8	163.7	32.0	**48.3**	55.3	10.0	16.8	313.1	3.7
MT 1425	MT0801/MT0827	93.1	162.7	30.0	43.0	56.2	10.0	17.4	311.8	5.0
MT 1426	MT0801/MT0827	98.0	160.3	30.3	**48.8**	53.0	10.0	16.5	323.3	3.7
MT 1427	MT0801/MT0832	95.4	161.3	28.4	**45.7**	52.8	10.0	16.2	297.8	3.7
MT 1429	MT0921/MT0801	86.3	162.0	30.2	40.4	53.0	10.1	16.6	285.3	2.3
MT 1432	MT0928/MT0801	94.1	162.7	28.4	43.2	51.8	10.0	16.1	345.7	5.0
MT 1434	MT0801/09SR49	93.5	161.3	31.4	42.6	53.1	10.0	16.7	299.5	3.7
MT 1436	MT0827/MT0921	93.2	163.3	29.3	39.8	51.1	10.0	16.4	322.0	2.3
MT 1439	MT0827/MT0921	93.5	162.3	29.3	39.4	53.9	10.1	16.1	317.4	1.0
MT 1442	MT0827/MT0928	97.3	163.7	30.4	**46.1**	56.2	10.1	16.5	329.4	2.3
MT 1447	MT0827/MT0928	95.4	162.3	30.0	**46.7**	54.4	10.1	16.2	332.2	2.3
MT 1448	MT0827/09SR27	91.9	163.0	29.0	40.0	53.9	10.1	16.2	322.4	3.7
MT 1451	MT0827/09SR27	92.7	163.3	28.0	39.5	54.0	10.0	16.1	305.0	2.3
MT 1453	MT0861/MT0832	95.8	160.7	29.7	**45.5**	54.7	10.0	16.3	315.1	1.0
MT 1454	MT0832/MT0921	93.8	162.3	30.3	40.8	53.6	10.0	16.4	315.9	1.0
MT 1455	MT0832/MT0921	98.0	162.0	29.2	41.9	52.2	10.1	17.2	326.2	2.3
WPSP2-Choteau1	white Choteau/McNeal	91.8	162.3	28.0	34.5	51.6	10.0	16.1	331.5	2.0
WPSP2-VIDA1	white Vida/McNeal	89.5	164.7	28.3	41.7	55.4	9.9	15.9	322.0	2.0
WPSP2-VIDA2	white Vida/McNeal	93.7	164.0	29.9	**46.4**	55.2	10.0	16.4	324.9	1.0
EXPERIMENTAL MEANS		93.2	162.9	29.1	42.1	53.9	10.1	16.7	324.8	1.9
LSD (0.05)		7.7	0.9	2.9	6.3	1.3	0.1	0.5	13.0	2.6
C.V.: (S / MEAN)*100		5.1	0.3	6.1	9.2	1.5	0.5	1.8	2.5	85.8
P-VALUE (Entries)		0.0442	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0002

Bold Indicates highest yeilding 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 (163 = 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/ FN is the falling number value reported in seconds.

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

Management Information (15-3102-SW)

Seeding Date:	April 11, 2015
Harvest Date:	August 05, 2015
Fertility:	100-20-10 side banded
System:	no till
Herbicide:	Brox-M, 24 oz/ac
Insecticide:	none
Previous Crop:	Chemical Fallow - Field Pea
Precipitation:	4.55" (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. 2006-2015. (Exp# 3102-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK YIELD 3/	**10-YR COMP. AVE. YIELD 4/**
03S0409-16	AGRIPRO SY605 CL (P+)	5					46.4	37.3	30.0	51.0	40.1		41.0	145.4	**50.0**
MT0245	VIDA (+)	10	35.8	42.4	55.3	55.6	58.3	44.6	35.1	67.2	47.9	45.9	48.8	141.8	**48.8**
BZ902-413R	WB-GUNNISON (P+)	10	33.9	38.4	55.3	46.6	62.4	44.1	32.3	56.5	43.4	39.7	45.3	131.5	**45.3**
BZ999-592	ONEAL (P+)	9	31.2	33.6	52.2	48.7	58.0	46.6	34.7	64.2	41.8		45.7	130.5	**44.9**
ND695	REEDER (+)	10	30.0	36.2	51.0	49.9	54.6	41.8	31.4	62.7	45.7	42.3	44.6	129.5	**44.6**
IMICHT-79	WB9879CLP (P+)	6					54.8	40.0	29.8	58.9	40.5	38.0	43.7	128.3	**44.2**
03S0253-7	SY ROWYN (P+)	3								59.6	40.7	36.3	45.5	127.6	**43.9**
0150042-10	BRENNAN (P+)	7				54.2	53.9	35.8	38.4	56.3	41.5	46.3	46.6	127.4	**43.8**
MT0832	DUCLAIR (+)	7				42.3	55.5	41.0	34.9	61.7	46.9	43.2	46.5	127.1	**43.7**
BZ 996-434	CORBIN (P+)(saw fly res)	10	28.9	42.0	47.8	45.2	53.3	45.5	31.3	59.3	38.8	42.3	43.4	126.2	**43.4**
T 1052	BUCK PRONTO (+)	4						48.2	32.9	55.5	37.0		43.4	123.3	**42.4**
CAP400-1	EGAN (+)	4							31.6	55.5	37.8	38.9	41.0	123.2	**42.4**
01S0263-28	SY SOREN (P+)	5						42.6	29.7	56.6	42.5	44.3	43.2	122.9	**42.3**
04S0515-2-2	SY TYRA (P+)	7				44.8	51.0	39.7	26.6	64.2	46.3	41.7	44.9	122.7	**42.2**
BZ9M03-1044	JEDD (P+)	9	33.7	34.4	48.2	42.9	52.6	41.0	34.2	52.4	40.3		42.2	120.6	**41.5**
BZ 992-588	CONAN (P+)(saw fly tol)	8	32.9	36.1	46.6	44.1	50.0	41.9	32.6	55.5			42.5	120.5	**41.5**
98S0113-20	KELBY (P+)	7	30.8	37.7	48.9	42.4	47.2	41.4	36.2				40.6	120.0	**41.3**
MT9929	CHOTEAU (+)(saw fly res)	10	32.1	36.0	45.1	42.3	53.3	38.8	31.1	53.9	40.2	39.5	41.2	119.8	**41.2**
ACS52610	VOLT (P+)	9	28.4	35.1	42.4	43.4	49.7	51.3	28.0	53.8	43.8		41.8	119.3	**41.1**
PI574642	McNEAL	10	27.2	35.4	45.9	41.9	49.9	36.4	34.1	53.0	41.5	43.4	40.9	118.7	**40.9**
NDSW0449	MOTT (+)	6				45.3	51.1	40.4	30.1	62.6	35.7		44.2	116.9	**40.2**
CI13596	FORTUNA (saw fly res)	10	33.8	31.5	46.1	45.6	50.1	40.5	33.6	49.3	37.2	34.2	40.2	116.8	**40.2**
CA902-704	VANTAGE (P+)	3						38.9	28.2	58.7			41.9	116.6	**40.1**
011127-20-1	AP604 CL (P+)	6		36.9	46.0	42.0	52.2	40.4	28.2				41.0	115.8	**39.9**
MN02072-7	LCS BREAKAWAY (P+)	3							25.4	47.3		34.6	35.8	107.3	**36.9**
CI10003	THATCHER	10	24.9	29.9	33.2	45.5	40.6	37.0	25.9	44.9	33.0	29.2	34.4	100.0	**34.4**
MEANS (For Entries Listed)			31.1	36.1	47.4	45.7	52.2	41.5	31.5	56.7	41.1	40.0			**42.4**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			119	220	252	139	141	124	35	56	86	75	125		
SD (Sampling Depth in Inches)			48	48	48	48	48	36	48	48	48	48	47		
Fertilizer Applied	(# N)		70	70	70	70	70	70	100	100	100	100	82		
	(# P_2O_5)		40	40	40	40	40	40	20	20	20	20	32		
	(# K_2O)		25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Thatcher.

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

2/ P = Private Variety, + = Protected Variety.

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. 2006-2015. (Exp# 3102-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK TEST WT 3/	**10-YR COMP. AVE. TEST WT 4/**
98S0113-20	KELBY (P+)	7	57.2	59.2	59.6	59.5	58.2	62.3	56.3				58.9	107.6	**59.1**
0150042-10	BRENNAN (P+)	7				59.3	58.4	62.4	56.5	63.3	61.5	56.6	59.7	107.0	**58.8**
BZ902-413R	VOLT (P+)	9	56.4	57.5	59.1	59.8	58.0	63.2	53.7	63.8	60.1		59.1	106.5	**58.5**
BZ9M03-1044	JEDD (P+)	9	55.5	58.1	57.9	59.7	57.4	61.5	55.3	63.0	60.8		58.8	106.0	**58.2**
CA902-704	VANTAGE (P+)	3						63.0	56.1	62.6			60.5	106.0	**58.2**
03S0409-16	AGRIPRO SY605 CL (P+)	5					59.5	60.9	54.5	62.9	60.5		59.6	105.9	**58.2**
BZ902-413R	WB-GUNNISON (P+)	10	54.3	57.4	59.0	60.2	59.5	60.2	52.9	62.6	58.2	56.1	58.0	105.6	**58.0**
MN02072-7	LCS BREAKAWAY (P+)	3							53.0	63.4		54.5	57.0	105.6	**58.0**
CI13596	FORTUNA (saw fly res)	10	56.0	56.8	58.8	59.4	57.7	60.7	54.6	61.9	58.7	54.6	57.9	105.4	**57.9**
BZ 992-588	CONAN (P+)(saw fly tol)	8	54.6	57.5	58.6	59.8	58.5	61.2	56.1	62.1			58.6	105.4	**57.9**
03S0253-7	SY ROWYN (P+)	3								62.2	58.8	53.7	58.3	105.1	**57.7**
ND695	REEDER (+)	10	53.6	56.8	58.2	60.0	57.8	61.3	52.9	62.8	58.5	54.4	57.6	104.9	**57.6**
BZ999-592	ONEAL (P+)	9	54.1	56.0	57.8	60.6	58.9	61.1	53.4	62.8	58.3		58.1	104.8	**57.6**
011127-20-1	AP604 CL (P+)	6		57.9	58.6	59.9	57.6	60.8	52.6				57.9	104.6	**57.5**
BZ 996-434	CORBIN (P+)(saw fly res)	10	54.7	57.6	57.0	59.9	57.2	61.2	51.3	62.7	59.5	53.3	57.4	104.5	**57.4**
01S0263-28	SY SOREN (P+)	5						61.3	51.5	63.0	59.5	53.1	57.7	104.4	**57.4**
T 1052	BUCK PRONTO (+)	4						60.7	53.6	62.3	59.3		59.0	104.3	**57.3**
04S0515-2-2	SY TYRA (P+)	7				59.4	56.7	59.9	52.8	63.9	61.5	53.5	58.2	104.3	**57.3**
CAP400-1	EGAN (+)	4							54.1	60.8	56.9	53.5	56.3	104.0	**57.2**
MT0245	VIDA (+)	10	52.0	55.8	58.6	58.8	57.7	60.8	50.8	62.4	58.6	53.8	56.9	103.6	**56.9**
IMICHT-79	WB9879CLP (P+)	6					56.9	60.2	51.9	61.7	58.6	53.8	57.2	103.4	**56.8**
PI574642	McNEAL	10	52.7	54.5	56.0	58.5	57.4	59.1	52.3	61.8	56.8	54.5	56.4	102.6	**56.4**
MT9929	CHOTEAU (+)(saw fly res)	10	52.8	55.7	56.3	57.9	56.5	59.6	52.0	61.5	58.3	52.8	56.4	102.6	**56.4**
NDSW0449	MOTT (+)	6				58.0	56.4	60.7	51.4	62.8	58.1		57.9	102.0	**56.0**
MT0832	DUCLAIR (+)	7				57.8	57.3	59.1	51.6	61.2	58.1	52.5	56.8	101.8	**55.9**
CI10003	THATCHER	10	51.1	52.5	55.1	58.9	55.5	59.8	50.2	61.5	54.7	50.1	54.9	100.0	**54.9**
MEANS (For Entries Listed)			54.2	56.7	57.9	59.3	57.7	60.9	53.2	62.5	58.8	53.8			**57.4**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			119	220	252	139	141	124	35	56	86	75	125		
SD (Sampling Depth in Inches)			48	48	48	48	48	36	48	48	48	48	47		
Fertilizer Applied	(# N)		70	70	70	70	70	70	100	100	100	100	82		
	(# P_2O_5)		40	40	40	40	40	40	20	20	20	20	32		
	(# K_2O)		25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Thatcher.

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

2/ P = Private Variety, + = Protected Variety.

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. 2006-2015. (Exp# 3102-SW)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% cut and lodged) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	**10-YR COMP. AVE. SAWFLY 4/**
BZ902-413R	WB-GUNNISON (P+)	10	1.0	1.0	10.0	2.3	1.0	5.3	1.0	0.7	0.0	0.0	2.2	17.2	**2.2**
BZ 992-588	CONAN (P+)(saw fly tol)	8	3.7	1.0	15.0	1.0	11.7	7.0	5.0	0.3			5.6	35.0	**4.5**
MT0245	VIDA (+)	10	5.0	3.7	6.7	8.7	7.0	10.0	5.0	1.0	0.3	3.7	5.1	39.3	**5.1**
BZ999-592	ONEAL (P+)	9	5.0	2.3	11.7	8.3	10.0	10.0	7.5	2.3	0.7		6.4	44.9	**5.8**
NDSW0449	MOTT (+)	6				1.0	11.7	13.3	3.0	1.0	0.3		5.1	45.5	**5.9**
01S0263-28	SY SOREN (P+)	5						2.3	10.0	2.0	0.7	0.7	3.1	48.0	**6.2**
BZ 996-434	CORBIN (P+)(saw fly res)	10	1.0	1.0	33.3	5.3	12.0	5.0	7.5	0.7	0.3	0.7	6.7	51.5	**6.7**
04S0515-2-2	SY TYRA (P+)	7				6.7	20.0	10.0	8.0	0.7	0.7	0.0	6.6	59.2	**7.7**
0150042-10	BRENNAN (P+)	7				5.3	18.3	11.7	12.5	0.7	0.7	2.3	7.4	66.2	**8.6**
BZ9M03-1044	JEDD (P+)	9	6.7	6.7	30.0	5.0	23.3	6.7	8.0	2.3	0.0		9.9	68.9	**8.9**
03S0253-7	SY ROWYN (P+)	3								1.0	1.7	0.3	1.0	69.3	**9.0**
MT0832	DUCLAIR (+)	7				10.0	13.3	28.3	7.5	1.0	0.3	1.0	8.8	79.1	**10.3**
CI 13596	FORTUNA (saw fly res)	10	3.7	5.0	53.3	15.0	20.0	18.3	10.0	2.3	1.0	1.0	13.0	100.0	**13.0**
MT9929	CHOTEAU (+)(saw fly res)	10	2.3	1.0	51.7	10.0	31.7	28.3	8.0	1.0	0.7	0.7	13.5	104.4	**13.5**
03S0409-16	AGRIPRO SY605 CL (P+)	5					21.7	8.3	22.5	1.0	0.7		10.8	104.8	**13.6**
CI 10003	THATCHER	10	10.0	15.0	31.7	10.0	30.0	15.0	17.5	2.3	3.7	2.3	13.8	106.0	**13.8**
011127-20-1	AP604 CL (P+)	6		20.0	36.7	13.3	26.7	13.3	20.0				21.7	106.9	**13.9**
98S0113-20	KELBY (P+)	7	8.3	15.0	55.0	7.0	25.0	15.0	10.0				19.3	108.0	**14.0**
IMICHT-79	WB9879CLP (P+)	6					18.3	28.3	10.0	0.7	0.3	1.0	9.8	111.4	**14.4**
CA902-704	VANTAGE (P+)	3						15.0	20.0	1.0			12.0	117.4	**15.2**
ND 695	REEDER (+)	10	8.3	13.3	55.0	6.7	33.3	16.7	20.0	2.3	2.3	2.3	16.0	123.6	**16.0**
T 1052	BUCK PRONTO (+)	4						13.3	22.5	2.3	2.3		10.1	127.9	**16.6**
CAP400-1	EGAN (+)	4							15.0	2.3	2.3	1.0	5.2	144.2	**18.7**
MN02072-7	LCS BREAKAWAY (P+)	3							15.0	3.7		0.7	6.4	145.0	**18.8**
PI574642	McNEAL	10	15.0	15.0	51.7	18.3	25.0	36.7	30.0	7.0	5.0	5.0	20.9	160.9	**20.9**
ACS52610	VOLT (P+)	9	16.7	13.3	86.7	15.0	60.0	13.3	52.5	8.3	10.0		30.6	214.4	**27.8**
MEANS (For Entries Listed)			6.7	8.1	37.7	8.3	21.0	14.4	13.9	2.0	1.6	1.4			**12.0**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			119	220	252	139	141	124	35	56	86	75	125		
SD (Sampling Depth in Inches)			48	48	48	48	48	36	48	48	48	48	47		
Fertilizer Applied		(# N)	70	70	70	70	70	70	100	100	100	100	82		
		(# P_2O_5)	40	40	40	40	40	40	20	20	20	20	32		
		(# K_2O)	25	25	25	25	25	25	10	10	10	10	19		

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 selecton decisions.

2/ P = Private Variety, + = Protected Variety.

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. 2015. (Exp# 15-9802-SW)

Entry	Culitvar or Selection	Stand %	1/ Head Date	Plant HT Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moisture %	3/ Protein %	4/ FN seconds	5/ Sawfly %
ALKABO	D96604	88.1	167.0	30.8	35.0	56.7	8.7	16.5	320.9	0.7
CARPIO	D03028	86.4	169.0	32.2	34.6	56.2	8.8	17.0	358.5	1.0
DIVIDE	D9715-11	91.4	168.3	31.7	34.9	55.4	8.5	17.2	341.9	0.3
GRENORA	D97780	80.7	167.3	31.3	31.3	55.8	8.4	16.2	309.1	0.3
JOPPA	D04581	91.6	166.7	31.4	34.8	55.8	8.7	16.6	335.5	2.0
MOUNTRAIL	D901313	91.9	168.7	31.0	**38.8**	55.9	8.6	16.5	346.3	0.0
SILVER	MT03012	96.7	162.3	25.5	35.2	54.2	8.4	16.7	302.1	1.0
TIOGA	D00095	92.9	167.7	33.6	34.4	55.7	8.4	17.3	310.3	2.3
MT101694	CC4	97.4	167.0	34.9	32.5	55.6	8.2	16.9	336.2	5.0
MT101717	CC4	93.5	166.0	26.8	34.4	58.5	8.9	16.1	357.7	0.7
MT112219	MT06541 x Syrian 7	97.1	163.0	28.8	**42.0**	57.3	8.8	15.8	364.5	0.3
MT112434	Alzada x Cimmyt 5	94.8	163.7	24.8	**38.7**	55.8	8.6	15.7	341.9	0.3
MT112444	Alzada x Cimmyt 5	94.8	163.7	26.7	36.9	54.4	8.3	15.8	365.1	1.0
MT112463	Alzada x Cimmyt 8	95.8	164.7	27.7	37.7	55.2	8.4	15.5	352.9	0.3
EXPERIMENTAL MEANS		92.4	166.1	29.8	35.8	55.9	8.6	16.4	338.8	1.1
LSD (0.05)		8.0	1.2	3.1	3.5	0.9	0.2	0.5	10.5	1.7
C.V.: (S / MEAN)*100		5.2	0.4	6.3	5.9	1.0	1.7	1.6	1.8	91.1
P-VALUE (Entries)		0.0116	<.0001	<.0001	0.0002	<.0001	<.0001	<.0001	<.0001	0.0002

1/ No. of Days from January 1 (166 = June 15).
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/ FN is the falling number value reported in seconds.
5/ Sawfly rating is reported as the percentage of cut stems.
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 (15-9802-DUR)

Seeding Date:	April 13, 2015
Harvest Date:	August 3, 2015
Fertility:	100-20-10 side banded
System:	no till
Herbicide:	Brox-M, 24 oz/ac
Insecticide:	none
Previous Crop:	Chemical Fallow-Field Pea
Precipitation:	7.46" (planting to harvest)

TABLE 10. Ten-Year Yield Summary on Selected Entries from Dryland Montana Spring Durum Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 9802-DUR)

2/VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK YIELD 3/	**10-Yr COMP. AVE. YIELD 4/**
DT712	STRONGFIELD (+)	8	31.2	37.8	46.6	45.8	68.0	40.7	27.8		38.6		42.1	109.9	**44.2**
YU894-75	ALZADA (P+)	9	30.6	44.7	45.2	39.5	58.4	43.9	34.4	58.7	40.6		44.0	109.0	**43.8**
D03028	CARPIO (+)	3								59.8	39.7	34.6	44.7	104.5	**42.0**
Saragolla	SARAGOLLA	4			42.8	43.7	61.6	41.3					47.3	103.1	**41.5**
D96604	ALKABO (+)	10	27.1	34.0	40.5	41.4	62.7	39.5	29.7	61.3	42.2	35.0	41.3	102.9	**41.3**
D941261	DILSE (+)	3	25.2		40.8	42.0							36.0	101.2	**40.7**
MT03012	SILVER (+)	10	29.9	36.5	44.5	40.1	55.3	40.4	28.3	54.9	41.2	35.2	40.6	101.1	**40.6**
D00095	TIOGA (+)	6					64.1	41.9	30.1	54.1	36.3	34.4	43.5	100.9	**40.5**
D9715-11	DIVIDE (+)	10	27.1	37.6	39.1	44.7	60.1	36.4	28.0	55.7	38.6	34.9	40.2	100.0	**40.2**
D901313	MOUNTRAIL (+)	10	25.8	36.5	39.8	41.1	63.2	39.4	27.9	57.0	32.4	38.8	40.2	100.0	**40.2**
D97780	GRENORA (+)	10	29.7	37.0	41.4	42.8	57.7	36.5	26.0	62.3	37.0	31.3	40.2	99.9	**40.2**
Normanno	NORMANNO	7		41.2	44.0	46.4	66.6	11.9	32.4	55.0			42.5	97.6	**39.2**
Levante	LEVANTE	5		39.8	49.2	45.0	57.7	18.7					42.1	95.6	**38.4**
D941038	PIERCE (+)	6	25.3	32.8	38.8	36.7	50.3	40.0					37.3	91.1	**36.6**
MEANS (For Entries Listed)			28.0	37.8	42.7	42.4	60.5	35.9	29.4	57.6	38.5	34.9			**40.7**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			160	220	252	139	141	124	35	22	86	75	125		
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	100	100	100	100	82		
		(# P_2O_5)	40	40	40	40	40	40	20	20	20	20	32		
		(# K_2O)	25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Mountrail.

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

2/ P = Private Variety, + = Protected Variety.

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. 2006-2015. (Exp# 9802-DUR)

VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK TEST WT 2/	**10-Yr COMP. AVE. TEST WT 3/**
D96604	ALKABO (+)	10	54.6	58.9	58.3	58.6	58.7	60.9	57.7	63.6	57.8	56.7	58.6	101.8	**58.6**
D941261	DILSE (+)	3	55.4		58.2	58.5							57.4	101.8	**58.6**
D941038	PIERCE (+)	6	54.6	59.2	58.6	58.9	58.3	60.7					58.4	101.4	**58.3**
Levante	LEVANTE	5		58.4	58.4	59.1	58.1	60.3					58.9	101.4	**58.3**
D9715-11	DIVIDE (+)	10	55.5	58.7	57.8	58.4	58.2	60.0	56.6	63.6	57.6	55.4	58.2	101.2	**58.2**
DT712	STRONGFIELD (+)	8	57.3	57.6	57.2	58.8	58.7	59.9	54.3		56.6		57.6	101.0	**58.1**
D00095	TIOGA (+)	6					58.0	60.7	55.7	64.0	56.9	55.7	58.5	100.8	**58.0**
D97780	GRENORA (+)	10	55.7	57.9	57.4	57.5	58.0	60.6	55.2	63.3	56.9	55.8	57.8	100.5	**57.8**
D03028	CARPIO (+)	3								63.4	56.7	56.2	58.7	100.4	**57.7**
MT03012	SILVER (+)	10	55.4	57.9	55.6	58.2	56.6	60.4	57.2	62.9	58.8	54.2	57.7	100.3	**57.7**
YU894-75	ALZADA (P+)	9	53.8	57.5	55.7	58.9	58.2	59.9	55.8	62.8	58.1		57.9	100.3	**57.7**
D901313	MOUNTRAIL (+)	10	55.0	58.1	55.7	58.4	58.4	59.9	54.2	63.4	56.3	55.9	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**
Saragolla	SARAGOLLA	4			55.3	58.1	56.3	59.0					57.2	98.4	**56.6**
MEANS (For Entries Listed)			55.3	58.1	57.0	58.5	57.9	60.1	55.9	63.3	57.3	55.7			**57.9**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			160	220	252	139	141	124	35	22	86	75	125		
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	100	100	100	100	82		
		(# P_2O_5)	40	40	40	40	40	40	20	20	20	20	32		
		(# K_2O)	25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Mountrail.

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

2/ P = Private Variety, + = Protected Variety.

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. 2006-2015. (Exp# 9802-DUR)

VARIETY or SELECTION		No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK SAWFLY 2/	**10-Yr COMP. AVE. SAWFLY 3/**
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**
DT712	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+)	9	1.0	1.0	6.7	15.0	8.3	18.3	2.3	2.3	0.3		6.1	47.1	**5.5**
MT03012	SILVER (+)	10	1.0	1.0	6.7	11.7	23.3	30.0	4.0	2.3	1.0	1.0	8.2	62.9	**7.4**
D97715-11	DIVIDE (+)	10	0.7	2.3	21.7	15.0	10.0	23.3	6.7	1.0	1.0	0.3	8.2	62.9	**7.4**
D00095	TIOGA (+)	6					13.3	18.3	6.7	2.3	1.0	2.3	7.3	68.3	**8.0**
D97780	GRENORA (+)	10	2.3	2.3	38.3	20.0	16.7	25.0	8.3	2.3	0.7	0.3	11.6	89.2	**10.5**
D901313	MOUNTRAIL (+)	10	2.3	2.3	30.0	18.3	18.3	30.0	13.3	2.3	0.3	0.0	11.7	100.0	**11.7**
D96604	ALKABO (+)	10	2.3	3.7	30.0	21.7	26.7	30.0	16.7	2.3	1.0	0.7	13.5	103.6	**12.2**
D941261	DILSE (+)	3	2.3		40.0	21.7							21.3	126.3	**14.8**
D941038	PIERCE (+)	6	1.0	3.7	45.0	35.0	38.3	41.7					27.4	162.5	**19.1**
D03028	CARPIO (+)	3								3.7	1.0	1.0	1.9	215.1	**25.2**
MEANS (For Entries Listed)			1.5	1.9	20.3	15.2	14.5	20.4	6.8	2.1	0.8	0.8			**9.5**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			160	220	252	139	141	124	35	22	86	75	125		
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	100	100	100	100	82		
		(# P_2O_5)	40	40	40	40	40	40	20	20	20	20	32		
		(# K_2O)	25	25	25	25	25	25	10	10	10	10	19		

Long-term check variety is Mountrail.

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

2/ P = Private Variety, + = Protected Variety.

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

TABLE 13. Intrastate Spring Barley Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, MT. 2015. (Exp# 15-2102-SB)

ID	Cultivar or Selection	Stand %	1/ Head Date	Plant Ht Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moisture %	Plump %	Thin %	3/ Protein %
	AC Metcalfe	91.8	165.7	26.6	59.1	48.4	9.7	54.3	19.8	18.1
	Champion	93.4	163.3	27.0	**78.5**	51.4	10.1	55.2	14.9	15.6
	Conrad	94.7	168.7	22.4	65.3	48.9	9.8	52.3	22.0	17.6
	Craft	97.0	162.3	29.3	70.2	51.4	10.0	64.6	15.6	16.3
	Harrington	91.1	165.3	23.2	61.0	49.4	9.8	60.0	18.1	16.9
	Haxby	96.1	162.7	25.7	**79.4**	51.9	10.0	51.1	19.9	16.0
	Haybet	96.7	163.7	27.8	49.6	47.5	9.7	10.4	49.4	17.6
	Hockett	90.1	161.3	24.6	**76.1**	50.7	9.9	68.9	13.1	15.6
	Lavina	93.8	164.0	27.7	56.2	47.4	9.9	23.4	32.5	17.3
	Merit	94.4	167.3	26.1	63.1	47.8	9.7	44.5	27.8	18.5
	Moravian 115	92.8	166.3	21.6	66.6	46.8	9.5	67.3	12.3	16.9
	Stockford	94.4	166.0	27.8	58.6	46.6	9.6	68.7	9.6	15.5
	ME1	92.4	166.0	23.1	69.8	49.7	9.7	54.6	16.1	17.1
	ME2	93.1	163.3	22.5	69.0	49.0	9.8	40.0	31.2	16.2
	ME3	90.5	162.3	24.2	67.7	50.5	10.0	75.9	7.6	16.3
	ME4	94.7	164.0	26.0	**78.0**	49.4	9.8	66.3	13.1	15.8
	ME5	94.1	167.7	25.3	**73.5**	48.2	9.7	80.2	6.9	17.1
	MT124001	91.1	165.0	26.4	61.9	50.6	10.0	72.3	11.7	15.6
	MT124007	89.2	164.7	26.0	63.3	49.2	9.8	64.1	15.6	16.4
	MT124008	89.5	165.0	26.7	65.1	49.6	10.0	67.4	13.9	15.9
	MT124015	93.4	166.3	25.9	65.5	48.7	9.9	65.9	14.4	16.2
	MT124016	91.5	166.3	23.1	66.1	47.4	9.6	65.1	16.2	15.8
	MT124018	93.8	162.0	23.3	69.3	49.3	9.8	75.3	10.2	16.5
	MT124025	95.4	167.3	24.0	63.3	48.5	9.8	62.4	17.0	16.2
	MT124026	93.4	164.7	25.8	66.3	48.9	9.9	66.2	14.0	16.0
	MT124027	93.8	164.7	24.6	67.2	47.5	9.8	63.5	14.9	16.2
	MT124069	96.7	165.3	25.6	65.9	47.1	9.7	56.0	21.0	16.5
	MT124071	93.1	161.3	28.2	67.9	50.2	10.1	73.2	10.7	15.4
	MT124073	95.7	165.3	26.4	68.5	48.7	9.9	62.3	17.9	16.2
	MT124112	88.8	161.0	25.7	**73.2**	51.3	10.2	80.9	6.8	14.6
	MT124113	90.8	158.7	26.0	70.8	53.2	10.4	90.0	3.3	13.7
	MT124118	86.5	161.0	26.9	**74.4**	51.9	10.0	75.6	8.4	15.3
	MT124127	91.5	160.7	25.5	67.0	52.1	10.2	73.1	8.4	15.7
	MT124128	88.5	158.0	24.5	48.8	52.9	10.3	88.0	4.4	14.2
	MT124134	96.1	157.0	25.2	54.1	53.0	10.3	88.8	4.3	13.9
	MT124148	96.7	166.0	24.1	**78.2**	49.2	9.6	37.7	29.1	17.1
	MT124361	91.5	162.3	25.8	68.6	51.2	9.8	65.7	12.4	16.5
	MT124370	95.1	166.7	25.3	**72.4**	50.3	9.9	66.4	15.1	15.5
	MT124380	90.1	166.0	25.1	65.0	49.7	9.9	69.6	14.3	15.8
	MT124454	91.4	162.7	26.2	70.9	51.8	9.9	83.4	6.1	16.4
	MT124457	93.1	163.0	26.4	70.8	51.7	9.9	80.7	6.9	16.0
	MT124555	96.7	165.0	25.8	70.8	50.8	10.0	72.9	10.9	16.2
	MT124601	95.7	165.0	24.6	**72.2**	48.7	10.0	54.4	23.9	16.1

TABLE 13. Continued **Intrastate Spring Barley Cultivar Evaluation Nursery Grown On-Station Under No-Till Dryland Fallow Conditions at Northern Agricultural Research Center. Havre, MT. 2015. (Exp# 15-2102-SB)**

ID	Cultivar or Selection	Stand %	1/ Head Date	Plant Ht Inches	2/ Yield Bu/Ac	Test Wt Lbs/Bu	Moisture %	Plump %	Thin %	3/ Protein %
MT124645		94.7	162.3	23.6	68.4	49.6	10.0	74.0	9.8	16.2
MT124663		93.8	159.7	25.6	**75.9**	51.9	10.2	80.5	7.5	15.1
MT124673		87.2	161.0	23.7	68.1	52.1	10.1	75.8	8.2	15.0
MT124677		92.4	161.0	23.8	**72.8**	51.2	10.0	70.5	11.5	15.4
MT124716		90.2	167.0	24.7	65.6	49.2	9.7	64.3	12.3	17.2
MT124728		88.5	166.7	25.3	64.1	49.8	9.8	66.7	11.7	17.0
EXPERIMENTAL MEANS		92.8	163.9	25.3	67.4	49.8	9.9	65.1	14.7	16.1
LSD (0.05)		6.6	1.8	2.9	7.7	1.1	0.2	9.1	5.9	0.4
C.V.		4.4	0.7	7.2	7.1	1.4	1.5	8.6	24.5	1.5
P-Value (Entries)		0.1	<.0001	0.0002	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Bold Indicates highest yeilding 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 (164 = June 13).

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 (15-2102-SB)

Seeding Date:	April 10, 2015
Harvest Date:	July 25, 2015
Fertility:	100-20-10 side banded
System:	no till
Herbicide:	Brox-M, 24 oz/ac
Insecticide:	none
Previous Crop:	Chemical Fallow - Field Pea
Precipitation:	4.55" (seeding to harvest maturity)

TABLE 14. Ten-Year Yield Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (EXP# 2102-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ YIELD (Bushels Per Acre) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK YIELD 4/	**10-YR COMP. AVE. YIELD 5/**
BZ596117	BOULDER (P+)	3	61.8	70.6	76.1								69.5	111.4	**78.1**
PI568246	BARONESSE (P+)	6	49.7	66.8	80.5	72.8	89.5	85.0					74.0	107.9	**75.7**
YU501-385	CHAMPION (P+)	9	60.7	64.4	85.5	80.5		95.9	47.0	69.7	86.3	78.5	74.3	107.2	**75.2**
MT960228	ESLICK	6	65.5	68.8	69.2				30.9	89.5	88.5		68.7	102.8	**72.1**
Scarlett	SCARLETT	4					83.2	83.9	41.2	72.3			70.2	100.5	**70.5**
MT910189	HOCKETT (+)	10	51.7	61.7	73.8	70.4	77.7	76.3	54.4	70.7	88.6	76.1	70.2	100.0	**70.2**
MT960101	GERALDINE	7	53.9	58.9	68.4	70.8	93.2	81.1	33.8				65.7	98.7	**69.3**
SK76333	HARRINGTON	9	63.6	64.6		71.0	82.4	76.5	37.7	71.3	82.5	61.0	67.9	97.3	**68.3**
2B965057	CONRAD (+)	10	54.7	57.6	67.4	70.3	82.4	76.9	43.8	78.5	76.4	65.3	67.3	96.0	**67.3**
MT010158	AMSTERDAM	7	63.2	62.7	75.0	67.2	78.3	64.4	16.1				61.0	91.6	**64.3**
TR232	METCALFE	8	51.4	53.5		68.7	77.9	70.9	39.5		76.3	59.1	62.2	90.6	**63.6**
MT950186	HAXBY	10	57.3	69.9	75.8	48.2	51.5	82.6	25.1	67.3	78.1	79.4	63.5	90.5	**63.5**
6B952482	TRADITION (P+)	9	66.7	71.5	73.0	50.5	7.3	68.5	47.3	78.2	79.8		60.3	86.8	**60.9**
PI643354	PINNACLE (+)	5					76.1	75.4	24.6	61.8	69.4		61.5	83.5	**58.6**
MT970116	CRAFT	10	61.2	64.3	67.0	37.2	37.3	80.8	31.4	60.2	74.9	70.2	58.5	83.3	**58.5**
MEANS (For Entries Listed)			58.6	64.3	73.8	64.3	69.7	78.3	36.4	72.0	80.1	69.9			**67.7**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.28	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			352	271	157	88	204	374	60	415	57	123	210		
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	100	100	100	100	82		
	(# P_2O_5)		40	40	40	40	40	40	20	20	20	20	32		
	(# K_2O)		25	25	25	25	25	25	10	10	10	10	19		

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 selecton decisions.

2/ P = Private Variety, + = Protected Variety.

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 Test Weight Summary on Selected Entries from Dryland Intrastate Spring Barley Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (EXP# 2102-SB)

2/ VARIETY or SELECTION		No. of YEARS TESTED	1/ TEST WEIGHT (Pounds Per Bushel) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK TEST WT 4/	**10-YR COMP. AVE. TEST WT 5/**
YU501-385	CHAMPION (P+)	9	48.4	50.3	52.7	51.7		52.9	47.5	53.1	53.3	51.4	51.3	100.9	**51.3**
MT950186	HAXBY	10	48.7	50.7	52.9	52.0	50.6	53.8	43.2	53.9	53.8	51.9	51.1	100.6	**51.1**
BZ596117	BOULDER (P+)	3	48.7	49.3	51.9								49.9	100.3	**51.0**
MT910189	HOCKETT (+)	10	47.5	49.9	52.0	51.2	51.2	52.2	46.2	53.2	54.2	50.7	50.8	100.0	**50.8**
MT970116	CRAFT	10	48.8	50.0	51.5	51.5	50.6	53.0	43.9	53.2	53.1	51.4	50.7	99.8	**50.7**
MT010158	AMSTERDAM	7	46.9	49.6	50.7	50.6	50.0	52.6	44.9				49.3	98.6	**50.1**
Scarlett	SCARLETT	4					48.9	51.6	46.0	53.3			49.9	98.5	**50.0**
PI643354	PINNACLE (+)	5					49.4	53.4	41.7	53.2	52.7		50.1	97.4	**49.5**
PI568246	BARONESSE (P+)	6	44.5	48.7	49.9	50.1	49.4	51.3					49.0	96.7	**49.1**
MT960228	ESLICK	6	46.1	48.9	50.1				44.2	52.7	50.9		48.8	96.7	**49.1**
2B965057	CONRAD (+)	10	45.7	47.4	49.4	49.4	49.1	51.4	44.7	51.8	51.2	48.9	48.9	96.2	**48.9**
TR232	METCALFE	8	45.3	48.2		50.7	48.4	51.6	43.8		51.1	48.4	48.4	96.1	**48.9**
SK76333	HARRINGTON	9	44.6	47.2		49.8	49.2	51.0	42.1	52.3	51.0	49.4	48.5	95.7	**48.7**
MT960101	GERALDINE	7	45.0	47.3	49.9	50.4	49.2	51.7	41.1				47.8	95.6	**48.6**
6B952482	TRADITION (P+)	9	46.4	47.0	49.2	48.6	48.0	49.5	45.0	51.5	52.1		48.6	95.6	**48.6**
MEANS (For Entries Listed)			46.7	48.8	50.9	50.5	49.5	52.0	44.1	52.8	52.3	50.3			**49.8**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	13.3	4.87	7.52	7.90		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.5	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			352	271	157	88	204	374	60	415	57	123	210		
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	100	100	100	100	82		
		(# P_2O_5)	40	40	40	40	40	40	20	20	20	20	32		
		(# K_2O)	25	25	25	25	25	25	10	10	10	10	19		

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 selecton decisions.

2/ P = Private Variety, + = Protected Variety.

3/ Percent of Hockett 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 Hockett for the same years, and z = 10 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. 2015.
(Exp# 15-7702-SA)

ENTRY	OIL TYPE	STAND %	PLANTS SqFt	1/ FLWR DATE	PLNT HT Inches	2/ YIELD Lbs/Ac	TEST WT Lbs/Bu	MOIST %	OIL % 0%Mois.	OIL % 8%Mois.	OIL Lbs/Ac 8%Mois.
03B8069	Linoleic	50.6	4.5	195.3	22.7	1908.2	45.0	4.8	37.8	41.0	782.9
10SC11	Linoleic	32.9	2.3	195.0	20.3	1252.4	47.8	5.3	26.5	28.8	360.5
11 Saf 21	Linoleic	46.8	3.8	196.7	21.4	1869.7	47.3	5.2	30.0	32.6	609.2
Baldy	Linoleic	39.2	2.3	196.0	21.0	1477.3	47.6	5.3	26.9	29.2	431.6
Cardinal	Linoleic	40.3	2.7	197.0	22.5	1511.5	45.3	4.9	36.7	39.9	603.5
Finch	Linoleic	47.7	3.9	195.7	22.7	1466.1	45.3	4.9	37.9	41.2	603.6
Morlin	Linoleic	35.6	3.2	197.3	18.9	869.7	42.2	4.7	38.6	41.9	364.8
NutraSaff	Linoleic	49.7	4.2	196.0	22.0	211.6	39.4	4.1	47.8	51.9	109.7
Rubis Red	Linoleic	35.7	3.3	195.0	21.4	1448.8	48.5	5.2	29.3	31.8	460.6
06B3172	Oleic	36.5	3.3	196.7	19.7	1676.6	42.3	4.6	38.6	42.0	705.0
Hybrid 1601	Oleic	41.4	3.1	197.0	21.3	**2657.0**	41.7	4.7	36.3	39.5	1049.3
Hybrid 200	Oleic	34.7	2.6	196.7	18.5	1938.3	44.9	5.0	32.4	35.2	682.3
Hybrid 446	Oleic	39.5	2.3	195.7	20.4	1820.1	44.0	5.0	32.7	35.6	647.6
Hybrid 621	Oleic	45.8	3.1	195.3	21.8	1169.4	37.8	4.3	39.9	43.4	507.8
Hybrid 9049	Oleic	46.1	3.1	195.0	22.6	1871.7	44.7	5.0	30.9	33.6	628.2
MonDak	Oleic	38.9	2.8	197.3	21.3	1678.2	44.4	4.8	36.6	39.8	668.7
Montola 2000	Oleic	13.4	1.4	196.7	15.7	466.7	41.9	4.9	34.7	37.7	177.0
Montola 2001	Oleic	2.1	0.5	197.7	14.7	109.8	36.1	4.9	34.3	37.3	40.5
Montola 2003	Oleic	54.9	4.4	196.7	20.3	1634.2	43.5	4.8	38.4	41.7	681.1
STI 1201	Oleic	47.6	3.2	196.0	18.0	549.3	39.1	4.3	43.3	47.0	258.5
EXPERIMENTAL MEANS		39.0	3.0	196.2	20.4	1379.3	43.4	4.8	35.5	38.6	518.6
LSD (0.05)		11.2	1.0	1.3	2.7	250.8	0.8	0.2	0.9	1.0	99.5
C.V.: (S / MEAN)*100		17.4	19.4	0.4	7.9	11.0	1.1	1.9	1.5	1.5	11.6
P-VALUE (Entries)		<.0001	<.0001	0.0003	<.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 (196 = July 15)

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

Low Yields of Montola 2000 & Montola 2001 are attributed to extremely poor seed germination.

Low Yields of NutraSaff & STI 1201 are attributed to selective feeding by birds.

Management Information (15-7702-SA)

Seeding Date:	April 21, 2015
Harvest Date:	October 1, 2015
Fertility:	50-15-0-20 side banded
System:	no till
Herbicide:	none
Fungicide:	none
Previous Crop:	Chemical Fallow - Barley
Precipitation:	9.87"

TABLE 17. Ten-Year Yield Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 7702-SA)

1/ VARIETY or SELECTION		No. of YEARS TESTED	YIELD (Lbs Per Acre) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK YIELD 2/	**10-Yr COMP. AVE. YIELD 3/**
Hybrid 200	HYBRID 200	3								1866	2008	1938	1938	561.5	**5479**
Hybrid 446	HYBRID 446	3								1947	1831	1820	1866	540.8	**5277**
Baldy	BALDY	3								1500	1681	1477	1553	450.1	**4392**
Hybrid 621	HYBRID 621	4							1421	1620	1241	1169	1363	241.4	**2356**
Hybrid 528	HYBRID 528	3							1685	1721	1313		1573	230.6	**2250**
Hybrid 1601	HYBRID 1601	9		1695	2178	2839	2117	2559	1858	1588	1280	2657	2086	210.1	**2050**
Hybrid 9049	HYBRID 9049	9	1434	1988	2264	2606	2229	2201		1816	1988	1872	2044	195.0	**1903**
Cardinal	CARDINAL (+)	9		1384	1774	2462	2014	2077	1651	1721	1802	1512	1822	183.5	**1791**
Mon-Dak	MON-DAK	9		1584	1766	2078	2070	1967	1559	1814	1303	1678	1758	177.1	**1728**
WILL 95FI	FINCH	10	1082	1583	1977	2086	1580	2064	1565	1566	1495	1466	1647	168.7	**1647**
011-2180	MORLIN (+)	10	1014	1311	1723	2077	1924	1927	1253	1828	1002	870	1493	153.0	**1493**
Will WOMA2003	MONTOLA 2003 (+)	9	883	1301	1724	2042	1741	1839		1932	1219	1634	1591	151.7	**1481**
WILL	MONTOLA 2004 (+)	6	1158	1669	1967	2239	1833	1940					1801	144.1	**1406**
WILL	MONTOLA 2000 (+)	7	1018	1540	2080	2003	1676	1836				467	1517	137.7	**1344**
WILL	CENTENNIAL (+)	4	1257	1522	1682	2014							1619	135.5	**1322**
91B3842	NUTRASAFF (+)	10	824	1210	1157	1589	1541	1179	323	1289	435	212	976	100.0	**976**
MEANS (For Entries Listed)			1084	1526	1845	2185	1873	1959	1414	1708	1431	1444			**2306**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	11.88	4.87	7.52	7.76		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			157	154	665	219	115	99	35	78	58	115	170		
SD (Sampling Depth in Inches)			48	48	48	48	48	36	48	48	48	48	47		
Fertilizer Applied	(# N)		0	0	0	0	0	0	0	0	0	50	5		
	(# P_2O_5)		40	45	40	45	45	45	45	45	45	15	41		
	(# K_2O)		0	0	0	0	0	0	0	0	0	0	0		

Long-term check variety is Nutrasaff.

1/ + = Protected Variety.

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

TABLE 18. Ten-Year Percent Oil Summary on Selected Entries from Dryland Safflower Nursery. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 7702-SA)

1/ VARIETY or SELECTION		No. of YEARS TESTED	Oil (%) @ 8% Seed Moisture 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	AVE. for YEARS TESTED	% of CHECK Oil 2/	**10-Yr COMP. AVE. Oil 3/**
91B3842	NUTRASAFF (+)	10	43.2	48.5	44.6	45.8	36.9	52.4	54.1	52.5	52.8	51.9	48.3	100.0	**48.3**
Hybrid 528	HYBRID 528	3							54.4	48.4	48.2		50.3	94.7	**45.7**
WILL	CENTENNIAL (+)	4	39.9	43.9	41.7	39.9							41.4	90.8	**43.8**
Hybrid 621	HYBRID 621	4							53.5	45.2	46.3	43.4	47.1	89.2	**43.0**
011-2180	MORLIN (+)	10	36.9	39.3	37.2	35.3	39.5	41.8	43.7	43.6	43.5	41.9	40.3	83.4	**40.3**
WILL	MONTOLA 2000 (+)	7	35.7	38.6	38.2	37.3	38.8	43.3				37.7	38.5	83.4	**40.3**
WILL	MONTOLA 2004 (+)	6	33.9	35.8	35.3	35.2	39.1	43.5					37.1	82.1	**39.6**
Will WOMA2003	MONTOLA 2003 (+)	9	34.8	36.8	36.5	34.5	39.3	41.8		41.5	42.7	41.7	38.8	81.6	**39.4**
WILL 95FI	FINCH	10	35.5	36.5	34.5	34.9	43.6	40.9	42.6	39.1	41.5	41.2	39.0	80.9	**39.0**
Hybrid 1601	HYBRID 1601	9		36.1	30.4	34.7	39.6	40.3	44.0	43.4	43.6	39.5	39.0	80.0	**38.6**
Mon-Dak	MON-DAK	9		36.7	34.6	34.4	41.1	40.5	44.0	39.8	40.3	39.8	39.0	79.9	**38.6**
Cardinal	CARDINAL (+)	9		36.1	33.7	34.8	43.6	39.2	42.2	39.3	40.5	39.9	38.8	79.5	**38.4**
Hybrid 9049	HYBRID 9049	9	31.0	32.1	34.3	29.1	42.8	34.6		34.1	35.3	33.6	34.1	71.6	**34.6**
Hybrid 446	HYBRID 446	3								39.5	37.0	35.6	37.4	71.3	**34.4**
Hybrid 200	HYBRID 200	3								38.5	36.6	35.2	36.8	70.1	**33.9**
Baldy	BALDY	3								30.0	29.6	29.2	29.6	56.5	**27.3**
MEANS (For Entries Listed)			36.4	38.2	36.5	36.0	40.4	41.8	47.3	41.2	41.4	39.3			**39.1**
April-July Precip. (in.)			5.71	7.43	8.09	6.29	9.69	8.75	7.33	11.88	4.87	7.52	7.76		
Total Annual Precip. (in.)			10.29	12.42	12.21	12.46	14.61	15.45	9.46	18.46	13.34	12.05	13.08		
Soil NO_3 (lbs.) to SD at Planting			157	154	665	219	115	99	35	78	58	115	170		
SD (Sampling Depth in Inches)			48	48	48	48	48	36	48	48	48	48	47		
Fertilizer Applied	(# N)		0	0	0	0	0	0	0	0	0	50	5		
	(# P_2O_5)		40	45	40	45	45	45	45	45	45	15	41		
	(# K_2O)		0	0	0	0	0	0	0	0	0	0	0		

Long-term check variety is Nutrasaff.

1/ + = Protected Variety.

2/ Percent of Nutrasaff 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 Nutrasaff for the same years, and z = 10-Yr average oil % for the check variety Nutrasaff.